16 Schedule of Environmental Commitments

16.1 Summary of Effects

16.1.1 This chapter presents the Environmental Effects Tables for the scheme. The purpose of Table 16-1 is to present the significant predicted effects, considering mitigation, in summarised form. The table includes a summary of potential impacts pre mitigation, mitigation measures to be employed and the resulting residual effects that would be expected from the scheme.

16.1.2 In line with the requirements of the 2014 EIA Directive, only potentially significant effects are provided in Table 16-1. Significant effects are those of moderate significance or above.

16.1.3 As a summary, Table 16-2 then summarises non-significant effects.

Construction

16.1.4 Construction impacts will be managed through the application of a CEMP, which will be prepared by the contractor, and adherence to best practice measures. With these in place, there will be no significant construction effects on: air quality, road drainage and water environment, people and communities, soils pollution or materials. Impacts of construction on Cultural Heritage will be mitigated by a preliminary programme of trial trenching in off-line greenfield areas prior to construction. Construction noise effects are generally not significant with the exception of the closest receptors. Mitigation measures will include prior consultation with the residents and limiting working times.

16.1.5 Construction impacts will have a moderate adverse impact on landscape fabric from vegetation removal and new infrastructure. There will be a major adverse impact on the development site from removal of vegetation and new infrastructure. Retaining existing trees and providing new planting will provide mitigation but the significance of effect post mitigation remains moderate to large adverse. Construction impacts however are temporary.

16.1.6 Visual impacts on residents at Gardenston Street and viewpoint 2 during construction are temporary and minor in magnitude from views of the infrastructure construction. Retaining existing vegetation where possible will mitigate views somewhat, but the significance of effect post mitigation is moderate adverse.

16.1.7 There is a moderate risk to the health of construction workers during construction from land contamination, through exposure to areas of made ground. With suitable measures in place during construction, and appropriate use of PPE, the residual risk is reduced to low.

Operation

16.1.8 Operational effects are long term and permanent and Table 16-1 lists the residual significant operational effects from the scheme taking into consideration mitigation. Significant effects are those of moderate significance or greater.

Table 16-1: Summary of significant (moderate or above) residual operational environmental effects

Discipline	Potential impact description	Magnitude of Impact pre-mitigation	Mitigation	Residual effect
Landscape & Visual	New infrastructure and grade separated junction at development site	Major adverse at Year 1 and Year 15	Mitigation planting	Moderate adverse for Year 1 and Year 15
	Visual impact from new infrastructure on Viewpoint 1 West Burnside and Gardenston Street	Major at Year 1 and Minor at Year 15	Mitigation planting	Large adverse in Year 1, reducing to Moderate adverse in Year 15.
	Visual impact from new infrastructure on viewpoint 2, core path route 3 and minor road connecting the A937 to the A90	Major adverse at Year 1, Moderate at Year 15	Mitigation planting	Very large adverse in Year 1, reducing to large adverse in Year 15
Noise & Vibration	Short term changes in noise levels at Laurencekirk Primary School	Moderate adverse	Use of low noise surfacing	Moderate to large adverse
	Long term changes in Laurencekirk Primary School	Minor adverse	Use of low noise surfacing	Slight to moderate adverse
People & Communities	Impact on development land	Moderate beneficial	No mitigation	Moderate beneficial
	Loss of agricultural land at Mains of Newton	Minor adverse	Discussions with landowners to agree accommodation works	Moderate adverse
Geology and Soils	Loss of good quality agricultural land	Minor adverse	No mitigation applicable for loss of agricultural soils	Moderate adverse

16.1.9 The majority of residual effects from the scheme are considered to be not significant. Table 16-2 provides of summary of non-significant residual effects.

16.1.10 Where landscape effects are considered, the residual effects are taken to be in Year 15, when mitigation planting has matured, and the infrastructure becomes integrated into the landscape.

Table 16-2: Summary of not significant (less than moderate) residual operational environmental effects

