

50 Environmental Impact Tables

50.1 Introduction

- 50.1.1 This chapter summarises the predicted environmental impacts of the proposed scheme in tabular form.
- 50.1.2 Potential environmental impacts are provided for each environmental parameter, with a Mitigation Item Number corresponding to the Schedule of Environmental Commitments for the Fastlink section of the proposed scheme (Chapter 51).
- 50.1.3 The residual impact (i.e. following implementation of mitigation) is provided in terms of magnitude and significance and is considered an adverse impact unless otherwise stated.

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Table 50.1 – Environmental Impact Tables

Description of Impact Note: these are potential environmental impacts (i.e. before specific mitigation)	Mitigation Item Number (refer to Chapter 51)	Sensitivity /Value of Receptor	Residual Impact (i.e. with mitigation)	
			Magnitude	Significance
Land Use (Chapter 37)				
Redwing Liveries Land Ref 635; loss of 6.94ha (20% of total farmed area) with severance and change to access. Impacts on business assessed as adverse by Tribal business assessment.	LU1f-LU18f, LU23f- LU25f	High	High	Substantial
Sluie Estate Land Ref 543; loss of 25.57ha (19% of the total farmed area) with severance.	LU1f-LU23f	Medium	High	Moderate/Substantial
Fishermyre Land Ref 632; loss of 1.20ha (10% of the total farmed area) with no severance.	LU1f-LU18f, LU23f	Medium	High	Moderate/Substantial
Coneyhatch Land Ref 636; loss of 6.09ha (22% of the total farmed area) with severance.	LU1f-LU18f, LU23f	Medium	High	Moderate/Substantial
Burnside Farm Land Ref 620; loss of 5.14ha (13% of total farmed area) with severance.	LU1f-LU18f, LU23f	Medium	High	Moderate/Substantial
Elrick Farm Land Ref 520 and 759; loss of 9.12ha (11% of total farmed area) with severance.	LU1f-LU18f, LU23f	Medium	High	Moderate/Substantial
Burnside of Newhall Land Ref 633; loss of 3.83ha (5% of total farmed area) with severance.	LU1f-LU18f, LU23f	Medium	High	Moderate/Substantial
West Stoneyhill Farm Land Ref 5002; loss of 2.94ha (14% of total farmed area) with severance and loss of access to steading from public road network.	LU1f-LU18f, LU23f	Medium	High	Moderate/Substantial
Berry Top Farm Land Ref 535; Loss of 5.03ha (3% of total farmed area) with severance.	LU1f-LU18f, LU23f	High	Medium	Moderate/Substantial
East Crossley Steading Land Ref 5003; loss of 2.18ha (23% of total farmed area) with severance.	LU1f-LU18f, LU23f	Medium	High	Moderate/Substantial
West Quoscies Land Ref 624; loss of 4.59ha (5% of total farmed area) with severance.	LU1f-LU18f, LU23f	Medium	High	Moderate/Substantial
Blaikiewell Farm Land Ref 551; loss of 4.85ha (13% of total farmed area) with severance.	LU1f-LU18f, LU23f	Medium	High	Moderate/Substantial
Land at Stonehaven South of A90T Land Ref 744; loss of 1.20ha (28% of the total land interest area) with no severance.	LU1f-LU18f, LU23f	Low	High	Moderate
Cowie Estate Land Ref 626; loss of 10.43ha (7% of the total farmed area) with severance.	LU1f-LU21f, LU23f	Low	High	Moderate
Land near Crossley Land Ref 718; loss of 0.65ha (3% of total farmed area) with severance.	LU1f-LU18f, LU23f	Medium	Medium	Moderate
Greens of Crynoch Land Ref 553; loss of 7.26ha (13% of total farmed area) with severance.	LU1f-LU23f	Low	High	Moderate
Craigentath Land Ref 555; loss of 5.67ha (10% of total farmed area) with severance.	LU1f-LU18f, LU23f	Medium	Medium	Moderate
Burnorrachie Land Ref 622; loss of no land to the proposed scheme. No severance. No impact on biodynamic status.	LU26f (also refer to landscape/ecology)	High	Low	Slight/Moderate
Wyndford Farm Land Ref 515 and 626; loss of 1.62ha (4% of the total farmed area) with severance.	LU1f-LU18f, LU23f	Medium	Low	Slight
Broomhill Land Ref 515; loss of 2.55ha (4% of total farmed area) with severance.	LU1f-LU18f, LU23f	Medium	Low	Slight
Mains of Cookney Land Ref 522; loss of 6.66ha (3% of total farmed area) with severance.	LU1f-LU18f, LU23f	Medium	Low	Slight
North of Cookney Land Ref 515; loss of 4.04ha (4% of total farmed area).	LU1f-LU18f, LU23f	Medium	Low	Slight
Elsick Estate Land Ref 629; loss of 11.59ha (2% of total farmed area) with severance.	LU1f-LU18f, LU23f	Medium	Low	Slight
FM Developments (Megray Wood) Land Ref 627; loss of 0.85ha. (1% of the total farmed area), potential windthorw risk. No severance.	LU1f-LU23f	Medium	Negligible	Negligible/Slight

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			Magnitude	Significance
Mains of Cowie Land Ref 518; loss of 0.07ha (less than 1% of total farmed area) with no severance.	LU1f-LU18f, LU23f	Medium	Negligible	Negligible/Slight
Glen Ury South of A90T Land Ref Unknown; loss of 0.03ha (3% of total farmed area) with no severance.	LU1f-LU18f, LU23f	Low	Low	Negligible/Slight
Logie Farm Land Ref 501; loss of 0.35ha (less than 1% of total farmed area) with no severance.	LU1f-LU18f, LU23f	Medium	Negligible	Negligible/Slight
North Elrick Poultry Ltd. Land Ref 759; Loss of 1.19ha farmed by Land Ref 520. Land-take impacts as above. Biosecurity risk of AWPR on poultry business as assessed by Poultry Specialist.	See Land Ref 520. LU26f (also refer to landscape/ecology)	Medium	Negligible/Low	Negligible/Slight
Floors Land Ref 515; loss of 0.01ha (less than 1% of total farmed area) with no severance.	LU1f-LU18f, LU23f	Medium	Negligible	Negligible/Slight
Nether Crossley Land Ref 536; Loss of 1.83ha (3% of total farmed area) with severance.	LU1f-LU18f, LU23f	Low	Low	Negligible/Slight
Clayfolds Land Ref 639; loss of 0.04ha (less than 1% of total farmed area) with no severance.	LU1f-LU18f, LU23f	Low	Negligible	Negligible
Improved access to Stonehaven Golf Course & Stonehaven Football Club.	n/a	n/a	n/a	Beneficial
Change in access to businesses with minor modifications (RUM Consultancy).	LU25f	n/a	n/a	Neutral
Potential loss of amenity (P1F, P11F, P12F, P13F, P19F).	None proposed	n/a	n/a	Adverse
Potential loss of amenity (P7F, P8F, P9F, P10F, P15F, P16F).	LU26f (also refer to landscape/ecology)	n/a	n/a	Adverse
Loss of development land for residential sites (P14F and P15F).	LU24f	n/a	n/a	Adverse
Loss of 3.14% total woodland area and severance at Megray Wood.	LU24f, LU26f (also refer to landscape/ecology)	Low	Low	Negligible/Slight
Loss 6.22% of total woodland at Limpet Wood.	LU24f, LU26f (also refer to landscape/ecology)	Low	Low	Negligible/Slight
Loss 8.64% of total woodland at Fishermyre.	LU24f, LU26f (also refer to landscape/ecology)	Low	Low	Negligible/Slight
Loss of 100% of total woodland at H Ram Wood.	LU24f, LU 26f (also refer to landscape/ecology)	Low	Negligible	Negligible
Loss of 16.63% of total woodand area and severance at Greens of Crynoch Plantation.	LU24f, LU26f (refer to landscape/ecology)	Low	Low	Negligible/Slight
Loss of 0.19ha of non-community woodland at Harecraig-Cookney.	LU24f, LU26f (refer to landscape/ecology)	Low	Negligible	Negligible
Loss of 0.004ha of non-community woodland at West Quoscies.	LU24f	Low	Negligible	Negligible

