

23 Schedule of Environmental Commitments

23.1 Introduction

- 23.1.1 This chapter summarises the mitigation measures identified in the ES, which are considered necessary to protect the environment, prior to construction, during construction and/or during operation of the proposed scheme.
- 23.1.2 The purpose of the Schedule of Environmental Commitments is to collate mitigation measures, both for ease of reference and for use by those overseeing the Contract Documents. These mitigation measures are those identified as necessary for the proposed scheme as reported in this ES.
- 23.1.3 As described throughout this ES, the proposed scheme design has been progressed taking account of identified environmental constraints and considerations, enabling avoidance of potential environmental impacts.

23.2 Mitigation Schedules

- 23.2.1 Tables 23.1 to 23.13 summarise the mitigation measures identified within the ES to avoid, reduce or offset the potential impacts as listed in Chapter 22 (Summary of Potential Impacts).

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Table 23.1: Land Use Mitigation

Mitigation Item	Approximate chainage/location	Timing of Measure	Description
LU1	Dundas Estate (Land Ref 1, 6, 9 & 23), Humbie Farm (Land Ref 3), Newliston Estate (Land Ref 11 & 16), Overton Grazing (Land Ref 15).	Scheme design/ Operation	Loss of agricultural land and forestry will be reduced by implementing re-instatement plans i.e. returning land to agricultural use, where appropriate, post construction. Agricultural land will be re-instated in accordance with the requirements of the Bill. A photographic and video survey is to be undertaken to ensure all land is restored as near to its original state as is reasonably practicable and will be made available to the owner or occupier.
LU2	All agricultural land	Operation	Access to agricultural land and woodland will be maintained during the construction process and post construction in accordance with the requirements of the Bill.
LU3	All agricultural land	Construction/ Operation	Potential for damage to the agricultural capability of soils will be minimised by the adoption of appropriate measures during construction and reinstatement. This includes the careful excavation, storage and replacement of topsoil and subsoil.
LU4	All agricultural land	Construction	Notice of intention to commence construction work will be given to owners and occupiers of adjacent land along the route before works commence. Consultation with landowners and occupiers will be undertaken when developing the programme of works to reduce disturbance where appropriate and without detriment to the overall programme.
LU5	All agricultural land	Construction/ Operation	Temporary fences and lights will be provided in appropriate locations during construction for the protection of the health and safety of the public and animals and to avoid trespass. Where appropriate, fencing of the working area will be to a standard adequate for the purpose of excluding any stock kept on adjoining land.
LU6	All agricultural land	Construction	Where boundary features such as fences, walls and hedges have to be removed to allow construction these will be reinstated with appropriate materials to provide a secure field boundary.
LU7	All agricultural land	Construction	Where access points require alteration either temporarily or permanently as a result of construction, alternative access for stock and machinery will be provided as appropriate in consultation with the landowner/occupier. Recessed access will be provided off side roads as appropriate.
LU8	All agricultural land	Construction/ Operation	Reasonable precautions will be taken during construction to avoid the spreading of soil borne pests and diseases, animal and crop diseases and invasive species.
LU9	All agricultural land	Construction	Particular care will be taken to reduce damage or disturbance to field and forestry drainage systems. Laying of new drains will be undertaken to maintain drainage systems during construction. Repairing and reinstatement of field drains affected by construction will be agreed with the landowner/occupier to ensure that land capability is maintained and flooding is not exacerbated. Where appropriate, the integrity of the drainage system will be secured in advance through the installation of header drains (cut off drains) to facilitate construction. All remaining remedial works will be undertaken post construction.
LU10	All agricultural land	Construction	Water supplies for livestock will be protected at all times and alternative supplies provided where access is compromised by any works, unless agreed with the landowner.
LU11	Castlandhill Farm (Land Ref 30) Dundas Estate (Land Ref 1, 6, 9,& 23) Dundas Mains (Land Ref 3) Newliston Estate (Land Ref 11 & 16) Rosebery Estate (Land Ref 44)	Pre- construction/ Construction	Where individual stands of trees will be affected, an appropriate arboricultural assessment will be undertaken pre-construction and appropriate mitigation employed.

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Mitigation Item	Approximate chainage/location	Timing of Measure	Description
LU12	Castlandhill Farm (Land Ref 30) Dundas Estate (Land Ref 6, 9, 23) Dundas Mains (Land Ref 3) Newliston Estate (Land Ref 11 & 16)	Construction	Where there are no windthrow or landscape visual issues, tree felling will be reduced to that necessary to allow the safe construction and operation of the proposed scheme.

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Table 23.2: Geology, Contaminated Land and Groundwater Mitigation

Mitigation Item	Approximate chainage/location	Timing of Measure	Description
G1	Ferry Hills SSSI	Construction	Rock mapping and rock inspection will be undertaken by the Contractor at the removal of the rock-cut meshing and as the excavation progresses to allow ongoing review of the slope stability in order to minimise the requirement for meshing or other stabilisation measures.
G2	M9 Junction 1A and A90 to A8000 Bus Link	Pre-construction	If mining risks are confirmed in these areas (from the assessment of the 2009 GI results), appropriate stabilisation/protection works will be implemented and a detailed assessment on the impact of grouting on groundwater and ground gas migration will be undertaken.
G3	Firth of Forth; N1-N3, N5a, N5b, N6, N8, N10, N17-N20, N27-N29 (refer to Figure 8.4a); S2, S11, S13 (refer to Figure 8.4b).	Pre-construction/ Construction	The Contractor will establish appropriate health and safety procedures, waste management procedures, workmanship and QA/QC measures applicable to the level of contamination expected at the potential land contamination sources.
G4	St Margaret's Marsh (N1-N3 refer to Figure 8.4a)	Pre-construction	Detailed assessment of impacts on soils, groundwater and ecological receptors (based on the results of the 2009 GI) will be undertaken. Mitigation measures will be developed as appropriate.
G5	Firth of Forth; N1-N29 (refer to Figure 8.4a); S1-S13 (refer to Figure 8.4b).	Pre-construction/ Construction	The Contractor will select appropriate construction materials with reference to guidance such as BRE SD1:2005 and BS8500.
G6	St Margaret's Marsh (N1-N3 refer to Figure 8.4a).	Pre-construction/ Construction	The Contractor will undertake a radioactivity risk assessment and if applicable will use appropriate construction methods to mitigate any potential risk.
G7	N1-N3, N10, N17-N20, N27, N28, N31 (refer to Figure 8.4a); S2, S13 (refer to Figure 8.4b).	Pre-construction	A ground improvement risk assessment will be carried out including an assessment of risks from ground gases to inform potential protection measures.
G8	N1-N31 (refer to Figure 8.4a); S1-S16 (refer to Figure 8.4b/c).	Pre-construction/ Construction/ Operation	An assessment of ground gasses in accordance with CIRIA 665 will be produced prior to construction and adhered to during construction. If significant ground gas issues are identified, further monitoring will be undertaken and/or appropriate gas protection measures incorporated into the final design.
G9	N1-N3, N5a, N5b, N6, N8, N10, N17-N20, N27-N29 (refer to Figure 8.4a); S2, S11, S13 (refer to Figure 8.4b).	Construction	The Contractor will implement a 'watching brief' to be undertaken in order to identify any previously undiscovered areas of contamination. If any such areas are encountered, these will be dealt with appropriately.
G10	N1-N29 (refer to Figure 8.4a); S2 (refer to Figure 8.4b).	Construction	Control of dust generation will be undertaken through damping-down of areas with water as required. Air quality monitoring will be undertaken, including occupational exposure and ambient air quality monitoring.

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Mitigation Item	Approximate chainage/location	Timing of Measure	Description
G11	N1-N29 (refer to Figure 8.4a); S1-S14 (refer to Figure 8.4b and 8.4c).	Operation	Ground gas monitoring of confined spaces will be undertaken before entry.
G12	N1-N3, N27 (refer to Figure 8.4a).	Pre-construction	Groundwater and soil sampling results from the 2009 GI will be assessed. Further groundwater sampling wells may be required as a result of this assessment (N1-N2 only).
G13	S13 (refer to Figure 8.4a).	Pre-construction/ Construction/ Operation	Groundwater, surface water and soil sampling results from the 2009 GI will be assessed. Surface water and groundwater monitoring will be undertaken during construction. Where necessary, post construction groundwater monitoring will be undertaken.
G14	N1-N3, N27 (refer to Figure 8.4a); S2, S11, S13 refer to Figure 8.4b).	Pre-construction	The Contractor will undertake a ground improvement risk assessment including assessment of risks from migration of to inform the final design.
G15	N1-N3, N27, N29 (refer to Figure 8.4a); S2 (refer to Figure 8.4b).	Construction/ Operation	Where human health risks to end users have been identified, appropriate measures to prevent wind blown dust will be implemented.
G16	N1-N3, N27 (refer to Figure 8.4a).	Construction	A soils reuse assessment will be undertaken to identify any potential risks posed to the water environment from reused soils used in embankments. Prior to disposal, soils will be assessed in line with the WM2 document (Environment Agency, 2008) to determine whether they are hazardous or non-hazardous.
G17	S2 (refer to Figure 8.4b).	Pre-construction	A human health risk assessment will be undertaken based on the results of soil sampling undertaken during the 2009 GI in the area of made ground and the former Barracks.
G18	Throughout scheme	Construction	Refer to mitigation measures proposed for protection of surface water (mitigation measure W1 in Table 23.3).
G19	Ch0-350 (Castlandhill Road) Ch0-290 (Ferrytoll Road) Ch0-1050 (temporary access road) Proposed scheme around M9 Junction 1A Ch2000-2500 (Queensferry Junction) Ch3200-4600 (mainline including associated roads and part of the main construction compound). Ch7900-8430 (mainline and associated side roads) Ch8500-8800 (mainline)	Construction/ Operation	Road drainage, detention basins and swales will be lined to protect the surrounding water environment in the locations specified.
G20	Throughout scheme	Construction/ Operation	All detention basins and swales will be lined unless risk assessment during design development indicates that lining is not necessary at specific locations.

