

A13.4:Residual Impact Tables (Road Drainage and the Water Environment)

1 Introduction

- 1.1 This appendix details all the residual impacts of the proposed Scheme in relation to the assessment reported in Chapter 13 (Road Drainage and the Water Environment).
- 1.2 Residual impacts during both the construction and operational phases are summarised for each attribute of the surface water feature (SWF) in Table 1 and 2 respectively. Those with residual impact significance greater than Neutral are discussed further in Chapter 13 (Road Drainage and the Water Environment).

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Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
(Feature)	Potential impact	Allfibule		Importance	Miligation	Magnitude	Significance
SWF 01 Inshes Burn	Potential for temporary increase in hardstanding areas and/or soil compaction during construction works to result in temporary increased runoff rates in to the water feature.	Hydrology and flood risk	 Drains a relatively small catchment. Receives water from at least three direct tributaries. Receptors: Retail Park; existing A96[†]; and local road network. Identified by the SEPA flood map to pose a flood risk to residential areas in its upper reaches during a 0.5% annual exceedance probability (AEP) event. In its lower reaches (in the immediate vicinity of the A96 road crossing) there is limited flood risk to surrounding properties/industry. There are no culverts in close proximity to the proposed Scheme which could pose a flood risk. 	Very high	Construction Environmental Management Plan (CEMP) to include method statement and details of any temporary drainage systems proposed to control runoff from construction areas; alleviate localised flood risk and prevent obstruction of surface runoff.	Negligible	Neutral
	Temporary increase in fine sediment from road construction.	Fluvial geomorphology	Water Framework Directive (WFD) hydromorphology parameter status: not classified. Channel choked with vegetation, extensively realigned with a trapezoidal cross section and reinforced banks. The channel was culverted under several roads.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow Scottish Environment Protection Agency (SEPA) approved construction methods.	Negligible	Neutral
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: urban/residential; agriculture/forestry upstream. Potential additional pollutant sources: road and railway drainage/runoff and diffuse urban/ rural sources.	High	Contractor to prepare a CEMP and method statements to be approved by SEPA prior to commencement of works. Follow CIRIA and SEPA best practice guidance including PPGs,	Negligible	Neutral

Table 1: Summary of Residual Impacts on Surface Water Features (SWFs) during Construction

Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
(Feature)	Potential impact	Attribute		Importance	Mitigation	Magnitude	Significance
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low	such as careful siting of material stockpiles, fuel, oil and chemical stores in secure areas and avoid	Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium	works during periods of heavy rainfall. Oil/fuel containers to be stored on an impermeable base with adequate bunding. Stationary plant to be fitted with drip trays and spill kits to be stored in key locations and regularly checked. Refuelling of plant to be undertaken off site where practicable. Installation of temporary treatment facilities, in agreement with SEPA and CIRIA C697 guidance. Untreated sewage to be collected and disposed of appropriately in consultation with SEPA and CAR. Monitoring of water quality to be agreed with SEPA.	Negligible	Neutral
SWF 02 Scretan Burn	Temporary construction works for SUDS system within catchment may slightly increase peak flow rates	Hydrology and flood risk	Drains a small sized catchment. Receives water from at least five direct tributaries. Receptors: • Retail Park; • existing A96 [†] ; • proposed Scheme*; and • farm land.	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral

Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
(Feature)	Potential impact	Allfibule		importance	Miligation	Magnitude	Significance
	into watercourse.		This SWF flows in close proximity to numerous				
	Temporary		residential areas and the lower reaches of the				
	construction		SWF may pose a flood risk to agricultural land,				
	structures placed		road and railways, and the retail park at Smithton.				
	within flood risk		SWF 02 has no associated flood risk in the vicinity				
	zone or for flow		of the proposed Scheme due to its existing (SWF				
	diversion of the		02-2) or proposed culvert (SWF 02-1).				
	Scretan Burn						
	may temporarily						
	increase flood						
	risk locally and be						
	susceptible to						
	flood damage.						
	Potential for						
	temporary						
	increase in						
	hardstanding						
	areas and soil						
	compaction						
	during						
	construction						
	works to result in						
	temporary increased runoff						
	rates in to the						
	water feature.						
	Temporary	Fluvial	WFD hydromorphology parameter status: not	Medium	Implement appropriate control	Negligible	Neutral
	increase in fine	geomorphology	classified.		measures for site runoff and		
	sediment from		Channel choked with vegetation and extensively		sedimentation.		
	construction of		realigned. Bed substrate consisting of fine/coarse		Follow SEPA approved		



Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact		
(Feature)		Allfibule		importance	Miligation	Magnitude	Significance	
	road, culvert, outfalls and realignment. Diversion/dammi ng of flow during in-channel works to construct culvert.		gravels, some variability in flow types.		construction methods, conduct in- channel works during low flow and limit the extent of disturbance.			
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture and urban/residential. Potential additional pollutant sources: road and railway drainage and diffuse rural/urban sources.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight	
		Dilution and removal of waste products	Low/Medium pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral	
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Minor	Slight	
SWF 03 Cairnlaw Burn	Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse. Temporary	Hydrology and flood risk	Drains a medium sized catchment. Receives water from at least eight direct tributaries. Receptors: • <10 residential properties; • existing A96 [†] ; • proposed Scheme [*] ; • local road network;	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral	

Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
(Feature)	Potential impact	Allindule		importance	Miligation	Magnitude	Significance
	construction structures placed within flood risk zone or for flow diversion of the Cairnlaw Burn may temporarily increase flood risk locally and be susceptible to flood damage. Potential for temporary increase in hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.		 Aberdeen to Inverness Railway Line; farm land; and potential upstream impacts in Culloden. SEPA map indicates flood risk to agricultural land, properties, the railway and a road. The SWF and its tributaries also flow in close proximity to numerous residential areas (including a school) in the upper reaches of the catchment. SWF 03 has two existing culverts in the vicinity of the proposed Scheme and two culverts are proposed as part of the proposed Scheme. One of the proposed culverts has been assessed as not posing a flood risk. The model results indicate the existing A96 is at risk from the surcharging of the existing culverts and flood flows coming out of bank. 				
	Temporary increase in fine sediment from construction of road, culverts, outfalls and	Fluvial geomorphology	WFD 'Physical Condition' parameter status: Moderate. Predominantly cobble bed with depositional features. Diversity of flow types. Morphological alterations for mixed farming.	Medium	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods, conduct in- channel works during low flow and	Negligible	Neutral



Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact		
(Feature)	Potential impact	Allinbule		importance	Miligation	Magnitude	Significance	
	realignments. Diversion/ damming of flow during in-channel works to construct culverts.				limit the extent of disturbance.			
	Change in water quality	Water quality/supply	WFD water quality status: Good (2014).Surrounding land use: agriculture, some urban/residential.Potential additional pollutant sources: road and railway drainage and diffuse rural/urban sources.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight	
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral	
		Biodiversity	WFD overall ecological status: Moderate (2014). Fisheries status: not designated. Presence of fish species of International importance identified in Chapter 11 (Habitats and Biodiversity).	Very high		Minor	Moderate	
SWF 04 Tributary of Cairnlaw Burn (1)	Potential for temporary increase in hardstanding areas and/or soil compaction during construction works to result in temporary increased runoff rates in to the	Hydrology and flood risk	 Drains a small sized catchment. Receives water from at least four direct tributaries. Receptors: <10 residential properties; existing A96[†]; proposed Scheme*; local road network; Aberdeen to Inverness Railway Line; 	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral	

Water Body	y Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
(Feature)	Potential impact	Allfibule		importance	Miligation	Magnitude	Significance
	water feature.		 farm land; and Potential upstream impacts in Culloden. No SEPA flood map information (catchment less than 3km²). The SWF flows through residential areas, across the railway and crosses a number of roads therefore posing a potential flood risk. This watercourse joins SWF 03 before reaching the A96. Any culvert associated flood risk will be linked to SWF 03 and therefore this SWF has been included in the SWF 03 hydraulic model. Baseline modelling results indicate flood flows would remain in bank. 				
	Temporary increase in fine sediment from construction of road.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Cobble substrate and depositional features including side bars. Rippled flow and vegetated riparian buffer.	Medium	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods.	Negligible	Neutral
	Change in water quality	Water quality/supply	WFD water quality status: Good (2014). Surrounding land use: agriculture, some urban/residential. Potential additional pollutant sources: road and railway drainage and diffuse rural/urban sources.	High	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Negligible	Neutral

Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
(Feature)	Potential impact	Allindule	indicator of quality	importance	Miligation	Magnitude	Significance
SWF 05 Tributary of Cairnlaw Burn (2)	Temporary structures placed within the flood risk zone as part of the watercourse realignment works for this water feature may temporarily increase flood risk locally and be susceptible to flood damage. Potential for temporary increase in hardstanding areas and/or soil compaction during construction works to result in temporary increased runoff rates in to the water feature.	Hydrology and flood risk	 Drains a very small sized catchment. Does not receive flow from any tributaries. Receptors: <5 residential properties; existing A96[†]; proposed Scheme*; Aberdeen to Inverness Railway Line; farm land; and grounds of former hotel. This SWF is not included in the SEPA Flood Map as its catchment is less than 3km². Potential flood risk to surrounding land/grounds of the former hotel. This watercourse joins SWF 03 before reaching the A96. Any culvert associated flood risk will be linked to SWF 03 and therefore this SWF has been included in the SWF 03 hydraulic model. Baseline modelling results indicate flood flows would remain in bank 	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral
	Temporary increase in fine sediment from construction of road and realignment.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. No distinct channel evident and no channel substrate (i.e. only detritus and earth as per surrounding forest floor) in the downstream section.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods, conduct in- channel works during low flow and	Negligible	Neutral



Water Body	Detential Immed	Attribute	Indicator of Quality	Increased		Residual impact	
(Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Magnitude	Significance
					limit the extent of disturbance.		
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: woodland/forestry and agriculture. Potential additional pollutant sources: diffuse rural sources and former hotel.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Good' equivalent assumed. Fisheries status: not designated.	High		Minor	Slight
SWF 06 Kenneth's Black Well	Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse. Temporary construction structures placed within flood risk zone or for flow diversion of the water feature may temporarily increase flood risk locally and be susceptible to flood damage.	Hydrology and flood risk	Drains a small sized catchment. Receives water from at least three direct tributaries. Receptors: • 10-20 residential properties; • existing A96 [†] ; • proposed Scheme*; • side access road; • Aberdeen to Inverness Railway Line; and • farm land. SEPA map indicates flood risk to agricultural land and a number of residential properties. The SWF also runs in close proximity to a school grounds, residential areas and crosses the railway and a number of roads potential resulting in flood risk.	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral

Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
(Feature)	Potential impact	Allfibule		Importance	Miligation	Magnitude	Significance
	Potential for temporary increase in hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.		SWF 06 has three existing culverts in the vicinity of the proposed Scheme. Baseline modelling indicates flood flows would come out of bank and present risk to the existing A96 and properties nearby.				
	Temporary increase in fine sediment from construction of road, culverts, outfall and realignments. Diversion/ damming of flow during in-channel works to construct culverts.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Extensive channel realignment and culverted under several roads and access tracks. Fragmented riparian zone.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods, conduct in- channel works during low flow and limit the extent of disturbance.	Negligible	Neutral
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture; urban/residential and forestry upstream.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight

Water Body		Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
(Feature)	Potential impact	Allfibule		importance	Miligation	Magnitude	Significance
		Dilution and removal of waste products	Potential additional pollutant sources: diffuse rural/urban sources and road and railway drainage. Low pollutant dilution/dispersal capacity. CAR licence for sewage treatment works final effluent discharge.	Medium		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Minor	Slight
SWF 07 Drain at Allanfearn	Temporary construction structures placed within flood risk zone or for flow diversion of the water feature may temporarily increase flood risk locally and be susceptible to flood damage. Potential for temporary increase in hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.	Hydrology and flood risk	 Drains a very small sized catchment. Does not receive flow from any tributaries. Receptors: <5 residential properties; existing A96[†]; proposed Scheme*; minor access road; Aberdeen to Inverness Railway Line; major sewage treatment works; and farm land. This SWF is not identified on SEPA flood map as the drain has a catchment area of less than 3km². There is a potential flood risk to a small number of dwellings as well as surround land due to its close proximity to them. SWF 07 has two existing culverts downstream of the proposed Scheme. The two existing culverts pose a flood risk to the area of land surrounding the culverts as they have been assessed as going 	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral