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			Magnitude	Significance
Geology, Contaminated Land and Groundwater (Chapter 38)				
Disturbance of solid geology during ground excavations.	n/a	Low	Negligible	Negligible
Disturbance of drift deposits during ground excavations.	n/a	Low-Medium	Negligible to Low	Negligible to Slight
Impact of blasting on the rock mass and risks to increase potentially contaminated groundwater towards private water supplies	G1f	High-Low	Medium	Slight to Negligible
Disturbance of contaminated land encountered during road construction. Including known and suspected contamination identified through site investigations, and any unknown contamination discovered during construction works.	G2f-G4f	n/a	n/a	Slight Beneficial
Impact on groundwater quality caused by accidental spillages and road drainage system	G5f	Low-High	None-Negligible	Negligible to Slight
Impact of cuttings on groundwater flow.	G6f-G7f	Low - High	None-Negligible	Negligible
Impact on groundwater quality and human health caused by cone of influence of road cutting reaching areas of potential contaminated land and contamination flowing towards humans and groundwater receptors.	G8f	Low to High	None-Negligible	Negligible
Impact on water balance and water quality at Fishermyme	G9f-G10f	High	Negligible	Slight
Water Environment (Chapter 39)				
Generic Construction Impacts				
Surface Water Hydrology - hydrology/flow regime impacts from diversions, realignments and vegetation clearance.	W1f, W14f, W15f, W20f, W21f, W22f, W23f-W25f, W36f	n/a	n/a	n/a
Fluvial Geomorphology - suspended solids release during construction works, vegetation clearance.	W1f-W6f, W10f-W15f, W20f, W22f, W23f-W28f, W32f, W33f, W34f, W43f, W44f	n/a	n/a	n/a
Water Quality - pollutant spillage, leaks, contaminated land, etc.	W1f-W15f, W20f, W22f, W23f-W28f, W30f, W31f, W32f, W43f	n/a	n/a	n/a
Generic Operational Impacts – Road Drainage				
Surface Water Hydrology – increases/changes to volume of flow, etc. arising from new <u>impermeable areas</u> .	W17f, W23f-W26f, W35f	n/a	n/a	n/a
Fluvial Geomorphology – increased turbidity, sediment transport, erosion.	W17f, W18f, W19f, W22f	n/a	n/a	n/a
Water Quality – road runoff contaminants, accidental spillage, etc.	W17f, W18f, W19f, W23f-W26f	n/a	n/a	n/a

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				Magnitude	Significance	
Generic Operational Impacts – Watercourse Crossing Impacts						
<u>Surface Water Hydrology</u> – channel/culvert/bridges have potential to affect flood risk.		W16f, W20f	n/a	n/a	n/a	
<u>Fluvial Geomorphology</u> – culverting may cause increase in sedimentation and erosion.		W16f, W20f	n/a	n/a	n/a	
<u>Water Quality</u> – sediment increase may release contaminants, dissolved oxygen sags from low light in culverts.		W16f, W20f	n/a	n/a	n/a	
Generic Operational Impacts – Watercourse Realignment Impacts						
<u>Surface Water Hydrology</u> – possible impacts downstream of some realignments, possible catchment impacts.		W21f	n/a	n/a	n/a	
<u>Fluvial Geomorphology</u> – possible impacts on sediment supply, rate of transfer, erosion and deposition.		W21f, W38f	n/a	n/a	n/a	
<u>Water Quality</u> – Sediment released as a result of the realignment, may include contamination.		W21f, W38f	n/a	n/a	n/a	
Specific Environmental Impacts			Medium	Low	Slight	
Megray Burn	Construction					
	Hydrology - Extent and duration of works may impact upon the surface water hydrology and flow paths associated with the watercourse.					W1f, W14f, W25f, W30f
	Geomorphology - Culverting and realignment will involve extensive earthworks, resulting in sediment release and short-term change to morphological diversity and turbidity of the water column.					W1f-W6f, W8f, W10f, W11f, W13f, W15f, W22f, W25f, W26f, W30f, W3f2, W33f, W34f, W36f, W39f, W40f, W43f, W44f
	Water Quality - Risk of accidental spillage of pollutants during construction of culvert, realignment and outfall.					W1f-W15f, W22f, W25f, W26f, W30f-W32f, W40f, W43f, W44f
	Operation					
	Hydrology - Potential change to discharge regime and potential changes to flood regime					W16f, W17f, W19f, W21f, W25f, W35f
Geomorphology - Long-term decrease to morphological diversity due to culverting and realignment of channel.		W16f, W18f, W19f, W21f, W22f, W25f, W33f, W34f, W36f				

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				Magnitude	Significance
	Water Quality - Decreased quality due to untreated road run-off causing pollution, and culvert length reducing light. - Increased accidental spillage risk from traffic volumes.	W18f, W19f, W21f, W25f, W38f			
Limpet Burn	Construction		High	Low	Moderate
	Hydrology - Extent and duration of works may impact upon the surface water hydrology and flow paths associated with the watercourse.	W1f, W20f			
	Geomorphology - Bridging and realignment will involve major earthworks and vegetation clearance, which is likely to result in sediment release and loss of morphological diversity.	W1f-W6f, W10f, W11f, W13f-W15f, W20f, W22f, W26f – W28f, W30f, W36f, W42f, W43f			
	Water Quality - Potential risk of accidental pollutant spillage due to proximity of works.	W1f-W15f, W20f, W22f, W26f, W27f, W28f, W30f, W43f, W43f			
	Operation				
	Hydrology - Minimal change to flow as a result of bridge, however additional changes to surface water hydrology as a result of changes to potential groundwater in the area possible.	W20f			
	Geomorphology - Realignment of watercourse: Long-term potential for decrease to morphological diversity, extensive reduction to channel sinuosity potentially resulting in channel instability & excessive erosion/deposition.	W20f, W21f, W38f			
Water Quality - No outfall planned therefore only impacted as a result of diffuse pollution. - Length of bridge may impact water quality through lack of light.	W20f, W38f				
Coneyhatch Burn	Construction		Low	Negligible	Negligible
	Overall - Watercourse would be re-directed into pre-earthworks drainage design; therefore a very short section of the watercourse downstream of the proposed road may be lost. Release of fine sediment or pollution may occur.	W1f-W14f, W30f, W31f			
	Operation				
Overall - Very short section of the watercourse downstream of road may be lost.	n/a				
Fishermyle	Construction		High	Negligible	Slight/Negligible
	Hydrology – AWPR passes through wetland, effectively blocking connectivity of surface water hydrology paths from one side to the other.	W1f, W14f, W30f, W42f			

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	Geomorphology – not applicable	n/a		Negligible	Slight/Negligible
	Water Quality - Potential risk of accidental spillage of pollutants during construction due to the works through the wetland.	W1f-W14f, W30f, W31f, W42f			
	Operation				
	Hydrology - Approximately 2% of the wetland area will be lost and potential impacts may arise from blocking connectivity of through flow for the wetland feature.	W42f			
	Geomorphology – not applicable	n/a			
	Water Quality - Potential risk of diffuse pollution through road runoff. Potential risk of infiltration to groundwater.	W29f, W42f			
Green Burn	Construction		Medium	Low	Slight
	Hydrology - Extent and duration of works may impact upon the surface water hydrology and flow paths associated with the watercourse.	W1f, W14f, W23f, W30f, W39f			
	Geomorphology - Extensive culverting and realignment will involve earthworks, possibly resulting in sediment release and straightening of the channel, leading to loss of morphological diversity and short-term increase in suspended solid loads.	W1f-W6f, W10f-W11f, W13f-W15f, W22f, W23f, W26f, W30f, W32f-W34f, W36f, W39f, W43f, W44f			
	Water Quality - Potential risk of accidental spillage of pollutants during construction due to the length of works in close proximity to the watercourse.	W1f-W15f, W22f, W23f, W26f, W30f, W31f, W32f, W34f, W39f, W40f, W43f, W44f			
	Operation				
	Hydrology - Change to discharge regime due to lengthening, realignment and road run-off discharge potentially changing flooding regime.	W16f, W17f, W21f, W23f			
	Geomorphology - Long-term decreased morphological diversity due to culverting and realignments, channel straightening will reduce sinuosity and decrease morphological diversity.	W16f, W17f, W18f, W19f, W21f, W23f, W38f			
Water Quality - Sediment loaded untreated road run-off, soluble and insoluble pollution may occur. - Increased accidental spillage risk due to traffic loadings. - Number and length of culverts may impact on water quality due to lack of light.	W16f, W17f, W18f, W19f, W21f, W22f, W23f, W38f				
Green Ditch	Construction		Low	Negligible	Negligible
	Hydrology - Realignment of Green Ditch will temporarily impact upon the discharge regime by changing drainage patterns	W1f, W14f,			