Discipline	Potential impact description	Magnitude of Impact pre-mitigation	Mitigation	Residual effect
Air Quality	Changes in traffic flow resulting in changes to NO_2, PM_{10}, $PM_{2.5}$ & greenhouse gases	No change to Small minor	None required	Not significant
Cultural Heritage	Impacts on cultural heritage assets	Up to minor Adverse	WSI and preliminary investigation	Negligible adverse
Landscape & Visual	Impact of new infrastructure on Landscape Character Type Garvock and Glenvervie	Minor at Year 1 reducing to negligible in Year 15	Mitigation planting scheme wide	Slight adverse reducing to neutral in Year 15
	Introduction of new infrastructure on landscape fabric	Moderate at Year 1, reducing to minor at Year 15	Mitigation planting scheme wide	Moderate adverse at Year 1, reducing to slight adverse in Year 15 as planting matures and scheme becomes part of the landscape
	Visual impact on viewpoint 3 Core Path at Beattie Lodge and Track Leading to Johnstone Mains	Negligible adverse at Year 1, no change in Year 15	Mitigation planting scheme wide	Slight adverse in Year 1, reducing to neutral in Year 15
	Visual impact on viewpoint 4 track leading to Johnston Mains, core path route 2 Frain Driver	Negligible adverse at Year 1, no change in Year 15	Mitigation planting scheme wide	Slight adverse in Year 1, reducing to neutral in Year 15
	Visual impact viewpoint 5 Oatyhill and A90	Moderate adverse in Year 1, minor adverse in Year 15	Mitigation planting	Slight adverse in both Year 1 and Year 15
	Visual impact on viewpoint 6 A937 south of the A90	Moderate adverse in Year 1, Minor adverse in Year 15	Mitigation planting scheme wide	Slight adverse in both Year 1 and year 15
	Visual impact on viewpoint 7 Kirkburn and B9120	No change in Year 1 and Year 15	n/a	Neutral in both Year 1 and Year 15
	Visual impact on viewpoint 8, private access A90 west bound	Moderate adverse year 1, Minor adverse year 15	Mitigation planting	Slight adverse in both Year 1 and Year 15
Noise	Short term increases in noise levels on local residents	Minor adverse	n/a	Slight adverse

Discipline	Potential impact description	Magnitude of Impact pre-mitigation	Mitigation	Residual effect
	Long term increases in noise levels on local residents	Negligible adverse	n/a	Slight adverse
Nature Conservation & Biodiversity	Impact on priority habitats, bats, birds, otters and red squirrel	Minor to negligible adverse	Creation, restoration or improvement of habitats	Neutral to Slight adverse
Road Drainage & the Water Environment	Impacts on surface water, aquatic ecology, groundwater and flood risk	Minor adverse to negligible beneficial	Mitigation implemented through new drainage system including SuDS	Slight adverse to slight beneficial adverse
People & Community	Loss of agricultural land at Kincardine Investment Company	Negligible adverse	No mitigation	Slight adverse
	Journey amenity for routes 1 and 2 through new traffic free NMU route parallel to A90	Minor beneficial	n/a	Slight beneficial
Geology & Soils	Impacts on geology	No change to Negligible	None required	Neutral to slight adverse
	Impacts on soils and carbon storage	Negligible	None required	Slight adverse

16.2 Schedule of Environmental Commitments

16.2.1 The DMRB states that environmental commitments should be recorded as part of the process of reporting within an EIAR.

16.2.2 The mitigations measures to ensure construction impacts are minimised will be outlined in a CEMP and are summarised in 16.3 and mitigation measures to reduce operational effects are summarised in 16.4.

16.3 Construction Mitigation

Air Quality

- The contractor will implement a Dust Management Plan which will include monitoring of dust deposition and visual inspections. Any complaints will be recorded as part of the management plan and actions taken to resolve complaints.
- The site will be planned and laid out so that machinery and dust causing activities are located away from receptors.
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
- Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.
- Avoid site runoff of mud or water.
- Materials that have a potential to produce dust will be removed from site as soon as possible, unless they are being reused on site. If retained on site, stockpiles will be covered or seeded to prevent wind whipping.
- Dust suppression will be used where necessary.
- Use of enclosed chutes and conveyors and cover skips.
- Minimise drop heights from conveyors, loading shovels, handling or loading equipment and use fine water sprays on such equipment when necessary.
- Ensure sand and other aggregates are stored on bunded areas and not allowed to dry out. Should drying out be necessary, ensure appropriate additional control measures are in place.
- During periods of dry weather where unsurfaced routes are identified as creating dust emissions, the surfaces will be regularly dampened down using water bowsers.
- Appropriate speed limits will be established and enforced over all unmade surfaces.

- Wheel washing facilities will be installed, and heavy vehicles will be required to use the facilities prior to leaving the site.
- Subject to approval from the relevant Roads Authority, public roads immediately outside of the site entrance(s) will be cleaned using vacuum sweeper brushes and other specialised road cleaning equipment as necessary to maintain an appropriate state of cleanliness.