Water Body	Detential Immed	Attribute	Indicator of Quality	Increation	Relations	Residual impact	
(Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Magnitude	Significance
			out of bank during the design event.				
	Temporary increase in fine sediment from construction of road, culvert and realignments. Diversion/ damming of flow during in-channel works to construct culvert.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Artificial watercourse with no natural channel or bank features (overdeep and trapezoidal cross section). Channel choked with vegetation.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods, conduct in- channel works during low flow and limit the extent of disturbance.	Negligible	Neutral
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture/urban/residential. Potential additional pollutant sources: diffuse rural sources, road and railway drainage and urban/residential.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Minor	Slight
SWF 08 Fiddler's Burn	Temporary construction works for SUDS system within catchment may	Hydrology and flood risk	Drains a small sized catchment. Receives flow from at least three direct tributaries. Receptors:	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral

Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
(Feature)	Potential impact	Allfibule		Importance	Miligation	Magnitude	Significance
	slightly increase peak flow rates into watercourse. Temporary construction structures placed within flood risk zone or for flow diversion of the water feature may temporarily increase flood risk locally and be susceptible to flood damage. Potential for temporary increase in hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.		 <5 residential properties; existing A96[†]; proposed Scheme*; and farm land. Not identified on SEPA flood map as catchment less than 3km². Potential flood risk to a number of properties as well as a school due to the SWFs close proximity. The burn also crosses a number of roads and two railway lines. SWF 08 has one existing culvert downstream of the proposed Scheme. The existing culvert (SWF 08-A) poses a flood risk as it has been assessed as going out of bank during the design event. The culvert crosses under the existing A96 and therefore may pose a flood risk to the road. 				
	Temporary increase in fine sediment from construction of road, culvert, outfall and realignment.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Artificial watercourse with limited natural channel or bank features (overdeep and trapezoidal cross section). Channel choked with vegetation.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods, conduct in- channel works during low flow and limit the extent of disturbance.	Negligible	Neutral



Water Body	Detential Impact	Attribute	Indicator of Quality	Importance	Million	Residual impact	
(Feature)	Potential Impact	Attribute		importance	Mitigation	Magnitude	Significance
	Diversion/ damming of flow during in-channel works to construct culvert.						
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture; urban/residential and forestry upstream. Potential additional pollutant sources: diffuse rural sources, road and railway drainage; and urban/residential.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR licence for combined sewer overflow and emergency overflow discharge.	Medium		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Minor	Slight
SWF 09 Tributary of Rough Burn	Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse. Temporary construction structures placed within flood risk zone or for flow diversion of the	Hydrology and flood risk	 Drains a small sized catchment. Receives flow from at least four direct tributaries. Receptors: existing A96[†]; proposed Scheme*; and farm land. The SEPA Flood Map (0.5% AEP event outline) indicates potential flood risk to agricultural land, a property as well as a number of roads and the railway. A small number of properties are also in 	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral

Water Body	Detential Impact	Attribute	Indicator of Quality		Mitigation	Residual impact	
(Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Magnitude	Significance
	water feature may temporarily increase flood risk locally and be susceptible to flood damage. Potential for temporary increase in hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.		relatively close proximity to the SWF. SWF 09 has two existing culvert within the vicinity of the proposed Scheme. The existing culverts (SWF 09-A and 09-B) pose a flood risk as both culverts have been assessed as going out of bank during the design event.				
	Temporary increase in fine sediment from construction of road, culvert and outfalls. Diversion/ damming of flow during in-channel works to construct culvert.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Embanked, straightened watercourse with limited natural channel or bank features (overdeep and trapezoidal cross section). Channel choked with vegetation.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods, conduct in- channel works during low flow and limit the extent of disturbance.	Negligible	Neutral
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture; forestry	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight



Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
(Feature)	Potential impact	Attribute	indicator of Quality	Importance	Mitigation	Magnitude	Significance
		Dilution and	upstream. Potential additional pollutant sources: diffuse rural sources and road and railway drainage. Low pollutant dilution/dispersal capacity.	Low	-	Negligible	Neutral
		removal of waste products	CAR discharges: none.	Low			Neuliai
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Minor	Slight
SWF 10 Indirect tributary of Rough Burn (1)	No potential impacts identified for this water feature.	Hydrology and flood risk	 Drains a very small sized catchment. Does not receive flow from any tributaries. Receptors: existing A96[†]; proposed Scheme*; and farm land. This SWF is not identified in the flood extent (0.5% AEP event) on SEPA flood map. This SWF feeds into SWF 12 which is at risk. 	Very high	Not required.	Negligible	Neutral
SWF 11 Indirect tributary of Rough Burn (2)	Potential for temporary increase in hardstanding areas and/or soil compaction during construction works to result in temporary increased runoff rates in to the water feature.	Hydrology and flood risk	 Drains a very small sized catchment. Does not receive flow from any tributaries. Receptors: existing A96[†]; proposed Scheme*; and farm land This SWF is not identified in the flood extent (0.5% AEP event) on SEPA flood map. SWF 11 has one existing culvert within the vicinity 	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral

Water Body	Detential Impact	Attribute	Indicator of Quality		Million	Residual impac	t
(Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Magnitude	Significance
			of the proposed Scheme. The existing culverts (SWF 11-A) poses a flood risk to the area of land surrounding the culvert as the culvert has been assessed as going out of bank during the design event. The watercourse joins SWF 09 before reaching the proposed Scheme.				
	Temporary increase in fine sediment from construction of road.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Embanked, straightened watercourse with limited natural channel or bank features (overdeep and trapezoidal cross section). Channel choked with vegetation.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods.	Negligible	Neutral
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture and woodland/forestry. Potential additional pollutant sources: diffuse rural sources.	High	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Negligible	Neutral
SWF 12 Rough Burn	Temporary construction structures placed within flood risk zone or for flow diversion of the	Hydrology and flood risk	Drains a medium sized catchment. Receives flow from at least 12 direct tributaries. Receptors: • farm;	Very high	Refer to mitigation outlined for the SWF 01. Construction of relief culverts will be carried out in the vicinity of the	Negligible	Neutral

Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact		
(Feature)	Potential impact	Allfibule		importance	Miligation	Magnitude	Significance	
	water feature may temporarily increase flood risk locally and be susceptible to flood damage. Potential for temporary increase in hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.		 <5 residential properties; existing A96[†]; proposed Scheme*; and farm land. Properties and a factory identified at potential risk of flooding predominantly downstream of the proposed Scheme. Dam and sluice upstream of the proposed Scheme could be affected. SWF 12 has two existing culverts (SWF 12-A/12-B) in the vicinity of the proposed Scheme. Out of bank flows from upstream of the proposed Scheme are modelled to flow across the route. 		proposed Scheme			
	Temporary increase in fine sediment from construction of road, culvert and realignment. Diversion/ damming of flow during in-channel works to construct culvert.	Fluvial geomorphology	WFD 'Physical Condition' parameter status: Good. Bedrock and cobble bed. Natural planform along most of channel, including waterfalls, however modifications present, particularly downstream of the existing A96. Choked with vegetation in places.	High	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods, conduct in- channel works during low flow and limit the extent of disturbance.	Negligible	Neutral	
	Change in water quality	Water quality/supply	WFD water quality status: Moderate (2014). CAR licence for surface water abstraction for Culblair Farm.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight	



Water Body	Potential Impact	Attribute	Indicator of Quality	Importonoo	Mitigation	Residual impact	
(Feature)	Potential impact	Attribute		Importance	Mitigation	Magnitude	Significance
		Dilution and removal of waste products	Surrounding land use: agriculture; forestry upstream. Potential additional pollutant sources: diffuse rural sources and road and railway drainage. Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: Moderate (2014). Fisheries status: not designated.	Medium		Minor	Slight
SWF 13 Tributary of 'Unnamed Burn - Castle Stuart to source (Tornagrain)' (1)	Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse. Temporary construction structures placed within flood risk zone or for flow diversion of the water feature may temporarily increase flood risk locally and be susceptible to flood damage.	Hydrology and flood risk	Drains a very small sized catchment. Does not receive flow from any tributaries. Receptors: • <5 residential properties; • existing A96 [†] ; • proposed Scheme*; and • farm land. Tributary not shown on the SEPA Flood extent outline (0.5% AEP). A property at Kerrowaird is located within 40 meters of the watercourse and therefore at potential flood risk. SWF 13 has two existing culvert within the vicinity of the proposed Scheme. One of the existing culverts (SWF 13-2) poses a flood risk as the watercourse has been assessed as going out of bank during the design event.	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral



Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact		
(Feature)	Potential impact	Allindule	indicator of quanty	importance	Miligation	Magnitude	Significance	
	Potential for temporary increase in hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.							
	Temporary increase in fine sediment from construction of road, culvert and outfalls. Diversion/ damming of flow during in-channel works to construct culvert.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Re-profiled banks. Choked with vegetation. Extensive channel realignment.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods, conduct in- channel works during low flow and limit the extent of disturbance.	Negligible	Neutral	
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture; some woodland/forestry. Potential additional pollutant sources: diffuse rural	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight	

Water Body	Potential Impact	Attribute	Indicator of Quality	Importonoo	Mitigation	Residual impact	
(Feature)	Fotential impact	Allfibule		Importance	Miligation	Magnitude	Significance
		Dilution and removal of waste products	sources and road and railway drainage. Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Minor	Slight
SWF 14 Unnamed Burn - Castle Stuart to source (Tornagrain)	Temporary construction structures placed within flood risk zone or for flow diversion of the water feature may temporarily increase flood risk locally and be susceptible to flood damage. Potential for temporary increase in hardstanding areas and soil compaction during construction works to result in temporary	Hydrology and flood risk	Drains a small sized catchment. Receives flow from at least 10 direct tributaries. Receptors: • existing A96 [†] ; • proposed Scheme*; and • farm land. SEPA flood map (0.5% AEP flood extent outline) indicates flood risk to agricultural land, properties, roads and the railway. There are also a few properties in the middle/upper reaches of the catchment located in close proximity to the SWF and therefore at potential flood risk. SWF 14 has one existing culvert within the vicinity of the proposed Scheme. The existing culvert (SWF 14-A) has not been assessed as posing a flood risk as the watercourse was simulated to say in bank during the design event simulation.	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral



Water Body		Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
(Feature)	Potential impact	Attribute		importance	Mitigation	Magnitude	Significance
	increased runoff rates in to the water feature.						
	Temporary increase in fine sediment from construction of road and culvert. Diversion/dammi ng of flow during in-channel works to construct culvert.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Intermittent riparian buffer zone. Extensive channel realignment. Re-profiled banks. Embanked channel choked with vegetation.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods, conduct in- channel works during low flow and limit the extent of disturbance.	Negligible	Neutral
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture; some woodland/forestry upstream. Potential additional pollutant sources: diffuse rural sources and road and railway drainage.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Mino	Slight
SWF 15 Tributary of 'Unnamed Burn -	Temporary construction structures placed within flood risk	Hydrology and flood risk	Drains a very small sized catchment. Does not receive flow from any tributaries. Receptors:	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral

Water Body	Potential Impact	t Attribute Ind	Indicator of Quality	Importance	Mitigation	Residual impact		
(Feature)	Potential impact	Allfibule		importance	Miligation	Magnitude	Significance	
Castle Stuart to source (Tornagrain)' (2)	zone or for flow diversion of the water feature may temporarily increase flood risk locally and be susceptible to flood damage. Potential for temporary increase in hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.		 existing A96[†]; proposed Scheme*; farm land; and woodland. Not identified on SEPA flood map flood extent outline for the 0.5% AEP event. Anecdotal evidence indicating flooding at the confluence of SWF 14 and 15 resulting in flooding to woodland/agricultural land. SWF 15 has three existing culverts within the vicinity of the proposed Scheme. One of the existing culverts (SWF 15-A) has been assessed as posing a flood risk as the watercourse is simulated to go out of bank during the design event simulation. 					
	Temporary increase in fine sediment from construction of road and culvert. Diversion/dammi ng of flow during in-channel works to construct	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Extensive channel realignment. Re-profiled banks. Overdeep channel choked with vegetation.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods, conduct in- channel works during low flow and limit the extent of disturbance.	Negligible	Neutral	