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Mitigation Item	Approximate chainage/location	Timing of Measure	Description
G21	PWS N03, N04, N23	Pre-construction/ Construction/ Start of operation	Site surveys will be undertaken to confirm if PWS are at risk. If confirmed, monitoring of the water quality of PWS will be required to determine background supply quality. Private water supplies will be maintained where practicable or alternatively, a connection to the public water supply will be provided.
G22	All PWS	Construction	Any water supply pipes damaged during construction will be repaired or replaced.
G23	N4	Construction	During blasting, appropriate controls including health and safety procedures will be implemented and best practice will be adopted.
G24	St. Margaret's Marsh	Pre-construction/ Construction	The design will maintain the hydrological connectivity of the marsh whilst ensuring that the directional flow of groundwater is not affected. A groundwater monitoring network will be installed within St. Margaret's Marsh. Groundwater levels will be monitored for a minimum of one year prior to construction to ensure seasonal fluctuations in water levels are adequately assessed; groundwater levels will be monitored during construction.
G25	ch3200-4150 Swine Burn ch7350-7700 ch8000-8450	Pre-construction	An assessment of permeability tests and groundwater/surface water monitoring results from the 2009 GI will be undertaken to inform CAR licences and discharge requirements.
G26	Ch3000-4250	Pre-construction/ Construction	Quantitative stability analyses based on results of 2009 GI will be carried out to determine if any properties are at risk of settlement. In the eventuality of some properties being confirmed as at risk, appropriate measures including condition surveys and monitoring of buildings and groundwater levels may be required.
G27	Throughout scheme	Construction	Any existing pathways through services (e.g. land drains) affected during construction will be sealed. The detailed design will ensure that no new pathways are created.
G28	S13	Construction	Where necessary, lining of drainage to prevent the ingress of contaminated groundwater or lateral migration through granular backfill will be undertaken by the Contractor.
G29	Throughout scheme	Construction	The Contractor will undertake an options appraisal in accordance with CLR11 for any additional areas of contaminated land identified by the 2009 GI as requiring remediation.

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Table 23.3: Water Environment Mitigation

Mitigation Item	Approximate chainage/location	Timing of Measure	Description
Generic/Best Practice			
W1	Throughout scheme	Construction/ Operation	Best practice guidance including but not limited to the following will be adhered to: SEPA Pollution Prevention Guidelines - PPG01, PPG02, PPG03, PPG04, PPG05, PPG06, PPG07, PPG08, PPG10, PPG13, PPG14, PPG18, PPG20, PPG21, PPG22, and PPG26; CIRIA Guidelines Report 142 Control of Pollution from Highway Drainage Discharges; CIRIA Report 168 Culvert Design Guide; CIRIA C609 Sustainable Drainage Systems; CIRIA C648 Control of Water Pollution from Linear Construction Projects; CIRIA C649 Control of Water Pollution from Linear Construction Projects Site Guide; CIRIA C697 The SUDS Manual; BS6031:1981 Code of Practice for Earthworks; and Defra Code of Practice for Using Plant Protection Products.
W2	Throughout scheme	Construction	An Environmental Clerk of Works will be present on site during construction to supervise the implementation of appropriate environmental safeguards.
W3	Throughout scheme	Construction	Temporary treatment ponds will be constructed to reduce the pollution from runoff during the construction of approach roads.
W4	Throughout scheme	Construction	To reduce potential increases in flows into the receiving watercourses during construction, the period of exposure of bare areas and uncontrolled runoff from newly paved areas will be limited as far as practicable.
W5	Throughout scheme	Construction	Stationary oil storage tanks will be located above the 0.5% AEP (1 in 200-year return period) flood level. Plant and material will be stored in safe areas above the 0.5% AEP (1 in 200 year return period), where practicable and temporary construction works will aim to be resistant to flood impacts in order to prevent movement or damage during potential flooding events.
W6	Throughout scheme	Construction	The Contractor will be required to prepare a method statement for in-stream working for approval by SEPA.
W7	Throughout scheme	Construction	Temporary drainage systems will be used to alleviate localised flood risk and prevent obstruction of surface runoff pathways. Temporary SUDS systems or equivalent to reduce the potential for contaminated runoff to watercourses will be implemented.
W8	Throughout scheme	Construction	General Binding Rule (GBR) 10 of CAR requires construction sites to be served by a sustainable drainage system, or equivalent, equipped to avoid pollution of the water environment. During construction of the site, temporary SUDS systems or equivalent to reduce the potential for contaminated runoff to watercourses will be implemented.
W9	Throughout scheme	Construction	If flocculants are considered necessary to aid settlement of fine suspended solids such as clay particles, the chemicals used must first be approved by SEPA.
W10	Throughout scheme	Construction	Where required, temporary discharge consents are to be obtained from SEPA and oil interceptor(s) to be provided for vehicle parking areas, if required by SEPA.
W11	Throughout scheme	Construction	Materials for use in fill e.g. in embankments should comply with best practice. Where the Contractor considers the use of other materials, agreement with SEPA is required prior to use of such material.
W12	Throughout scheme	Construction	Effective mitigation for impacts associated with outfalls will be based on the following principles: <ul style="list-style-type: none"> • construction of outfalls will not to be conducted during periods of high flow (as determined by the Environmental Clerk of Works) in order to reduce the risk of scour and erosion around the outfall structures or to the disturbed river bank; • construction of outfalls in tidal areas will be appropriately programmed and will include appropriate erosion protection measures around the works to reduce the risk of scour and erosion during high tides;

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Mitigation Item	Approximate chainage/location	Timing of Measure	Description
			<ul style="list-style-type: none"> • where practicable, sediment fences will be provided to prevent sediment being washed into the watercourses; and • where practicable, excavating into the watercourse will be avoided and the extent of disturbance limited.
W13	Throughout scheme	Construction	Service diversions, protection of utilities, excavations and ground penetration works will be carried out according to best practice. Potential services will be identified using information from the service provider and through survey where necessary. Measures are to be taken to prevent damage to services and to avoid pollution during service diversions, excavation and ground penetration.
W14	Throughout scheme	Construction	Best practice measures associated with storage of oil and fuels will be adhered to.
W15	Throughout scheme	Construction	The impact of the proposed scheme can be reduced through timely implementation of certain aspects of the construction works. Reasonable precautions will be taken to develop a programme to facilitate the implementation of mitigation measures at the stage where their application will be most effective.
W16	Throughout scheme	Construction	For all watercourses, in-channel works will be carried out during periods of low flow (as determined by the Environmental Clerk of Works) to reduce the risk of a pollution event. The length of channel disturbed will be restricted to the minimum that is required. All in-channel works and construction activities within the floodplain will be avoided during periods of high flow and increased flood risk for health and safety reasons. In-channel works will avoid spawning periods in salmonid watercourses, i.e. Niddry Burn, Swine Burn and the River Almond (between October and May). Refer to mitigation measure TE8 and TE20 in Table 23.4 (Terrestrial and Freshwater Ecology). Tie-ins back to existing channels during culvert realignment works will be undertaken during low flow conditions.
W17	Throughout scheme	Construction	The Contractor will comply with CAR and SEPA requirements.
W18	Throughout scheme	Construction	The Contractor will be required to monitor water quality prior to and during construction in order to assess chemical and biological parameters as required by SEPA. Parameters, frequency of sampling and limits will be agreed with SEPA in advance of construction.
W19	Throughout scheme	Construction	<p>A daily inspection is to be carried out by the Environmental Clerk of Works to identify:</p> <ul style="list-style-type: none"> • any pollution risks that are unacceptably high; • spillages and leakages; • non-compliance with the CoCP; and • any suspected incidences of pollution. <p>The Environmental Clerk of Works will recommend appropriate actions where risks are unacceptably high, where there is non-compliance with the CoCP, where spillages and leakages are unacceptable or where there are any suspected pollution incidences. Where necessary, the Pollution Incident Response Procedure is to be implemented.</p>
W20	Throughout scheme	Construction	<p>The Contractor will take reasonable precautions to reduce the risk of pollution to the marine environment including:</p> <ul style="list-style-type: none"> • compliance with PPG14; • compliance with the requirements of the Food and Environmental Protection Act FEPA licence(s); and • compliance with all other relevant marine consents such as Coast Protection Act 1949 (CPA).
W21	St. Margaret's Marsh	Construction	Storage of chemical, fuel or oil tanks or refuelling locations will be located more than 10m beyond the boundary of St. Margaret's Marsh SSSI.