Cultural Heritage

- A preliminary programme of trial trenching will be undertaken in off-line greenfield areas prior to construction within the areas potentially containing archaeological remains, to identify and record features, deposits and/or artefacts. Any mitigation measures will be presented as a written scheme of investigation (WSI) and will be agreed with ACAS.
- Site induction for the construction phase to make all site operatives aware of the potential for buried archaeological material to be uncovered during the works. The main contractor and subcontractors would be obliged to facilitate any archaeological oversight and investigations that the project archaeologist and/or ACAS deem desirable or necessary.

Landscape and Visual

- The construction management plan will include measures to conserve and protect the existing soil and vegetation.
- Protection and retention of existing trees and vegetation.
- Trees and hedges, which are to be retained, will be protected during construction in accordance with BS 5837:2012 Trees in Relation to Design, Demolition and Construction.
- Retention and reuse of top soil from site where possible.
- Operational mitigation through landscape planting and use of screening vegetation. Species used will be native and of similar species existing in the study area. Whips and shrubs will be planted using larger specimens to maximise the opportunity to reduce impacts.

Noise and Vibration

- All compressors will be sound reduced models fitted with properly lined and sealed covers, which will be kept closed whenever the machines are in use. All ancillary pneumatic percussive tools will be fitted with mufflers or silencers of the type recommended by the manufacturers.

- Plant and machinery in intermittent use shall be shut down in intervening periods of non-use or, where this is impracticable, they shall be throttled down to a minimum.
- Unattended plant outside normal working hours should, if possible, be electrically-powered otherwise acoustic enclosures will be necessary to minimise noise levels.
- Where possible, plant with directional noise characteristics will be positioned in such a way as to minimise noise at adjacent properties.
- Static machines will be sited as far away as practicable from inhabited buildings (or other noise sensitive premises) and/or behind temporary screens or enclosures.
- Plant will be well maintained and effectively silenced.
- Construction works limited to daytime during weekdays and no night time works or weekend working where practicable.

Nature Conservation

- Any vegetation clearance/removal must be undertaken outwith March to August inclusive, in order to avoid the bird nesting season. Felling should take place between October and January (inclusive) within woodland where red squirrel have been identified. Restriction of felling and vegetation clearance activities to the minimum area necessary for works.
- Demarcating areas of retained vegetation and retained dead wood habitat with fencing. A pre-construction survey will be undertaken to ensure no change from baseline for the species below. Method statements will be in place outlining construction mitigation measures for the species identified in the EIAR.
- If work is to be undertaken at night, unidirectional lighting will be used and will only illuminate the works area.
- If any red squirrels are discovered, removal of dreys will be carried out under a derogation licence from SNH.
- Pollution prevention and sediment control measures will be in place to ensure impacts are minimised. Water quality will be preserved by ensuring no dust, soil or other particulates are permitted to enter the watercourse during construction, and no works are undertaken that are likely to result in disturbance of sediment within the burn (other than installation of a culvert).
- When the culvert is installed in the Gaugers Burn, silt fencing and splash boards will be used to ensure no silty run-off enters the burn as a result of plant approaching the banks of the burn.

Road Drainage and the Water Environment

- The contractor will develop a Construction Environmental Management Plan.
- A SEPA construction site licence will be required as the footprint of the scheme exceeds an area of 5 hectares. As a result of this licence, a Pollution Prevention Plan will be implemented on site to ensure surface water is managed accordingly throughout the entirety of the construction phase. This will likely be through a series of temporary SuDS basins.
- The construction of the project will comply with SEPA's construction site guidance WAT-SG-75.
- Spill kits will be present on site and located in areas where spillages may be likely to occur (e.g. fuel storage areas).
- COSHH stores on site will be bunded and locked when not in use.
- Concrete washout will be stored in an appropriate designated area, away from watercourses.
- Drip trays and plant nappies will be placed under all stationary plant.
- Dust suppression techniques will be implemented during activities likely to create high levels of dust.
- Where required, filter drains will be covered in order to prevent contamination from construction entering the surface water drainage system.
- Haul roads and construction compounds will be designed and sited to minimise the potential for increased surface runoff.
- Where haul roads run within close proximity to watercourses and drainage channels, silt fencing and splash boards will be installed to ensure silty runoff does not enter the watercourse.

People and Communities

- Land owners will be informed well in advance of any intention to carry out work on their land or land which is due to be acquired. Access to agricultural land will always be maintained.
- Clear and appropriate signage will be in place to effectively direct vehicles along alternative routes in accordance with Chapter 8 of the Department for Transport Traffic Signs Manual on Road Works and Temporary Situations and advance notice will be given to road users of road closures and disruption due to works which will be publicised as widely as possible. Bus service operators will be notified of the likely disruption to

their services. Local residents will be similarly informed of any disruption through letter drops.