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				Magnitude	Significance	
	Geomorphology - Realignment will involve earthworks, possibly resulting in sediment release and straightening of the channel, leading to loss of morphological diversity and short-term increase in suspended solid loads.	W1f- W6f, W10f, W11f, W13f, W14f, W22f, W26f, W30f, W36f, W43f				
	Water Quality - Potential pollution impact from extent of works in close proximity to burn.	W1f-W14f, W22f, W26f, W30f, W31f, W43f				
	Operation					
	Hydrology - Realignment will impact flow paths and potential flood risk	N/A				
	Geomorphology – Channel realignment may cause a slight long-term decrease in morphological diversity.	W21f, W38f				
Water Quality - No planned road drainage outfall will result in minimal impact on the water quality over the long-term however impacts may arise as a result of the length of culvert due to lack of light.	N/A		Negligible	Negligible		
Allochie Burn	Construction		Medium			
	Overall – A section of the watercourse downstream of the proposed road may be lost through re-direction. Release of fine sediment or construction pollutants may occur.	W1f-W14f, W30f, W31f				
	Operation					
	Overall – A section of the watercourse downstream of road may be lost.	n/a		Negligible	Negligible	
Burn of Muchalls	Construction		High			
	Hydrology - Extent and duration of works may impact upon the surface water hydrology and flow paths associated with the watercourse.	W1f, W14f, W20f, W24f, W30f				
	Geomorphology - Bridging of existing channel will involve some earthworks, possibly resulting in sediment release and short-term change to morphological diversity and turbidity of the water column.	W1f-W6f, W10f, W11f, W13f, W14f, W20f, W24f, W27f, W28f, W30f, W32f, W34f, W38f, W39f, W41f				
	Water Quality - Potential for spillage of pollutants.	W1f-W14f, W20f, W24f, W27f, W28f, W30f, W31f, W32f, W33f, W34f, W39f, W41f				
	Operation					
	Hydrology – Change to discharge regime due to road run-off discharge to the burn may change flood regime.	W17f- W20f, W24f				
	Geomorphology – Change to road run-off discharge to the burn may lead to siltation/erosion and the requirement for dredging. Bridge may change sediment regime.	W20f, W24f		Negligible	Slight/ Negligible	

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	Water Quality - Sediment loaded untreated road run-off, soluble and insoluble pollution may occur. - Increased accidental spillage risk due to traffic loadings.	W18f, W20f, W24f, W33f, W34f, W38f			
Burn of Blackbutts	Construction Overall – A section of the watercourse downstream of the proposed road may be lost through re-direction. Release of fine sediment or construction pollutants may occur.	W1f-W14f, W30f, W31f	Low	Negligible	Negligible
	Operation Overall - A section of the watercourse downstream of road may be lost.	n/a		Negligible	Negligible
Cookney Ditch	Construction Hydrology - Activities in and around the channel lead to a potential impact upon the current hydrological regime.	W1f, W15f, W30f,	Low	Negligible	Negligible
	Geomorphology - Culverts and associated realignments will require vegetation clearance and hence potential for suspended solid release into the channel, decreasing morphological diversity and increasing turbidity over the short term.	W1f-W6f, W10f, W11f, W13f-W15f, W22f, W26f, W30f, W36f, W43f			
	Water Quality - Potential impact through accidental spillage	W1f-W15f, W22f, W26f, W30f, W31f, W38f, W40f, W43f, W44f			
	Operation Hydrology - Culverting will impact flow paths and potential flood risk.	W16f		Negligible	Negligible
	Geomorphology - Impact on changes to sediment regime and morphology due to the straightened nature of the channel.	W21f, W36f, W38f			
	Water Quality - No outfall planned therefore only impacted due to diffuse pollution. - Culverting may reduce amount of light.				
Stoneyhill Ditch	Construction Hydrology - Activities in and around the channel lead to a potential impact upon the current hydrological regime.	W1f, W15f, W30f,		Negligible	Negligible

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				Magnitude	Significance
	Geomorphology - Culverts and associated realignments will require vegetation clearance and hence potential for suspended solid release into the channel, decreasing morphological diversity and increasing turbidity over the short term.	W1f-W6f, W10f, W11f, W13f-W15f, W22f, W26f, W30f, W36f, W43f			
	Water Quality - Potential impact through accidental spillage	W1f-W15f, W22f, W26f, W30f, W31f, W38f, W40f, W43f, W44f			
	Operation				
	Hydrology - Culverting will impact flow paths and potential flood risk.	W16f			
	Geomorphology - Impact on changes to sediment regime and morphology due to the straightened nature of the channel.	W21f, W36f, W38f			
	Water Quality - No outfall planned therefore only impacted due to diffuse pollution. - Culverting may reduce amount of light.	W1f-W15f, W22f, W26f, W30f, W31f, W38f, W40f, W43f, W44f			
Bainagubs Burn	Construction		Low		
	Hydrology - Activities in and around the channel lead to a potential impact upon the current hydrological regime.	W1f, W15f, W16f, W22f, W30f			
	Geomorphology - Culverts and associated realignments will require vegetation clearance and hence potential for suspended solid release into the channel, decreasing morphological diversity and increasing turbidity over the short term.	W1f-W6f, W10f-W11f, W13f-W15f, W22f, W26f, W30f, W36f, W43f			
	Water Quality – Potential impact through accidental spillage.	W1f-W15f, W22f, W26f, W30f, W31f, W38f, W40f, W43f, W44f			
	Operation				
	Hydrology – Culverting will impact flow paths and potential flood risk.	W16f			
	Geomorphology – Impact on changes to sediment regime and morphology due to the straightened nature of the channel.	W21f, W36f, W38f			
	Water Quality - No outfall planned therefore only impacted due to diffuse pollution. - Culverting may reduce amount of light.	W1f-W15f, W21f, W22f, W26f, W30f, W31f, W38f, W40f, W43f, W44f			

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Tributary of the Burn of Elsick	Construction		Medium	Negligible	Negligible
	Hydrology - Changes to the discharge regime as a result of extent and duration of works.	W1f, W14f,W22f, W24f, W30f			
	Geomorphology - Culverting and realignment will involve major earthworks, possibly resulting in sediment release and short/ medium-term increases to sediment loading within the water column and changes to erosion and depositional patterns.	W1f-W6f, W10f-W15f, W22f, W24f, W26f, W30f, W32f, W33f, W34f, W36f, W39f			
	Water Quality – Potential impact through accidental spillage.	W1f-W15f, W22f, W24f, W26f, W30f-W34f, W36f, W39f, W40f, W43f, W44f			
	Operation		Medium	Low	Slight
	Hydrology – Possible change to discharge regime due to lengthening and realignment of burn in addition to anticipated changes as a result of the outfall.	W16f, W17f, W24f, W30f			
	Geomorphology – Long term decrease to morphological diversity as a result of culverting and realignment of watercourse.	W16f, W18f, W19f, W21f, W24f, W38f			
Water Quality - Sediment loaded untreated road runoff, soluble and insoluble pollution may occur. - Increased accidental spillage risk due to traffic volumes.	W18f, W19f, W21f, W24f, W38f	Medium	Low	Slight	
Whiteside Burn	Construction		Medium	Negligible	Negligible
	Hydrology - Activities in and around the channel lead to a potential impact upon the current hydrological regime.	W1f, W15f, W30f			
	Geomorphology - Culverts and associated realignments will require vegetation clearance and hence potential for suspended solid release into the channel, decreasing morphological diversity and increasing turbidity over the short term.	W1f-W6f, W10f-W15f, W22f, W26f, W30f, W36f, W40f, W43f, W44f			
	Water Quality – Potential impact through accidental spillage.	W1f-W15f, W22f, W26f, W30f, W31f, W40f, W43f, W44f			
	Operation		Medium	Negligible	Negligible
Hydrology – Culverting will impact flow paths and potential flood risk.	W16f, W21f				