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Mitigation Item	Approximate chainage/location	Timing of Measure	Description
W22	St. Margaret's Marsh	Construction	Concrete mixing and washing areas will be located more than 10m beyond the boundary of St. Margaret's Marsh SSSI.
W23	Firth of Forth	Construction	The Contractor will apply for the necessary consents required for any dredging activities and will comply with the mitigation measures as set out in the consents.
W24	Firth of Forth	Construction	The Contractor will liaise with Forth Ports to request information on any proposed dredging within the Firth of Forth during the programmed dredging period for the proposed scheme. The Contractor will be required within the constraints of the proposed scheme construction programme to make reasonable efforts to avoid carrying out proposed scheme dredging at the same time as other dredging within 3km of the Main Crossing.
W25	Firth of Forth	Construction	If the Contractor proposes to use more than one dredging vessel to dredge two or more pockets on or near the same shore at the same time, he will be required to demonstrate to SNH and Marine Scotland that there will be no additional impacts that could result in an overall significant impact from the dredging activities.
W26	Firth of Forth	Construction	When waterproofing or using other sprayed chemicals, enclosed spraying to be used to prevent chemicals from entering estuary.
W27	Firth of Forth	Construction	Dredged material will be disposed of appropriately.
Drainage			
W28	Throughout Scheme	Design/ Construction/ Operation	For each outfall, a treatment train will be provided to maximise pollutant removal. For new sections of road and roads to be upgraded, the treatment train will consist of 3 levels of SUDS in accordance with CIRIA (2007) and approved by SEPA, including filter drains, swales and detention basins.
W29	St Margaret's Marsh (refer to Figure 9.3a)	Design/ Construction/ Operation	The design will maintain the hydrological connectivity of the marsh whilst ensuring that the directional flow of groundwater is not affected (as per mitigation measure G24 in Table 23.2).
W30	Linn Mill Burn (refer to Figure 9.3c)	Design/Construc tion/ Operation	To mitigate against an increase in flood risk from the carriageway drainage onto lands adjacent to the viaduct abutments, excess runoff will be directed toward areas of detention, and/or conveyed toward the Firth of Forth without impacting areas of high risk.
W31	Tributary of Niddry Burn, Niddry Burn, Swine Burn, River Almond (refer to Figure 9.3e)	Design/ Construction/ Operation	Where structures or embankments are constructed within the floodplain, compensatory storage will be created by landforming and this will be provided directly adjacent to the watercourse floodplain where practicable.
W32	Swine Burn (refer to Figure 9.3e)	Design/ Construction/ Operation	Two outfalls appropriately positioned with scour protection will be provided. Two treatment trains will be provided. For flood flows in excess of carriageway drainage capacity, detention or conveyance of flood water toward areas of less risk.
W33	Swine Burn (refer to Figure 9.3e)	Design/ Construction/ Operation	One new depressed invert culvert and one double-barrel culvert extension will be provided. The culvert will be designed in line with CIRIA 168 guidance and with allowance for freeboard above the 0.5% AEP (200-year return period event) flood level and mammal passage. Regular inspection to ensure the culverts are free from debris is recommended.
W34	Swine Burn (refer to Figure 9.3e)	Construction	Two stage channel with sinuous low flow channel will be provided. An adequately sized floodplain channel within the realignment will be provided to compensate for encroachment of the floodplain by the new proposed crossing and the culvert extension if required.

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Mitigation Item	Approximate chainage/location	Timing of Measure	Description
W35	Tributary of Swine Burn (refer to Figure 9.3e)	Design/ Construction/ Operation	One treatment train will be provided.
W36	Niddry Burn (refer to Figure 9.3e)	Design/ Construction/ Operation	One treatment train will be provided.
W37	Niddry Burn (refer to Figure 9.3e)	Design/ Construction	Culvert extension maintaining same form as existing culvert will be provided.
W38	Tributary of Niddry Burn	Design/ Construction	Culvert extension maintaining same form as existing culvert will be provided.
W39	River Almond	Design/ Construction/ Operation	One treatment train will be provided.
W40	Ferry Burn	Design/ Construction/ Operation	One treatment train will be provided.
W41	Dolphinton Burn (refer to Figure 9.3d)	Design/ Construction	Tie in with existing drainage network and SUDS will be provided.
W42	Firth of Forth (refer to Figure 9.3d)	Design/ Construction	Two land-based treatment trains will be provided. Drainage over intertidal areas on both shores will be taken back to land-based SUDS systems. Drainage on Main Crossing will include droplet-dispersal system to disperse discharge and any road contaminants. Outfalls will be positioned at reasonably regular spacings (15m indicatively) on either side of bridge deck. Enhancement of drainage system along the viaduct to capture flood flows from the 0.5% AEP (200-year return period) event if practicable will be undertaken.
W43	Main Crossing	Construction	Through deck drainage where permitted will include a droplet dispersal design.
W44	Firth of Forth	Construction	The Scottish Water sewage outfall on the southern side of the shore will be relocated in a manner to reduce disturbance to the subtidal bed and shoreline and relocated to a position to provide adequate dilution and dispersion of effluent in accordance with Scottish Water and SEPA's requirements.
W45	Throughout scheme	Operation	Filter drains and filtration devices will be maintained through inspection and weed control, grass cutting, removal of sediment and vegetation build up, annual reinstatement of eroded areas or damaged vegetation and replacement of clogged filter material as required.
W46	Throughout scheme	Operation	Scour protection will be provided at the drainage discharge outfall to protect the banks and bed of the receiving watercourse and to limit erosion.

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Table 23.4: Terrestrial and Freshwater Ecology Mitigation

Mitigation Item	Approximate chainage/location	Timing of Measure	Description
Generic/Best Practice			
TE1	Throughout scheme	Pre-construction/ Construction	The Contractor's Ecological Clerk of Works (ECoW) will be present on site to monitor construction works.
TE2	Various	Pre-construction/ Construction/ Operation	An Environmental Management Plan (EMP) will be prepared and will specify where and when mitigation should be undertaken including a timetable of actions.
TE3	Throughout scheme	Pre-construction	Pre-construction surveys will be undertaken within the limits of the site and will extend 50m outwith the site boundary within areas of appropriate habitat to identify sensitive and vulnerable species. This will include surveys for badger setts, otter resting places and bat roosts adjacent to the proposed scheme. Where found, their locations will be communicated to construction staff in strict confidence to ensure no direct mortality during site clearance.
TE4	Throughout scheme	Construction	If required by the ECoW, plant and personnel will be constrained to a prescribed working corridor through the use of temporary barriers, thereby reducing damage to habitats, potential direct mortality and disturbance to species.
TE5	Throughout scheme	Design/ Pre-construction/ Construction	Works compounds, storage sites and access roads will avoid, where practicable, areas of woodland, wetland and scrub as advised by the ECoW to prevent degradation of sensitive habitat.
TE6	Throughout scheme	Design/ Pre-construction/ Construction	Suitably constructed structures primarily for badgers, bats and otters including overbridges, underpasses, and fencing, with associated planting will be created on commuting corridors.
TE7	Throughout scheme	Construction	Reasonable precautions will be undertaken to avoid/reduce in-channel works and translocation of channel substrate.
TE8	Throughout scheme	Construction	Best working practices in relation to works within salmonid watercourses will be adhered to.
TE9	Throughout scheme	Construction	Any temporary drainage systems will be designed to prevent otters entering and becoming trapped.
TE10	Throughout scheme	Construction	Trenches will be covered at the end of each working day or mammal ramps will be provided to allow mammals to escape.
TE11	Throughout scheme	Construction	Vegetation buffer strips will be maintained where practical.
TE12	Throughout scheme	Construction	Dust control measures will be implemented as outlined in mitigation measures DC13-17 (Table 23.13).
TE13	St. Margaret's Marsh. Habitats at Castlandhill Woodlands. St. Margaret's Hope. South of Port Edgar Barracks. Inchgarvie House Lindsay's Craigs.	Construction	Reasonable precautions are to be undertaken to avoid/reduce risk of transfer of alien species.

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Mitigation Item	Approximate chainage/location	Timing of Measure	Description
TE14	Throughout scheme	Construction	<p>Destruction of otter resting places and bat roosts will only take place under the conditions of a European Protected Species (EPS) licence obtained from the Scottish Government through consultation with SNH.</p> <p>Destruction of badger setts will only take place under the conditions of a SNH badger development licence.</p> <p>On a case by case basis, setts and otter resting places lost to construction may require replacement. Any artificial setts and otter resting places required will be created in line with best practice guidance and with consultation with SNH.</p> <p>Pre-construction surveys for otter resting places adjacent to the proposed scheme will be undertaken and the locations of holts, couches and hovers communicated in strict confidence to construction staff. Where loss of a resting place is unavoidable, an EPS licence must be obtained from the Scottish Government through consultation with SNH.</p>
TE15	Throughout scheme	Construction	<p>Where practicable, works compounds, storage sites, access roads and construction work will be located/carried out at least 30m away from bat roosts and sensitive habitats for birds, and at agreed minimum distances from sensitive habitats for otter and badger. Any works undertaken within this distance must be subject to consultation with SNH, and undertaken under licence where applicable on a case by case basis.</p>
TE16	Throughout scheme	Construction	<p>Soft-start techniques will be applied to piling work procedures to encourage sensitive species to evacuate the area.</p>
Vegetation Clearance			
TE17	Throughout scheme	Pre-construction/ Construction	<ul style="list-style-type: none"> • A method statement will be prepared in advance for all areas where tree and scrub removal is required. The ECoW will monitor vegetation removal and associated activities. • Site clearance of vegetation will be undertaken outside of the main bird breeding season where practicable (typically March-July inclusive). Where site clearance works must be undertaken during the main bird breeding season, methods of exclusion and deterrent will be used to prevent birds beginning to nest in clearance areas. The precise methods of deterrent will be developed according to habitat types and the species concerned forming part of the habitat management plan. • Any clearance works undertaken during February or August are at moderate risk of affecting breeding birds. During this period, if clearance is required, the ECoW will check any areas for evidence of breeding birds prior to works commencing. • The ECoW will advise all construction staff of the requirement to stop work should nesting birds be encountered. • All cleared material will be rendered unsuitable for nesting birds. • Tree felling will be carried out by experienced contractors according to agreed felling methods and any licensing conditions. • Vegetation clearance/tree felling will be agreed with the ECoW. • Where the removal of dead standing, fallen and felled timber is necessary, the material will be relocated into areas of existing and newly created woodland habitat within the limits of the site where practicable. • Linear features are to be retained as far as practicable allowing safe crossings for bats as advised by the ECoW.
Lighting			
TE18	Throughout scheme	Scheme design/ Construction/ Operation	<ul style="list-style-type: none"> • Lighting design will be according to BS 5489 and best practice guidance on lighting (e.g. Bat Conservation Trust and Institute of Lighting Engineers, 2007). • Where practicable, night time working (undertaken between sunset and sunrise) will be avoided. Where night-time working is unavoidable, mitigation will be agreed with the ECoW.