Geology and Soils

- Reuse of excavated material on site to minimise import of material.
- Implementation of pollution prevention measures and a spillage response plan.
- Site Waste Management Plan will be developed during the detailed design stage by the contractor, to maximise use of existing resources and reduce waste.
- Topsoil stripped during site clearance and initial ground preparation will be stored and reused on verges and embankments where appropriate. Excavated subsoils and topsoil would be stored separately and stockpiled appropriately to ensure they are suitable for reuse.

Materials

- To maximise the reuse of existing materials on site, consideration will be given to recycling road planings and use as aggregates in the sub-base layers. This would be subject to agreement and appropriate registration with the SEPA prior to work commencing.
- Use of locally sourced materials and ordering materials only as and when required to reduce transport costs and waste.
- Where appropriate, current signage will be recycled to reduce the amount of new signage required. There would also be a requirement for sustainable drainage systems drainage channels as well as subsurface drains and culverts. Again, it may be possible to recycle and re-use some of the existing drainage materials, e.g. drainage pipes, grates and manhole covers.
- Management of waste generated within site compounds during the construction period to ensure segregation, recycling and reuse will be required to ensure duty of care protocols are complied with and that waste disposal is undertaken by licensed waste carriers.

16.4 Operational Mitigation

Landscape and Visual

16.4.1 Mitigation planting will include the following characteristics:

- Species selected with local provenance
- Mixture of trees and shrub planting with seasonal interest

- Mixture of deciduous and evergreen species
- Local native tree and shrub species along the A90 consistent with the existing retained species
- Gradation of height towards the middle of the planting area to create a woodland edge effect
- Appropriate species to complement the SUDs ponds and provide biodiversity and habitat
- Inclusion of colour and interest where vehicles are travelling at lower speeds i.e. roundabouts at either end of the overbridge.

Nature Conservation and Biodiversity

Habitats

- Mitigation for affected habitats is included within the landscape design, which includes tree planting as habitat replacement.

Bat

- The creation of habitats including foraging areas and flight corridors will benefit bats by creating new commuting corridors. The proposed scattered tree planting alongside the new roads will create new flight corridors. Also, the inclusion of three SuDS with marginal tree and scrub planting will create additional areas of foraging.

Bird

- The creation of habitats including tree and shrub planting. The inclusion of three SuDS will create additional areas of foraging.

Red squirrel

- Loss of habitat cannot be mitigated as mature trees can’t be replaced effectively. However, the landscape design includes tree planting alongside the new roads which will reduce fragmentation.

Road Drainage and the Water Environment

- Mitigation will be embedded as part of the design through the inclusion of SuDS basins, filter drains and swales, which will treat and attenuate runoff from the carriageway before it is dispersed to the water environment.
- Drainage systems will intercept surface water runoff from the carriageway and remove pollutants as near to the source before disposal to the on-site conveyance network.

- The SuDS basins will be lined with clay or an artificial membrane and planted with appropriate vegetation, in order to limit any potential infiltration of pollutants into the groundwater environment. The lining will then be covered with several layers of soil in order to prevent it from tearing and allowing sediment laden water to infiltrate down into the groundwater environment.

People and Communities

Land Use – Agricultural land

- All landowners will be consulted and appropriately compensated through the CPO process as the scheme progresses. Accommodation works will be incorporated into the scheme design in many cases, consisting of farm accesses and field entrances where necessary. New improved access roads associated with Johnston Lodge, will be included where existing accesses are impacted by the scheme. Similarly, field boundaries will be replaced where these have been removed to allow works to take place. Measures will also be taken to ensure adequate field drainage is maintained where there is a possibility that an impact may be sustained.
- The conditions of any CPO will dictate that only the minimum area of land may be purchased to construct and maintain the scheme. There is therefore no scope for any land to be returned to agriculture on completion of the scheme.

Key NMU routes and Non-motorised travellers

- Operational mitigation is included within the scheme design for the provision of new footpaths/cycle routes along the grade separated junction and access track from the B9120 to the A937.

Vehicle travellers

- No specific mitigation measures will be required in relation to driver stress. All reasonable steps to reduce driver stress have been taken and are inherent within the design. Furthermore, an overall reduction in driver stress is expected as a result of the scheme. The scheme has been designed to comply with current safety standards, with improved sight lines, greater certainty of route and priority as well as enhanced crossing facilities for NMUs.
- Landscaping will also play a role in the design of this space, providing year-round diversity and visual stimulation to road and footway user alike as well as increasing levels of amenity and taking the opportunity to maximise the sense of place produced by the scheme.