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Description of Impact Note: these are potential environmental impacts (i.e. before specific mitigation)		Mitigation Item Number (refer to Chapter 51)	Sensitivity /Value of Receptor	Residual Impact (i.e. with mitigation)	
				Magnitude	Significance
	Geomorphology – Changes to sediment regime and morphology due to the straightened nature of the channel.	W16f, W21f			
	Water Quality - No outfall planned therefore low impact due to diffuse pollution. - Culverting may reduce amount of light	W16f, W21f			
Crossley Burn and Cairns Burn	Construction		Low	Negligible	Negligible
	Hydrology – Culverting of Crossley Burn and realignment of Cairns Burn will temporarily impact upon the discharge regime by changing drainage patterns.	W1f, W15f, W30f			
	Geomorphology - Culverting and realignment will involve earthworks, possibly resulting in sediment release and straightening of the channel, leading to loss of morphological diversity and short-term increase in suspended solid loads.	W1f-W6f, W10f, W11f, W13f-W16f, W22f, W26f, W30f, W36f, W40f, W43f, W44f			
	Water Quality – Potential pollution impact from extent of works in close proximity to burn.	W1f-W15f, W22f, W26f, W30f, W31f, W40f, W43f, W44f			
	Operation				
	Hydrology – Culverting and realignment will impact flow paths and potential flood risk.	W16f, W21f			
	Geomorphology – Channel realignment and culvert may cause a slight long-term decrease in morphological diversity.	W16f, W21f			
Water Quality - No planned road drainage outfall will result in minimal impact on the water quality over the long-term however impacts may arise as a result of the length of culvert due to lack of light.	W16f, W21f				
Circle and Square Burn	Construction		Low	Negligible	Negligible
	Overall – A section of the watercourse downstream of the proposed road may be lost through re-direction. Release of fine sediment or construction pollutants may occur.	W1f-W14f, W30f, W31f			
	Operation				
Overall - A section of the watercourse downstream of road may be lost.	n/a		Negligible	Negligible	
Wedderhill Burn	Construction		Low	Negligible	Negligible
	Overall – A section of the watercourse downstream of the proposed road may be lost through re-direction. Release of fine sediment or construction pollutants may occur.	W1f-W14f, W30f, W31f			

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Description of Impact Note: these are potential environmental impacts (i.e. before specific mitigation)		Mitigation Item Number (refer to Chapter 51)	Sensitivity /Value of Receptor	Residual Impact (i.e. with mitigation)	
				Magnitude	Significance
	Operation				
	Overall - A section of the watercourse downstream of road may be lost.	n/a		Negligible	Negligible
Craigentath Burn	Construction		Low	Negligible	Negligible
	Hydrology - Potential impact upon the current hydrological regime through activities in and around the channel.	W1f, W15f, W30f,			
	Geomorphology - Culverts and associated realignments will require vegetation clearance and hence potential for suspended solid release into the channel, decreasing morphological diversity and increasing turbidity over the short term.	W1f-W6f, W10f, W11f, W13f-W16f, W22f, W26f, W30f, W36f, W40f, W43f, W44f			
	Water Quality - The release of suspended solids may reach the Crynoch Burn SAC. - Potential impact through accidental spillage.	W1f-W15f, W22f, W26f, W30f, W31f, W40f, W43f, W44f			
	Operation				
	Hydrology - Culverting expected to impact on flow paths and potential flood regime.	W16f, W21f			
	Geomorphology – Impact on sediment regime and morphology are due to the straightened nature of the channel.	W16f, W21f			
Water Quality - No outfall planned therefore only impacted due to diffuse pollution, however water quality may also be impacted due to lack of light through culvert.	W16f, W21f				
Burn of Muchalls (Cumulative Impacts)	Construction		High	Negligible	Slight/ Negligible
	Overall – Potential cumulative impacts on water quality and flow from direct works impacts of pre-earthworks drainage (Burn of Blackbutts) and bridging (Burn of Muchalls).	W1f-W15f, W20f, W24f, W27f, W28f, W30f,			
	Operation				
Overall – Bridging of the Burn of Muchalls and pollution and sediment release from outfall into the burn, in combination with the pre-earthworks drainage of the the Burn of Blackbutts, will increase the impact on the Burn of Muchalls.	W17f- W20f, W24f	Negligible	Slight/ Negligible		
Burn of Elsick (Cumulative Impacts)	Construction		Medium	Negligible	Negligible
	Overall – Accumulation of direct works impacts from culverting and realignment of Balnagubs Burn, Tributary of the Burn of Elsick, Whiteside Burn, Crossley Burn and Cairns Burn.	W1f-W15f, W24f, W26f			

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Description of Impact		Mitigation Item Number (refer to Chapter 51)	Sensitivity /Value of Receptor	Residual Impact (i.e. with mitigation)	
Note: these are potential environmental impacts (i.e. before specific mitigation)				Magnitude	Significance
	Operation				
	Overall – Accumulation of direct impacts on Balnagubs Burn, Tributary of the Burn of Elsick, Whiteside Burn, Crossley Burn and Cairns Burn.	W16f-W19f, W21f, W24f		Negligible	Negligible
Crynoch Burn (Cumulative Impacts)	Construction		Reported in Southern Leg Chapter		
	Overall – Accumulation of direct works impacts of pre-earthworks drainage of Circle Burn, Square Burn, and Wederhill Burn, and culverting and realignment of Craigentath Burn.	W1f-W15f, W26f		Negligible	Reported in Southern Leg Chapter
	Operation				
	Overall – Accumulation of direct impacts on Circle Burn, Square Burn, Craigentath Burn and Wedderhill Burn.	W16f		Negligible	Reported in Southern Leg Chapter
Network Culvert Fishermyle	Construction		n/a		
	Surface Water hydrology	W37f		n/a	n/a
	Geomorphology	n/a			
	Water Quality	n/a			
	Operation				
	Surface Water Hydrology Potential flood risk from culvert blockage	W37f, W35f		negligible	n/a
	Geomorphology	n/a			
Water Quality	n/a				
Ecology and Nature Conservation (Chapter 40)					
Refer to Table 50.2.					
Landscape (Chapter 41)					
Directly Affected Areas			-	-	Moderate
Open Farmland : Megray (ch0-1200)		L1f-L10f, L11f-L16f	Low to Medium	Medium	
B979 corridor.			Medium to High	Medium to High	
Open hillside farmland.			Medium	Low	
Edge of former Ury Estate.					

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Description of Impact Note: these are potential environmental impacts (i.e. before specific mitigation)	Mitigation Item Number (refer to Chapter 51)	Sensitivity /Value of Receptor	Residual Impact (i.e. with mitigation)	
			Magnitude	Significance
<u>Wooded Farmland: Kempstone (ch1200-3100)</u> Limpet Burn valley. Open Farmland. Areas of gorse and scrub woodland. B979 road corridor.	L1f-L10f, L17f-L29f	High	Medium	Moderate
		Medium to High	Medium	
		Medium to Low	Low to Medium	
		Low to Medium	Low	
<u>Muchalls (ch3100-4500, 5000-5800)</u> Open farmland basin around Burn of Muchalls. Hillside farmland between Cookney and the A90.	L1f-L10f, L30f-L40f	-	-	Substantial
		Medium	High	
		Medium to High	High	
<u>Valley: Burn of Muchalls (ch4500-5000)</u> Narrow valley and floodplain	L1f-L10f, L41f-L43f	High	Medium	Substantial
<u>Hill Type: Stranog (ch5800-10100)</u> Gorse and scrub covered ridges and hilltops. Open pasture.	L1f-L10f, L44f-L59f	-	-	Substantial
		Medium to High	Medium to High	
		Medium to High	High	
<u>Blaikiewell (ch10100-11500)</u> All areas	L1f-L10f, L60f-L63f	Medium to High	Medium to High	Moderate to Substantial
Indirectly Affected Areas				
<u>Urban: Stonehaven</u> All areas.	L1f-L10f	Low to Medium	Medium	Slight
<u>Valley Type: Glen Ury</u> All areas.	n/a	Low to Medium	No change	None
<u>Coast: Kincardine Cliffs</u> All areas	L1f-L10f	Medium	Low	Slight
<u>Hill: Curlethney</u> All areas	L1f-L10f	Low to Medium	Low	Slight to Negligible
<u>Urban: Newtonhill</u> All areas	n/a	Low to Medium	No change	None
<u>Wooded Farmland: Cammachmore</u> All areas	L1f-L10f	Low to Medium	Low	Negligible to Slight
<u>Wooded Farmland: Netherly / Altres</u> All areas	n/a	High	No change	None
<u>Open Farmland: Craiglug</u> All areas	n/a	Low to Medium	No change	None