Water Body	Potential Impact	Attribute	Indicator of Quality		Million	Residual impac	t
(Feature)	Potential impact	Attribute	Indicator of Quality	Importance	Mitigation	Magnitude	Significance
	culvert.						
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture; some woodland/forestry. Potential additional pollutant sources: diffuse rural sources and road drainage.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Minor	Slight
SWF 16 Tributary of Ardersier Burn	Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse. Temporary construction structures placed within flood risk zone or for flow diversion of the water feature may temporarily	Hydrology and flood risk	Drains a medium sized catchment. Receives flow from at least 15 direct tributaries. Receptors: • <5 residential properties; • farm; • Inverness Airport; • existing A96 [†] ; • proposed Scheme*; • local road network; and • farm land. SEPA map indicates flood risk to agricultural land and Inverness airport. SWF 16 has two existing culverts (SWF 16-A and SWF 16-B) in the vicinity of the proposed Scheme. Baseline modelling confirms the SEPA	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral



Water Body	Potential Impact	Attribute	Indicator of Quality		Mitigation	Residual impact	
(Feature)	Potential impact	Attribute	Indicator of Quality	Importance	Mitigation	Magnitude	Significance
	increase flood risk locally and be susceptible to flood damage. Potential for temporary increase in hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.		flood map.				
	Temporary increase in fine sediment from construction of road, culverts, outfalls and realignment. Diversion/ damming of flow during in-channel works to construct culvert.	Fluvial geomorphology	 WFD 'Physical Condition' parameter status upstream section 'Mid Coul to source': Good (2014). WFD 'Physical Condition' parameter status downstream section 'sea to Mid Coul' (HMWB): Bad (2014). Extensive channel realignment. Culverted in several locations, particularly due to runway and airport infrastructure. 	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods, conduct in- channel works during low flow and limit the extent of disturbance.	Negligible	Neutral

Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
(Feature)	Fotential impact	Allfibule		importance	Miligation	Magnitude	Significance
	Change in water quality	Water quality/supply	 WFD water quality status (Mid Coul to source): Good (2014). WFD water quality status (sea to Mid Coul): Moderate (2014). CAR licence identified in SEPA data for surface water abstraction for Culblair Farm. Surrounding land use: agriculture; some forestry towards the top of the catchment; Inverness Airport in the lower catchment. Potential additional pollutant sources: diffuse rural sources, aircraft fuel and associated pollutants, road and railway drainage and historic contaminants from disused railway. 	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight
		Dilution and removal of waste products	Low/Medium pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	 WFD overall ecological status (Mid Coul to source): Good (2014). WFD overall ecological potential (sea to Mid Coul): Moderate (2014). Fisheries status: not designated. 	High		Minor	Slight
SWF 17 Drains at Culblair	Potential for temporary increase in hardstanding areas and/or soil compaction during construction works to result in temporary	Hydrology and flood risk	 Drains a very small sized catchment. Receives flow from at least two direct tributaries. Receptors: <10 residential properties; farm; proposed Scheme*; Aberdeen to Inverness Railway Line; and farm land. SWF 17 is not identified on the SEPA flood map. 	High	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral

Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact		
(Feature)	Fotential impact	Allindule		importance	Miligation	Magnitude	Significance	
	increased runoff rates in to the water feature.		SWF 17 feeds into SWF 16 which is identified as being at risk. SWF 17 has one existing culvert (SWF 17-A) within the vicinity of the proposed Scheme. The existing culvert is assessed as posing a flood risk as the watercourse was simulated to go out of bank during the design event simulations. Culvert SWF 17-A also goes underneath the railway line and therefore there is a potential flood risk to the railway line from this watercourse.					
	Temporary increase in fine sediment from construction of road and culverts. Diversion/ damming of flow during in-channel works to construct culverts.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Realigned channel with limited riparian buffer zone. Artificial drain – no natural channel or bank features.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods, conduct in- channel works during low flow and limit the extent of disturbance.	Negligible	Neutral	
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. CAR licence identified in SEPA data for surface water abstraction for Culblair Farm. Surrounding land use: agriculture and Inverness Airport. Potential additional pollutant sources: diffuse rural sources, aircraft fuel and associated pollutants.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight	