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Mitigation Item	Approximate chainage/location	Timing of Measure	Description
TE19	Edge of Castlandhill Woods, St. Margaret's Hope Wood, Port Edgar Barracks, Society Road, Inchgarvie, Echline Strip, Dolphington Wood and adjacent linear habitats, Milton Cottage, Ross's Plantation, Swine Burn and their associated aquatic and wetland habitat, Niddry Burn, Lindsay's Craigs, River Almond	Construction	Where night works are required, directional lighting will be used to ensure that roosts, woodland edges and waterbodies are not directly illuminated, or curfew times established to ensure that emerging or foraging bats, badgers, otters or migratory fish are not disturbed.
Watercourses/Drainage			
TE20	Throughout scheme	Scheme design/ Construction/ Operation	<ul style="list-style-type: none"> • Construction work at watercourses will not prevent the movement of animals along the bank throughout the works period. • Watercourse realignments in low gradient areas will be designed to minimise sedimentation and in high gradient areas to minimise erosion. The opportunity to create suitable habitat will be incorporated through the inclusion of meander bends, secondary channels or riparian zones where appropriate. • Where bridging is not practical and culverts are required, their length will be kept to a practical minimum. Where practical, the insertion of each culvert will not alter the gradients markedly from existing conditions so as to avoid altering flow patterns and resulting habitat loss and to avoid excessive siltation or erosion. • Altered flow regimes resulting from the use of culvert extensions or channel realignments will be avoided. Culverts will be oversized to allow natural bed and bank profiles to remain, where practicable. • On sites where dewatering is anticipated, the creation of a temporary diversion channel with suitable sized replacement substrate or transplanted substrate from the section being dewatered will be undertaken, making sure that the size and flow in the diversion channel is as near to the existing channel as practicable. • Fish will be removed from channels to be dewatered for construction of culverts, realignments or bridges. • In salmonid waters, in-channel works and piling will be avoided during sensitive periods for migrating and spawning fish (October-May inclusive). • Drainage systems will be designed to prevent otter entering and becoming trapped. • There will be no stockpiling of material within 10m of any watercourse. • Mammal ledges will be installed in new culverts and will comprise the installation of a ledge of minimum 500mm wide with access to the bank via ramps. Ledges must be a minimum of 150mm above high water levels and allow 600mm headroom. Ledges must take account of the preferred bank used by otters.
Habitat Management			
TE21	Throughout scheme	Operation	<ul style="list-style-type: none"> • Any maintenance works required during the breeding bird season will be subject to the same restrictions as during construction. • Mammal proof fencing will be maintained during operation of the proposed scheme. • Crossing points for bats will be monitored as part of the operational aftercare management contract to assess whether additional

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			<p>provision will be required.</p> <ul style="list-style-type: none"> • Culverts will be appropriately maintained to ensure continual operation of the asset during operation.
Habitat Re-instatement/Creation			
TE22	Throughout scheme	Construction/ Operation	<ul style="list-style-type: none"> • Landscape planting and newly created habitat will be comprised of predominantly native species of local provenance where available, and will comprise a mixture of species. • Where loss or degradation of valuable habitat is unavoidable and where watercourses are realigned, they will be returned to their former quality or improved once construction is complete where practicable. • Sowing/planting will be undertaken as soon as possible following completion of the works to reduce the likelihood of the areas being colonised by invasive, non-native species which are of lower value to wildlife. • All areas of habitat loss due to temporary works, site compounds, easements, working areas or access roads will be reinstated following construction on a like for like basis. • Habitat creation will contribute to biodiversity targets identified in local (LBAP) and national (UKBAP) strategies. • During the operation of the proposed scheme, management and maintenance of roadside verges is to be undertaken to maintain and enhance floral diversity. • Appropriate management will be undertaken of existing boundary habitats such as hedgerows or rough edges for the benefit of key farmland species of conservation concern such as yellowhammer (<i>Emberiza citrinella</i>), skylark (<i>Alauda arvensis</i>), linnet (<i>Carduelis cannabina</i>), tree sparrow (<i>Passer montanus</i>), meadow pipit (<i>Anthus pratensis</i>) and grey partridge (<i>Perdix perdix</i>). • Replacement roosts will be monitored during the aftercare and operation phase of the road in order to identify further roost requirements.
Pollution Prevention			
TE23	Throughout scheme	Construction/ Operation	<ul style="list-style-type: none"> • Best practice measures will be implemented to prevent pollution (see mitigation measure W1 in Table 23.3).
Specific Mitigation (refer to Figures 12.4a-n)			
TE24	Mixed woodland planting adjoining existing woodland west of M9 Junction 1A; replacement planting south of Queensferry Junction between ch2700-2900; and mixed woodland planting west of Ferrytoll Junction within the agricultural field adjoining Castlandhill Wood.	Construction/ Operation	Habitat creation to be undertaken using broad-leaved and mixed plantation woodland of native species of local provenance where available.

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Mitigation Item	Approximate chainage/location	Timing of Measure	Description
TE25	<p>Along existing hedge south of Inchgarvie House.</p> <p>Along the access road north of Queensferry Junction (ch3700-4300) and on the western side of the proposed scheme (ch3600-3900).</p> <p>Along the A904 west of Queensferry Junction and along the minor road southwest of Queensferry Junction.</p> <p>Along the proposed scheme east of Queensferry Junction (ch2500-3500) and alongside the bus links east of ch500.</p> <p>North of Lindsay's Craigs Woodland alongside M9 WB from the M9 Spur Interchange Link to Overton Road (ch1700-2200).</p>	Construction/ Operation	Hedgerow and tree planting will be provided.
TE26	Areas of Habitat Creation	Operation	Bankside habitat creation comprising planting and enhancement of detention basins will be undertaken.
TE27	Confidential	Operation	Replacement badger setts will be provided prior to the exclusion of badgers from social group A from their parent sett and population group C for a main and two outlier setts. Where practicable, replacement setts will be created within the same woodland area as the existing setts. Where this is not possible, the alternative site will be located such that a clear path leads to it from an existing sett.
TE28	Confidential	Construction	Existing bat flight lines will be maintained through measures such as ensuring culverts and bridges are not obstructed at night, use of temporary structures, maintenance of 'dark areas' and keeping commuting routes free of obstructions and unlit at night.
TE29	Watercourses	Construction	Generic mitigation measures proposed for water environment (see mitigation measure W1 in Table 23.3) also mitigate impacts on otters.
TE30	Niddry Burn	Construction	If found to be required, a European Protected Species Licence will be obtained to allow for the likely disturbance of otter lying up sites.
TE31	Niddry Burn	Construction/ Operation	An artificial otter holt will be provided.
TE32	Watercourses	Operation	In order to reduce disturbance of otters, lighting will be sensitively sited to reduce light spill onto burns and where required screens will be provided.
TE33	Ferrytoll Junction (ch7200-7500)	Construction	Destructive searches of terrestrial habitat will be undertaken prior to site clearance making the habitat unsuitable for amphibians. Searches will be carried out between March-October when amphibians are active and out of hibernation. Amphibians captured during this procedure will be relocated to pre-identified areas that are sheltered and close to a suitable refuge or pond, in weather conditions

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Mitigation Item	Approximate chainage/location	Timing of Measure	Description
			conducive to activity. The location of pre-identified release areas will be established through consultation with SNH. Amphibian exclusion fencing will be installed between approx. ch7200-ch7500 (on east side of the highway only) where applicable/practicable and through consultation with SNH to prevent the movement of amphibians back into cleared areas.
TE34	Swine Burn. Niddry Burn.	Construction/ Operation	Habitat enhancement/creation will be incorporated through the inclusion of meander bends, secondary channels and riparian zones, where appropriate.
TE35	Dewatered watercourses. Swine Burn.	Construction	The translocation of some of the main channel substrate will be undertaken during construction to enable a proportion of the macroinvertebrate assemblage present in the substrate to survive the dewatering process.
TE36	Swine Burn.	Pre-Construction	Fish will be removed from the areas which are required to be dewatered during the construction of culverts, bridges and watercourse realignments and transferred to diverted watercourse (where available) or returned to the existing watercourse either upstream or downstream of the proposed scheme. On reinstatement of any diversion channel, any fish remaining in the diverted watercourse will be returned, in the same way, to the main channel.
TE37	Swine Burn (ch1850) .	Construction	Swine Burn will be culverted at ch1850 where the proposed scheme crosses the watercourse. This culvert is to include integral mammal ledges to enable otters to continue to commute along the Swine Burn corridor.
TE38	Scheme drainage including detention ponds	Operation	Detention basins, culverts, filter drains, swales and catchpits will be inspected and maintained as appropriate (refer to Table 23.3).
TE39	Ch3350. Ch2750. East of ch1500 on the A90.	Construction/ Operation	Suitable structures such as temporary fencing during construction and ITS/ADS gantries during operation will be provided to act as bat bridges.
TE40	Ch 3350. Ch 2750. fencing locations.	Construction/ Operation	Temporary mammal-resistant fencing will be provided around construction compounds following a specification agreed in consultation with SNH. Where required, permanent mammal fencing will be erected in accordance with DMRB and SNH guidance 'Otters and Development' (The Highways Agency et al., 1993; Scottish Natural Heritage, Undated). Associated planting will be placed in such a way that animals will be directed towards safe passing places. Where the operational scheme crosses watercourses otter-proof fencing will be installed 150m either side.
TE41	Ch1700-4300.	Construction/ Operation	Badger proof fencing will be provided. Note at certain locations integrated with noise barriers refer to Table 23.6.
TE42	River Almond. Niddry Burn. Swine Burn. Coastal areas.	Construction	Temporary otter proof fencing will be provided.
TE43	B981 realignment. M9 Junction 1A ch300-2700. M9 Spur.	Construction	Otter proof fencing will be provided.
TE44	Between ch2500-3100.	Construction/ Operation	A dry mammal passage will be provided.