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Description of Impact Note: these are potential environmental impacts (i.e. before specific mitigation)	Mitigation Item Number (refer to Chapter 51)	Sensitivity /Value of Receptor	Residual Impact (i.e. with mitigation)	
			Magnitude	Significance
<u>Hill: Craigingles</u> All areas	L1f-L10f	High	Low	Slight
Visual (Chapter 42)				
Overall impact from Fastlink of the new road across open farmland in winter year of scheme opening: <ul style="list-style-type: none"> <u>Built receptors</u>: 171 receptors affected by moderate or greater adverse impact; and <u>Outdoor receptors</u>: 101 receptors affected by moderate or greater adverse impact. 	L1f-L10f & V1f, V2f	n/a	Various magnitude dependant of a variety of factors	<u>Built receptors</u> : 77 affected by moderate or greater impact <u>Outdoor receptors</u> : 83 affected by moderate or greater impact
Cultural Heritage (Chapter 43)				
Removal of known and unknown remains of cultural heritage significance.	CH1f, CH2f, CH3f, CH4f	Less than Local – National	Low - Medium	None - Slight
Visual impact on known site of cultural heritage significance.	CH5f	Low - High	Unknown	Unknown
Air Quality (Chapter 44)				
Change in annual mean nitrogen dioxide concentrations at 67 sample properties within 500m of the Fastlink	n/a	High	Increase in NO ₂ (number of sample properties in brackets): Very small (1) Small (1) Medium (4) Large (2) Very large (50)	Negligible (1) Slight (7) Moderate (50)
			Reduction in NO ₂ (number of sample properties in brackets): Extremely small (1) Very small (2) Medium (2) Large (2) Very large (2)	Negligible (3) Slight (4) Moderate (2)

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Description of Impact Note: these are potential environmental impacts (i.e. before specific mitigation)	Mitigation Item Number (refer to Chapter 51)	Sensitivity /Value of Receptor	Residual Impact (i.e. with mitigation)	
			Magnitude	Significance
Change in annual mean PM ₁₀ concentrations at 67 sample properties within 500m of the Fastlink	n/a	High	Increase in PM ₁₀ (number of sample properties in brackets): Extremely small (6) Very small (48) Small (5) Medium (1)	Negligible (54) Slight (6)
			Reduction in PM ₁₀ (number of sample properties in brackets): Extremely small (2) Very small (4) Small (1)	Negligible (6) Slight (1)
Change in the number of exceedences of 50 µg/m ³ as a 24-hour PM ₁₀ concentration at 67 sample properties within 500m of the Fastlink			No change (67)	No change (67)
Traffic Noise and Vibration (Chapter 45)				
At ground floor level within 300m, 38 properties would experience a residual significance of Moderate adverse or worse at the design year.	N1f (generic) N2f (generic) N3f – N7f (specific receptors)	High	Low-High	Moderate - Substantial
At first floor level within 300m, 38 properties would experience a residual significance of Moderate adverse or worse at the design year.	N1f (generic) N2f (generic) N3f – N7f (specific receptors)	High	Low-High	Moderate - Substantial
Properties expected to experience L _{A10(18hr)} > 59.5dB, with an unmitigated impact significance of Moderate Adverse or worse at ground floor, where the mitigation threshold of 59.5dB can be achieved by the installation of noise barriers.				
Kempstone Hill, Stonehaven, AB3 3QE	N3f	High	High	Substantial
Strathgyle Cottage, Stonehaven, AB3 3SN	N4f	High	High	Substantial
North Cookney Farm, Stonehaven, AB3 3SB	N5f	High	High	Substantial

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			Magnitude	Significance
North Cookney Croft, Stonehaven, AB3 3SB	N6f	High	High	Substantial
Meadowbank, Stonehaven, AB3 3SD	N7f	High	High	Substantial
Pedestrians, Cyclists, Equestrians and Community Effects (Chapter 46)				
Journey Length				
B979 roundabout with A90 slip lanes: The AWPR will replace the B979/A90 T-junction with a small roundabout. Cyclists travelling south will need to negotiate the right hand turn around the roundabout towards Stonehaven.	P3f	Low	Neutral	Negligible
Hill of Megray ROW (GK88): track will be closed.	P5f	High	Minor Adverse	Slight
Auquorthies Road (U89K): road will be closed.	P1f	Low	Neutral	Negligible
Kempstonehill to Coneyhatch: track will be closed.	P5f	High	Moderate Adverse	Moderate
Allochie Farm to U88K: track will be closed.	P1f, P4f, P5f	Medium	Moderate Adverse	Slight
C25K: The AWPR will cross the road between North Cookney Croft and North Cookney Farm. The C25K will be straightened and an overbridge will maintain access.	P4f, P5f	Medium	Negligible Adverse	Negligible
West Stoneyhill track: track will be closed.	P4f, P5f	High	Moderate Adverse	Moderate
North Rothnick Farm track: track will be closed.	P4f, P5f	Medium	Negligible Adverse	Negligible
Blaikiewell Farmhouse track (south): track will be closed.	P4f, P5f	High	Negligible Adverse	Slight
Amenity Value				
B979 south of A90 underbridge	P6f	High	n/a	Slight
B979 roundabout with A90 slip lanes	P6f	High	n/a	Slight
Hill of Megray RoW (GK88) – access from B979	P7f	High	n/a	Moderate
Hill of Megray RoW (GK88)	P7f	High	n/a	Slight
Kempstonehill to Coneyhatch	P7f	High	n/a	Slight
Hill of Muchalls road (U88K)	P7f	High	n/a	Moderate
Allochie Farm to U88K	P7f	High	n/a	Slight
C12K	P7f	High	n/a	Moderate
C25K	P7f	High	n/a	Slight
West Stoneyhill track	n/a	High	n/a	Slight
Lairhillock Road (C13K)	n/a	High	n/a	Slight
Lochton - Auchlunies - Nigg Road (C5K)	P7f	High	n/a	Moderate
Blaikiewell Farmhouse track (south)	P7f	High	n/a	Moderate
Community Severance				
Cookney Hall: Journey length increase less than 250m and new C25K overbridge.	P4f, P5f	High	n/a	Moderate
Kincardine Community Hospital: Vehicular access for residents along U89K will have an increase in journey length of three kilometres.	n/a	Negligible	n/a	Slight

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Description of Impact Note: these are potential environmental impacts (i.e. before specific mitigation)	Mitigation Item Number (refer to Chapter 51)	Sensitivity /Value of Receptor	Residual Impact (i.e. with mitigation)	
			Magnitude	Significance
Dunnottar School: Vehicular access for residents along U89K will have an increase in journey length of three kilometres.	n/a	Negligible	n/a	Slight
Slicewells Wood / Megray Wood / Limpet Wood: Severance of access path (C5).	P1f	High	n/a	Slight
Vehicle Travellers (Chapter 47)				
Views from the AWPR will offer change to those currently available from the A90, with views generally more open across rolling farmland and hills. The nature of views from the new road will generally be similar to that of views from the B979.	L1f-L10f & VT1f, VT2f	n/a	<p><u>Significance not assessed. Impacts considered as % and type of view:</u></p> <p><i>No View:</i> 1.6% of views in winter year of opening increasing to 13.8% in summer 15 years after.</p> <p><i>Restricted View:</i> 10.0% of views in winter year of opening increasing to 15.3% in summer 15 years after.</p> <p><i>Intermittent View:</i> 20.7% of views in winter year of opening reducing to 40.9% in summer 15 years after.</p> <p><i>Open View:</i> 67.7% of views in winter year of opening reducing to 30.0% in summer 15 years after.</p>	
Changes to driver stress levels: main sections of road network where driver stress levels are predicted to decrease due to the proposed scheme.	VT2f	n/a	<p>Key predicted driver stress decreases:</p> <ul style="list-style-type: none"> • The A90 (T) Stonehaven to Newtonhill (Moderate to Low). • The A90 (T) Newtonhill to Portlethen northbound (High to Moderate), southbound (Moderate to Low). • The B979 Netherley Road southbound (High to Moderate). 	
Disruption due to Construction (Chapter 48)				
Damage to land (e.g. due to movement of machinery, storage of materials, access routes).	D1f	See Land Use Impact Summary	Not assessed	Not significant
Dust and emission impacts on arable crop production (e.g. dust covering plant leaves - reducing photosynthesis).	D1f			
Temporary restriction of access to farm buildings and severance of land preventing movement of machinery or livestock.	D2f			
Temporary restriction of access to local business premises.	D3f	See Visual Impact Summary	Not assessed	Significant adverse landscape and visual impacts possible near construction compounds, major structures and/or earthworks. Precise details of construction programme and approach required for full
Visual impact of machinery including heavy excavators, earth moving plant, concrete batching plant, pile drivers, cranes etc. Also vehicles moving machinery and materials to and from the site including barges used in bridge construction.	D4f			
Visual impact of site compound areas including site accommodation and parking.	D4f			
Visual impact of construction works including structures, earthworks, road surfacing and ancillary	D4f			