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Mitigation Item	Approximate chainage/location	Timing of Measure	Description
TE45	Castlandhill Woods. Woodland at St Margaret's Hope. East Shore Wood adjacent to Society Rd (west of Main Crossing). Echline Strip (ch2920).	Construction/ Operation	Bat surveys will be undertaken to determine the species, seasonal and dimensional requirements of replacement roost habitat including provision of bat boxes.
TE46	Ch8200-8300 (cemetery)	Construction/ Operation	If required, maiden pink (<i>Dianthus deltoides</i>) to be translocated to a suitable adjacent location. Translocation will be undertaken with necessary permissions under the supervision of an ECoW in accordance with a detailed method statement prepared in advance.
TE47	Woodlands	Construction	If native bluebells (LSAP species) are within the woodland areas designated for land take, these will be translocated with necessary permissions and used as "plant plugs" to aid new colonisation in suitable, adjacent woodland.
TE48	Woodlands	Construction	The area of marshy grassland will be avoided, where practicable.
TE49	St. Margaret's Marsh	Construction	The area of species-rich grassland will be avoided, where practicable.
TE50	Realigned B981	Construction	The design will maintain the hydrological connectivity of the marsh whilst ensuring that the directional flow of groundwater is not affected (as per mitigation measure G25).
TE51	St. Margaret's Marsh	Construction/ Operation	A management strategy to enhance the site's condition will be implemented in consultation with stakeholders.

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Table 23.5: Estuarine Ecology Mitigation

Mitigation Item	Approximate chainage/location	Timing of Measure	Description
Generic/Best Practice			
EE1	Firth of Forth	Pre- & post Construction	<ul style="list-style-type: none"> Ecological surveys will be undertaken as appropriate prior to commencement of project works and during works in order to identify sensitive sites, vulnerable species and changes in environment. During construction, ecological surveys will be undertaken in order to establish level of significant impacts on ecological receptors are as expected.
EE2	Firth of Forth	Construction	<ul style="list-style-type: none"> Plant and personnel will be constrained to a defined working corridor thereby minimising damage and disturbance to ecological receptors.
EE3	Firth of Forth	Construction	<ul style="list-style-type: none"> Suitable constructed access roads/bridges will be created within the intertidal zone to limit activities in direct contact with habitat.
EE4	Firth of Forth	Construction	<ul style="list-style-type: none"> An Ecological Clerk of Works (ECoW) will be on site to monitor construction activities to ensure the effective implementation of the construction methodology plan and appropriate environmental safeguards.
EE5	Firth of Forth	Construction	The Contractor will adhere to an Environmental Management Programme (EMP) and Code of Construction Practice (CoCP). Method statements will detail full construction methodologies and specific rules in order to prevent environmental contamination.
EE6	Firth of Forth	Construction/ Operation	Best practice measures will be implemented to prevent pollution (see mitigation measure W1 in Table 23.3).
Specific Mitigation			
EE7	Beamer Rock	Construction	<p>Reasonable precautions will be undertaken to avoid/reduce noise disturbance from blasting including:</p> <ul style="list-style-type: none"> Consider undertaking explosive excavation in intertidal zones during low water periods to restrict underwater noise (i.e. when area is exposed). Consider undertaking explosive excavation within Beamer Rock so that edges of the Rock act as noise buffers reducing emissions to water. Incorporation of non-explosive techniques for fracturing rock, where constructionally effective. Use acoustic deterrents at appropriate frequency during key construction periods and bubble curtains if appropriate, to attenuate sound waves. An equipment maintenance programme will be required. Use a string of explosions milliseconds apart to reduce the peak emission rather than one explosion that will reach a higher peak emission (JNCC, 2008). The dBht (salmon) should not exceed the maximum tolerance exposure for this species across 50% of the river, thus enabling migrating salmon to pass the construction area. The remaining 50% would be permitted to experience levels above this, provided all other mitigation listed here is implemented.
EE8	At piling locations in the Firth of Forth	Construction	<p>Reasonable precautions to be undertaken to avoid/reduce noise disturbance from piling including:</p> <ul style="list-style-type: none"> Use acoustic deterrents at appropriate frequency during key construction periods and bubble curtains if appropriate, to attenuate sound waves. An equipment maintenance programme will be required. Soft-start approach or ramp-up approach to piling to allow any receptors in the vicinity to leave the area, procedure to follow JNCC guidelines (JNCC, 2009).

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Mitigation Item	Approximate chainage/location	Timing of Measure	Description
			<ul style="list-style-type: none"> Consider using a low noise alternative to impact piling. Best practice piling procedures to be followed with guidance taken from JNCC procedures.
EE9	Beamer Rock and piling locations in the Firth of Forth	Construction	<ul style="list-style-type: none"> A trained Marine Mammal Observer (MMO) will be present when blasts occur and for the periods of inactivity following cessation of piling and blasting before these activities restart. If cetaceans are present, blasting and piling activities will be delayed until the cetacean/group of cetaceans have passed beyond a threshold distance. This exclusion zone will be set dependant on predicted noise levels. Passive Acoustic Monitoring (PAM) will be used by a trained operative to identify mammals within the mitigation zone prior to piling. Piling will not commence if marine mammals are detected within the mitigation zone or until 20 minutes after the last visual or acoustic detection. The PAM operative will follow JNCC guidance (JNCC, 2008 and JNCC, 2009).
EE10	Beamer Rock	Construction	<ul style="list-style-type: none"> There will be no explosive blasting on Beamer Rock between 01 May and 15 August to avoid the risk of impacts on breeding terns on Long Craig Island.
EE11	Firth of Forth	Construction	<ul style="list-style-type: none"> Noisy activities will be avoided at night (between 1 hour before dusk and 1 hour after dawn) during the post-breeding/ passage period for terns (between 15 August and 31 October). If it is unavoidable that noise limits will be breached between 15 August and 31 October, then Port Edgar and Long Craig Island will not be simultaneously impacted as one can be used as a refuge for roosting terns if the other is disturbed. The Contractor will employ a 'soft-start' to all noisy activities (see definition above). Each time the activity is started up after a period of inactivity, the noise levels will be gradually increased over a period of 30 minutes to allow birds (and other animals) relocate. This will apply year round. For the first seven days after the commencement of each noisy activity, the soft-start must be applied each time the machinery is stopped, even if this is only for very short periods. The duration of periods of inactivity requiring a soft start will be increased incrementally over this seven day period. Subject to assessment of bird responses to the activity, after seven days a soft start will only be required overnight or after an extended period of inactivity.
EE12	Firth of Forth	Construction	<ul style="list-style-type: none"> Best practicable means will be made to maintain noise levels below 75 dBLAeq day and night: at: (i) Long Craig Island at all times of day and night during the tern breeding season (01 May until 15 August in a given year) and (ii) Long Craig Island and the Port Edgar tern roost site at night (between 1 hour before dusk and 1 hour after dawn) during the post-breeding/ passage period for terns (between 15 August and 31 October in a given year).
EE13	Long Craig Island and Port Edgar	Construction	<ul style="list-style-type: none"> Monitoring of noise levels from construction activities will be undertaken at Long Craig Island during the breeding season for terns (May to mid-August) and at Long Craig Island and Port Edgar tyre raft from 1 hour before sunset until sunrise between mid-August and October. The ECoW will identify and assess the significance of these levels on the tern population. Monitoring of bird responses to construction activities will be undertaken. Assessment of the significance of these activities on estuarine birds will be undertaken.
EE14	Temporary trestle bridges on northern and southern shores of Firth of Forth	Construction	<ul style="list-style-type: none"> Visual screens will be installed along the perimeter of the temporary trestle bridges on both shores to reduce the impact of construction activities on birds using adjacent areas of the Firth of Forth.
EE15	Firth of Forth	Construction	<ul style="list-style-type: none"> For boats/barges transporting personnel and supplying materials for construction, the ECoW (in consultation with SNH and the Harbour Master) will identify where construction boat traffic is not permitted so that the constructor can stipulate routes in consultation with the Harbour Master. The compliance of boats/barges to defined routes will be determined by ECoW. No construction boat traffic including small water vessels will go within 100m of Long Craig Island (except in the case of an

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Mitigation Item	Approximate chainage/location	Timing of Measure	Description
			<p>emergency). The compliance of boats/barges to defined routes will be determined by the ECoW.</p> <ul style="list-style-type: none"> • If in exceptional circumstances, encroachment within 100m of Long Craig Island is unavoidable, prior approval by the ECoW will be required and the ECoW will over see the specified activity.
EE16	Firth of Forth	Construction	<ul style="list-style-type: none"> • Dredging footprint will be reduced as much as practicable.
EE17	Firth of Forth	Construction	<ul style="list-style-type: none"> • Design of lighting arrangements will ensure minimal light spillage out with the boundary of the construction the sites and associated site compounds, with compliance determined by the ECoW. • Monitoring of construction site lighting will be undertaken at night by the ECoW to identify any potential adverse impacts on birds. • If identified by the ECoW, preventative measures (e.g. installation of shields) will be taken if any adverse impacts are detected.
EE18	Port Edgar	Pre-construction	<ul style="list-style-type: none"> • Between 15 August and 31 October, works for the relocation of the sewage outfall will not take place at night-time (1 hour before dusk and 1 hour after dawn) and within 200m and in direct view of the Port Edgar floating tyre raft.
EE19	Firth of Forth	Construction	<ul style="list-style-type: none"> • Vessels involved in the construction activities for the FRC should adhere to the industry recommended guidelines for preventing the introduction of non-native marine species. UKMarineSAC (2009) recommends that vessels comply with International Maritime Organisation guidance wherever possible, seek guidance from the local port authority regarding areas where ballast water uptake should be avoided (e.g. near sewage outfalls), encourage the exchange of ballast water in the open ocean, and discourage/prohibit the unnecessary discharge of ballast water in port and harbour areas (mitigation item EE19).