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Description of Impact Note: these are potential environmental impacts (i.e. before specific mitigation)	Mitigation Item Number (refer to Chapter 51)	Sensitivity /Value of Receptor	Residual Impact (i.e. with mitigation)	
			Magnitude	Significance
works, temporary soil storage heaps, night-time working and construction material stockpiles.				assessment.
Generation of dust. A risk of soiling 440 properties within 500m of the proposed length of the Fastlink. A risk of enhanced PM ₁₀ concentrations for 110 properties within 200m of the proposed length of the Fastlink.	D5f, D6f	High	Large	Moderate
Construction related vehicle emissions.	D5f, D6f	High	Very Small	Negligible
Increased noise and vibration levels to properties nearby to construction works.	D7f	High	Not assessed	Adverse impacts likely at several properties close to the works
Temporary obstruction of routes used by pedestrians and others due to construction activities.	D8f	See Pedestrian Impact Summary	Not assessed	Short-term adverse impacts likely on some routes
Increases to driver stress (e.g. due to increased journey times, diversions, queuing traffic).	D9f, D10f	Not assessed	Not assessed	Not significant
Policies and Plans (Chapter 49)				
Refer to Policy Summaries (Tables 49.3 to 49.4 in Chapter 49)				

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Table 50.2 – Environmental Impact Table, Ecology and Nature Conservation (Chapter 40)

Impact Description		Mitigation Item Number (refer to Chapter 21)	Sensitivity/Value of Receptor	Residual Impact (i.e. with mitigation)	
				Magnitude	Significance
Note: these are potential environmental impacts (i.e. before specific mitigation)					
Ecology and Nature Conservation (Chapter 40)					
Section FL1 Predicted Construction Impacts on Habitats and Species					
Terrestrial Habitats	Limpet Burn (F7) - Severance and fragmentation on either side of route during construction. Furthermore, potential pollution and disturbance to remaining habitats may occur.	E1f-6f, E9f, E10f, E14f, E15f, E42f	Regional	Low negative	Minor
	Fishmyre Wood South and Fishermyme Wood wet habitats to the south of Allochie Crofyt (F10, F12) - Severance and fragmentation of habitats on either side of route during construction. Furthermore, potential pollution, hydrological impacts and disturbance to remaining habitats may occur.		Regional	Low negative	Minor
Badger	Limpet Burn Group B (F6, F7) - Scheme would result in the loss of main sett B1 and outlier sett B2, leading to the possible injury or fatality of badgers in the sett.	E1f-4f, E6f-18f	County	Negligible	Negligible
Bats	Megray Wood, Limpet Burn, Agricultural fields to the north of Megray Farm, Fishermyme Wood south (F6, F7, F8, F10) – Risk of direct mortality where the proposed carriageway passes through Megray Wood and through woodland adjacent to Megray Burn and Fishermyme.	E1f-4f, E6f, E7f, E9f, E10f, E12f-15f, E19f-21f	County	Negligible	Minor
	Megray Burn and Limpet Burn (F3, F7) – Fragmentation and severance to commuting routes.		Regional	Negligible	Minor
	Agricultural fields between the A90 and Stonehaven (F2) – Possible disturbance to bats roosting at New Mains of Ury.		County	Negligible	Minor
	Megray Wood and Limpet Burn (F6, F7) –Disturbance to foraging and commuting bats if night works are used during bridge construction.		County	Negligible	Minor
Breeding Birds	North and South Fishermyme (F10, F12) – Habitat fragmentation / isolation, disturbance and pollution due to accidental spills.	E1f-4f, E6f, E9f, E10f, E14f, E15f, E22f-25f	County	Negligible to Low negative	Minor to Negligible
Wintering Birds	North and South Fishermyme (F10, F12) - Habitat fragmentation and isolation, disturbance and potential pollution of Green Burn due to accidental spills during construction.	E1f-4f, E6f, E9f, E10f, E14f, E15f, E22f-25f	County	Negligible	Negligible
Otters	Megray Burn and Green Burn (F3, F4, F7, F8) – Risk of direct mortality and disturbance during construction.	E1f-4f, E6f-15f, E26f-30f	County	Negligible	Negligible

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Impact Description Note: these are potential environmental impacts (i.e. before specific mitigation)		Mitigation Item Number (refer to Chapter 21)	Sensitivity/Value of Receptor	Residual Impact (i.e. with mitigation)	
				Magnitude	Significance
	Limpet Burn (F6, F7) Risk of direct mortality and disturbance during construction. Construction of the scheme would cause severance of Limpet Burn along a commuting route between the sea and upstream resources including Megray Burn, Fisherymyre Moss and Fisherymyre Pond.		Regional	Negligible	Negligible
Water Vole	Green Burn, Fisherymyre Moss Drain and Fisherymyre Moss (F8, F10, F12) – Risk of direct mortality during habitat clearance for construction.	E1f-4f, E6f-12f, E14f, E15f, E41f	National	Negligible	Negligible
Freshwater Habitats	Megray Burn (F3, F4) – Risk of sediment and / or other pollution release into the burn during construction of proposed culvert.	E1f-6f, E9f-11f, E13f-15f, E35f-37f	County	Low negative	Minor
	Limpet Burn (F7) – The creation of the buried structure would involve some earthworks, resulting in sediment and/or other pollution release. Some physical damage to the complex wetland habitat around the burn may also result from construction.		Regional	Low negative	Minor
	Green Burn (F8, F10) – Culvert construction and burn realignment would involve some earthworks, resulting in sediment and / or other pollution release into the burn.		County	Low negative	Minor
Section FL2 Predicted Construction Impacts on Habitats and Species					
Terrestrial Habitats	Burn of Muchalls (F15) - Severance and fragmentation of habitats on either side of route during construction. Furthermore, potential pollution and disturbance to remaining habitats may occur.	E1f-6f, E9f, E10f, E14f, E15f, E42f	Regional	Negligible	Negligible
Bat	Burn of Muchalls (F15) – Risk of direct mortality due to felling of trees with roost potential.	E1f-4f, E6f, E7f, E9f, E10f, E12f-15f, E19f-21f	Regional	Negligible	Minor
	Agricultural fields surrounding Hill of Muchalls (F13, F16) – Disturbance during construction to roosts located within 200m of proposed scheme and site compounds.		Regional	Negligible	Minor
	Fragmentation of the eastern edge of the heathland area north of Fisherymyre (F11) with potential implications for foraging and commuting bats. Direct mortality, disturbance at identified roosts Woodview and Elsick Farm (F13).			Negligible	Minor
Breeding Birds	Burn of Muchalls and area surrounding Cookney (F15, F16) – Potential pollution due to accidental spills.	E1f-4f, E6f, E9f, E10f, E14f, E15f, E22f-25f	County	Negligible to Low negative	Minor to Negligible
Wintering Birds	Hill of Muchalls (F13) – Potential pollution of field ditches which form the Allochie Burn due to accidental spills.	E1f-4f, E6f, E9f, E10f, E14f, E15f, E22f-25f	County	Negligible	Negligible
	Burnside (F15) – Potential pollution of the Burn of Muchalls due to accidental spills.		County	Negligible	Negligible

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Impact Description Note: these are potential environmental impacts (i.e. before specific mitigation)		Mitigation Item Number (refer to Chapter 21)	Sensitivity/Value of Receptor	Residual Impact (i.e. with mitigation)	
				Magnitude	Significance
	Cookney (F16) – Potential pollution of the Burn of Blackbutts due to accidental spills.		County	Negligible	Negligible
Otter	Back Burn (F13) – Scheme passes within 50m of potential couch C3. Disturbance possible if otters are lying up along scheme.	E1f-4f, E6f-15f, E26f-30f	Regional	Negligible	Negligible
	Burn of Muchalls (F15) – Risk of direct mortality or disturbance from construction activities. Additional disturbances possible at potential couch C4.		National	Negligible	Negligible
Section FL3 Predicted Construction Impacts on Habitats and Species					
Terrestrial Habitats	Stoney Hill (F19) - Potential hydrological impacts on wetland habitats during construction. Also potential pollution and disturbance impacts may occur.	E1f-6f, E9f, E10f, E14f, E15f, E42f	County	Low negative	Minor
	Wet habitats around East Crossley (F21) - Severance and fragmentation of habitats on either side of route during construction. Furthermore, potential hydrological impacts on wetland habitats, potential pollution and disturbance impacts may occur.		County	Low negative	Minor
	Dry heath/acid grassland mosaic to the west of Wedderhill (F23) – Severance and fragmentation of habitats on either side of route during construction. Furthermore, potential hydrological impacts on adjoining wetland habitats may occur.		County	Low negative	Minor
	Bog / heath to the immediate west of Wedderhill (F24) – Severance of hydrological connectivity during construction of the scheme could result in drying out of the wetland habitat.		County	Negligible	Negligible
Breeding Birds	Harecraig and Stranog Hill (F18, F19, F23, F25) – Potential pollution due to accidental spills at Harecraig and Strannog Hill.	E1f-4f, E6f, E9f, E10f, E14f, E15f, E22f-25f	County	Negligible to Low negative	Minor to Negligible
Wintering Birds	Crossley (F21) – Potential pollution of Whiteside Burn due to accidental spills.	E1f-4f, E6f, E9f, E10f, E14f, E15f, E22f-25f	County	Negligible	Negligible
	East Crossley (F22) - Potential pollution of Cairns Burn and Crossley Burn due to accidental spills.		County	Negligible	Negligible
	East of Stranog Hill (F23) – Potential pollution of Circle Burn due to accidental spills.		County	Negligible	Negligible
	Crynoch / Craigentath Burns (F26) – Potential pollution of Craigentath Burn and Ditch, Wedderhill Burn and Burnhead Burn due to accidental spills.		County	Negligible	Negligible
Otter	Balnagubs Burn (F18) – Scheme crosses the burn which is likely to be used regularly by otters for foraging and lying up. Otters may therefore suffer direct mortality and disturbance during construction activities.	E1f-4f, E6f-15f, E26f-30f	County	Negligible	Negligible

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				Magnitude	Significance
	Burn of Elsick (F18) – Proposed scheme crosses the burn which is likely to be an important otter foraging and commuting resource. Otters may therefore suffer direct mortality and disturbance during construction activities.		Regional	Negligible	Negligible
Section FL1 Predicted Operational Impacts on Habitats and Species					
Terrestrial Habitats	Limpet Burn (F7) – Direct habitat loss of UK BAP and other habitats where the proposed scheme crosses. Severance and fragmentation of habitats is also predicted on either side of route due to the operational scheme. Furthermore, potential pollution and disturbance to remaining habitats may occur.	E1f-6f, E9f, E10f, E14f, E15f, E42f	Regional	Low negative	Minor
	Fishermyre Wood South and Fishermyre Wood wet habitats to the south of Allochie Croft (F10, F12) – Direct habitat loss of UK BAP habitats of wet woodland and fen and other habitats where the proposed route crosses. Severance and fragmentation of habitats on either side of route due to the operational scheme is also predicted. Furthermore, potential pollution, hydrological impacts to wetland and disturbance to remaining habitats may occur.		Regional	Low negative	Minor
Badger	Limpet Burn Social Group B (F6, F7) – Increased risk of RTAs particularly where the proposed scheme crosses actual and probable badger paths at ch1100, ch1150, ch1300, ch1500, ch1775.	E1f-4f, E6f-18f	County	Negligible	Negligible
	Limpet Burn Social Group B (F6, F7) – The loss of main sett B1 would result in a series of impacts on the social group including: displacement from their home range and main sett and increased territorial conflict with neighbouring social groups (Groups A and C). It is unlikely that the social group would continue to exist.			Low negative	Minor
	Limpet Burn Social Group B (F6, F7) - Severance of approximately 50% of badger groups's territory, including potential foraging habitat. Furthermore, outlier setts B3, B4 and B6 would be cut-off from the main sett. This is likely to lead to increased territorial conflict with neighbouring social groups (Group C)			Low negative	Minor
Bats	Megray Burn and Limpet Burn (F7, F8) – Potential risk of direct mortality due to severance of known commuting routes and loss of high value foraging and roosting habitat adjacent.	E1f-4f, E6f, E7f, E9f, E10f, E12f-15f, E19f-21f	County	Minor	Negligible
	Limpet Burn (F8) – Risk of potential pollution reducing suitability of Limpet Ponds as foraging habitats.		County	Negligible	Negligible
Otter	Megray Burn (F3, F4) – Burn to be extensively realigned with associated long term loss of foraging and lying up habitat including H-Ram Wood, pond and riffle/pool structure of the burn.	E1f-4f, E6f-15f, E26f-30f	County	Negligible	Negligible
	Megray Burn (F3, F4) – Increased disturbance due to operation of the road, due to junction lighting at the A90 which may lead to burn becoming unsuitable for foraging.			Low	Minor

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				Magnitude	Significance
	Megray Burn (F3, F4) – Risk of deterioration in water quality due to runoff from the scheme.		Regional	Negligible	Negligible
	Limpet Burn (F6, F7) – Increased risk of direct mortality through RTAs and/or drowning where proposed scheme crosses burn.			Negligible	Negligible
	Limpet Burn (F6, F7) – Loss of high value riparian woodland habitat at the edge of Megray Wood and in the valley due to the burn realignment. Increased disturbance in Megray Wood which is likely to be used by otters for lying-up.			Low negative	Minor
	Limpet Burn (F6-F7) – The length of the bridge may impact on water quality due to lack of light and fish populations may be affected by oxygen sag. There may also be pollution impacts due to particulates downstream, including ponds and associated foraging habitat.			Negligible	Negligible
	Green Burn (F8) – Increased risk of direct mortality through RTAs during the operational scheme.		County	Negligible	Negligible
	Green Burn (F8) – Some loss of medium value habitat comprising moorland and scrub at edge of Fishermire Moss and associated secluded lying-up habitat.			Low	Minor
	Green Burn (F8) – Scheme would sever commuting route between Green Burn and lying up habitat and resources including Fishermire Moss and Pond and Coneyhatch Burn to the west of the scheme.			Medium negative	Moderate
	Green Burn (F8) – Disturbance likely if otters are breeding or lying-up in Fishermire Moss.			Negligible	Negligible
	Green Burn (F8) – Risk of deterioration in water quality due to runoff from the operational scheme.			Negligible	Negligible
Breeding Birds	North and South Fishermire (F10, F12) – Potential risk of direct mortality, fragmentation / isolation, disturbance, habitat loss and pollution due to run off.	E1f-4f, E6f, E9f, E10f, E14f, E15f, E22f-25f	County	Negligible to Low negative	Negligible to Minor
Wintering Birds	Fishermire (F10, F12) – Risk of direct mortality through RTA, habitat fragmentation and isolation, disturbance, loss of dry heath, acid grassland and marsh/marshy grassland habitat and potential pollution of Green Burn due to runoff.	E1f-4f, E6f, E9f, E10f, E14f, E15f, E22f-25f	County	Negligible	Negligible
Water Vole	Green Burn (F8) - Loss of habitat due to landtake of the scheme. Furthermore habitat loss could occur if local hydrology is disrupted.	E1f-4f, E6f-12f, E14f, E15f, E41f	National	Negligible	Minor
	Green Burn (F8) – Severance of the water vole colony and habitat at Green Burn from the rest of the water vole metapopulation and habitat. Road would also serve as a barrier to potential future colonisation of waterbodies 1-4.			Negligible	Minor

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				Magnitude	Significance
	Fishermyre Moss Drain (F10) – Increased risk of direct mortality if the culvert proposed at ch3125 is inappropriately designed.		National	Negligible	Minor
	Fishermyre Moss Drain (F10) – Loss of 140m length of water vole inhabited ditch.			Negligible	Minor
	Fishermyre Moss Drain (F10) – Severance and fragmentation of the water vole metapopulation and habitat.			Negligible	Minor
	Fishermyre Moss (F12) – Loss of water vole habitat due to landtake of the proposed road. Furthermore habitat loss could occur if local hydrology is disrupted.		National	Negligible	Minor
	Fishermyre Moss (F12) – Severance and fragmentation of the water vole metapopulation and habitat.			Negligible	Minor
Freshwater Habitats	Megray Burn (F3, F4) – Burn realignment is predicted to result in substantial habitat loss. There would be a localised impact upon habitat complexity within the length of culvert.	E1f-6f, E9f-11f, E13f-15f, E35f-37f	County	Low negative	Minor
	Limpet Burn (F7) – The buried structure is likely to permanently alter the hydrology regime of the bur and its wetlands.		Regional	Low negative	Minor
	Green Burn (F8, F10) – Proposed culverts would likely result in loss and fragmentation of habitat. In addition, treated road runoff would be discharged to a swale and then into the burn.		County	Low negative	Minor
Section FL2 Predicted Operational Impacts on Habitats and Species					
Terrestrial Habitats	Burn of Muchalls (F15) - Severance and fragmentation of habitats on either side of route due to the operational scheme is also predicted. Furthermore, potential pollution and disturbance to remaining habitats may occur.	E1f-6f, E9f, E10f, E14f, E15f, E42f	Regional	Negligible	Negligible
	Burn of Muchalls (F15) – Direct loss of stream habitat.				
Badger	Clayfolds Group D (F16) - Increased risk of RTAs, particularly where the scheme crosses probable badger paths at ch4700 and ch5600.	E1f-4f, E6f-18f	County	Negligible	Negligible
	Clayfolds Group D (F16) - Severance of approximately 30% of badger group's territory, including potential foraging habitat. Furthermore, outlier setts D2 and D3 would be cut-off from the main sett. This is likely to lead to increased territorial conflict with neighbouring social groups.		County	Negligible	Negligible
Bats	Burn of Muchalls and the Burn of Blackbutts (F13, F15, F16) – Direct mortality due to severance of commuting routes.	E1f-4f, E6f, E7f, E9f, E10f, E12f-15f, E19f-21f	Regional	Low	Negligible
	Burn of Muchalls (F15) – Reduced habitat suitability for foraging and commuting due to habitat loss at the Burn of Mucalls and severance of Fishmyre.		Regional	Low	Negligible