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Table 23.6: Landscape Mitigation

Mitigation Item	Approximate chainage/location	Timing of Measure	Description
Generic/Best Practice			
L1	Throughout scheme	Scheme design / Construction	Earthworks will promote integration of the road with surrounding landform through sensitive grading of cutting and embankment slopes.
L2	Cemetery, Ferry Hills and Castlandhill	Scheme design / Construction	New rock cuttings will be formed to promote natural appearance and natural regeneration.
L3	Throughout scheme	Scheme design / Construction	SUDS detention basins will be formed to promote integration with the surrounding landscape by sensitive grading, visually discreet boundary fencing and planting of scrub woodland to screen and promote biodiversity.
L4	Throughout scheme	Scheme design / Construction	Noise barriers, as determined by the noise assessment, will be provided in the form of barriers and false cuttings.
L5	Throughout scheme	Scheme design / Construction	Existing trees and vegetation will be retained wherever practicable and incorporated with new planting proposals.
L6	Throughout scheme	Scheme design / Construction	Planting will be undertaken to promote the following: <ul style="list-style-type: none"> • screen views, integrate new cuttings, embankments, junctions and bridges and reflect the character of the existing landscape; • enhance biodiversity and conserve the integrity of existing habitats by planting predominantly native species, of local provenance; • replace lost trees and woodland; • utilise severed field corners and landlocked areas where appropriate; and • enhance the experience for travellers by creating a variety of views.
L7	Throughout scheme	Scheme design / Construction	Grass seeding for verges will be Roadside Verge Mix which is low maintenance, fast establishing and tolerant of traffic and salt spray. Grass seeding for all other soft areas, outwith planting areas, will be Species Rich Grassland Mix consisting of native, non-invasive grasses and wildflower species to reflect locally occurring semi-natural flora.
Specific Mitigation (refer Figure 12.4 Landscape and Ecological Mitigation)			
<i>Urban Area : Inverkeithing (ch8200-8500)</i>			
L8	ch8200-8450 s/b	Scheme design / Construction	Regrading of cutting beside A90 will promote naturalistic grading of new rock and soft cuttings and promotion of natural regeneration.
L9	ch8200-8230 s/b		Scrub woodland planting will be provided to replace lost vegetation and soften appearance of cutting.
L10	ch8230-8310 s/b at relocated cemetery boundary		Stone wall will be reinstated.

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Mitigation Item	Approximate chainage/location	Timing of Measure	Description
<i>Coastal Hill : Castlandhill (ch7900-9200)</i>			
<i>Whinny Hill</i>			
L11	ch7900-8000 n/b between realigned B980 and proposed slip road.	Scheme design / Construction	Mixed woodland planting will be provided to replace lost woodland.
L12	West of ch8000-8300 n/b around edge of agricultural land.		Mixed woodland planting at Castlandhill will be provided to extend existing woodland pattern and provide coherent quantity of habitat replacement.
L13	ch8200-8450 between B980 and A90. ch8600-8930 n/b either side of footbridge to Inverkeithing.		Scrub woodland planting will be provided to soften appearance of cutting, embankment and visually separate local road from A90.
<i>North Hill</i>			
L14	ch9100-9150 n/b	Scheme design / Construction	Mixed woodland planting will be provided to assist integration and provide screening for properties in Rosyth.
<i>Coastal Flats : North Queensferry (Ch7200-7900)</i>			
L15	ch7300-7500 beneath A90 and slip roads on viaduct	Scheme design / Construction	Stone facings and local gravel will be provided beneath viaducts with ivy planting where daylight permits.
L16	ch7300-7500 s/b east of A90 and slip road to Forth Road Bridge		Mixed woodland planting will be provided to replace lost vegetation and soften appearance of embankments and cuttings.
L17	West of ch7900-7500 n/b north and west of WWTW		Mixed woodland planting will be provided to screen WWTW.
L18	ch7300-7800 n/b both sides of n/b slip roads to and from Ferrytoll gyratory and on embankment west of realigned B981. ch7250 n/b around SUDS detention basin.		Scrub woodland planting will provide landscape integration of embankments, cuttings and SUDS detention basin.
L19	West of ch7850-7900 n/b		Standard tree planting will be provided beside Ferrytoll Road to provide formal entrance to Europarc.

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Mitigation Item	Approximate chainage/location	Timing of Measure	Description
<i>Industrial: South Inverkeithing Bay (ch7900-8200)</i>			
L20	ch7800-7900 area contained by Ferrytoll gyratory.	Scheme design / Construction	Scrub woodland planting will be provided with rock/boulders and species rich grassland.
L21	ch8000-8200 s/b between Park and Ride and s/b slip road to Ferrytoll gyratory.	Scheme design / Construction	Scrub woodland planting will be provided to enhance existing scrub and replace scrub lost to cutting.
<i>Coastal Hills: Ferry Hills (ch6800 -7800)</i>			
<i>Undulating hill top</i>			
L22	ch7500-7700 s/b	Scheme design / Construction	Naturalistic grading of rock cut adjacent to existing A90 and railway line will be provided as permitted by safety issues and promotion of natural regeneration.
L23	Cuttings and embankments to the east and west of approach to Forth Road Bridge. ch7100-7500 s/b.		Mixed woodland planting will be provided to replace lost woodland and soften appearance of embankments and cuttings.
<i>Wooded hill to the east of A90</i>			
L24	ch7100-7300 s/b	Scheme design / Construction	Mixed and scrub woodland planting will be provided to replace lost woodland.
L25	ch7000-7100 n/b, s/b and east of B981		Naturalistic grading of rock cuttings and promotion of natural regeneration will be provided.
<i>Existing Road Corridor: A90/M90/M9/M9 Spur</i>			
L8-L14, L16, L20-L23	A90/M90 North of the Firth of Forth (Halbeath to Ferryhills)	Scheme design / Construction	Measures identified above for LLCAs adjacent to the northern route, with direct impacts, which also reduce impacts for the Existing Road Corridor LLCA.
<i>Urban Area: South Queensferry (east of ch3600-3750)</i>			
L26	ch3600-3650 west of realigned B924 junction with A904	Scheme design / Construction	Standard tree planting will replace lost trees at the southwest corner of South Queensferry.
L27			Species rich grassland will be provided in disturbed soft area.
L28-L35, L37, L39-L42			Measures identified for Duddingston LLCA, which also reduce impacts for South Queensferry LLCA:

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Mitigation Item	Approximate chainage/location	Timing of Measure	Description
<i>Lowland Hill and Valley Farmland: Duddingston (ch500-4450 and M9 ch1700-2700 M9 J1A)</i>			
<i>North Facing Slopes</i>			
L28	ch3760-4450 n/b ch3800-4514 s/b	Scheme design / Construction	Noise barriers in the form of false cuttings and/or barriers as per mitigation items N1-N7 will provide visual screening and noise mitigation.
L29	East of ch3700-4400 s/b at east boundary of construction and maintenance access road, SUDS detention basin area and Inchgarvie House south boundary.		Hedgerow and hedgerow tree planting will provide screening and tie in with existing boundaries.
L30	ch4200-4320 n/b and s/b		Mixed woodland planting will screen and integrate southern route north of cutting, where at grade and on embankment.
L31	ch4320-4400 s/b ch4150-4200 n/b		Scrub woodland planting will integrate SUDS detention basins.
L32	ch3600-4440 n/b and s/b		Species rich grassland will be provided in disturbed soft areas outwith planting, including SUDS detention basins.
L33	ch3600-3900 s/b slip beside s/b slip road to Queensferry junction		Mixed woodland planting will provide screening for southwest corner of South Queensferry.
L34	ch3600-3750 s/b slip		Mound will provide screening for southwest South Queensferry
<i>Undulating Farmland</i>			
L35	ch3600-3880 n/b slip. West of Queensferry Junction, on north side of A904. West of ch3200-3500, both sides of realigned Builyeon Road. ch2850-3550 e/b. ch2950-3350 w/b. ch500-1440 A90 e/b.		Hedgerows and hedgerows with tree planting will reinforce landscape boundaries and provide connectivity for bats.
L36	West of ch36400 n/b		Redundant section of former A904 will be grubbed up.
L37	Southeast boundary of A904 Queensferry		Stone walls will be replaced.

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Mitigation Item	Approximate chainage/location	Timing of Measure	Description
	Junction. Southwest boundary of A904 Queensferry Junction from Former Builyeon Road to sewage works access.		
L38	ch3094-3350		Noise barrier in the form of false cutting will be provided as per mitigation item N9.
L39	North of ch2080-2200		Scrub woodland planting will integrate SUDS detention basins.
L40	A8000 n/b and s/b north of A90.		Standard trees will be provided to replace lost trees and mark transition to urban character.
L41	A8000 embankments and ch1450-1570 w/b		Mixed woodland planting will be provided to replace existing woodland and provide screening and integration.
L42	ch500-3600 n/b and s/b		Species rich grassland will be provided in disturbed soft areas outwith planting.
<i>South Facing Slopes</i>			
L43	M9 Spur west embankment, west of Kirkliston.	Scheme design / Construction	Mixed woodland planting will be provided to replace lost woodland.
L44	East and west of M9 eastbound to M9 Spur northbound link, north of M9 ch1700-2180, M9 J1A		Scrub woodland planting will be provided to screen and integrate SUDS detention basin and realigned Swine Burn.
L45	East and west of M9 eastbound to M9 Spur northbound link, north of M9 ch1700-2180, M9 J1A		Species rich grassland will be provided in disturbed soft areas outwith planting.
<i>Designed Wooded Landscape: Dundas (M9 Spur n/b to ch2850)</i>			
L46	ch2500-2950 w/b ch2660-2850 e/b ch2210-2480 e/b	Scheme design / Construction	Mixed woodland planting will be provided to replace SINC and loss of woodland at Echline strip and adjacent woodland blocks.
L47	ch1750-2350 w/b		Mixed woodland planting will provide screening for Dundas Home Farm
L48	ch2480-2660 e/b ch2350-2500 w/b		Hedgerow planting will reinforce landscape boundaries.
L49	ch2350-2500 w/b.		Standard tree planting to reflect Dundas Estate's character will be provided.

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Mitigation Item	Approximate chainage/location	Timing of Measure	Description
L50	A90 to A8000 public transport link and A90 public transport link		Hedgerow tree planting will be provided to replace trees lost beside public transport links, provide screening and provide connectivity for bats.
L51	ch1700-2850 e/b and w/b		Species rich grassland will be provided in disturbed soft areas outwith planting.
L52	ch2550-3904 w/b ch1861-2364 w/b		Noise barriers in the form of false cuttings and barriers as per mitigation items N8 and N10 will provide visual screening and noise mitigation.
L53	ch1750-1861 w/b		Noise barrier in the form of false cutting will be provided as per mitigation item N11.
<i>Urban Area: Kirkliston (M9 Spur s/b to M9 ch980 e/b)</i>			
L54	M9 Spur s/b embankment at northwest edge of Kirkliston	Scheme design / Construction	Mixed woodland planting will replace lost woodland.
L55	M9 ch1250-1480 s/b		Mixed woodland will be provided to integrate cutting into existing woodland pattern.
L56	M9 ch980-1150 s/b		Scrub woodland planting will be provided to screen embankment and noise barrier.
L57	M9 Spur s/b to M9 ch1100 e/b		Species rich grassland will be provided in disturbed soft areas outwith planting.
L58	M9 ch1014-1290 s/b		Noise barrier will be provided as per mitigation items N12 and N13.
<i>Lowland Plain: Overton (M9 ch1300-2780)</i>			
<i>Large flat fields</i>			
L59	M9 ch2500-2600 w/b, northeast of Ross's Plantation	Scheme design / Construction	Scrub planting around SUDS detention basin will provide screening and integration.
L60	M9 ch2180-2600 w/b		Species rich grassland will be provided on embankment and SUDS area outwith planting.
<i>Rising field with existing M9 Junction 1A to the east</i>			
L61	M9 ch1300-1600 w/b	Scheme design / Construction	Mixed woodland planting will integrate cutting into existing woodland pattern.
L62	M9 westbound to M9 Spur northbound link		Scrub woodland will integrate junction.
L63	M9 Spur southbound to M9 westbound link, south of M9 ch1680-2180-2150		Hedgerow will be provided to tie boundary of new slip road into existing field boundaries and reinforce edge of existing woodland on slip road embankment.
L64	M9 ch1300-2180 w/b		Species rich grassland will be provided in disturbed soft areas outwith planting.

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Mitigation Item	Approximate chainage/location	Timing of Measure	Description
<i>Designed Wooded Landscape: Newliston (M9 ch 600-1300)</i>			
L65	M9 ch1200-1300 n/b, east end Lindsay's Craigs woodland.	Scheme design / Construction	Mixed woodland planting at northern SUDS detention basin will be provided to replace lost woodland, provide screening and integrate with Lindsay's Craigs woodland.
L66	M9 ch600-780 M9 ch1100-1150		Scrub planting on regraded embankments and at southern SUDS detention basin will provide screening and integration.
L67	M9 ch600-1300 n/b		Species rich grassland will be provided in SUDS basins and disturbed soft areas outwith planting.
<i>Lowland Plain: River Almond (M9 ch0-980 s/b)</i>			
L68	M9 ch600-980 s/b		Species rich grassland will integrate regraded embankment.
<i>Industrial Area: Newbridge (M9 ch0-600 n/b)</i>			
L69	M9 ch300-550 n/b	Scheme design / Construction	Scrub woodland will replace lost woodland on embankment.
L70	M9 ch0-600 n/b		Species rich grassland will be provided on regraded embankments outwith planting.
<i>Existing Road Corridor A90, M90, M9, M9 Spur</i>			
L39-L45, L50, L51, L54-L70	A90/M9/M9 Spur South of the Firth of Forth	Scheme design / Construction	Measures identified above for LLCAs adjacent to the southern route, with direct impacts, which also reduce impacts for the Existing Road Corridor LLCA.

Table 23.7: Visual Mitigation

Mitigation Item	Approximate chainage/location	Timing of Measure	Description
V1	Throughout scheme	Scheme design/ Construction /Operation	All landscape mitigation in Table 23.6 will be provided.
V2	Throughout scheme	Scheme design/ Construction/ Operation	Where lighting is essential, all reasonable precautions will be undertaken to reduce energy consumption and avoid/reduce the amount of light pollution of the night sky and rural landscape where this can be achieved safely and effectively.

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Table 23.8: Cultural Heritage Mitigation

Mitigation Item	Approximate chainage/location	Timing of Measure	Description
CH1	St. Margaret's Marsh	Pre-construction	Evaluation and recording of identified site (St. Margaret's Wharf upstanding remains) will be undertaken to record the extent of known remains that may be affected and to assess areas of unknown archaeological potential prior to construction.
CH2	Inchgarvie House Port Edgar Barracks Complex St. Margaret's Hope (Admiralty House)	Pre-construction	Historic Building recording (to appropriate level) will be undertaken prior to the start of construction.
CH3	Inchgarvie House Port Edgar Barracks Complex St. Margaret's Hope (Admiralty House)	Construction	Vibration monitoring will be carried out on a weekly basis during works that may create a risk of vibration damage to protect buildings from risk of physical damage.
CH4	St. Margaret's Hope Arch	Pre-construction/ Construction	Historic Building recording will be undertaken prior to relocation or dismantling to record the features and setting of the arch.
CH5	Throughout the scheme	Pre-construction	A programme of archaeological trial trenching, set piece excavation and evaluation will be implemented to ensure that the full scope of known and unknown archaeological remains are identified, excavated and fully recorded prior to any proposed construction works. The programme will be confirmed in a Written Scheme of Investigation approved by Historic Scotland and will include a combination of non-intrusive surveys applied to relatively large areas, followed by intrusive techniques targeted on specific areas.
CH6	Beamer Rock Beacon (Site 426, Figure 14.2a).	Pre-construction	A topographic survey and recording, building recording, dismantling and storage in a suitable location will be undertaken, leaving open the possibility to re-erect the beacon at a suitable site later if appropriate.
CH7	Beamer Rock, ship wrecks (Sites 410-17, 419-20, 424, on Figure 14.2d).	Pre-construction	Detailed underwater survey will be undertaken prior to construction within 50m of the low tide mark in the vicinity of Beamer Rock to check for the presence of historic wrecks or debris that may exist on and around Beamer Rock. The known vessels shipwrecked on or within the vicinity of Beamer Rock will be included within the programme of archaeological evaluation works.
CH8	Inchgarvie House, Springfield graves (Site 453). Linn Mill Burn, Dalmeny, cropmark (Site 561). Inchgarvie House, Linear cropmark (Site 811). South Queensferry, Linear cropmark (Site 1118). Refer to Figure 14.2e-h.	Pre-construction	Geophysical survey followed by trial trenching will be included as part of the programme of archaeological evaluation works.
CH9	Echline Strip Clearance Cairn (Site 1147, Figure 14.2g). Newbigging Clearance cairns (Site 1148, Figure 14.2g). Newbigging tank/spring (Site 1149, Figure 14.2g). Dundas Castle Designed Landscape (Site 1111, Figure 14.2e-h).	Pre-construction	Trial trenching followed by excavation (if required) will be included as part of the programme of archaeological evaluation works.
CH10	Throughout scheme	Construction/ Operation	Planting proposed as part of the landscape/ecology mitigation measures (refer to Table 23.6 and Figure 12.4) and noise barriers (refer to Table 23.10) will be provided to reduce impacts on setting.

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Table 23.9: Air Quality Mitigation

Mitigation Item	Approximate chainage/location	Timing of Measure	Description
No operational mitigation required; refer to Table 23.13 for construction mitigation.			

Table 23.10: Noise Mitigation

Mitigation Item	Approximate chainage/location	Timing of Measure	Description
N1	South Queensferry (ch4310 - 4515)	Construction/ Operation	Noise barrier to achieve residual impact identified in Chapter 16 (Noise and Vibration). It is envisaged that a 2.8m x 180m barrier on viaduct and a 2.8m x ~25m barrier on road will be provided.
N2	South Queensferry (ch4260 - 4310)	Construction/ Operation	Noise barrier to achieve residual impact identified in Chapter 16 (Noise and Vibration). It is envisaged that a 4m x ~50m barrier will be provided.
N3	South Queensferry (ch4110 - 4260)	Construction/ Operation	Noise barrier to achieve residual impact identified in Chapter 16 (Noise and Vibration). It is envisaged that a 3m x ~150m barrier will be provided.
N4	South Queensferry (ch4030 - 4110)	Construction/ Operation	Noise barrier to achieve residual impact identified in Chapter 16 (Noise and Vibration). It is envisaged that a 3m x ~80m bund will be provided.
N5	Linn Mill (ch4310 - 4450)	Construction/ Operation	Noise barrier to achieve residual impact identified in Chapter 16 (Noise and Vibration). It is envisaged that a 2.8m x ~115m barrier on viaduct and a 2.8m x ~25m barrier on road will be provided.
N6	Linn Mill (ch4000 - 4310)	Construction/ Operation	Noise barrier to achieve residual impact identified in Chapter 16 (Noise and Vibration). It is envisaged that a 4m x ~310m barrier will be provided.
N7	West Dundas (ch2550 - 3095)	Construction/ Operation	Noise barrier to achieve residual impact identified in Chapter 16 (Noise and Vibration). It is envisaged that a 4m x ~545m barrier will be provided.
N8	East Dundas (ch1860 - 2365)	Construction/ Operation	Noise barrier to achieve residual impact identified in Chapter 16 (Noise and Vibration). It is envisaged that a 4m x ~505m barrier will be provided.
N9	Kirkliston M9 (ch1015 - 1260)	Construction/ Operation	Noise barrier to achieve residual impact identified in Chapter 16 (Noise and Vibration). It is envisaged that a 2.5m x ~245m barrier will be provided.
N10	Kirkliston M9 (ch1260-1290)	Construction/ Operation	Noise barrier to achieve residual impact identified in Chapter 16 (Noise and Vibration). It is envisaged that a 2m x ~30m barrier will be provided.