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				Magnitude	Significance
Otter	Back Burn (F13) – Scheme passes within 50m of burn. Disturbance possible due to operation of road.	E1f-4f, E6f-15f, E26f-30f	Regional	Negligible	Negligible
	Burn of Muchalls (F15) – Loss of high value habitat comprising of riparian woodland and associated foraging and potential lying up habitat adjacent to Burnside Farm.		National	Low negative	Minor
	Burn of Muchalls (F15) – Scheme would increase disturbance to otters if lying up along burn and may reduce the suitability of the burn for otters.			Negligible	Negligible
	Burn of Muchalls (F15) – The length of the bridge may impact on water quality due to lack of light and fish populations may be affected by oxygen sag. There may also be pollution due to particulates downstream.			Negligible	Negligible
Breeding Birds	Burn of Muchalls, Cookney (F15, F16) – Potential risk of direct mortality, fragmentation/isolation, disturbance, habitat loss and pollution due to run off for the Burn of Muchalls and the areas surrounding Cookney.	E1f-4f, E6f, E9f, E10f, E14f, E15f, E22f-25f	County	Negligible to Low negative	Negligible to Minor
Wintering Birds	Hill of Muchalls (F13) - Potential pollution of field ditches which form the Allochie Burn due to runoff.	E1f-4f, E6f, E9f, E10f, E14f, E15f, E22f-25f	County	Negligible	Negligible
	Burnside (F15) - Potential pollution of the Burn of Muchalls due to runoff.		County	Negligible	Negligible
	Cookney (F16) - Direct mortality through RTA, fragmentation and isolation, disturbance and loss of arable and improved grassland. Potential pollution of the Burn of Blackbutts due to runoff.		County	Negligible	Negligible
Section FL3 Predicted Operational Impacts on Habitats and Species					
Terrestrial Habitats	Stoneyhill (F19) – Loss of marshy grassland and developing UK BAP habitat. Also, potential hydrological impacts on wetland habitat, potential pollution and disturbance impacts may occur during the operational scheme.	E1f-6f, E9f, E10f, E14f, E15f, E42f	County	Low negative	Minor

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				Magnitude	Significance
	Wet habitats around East Crossley (F21) – Direct loss of acid grassland, dry heath and marshy grassland is predicted. Severance and fragmentation of habitats on either side of route during the operational scheme is predicted. In, addition, potential hydrological impacts on wetland habitats, potential pollution and disturbance impacts may occur.		County	Low negative	Minor
	Dry heath/acid grassland mosaic to the west of Wedderhill (F23) - Direct loss of acid grassland and dry heath habitat is predicted. Severance and fragmentation of habitats on either side of route during the operational scheme is also predicted. Furthermore, potential hydrological impacts on adjoining wetland habitats (F24) may occur.		County	Low negative	Minor
	Bog/heath to the immediate west of Wedderhill (F24) – Severance of hydrological connectivity during the operational scheme could result in drying out of wetland habitat.		County	Negligible	Negligible
Badger	West Stoney Hill Group E (Outside study area) - Increased risk of RTAs, particularly where the scheme crosses actual and probable badger paths at ch6825 and ch7250.	E1f-4f, E6f-18f	County	Negligible	Negligible
	West Stoney Hill Group E (Outside study area) - Severance of approximately 20% of badger group's territory, including potential foraging habitat. This is likely to lead to increased territorial conflict with neighbouring social groups.		County	Negligible	Negligible
	Stranog Hill Group F (F22, F23) - Increased risk of RTAs, particularly where the scheme crosses actual and probable badger paths at ch9600, ch9725, ch10075 and ch10400.		County	Negligible	Negligible
	Stranog Hill Group F (F22, F23) - Severance of approximately 20% of badger group's territory, including potential foraging habitat.		County	Negligible	Negligible
	Craigentath Group G (outside study area) - Increased risk of RTAs, particularly where the scheme crosses badger paths.		County	Negligible	Negligible
	Craigentath Group G (Outside study area) - Severance of approximately 15% of badger group's territory, including potential foraging habitat. This is likely to lead to increased territorial conflict with neighbouring social groups (groups F and I).		County	Negligible	Negligible
Bat	North Cookney Croft (F18) – Risk of direct mortality where the carriageway passes close to a pipistrelle roost.	E1f-4f, E6f, E7f, E9f, E10f, E12f-15f, E19f-21f	Regional	Low	Negligible
Breeding Birds	North Cookney Croft, Stoneyhill, Grasland and bog heath west of Wedderhill (F18, F19, F23, F24) – Risk of potential pollution due to runoff.	E1f-4f, E6f, E9f, E10f, E14f, E15f, E22f-25f	County	Negligible to Low negative	Negligible to Minor
Wintering Birds	Crossley (F21) –Increased risk of direct mortality through RTA, habitat fragmentation and isolation, disturbance and loss of acid grassland and scattered scrub habitat. Potential pollution of the Whiteston Burn due to runoff may also occur.	E1f-4f, E6f, E9f, E10f, E14f, E15f, E22f-25f	County	Negligible	Negligible
	East Crossley (F22) – Potential pollution of the Cairns Burn and Crossley Burn due			Negligible	Negligible

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				Magnitude	Significance
	to runoff.				
	East of Stranog (F23) – Risk of direct mortality through RTA, habitat fragmentation and isolation, disturbance, loss of acid grassland and scattered/ dense scrub. Potential pollution of the Circle Burn due to runoff from the operational scheme may also occur.		County	Negligible	Negligible
	Crynoth/Craigentath (F26) – Risk of direct mortality through RTA, habitat fragmentation and isolation, disturbance, loss of improved and arable grassland habitat and small areas of semi-improved and marshy grassland habitat. Potential pollution of the Craigentath Burn and Ditch, Wedderhill Burn and Burnhead Burn due to runoff may also occur.		County	Negligible	Negligible
Otter	Balnagubs Burn (F16) - Increased risk of direct mortality through RTAs and/or drowning where scheme crosses burn	E1f-4f, E6f-15f, E26f-30f	County	Negligible	Negligible
	Balnagubs Burn (F16) - Loss of medium value foraging and potential lying up habitat comprising riparian scrub and pasture.			Negligible	Negligible
	Balnagubs Burn (F16) - Scheme would sever otter movements between the sea and Red Moss of Netherley although other commuting routes exist at Balnagubs Burn and Crossley Burn			Negligible	Negligible
	Balnagubs Burn (F16) - Risk of deterioration in water quality due to runoff from scheme. Although otters are only likely to use the burn infrequently the burn flows into the Burn of Elsick which flows into the sea, which increases the significance of this impact			Negligible	Negligible
	Burn of Elsick (F18) - Increased risk of direct mortality through RTAs and/or drowning where scheme crosses burn		Regional	Negligible	Negligible
	Burn of Elsick (F18) - Loss of medium value foraging and potential lying up habitat comprising riparian scrub and pasture.			Negligible	Negligible
	Burn of Elsick (F18) - Scheme would sever otter movements between the sea and resources in the west including Red Moss of Netherley and Crynoch Burn, although other commuting routes exist			Low	Minor
	Burn of Elsick (F18) - Risk of deterioration in water quality due to runoff from the scheme. Otters are likely to use the burn regularly as a foraging resource			Negligible	Negligible

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	Crossley Burn (F22) - Increased risk of direct mortality through RTAs where scheme crosses burns		County	Negligible	Negligible
	Crossley Burn (F22) - Scheme would sever otter movements between the Burn of Elsick and Crossley Quarry Pond/Crynoch Burn along a probable commuting route, although alternative commuting routes exist		County	Low	Minor