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Table 23.11: Pedestrians, Cyclists, Equestrians and Community Effects Mitigation

Mitigation Item	Approximate chainage/location	Timing of Measure	Description
P1	B981 (Inverkeithing) and A90 slip road - NCR 1 and local path 6 (refer to Figure 17.3a)	Scheme design/ Construction	The realigned footpath/cycleway from the B981, Inverkeithing to A90/ Forth Road Bridge will not be less than 2.5m wide.
P2	Realigned B981 - Ramp from path 6a to 22 (refer to Figure 17.3a)	Scheme design/ Construction	Ramp linking paths will be DDA compliant.
P3	A90 North end of Forth Road Bridge (refer to Figure 17.3a).	Scheme design/ Construction	An at-grade crossing point to the north of the Forth Road Bridge will be provided to facilitate an alternative route for NMUs wishing to travel between North Queensferry and Inverkeithing.
P4	Queensferry Junction/A904 at Echline (refer to Figure 17.3b).	Scheme design/ Construction	An access gate to the west of the proposed Queensferry Junction will be provided to facilitate an alternative route for NMUs west of the mainline to link A904 with Linn Mill and the recreational area beyond.
P5	Castlandhill Road (B980) – refer to Figure 17.3a.	Construction	A new footpath will be created on west side of B980 to link to the right of way (16) at Castlandhill Woods.
P6	NCR 1 on east side of A90 (path 6); NCR 1 on B981 (path 6a); and NCR 76 at Ferrytoll Junction (path 10). Refer to Figure 17.3a.	Construction/ Operation	New signage will be installed as appropriate for NCR 1 and NCR 76.
P7	Ferrytoll Junction - NCR 76 (path 10, 80) North end of Forth Road Bridge (refer to Figure 17.3a). Local path across the proposed Queensferry Junction (path 45b) - refer to Figure 17.3b.	Construction/ Operation	Traffic signals will be provided to enable safe crossing of roads for all NMUs and crossing points will be DDA compliant. Puffin or Toucan crossings will be chosen ahead of Pelican crossings.
P8	Path from St. Margaret's Marsh (path 23) to realigned B981 (path 22) - refer to Figure 17.3a.	Scheme design/ Construction	Ramp linking paths will be provided.
P9	NCR1/Local Path (path 6). NCR 76 (path 10) Right of way (path 16) Local paths (21) Core path (23) Core path (38) Local paths (46) Local paths (78) Recreational areas - Ferry Hills and Echline fields	Construction/ Operation	Planting proposed as part of the landscape/ecology mitigation measures (refer to Table 23.6 and Figure 12.4) will be provided to reduce impact on amenity value.

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Table 23.12: Vehicle Travellers Mitigation

Mitigation Item	Approximate chainage/location	Timing of Measure	Description
VT1	Throughout scheme	Scheme design/ Construction /Operation	All landscape mitigation in Table 23.6 will be provided.

Table 23.13: Disruption Due to Construction Mitigation

Mitigation Item	Approximate chainage/location	Timing of Measure	Description
Land Use			
DC1	Agricultural land throughout scheme	Pre-construction/ Construction	Appropriate measures will be undertaken to reduce damage or disturbance to field and forestry drainage systems and to the agricultural capability of soils in accordance with mitigation measures LU3 and LU9 in Table 23.1.
DC2	Firth of Forth	Pre-construction	The Contractor will seek appropriate consent from the Forth Ports Authority regarding marine traffic and any construction activities that require use of the shipping lanes in the Firth of Forth.
DC3	Throughout scheme	Construction	Existing access will be maintained or alternative access provided for all properties during construction in accordance with the requirements of the Bill.
DC4	Throughout scheme	Construction	Suitable signage to businesses and local amenities will be provided.
DC5	Throughout scheme	Construction	Landowners will be notified in advance of construction works in accordance with mitigation measure LU4 in Table 23.1.
DC6	Throughout scheme	Construction	Best practice will be adhered to in order to control dust generation and disposal (refer to mitigation measures DC13-17).
DC7	Throughout scheme	Construction	Screening will be used to reduce the visual intrusion of construction compounds (refer to mitigation measure DC9).
DC8	Firth of Forth	Pre-construction/ Construction	A Marine Traffic Management Plan will be implemented specifying procedures and measures to manage operations within the Firth of Forth and reduce the impact of marine works on navigation.
Geology, Contaminated Land and Groundwater (refer to Table 23.2)			
Water Environment (refer to Table 23.3)			
Terrestrial and Freshwater Ecology (refer to Table 23.4)			
Estuarine Ecology (refer to Table 23.5)			
Landscape/Visual			
DC9	Construction compounds	Pre-construction/ Construction	The layouts of construction compounds and storage areas will aim to reduce disruption. Where practicable, existing trees to be retained and screening bunds and planting provided.
DC10	Throughout scheme	Pre-construction/ Construction	Works will be programmed to minimise the disruption period.

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Mitigation Item	Approximate chainage/location	Timing of Measure	Description
DC11	Throughout scheme	Construction	Night-time working will be restricted to essential activities to minimise light pollution.
DC12	Construction compounds	Construction	Dust and noise will be kept to a minimum through the provision of mitigation measures DC13-24.
Air Quality			
DC13	Throughout scheme	Construction	The Contractor will implement the CoCP and employ Best Practicable Means to control dust and air quality pollution.
DC14	Throughout scheme	Construction	The Contractor will implement a Dust and Air Quality Management Plan to limit dust and air pollution from the transportation and storage of materials and to limit emissions from construction plant and vehicles.
DC15	Transport/Haul Routes	Construction	Traffic routing, site access points and hours of operations will be discussed with Fife Council, West Lothian Council and City of Edinburgh Council to reduce potential impacts on local receptors.
DC16	Throughout scheme	Construction	A dust and air quality monitoring programme for construction activities will be agreed with the local authorities.
DC17	Throughout scheme	Construction	Blasting works will be avoided where reasonably practicable.
Noise and Vibration			
DC18	n/a	Pre-construction/ Construction	The Contractor will implement the CoCP.
DC19	n/a	Pre-construction/ Construction	The Contractor will be required to develop and implement a Noise and Vibration Management Plan which will include noise and vibration monitoring.
DC20	n/a	Construction	Best Practicable Means as defined in Section 72 of the Control of Pollution Act will be used to minimise noise (including vibration) during construction.
DC21	n/a	Construction	Best Practicable Means will be employed to minimise construction activities undertaken outside of 07:00 to 19:00 Monday to Saturday.
DC22	'Tigh-na-grian' (2 properties)	Pre-construction /Construction	Should the Contractor identify that works are required that will exceed the threshold levels as defined in the CoCP, then he will seek prior approval from the local authority under Section 61 of the Control of Pollution Act and will carry out or provide a grant in respect of noise insulation to the affected properties. Any noise insulation work will be provided in accordance with the Noise (Insulation) Scotland Regulations 1975.
DC23	Throughout scheme	Construction	No impact piling will be undertaken at night.
DC24	Main construction compound, South Queensferry	Pre-construction/ Construction	A bund/barrier, to a height of approximately 5m, will be constructed on the eastern-side of the main construction compound to screen adjacent receptors on the west side of South Queensferry.
D25	Throughout scheme	Pre-construction/ Construction	Solid site hoardings will be provided where necessary and reasonably practicable between worksites and noise sensitive receptors to a height sufficient to break line of sight from the windows of habitable rooms to significant construction noise sources.
D26	Throughout scheme		Mitigation (permanent or temporary) will be installed as early as possible to afford the maximum benefit to the receptor.

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Mitigation Item	Approximate chainage/location	Timing of Measure	Description
Pedestrians, Cyclists, Equestrians and Community Effects			
DC27	Throughout scheme	Pre-construction/ Construction	The construction works will be programmed in such a manner to reduce the length of closures and access restrictions as far as practicable. Any diversion routes must be safe for NMUs and be DDA compliant.
DC28	Throughout scheme	Pre-construction/ Construction	The construction site will be fenced and access by non-authorised personnel will not be permitted.
DC29	Throughout scheme	Construction	Temporary diversion routes will be provided to maintain access for NMUs throughout the works, and any closure or re-routing of routes used by pedestrians and others will be agreed in advance with the local authorities and in consultation with Sustrans where applicable (i.e. for NCR 1 and 76).
DC30	Throughout scheme	Construction	Where necessary, bus stops will be relocated safely with a safe access route provided for NMUs.
DC31	Throughout scheme	Construction	Best practicable means will be employed to avoid the creation of statutory nuisance associated with noise, dust and air pollution (refer to mitigation measures DC13-24).
DC32	Throughout scheme	Construction	Reasonable precautions will be undertaken to reduce the visual impact of the construction works where practicable (refer to mitigation measures DC9-12).
Vehicle Travellers			
DC33	Throughout scheme	Pre-construction/ Construction	Reasonable precautions will be undertaken to avoid/reduce disruption to the road traffic, including consideration of the timing of works vehicles using public roads and delivery/removal of site materials.
DC34	Throughout scheme	Construction	Reasonable precautions will be undertaken to reduce the amount of imported/exported material required.
DC35	Throughout scheme	Construction	Reasonable precautions will be undertaken to avoid/reduce road closures. No lane closures of the A90/M90 or M9 are to be permitted during peak hours except in exceptional circumstances that are approved by Transport Scotland.
DC36	Throughout scheme	Construction	Temporary traffic management schemes will take reasonable precautions to reduce disruption and delays.
DC37	Throughout scheme	Construction	Road diversions will be clearly indicated with road markings and signage as appropriate. Closures will be notified in advance and signage provided.
DC38	Throughout scheme	Construction	Appropriate lighting will be provided during night-time working.