Water Body	Detential Immed	A44#:14	Indiantar of Quality	Increation	Mitigation	Residual impact		
(Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Magnitude	Significance	
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral	
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Minor	Slight	
SWF 18 Indirect tributary drains of Ardersier Burn	Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse. Temporary construction structures placed within flood risk zone or for flow diversion of the water feature may temporarily increase flood risk locally and be susceptible to flood damage. Potential for temporary increase in	Hydrology and flood risk	Drains a small sized catchment. Receives flow from at least five direct tributaries. Receptors: • <5 residential properties; • two farms; • existing A96 [†] ; • proposed Scheme*; and • farm land. SEPA Flood map indicates flood risk to agricultural land from SWF 18. SWF 18 has three existing culverts within the vicinity of the proposed Scheme. Existing culvert SWF 18-A has been assessed as posing a flood risk as the watercourse was simulated to go out of bank during the design event simulation.	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral	



Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact		
(Feature)	Potential impact	Allfibule		importance	Miligation	Magnitude	Significance	
	hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.							
	Temporary increase in fine sediment from construction of road, culverts, outfall and realignment. Diversion/ damming of flow during in-channel works to construct culvert.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Limited riparian buffer zone. Re-profiled banks, overdeep channel with hard bank reinforcement in places. Extensive channel realignment. Channel choked with vegetation.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods, conduct in- channel works during low flow and limit the extent of disturbance.	Negligible	Neutral	
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture/forestry and Inverness Airport. Potential additional pollutant sources: diffuse rural sources, aircraft fuel and associated pollutants, and road and railway drainage.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight	



Water Body	Potential Impact	Attribute	Indicator of Quality	Importonee	Mitigation	Residual impact		
(Feature)	Potential impact	Attribute	Indicator of Quality	Importance	Mitigation	Magnitude	Significance	
		Dilution and removal of waste products Biodiversity	Low pollutant dilution/dispersal capacity. CAR discharges: none. WFD overall ecological status: not classified.	Low		Negligible	Neutral	
		Biodiversity	'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		MINO	Sign	
SWF 19 Balnagowan Burn	Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse. Temporary construction structures placed within flood risk zone or for flow diversion of the water feature may temporarily increase flood risk locally and be susceptible to flood damage. Potential for temporary increase in	Hydrology and flood risk	Drains a small sized catchment. Receives flow from at least 10 direct tributaries. Receptors: • existing A96 [†] ; • proposed Scheme*; and • farm land. SEPA Flood map indicates flood risk to agricultural land. SWF 19 has two existing culverts within the vicinity of the proposed Scheme. The SWF 19-A culvert crosses underneath the current A96 and is located within close proximity to the proposed Scheme. The other existing culvert SWF 19-B crosses the railway line and is located upstream of the proposed Scheme. Given the culverts have been simulated to go out of bank they poses a direct flood risk to the existing A96 and to the railway line.	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral	



Water Body	dy Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact		
(Feature)	Potential impact	Allfibule		importance	Miligation	Magnitude	Significance	
	hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature. Temporary increase in fine sediment from construction of	Fluvial geomorphology	WFD 'Physical Condition' parameter status: Bad. Limited riparian buffer zone. Extensive channel realignment.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved	Negligible	Neutral	
	construction of road, watercourse extension, culverts and outfalls. Diversion/ damming of flow during in-channel works to construct culvert.				Follow SEPA approved construction methods, conduct in- channel works during low flow and limit the extent of disturbance.			
	Change in water quality	Water quality/supply	WFD water quality status: Moderate (2014). Surrounding land use: agriculture. Potential additional pollutant sources: diffuse rural sources and road and railway drainage.	Medium	Refer to mitigation outlined for the SWF 01.	Minor	Slight	
		Dilution and	Low pollutant dilution/dispersal capacity.	Low		Negligible	Neutral	



Water Body	Detential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
(Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Magnitude	Significance
		removal of waste products	CAR discharges: none.				
		Biodiversity	WFD overall ecological status: Bad (2014). Fisheries status: not designated.	Low		Minor	Neutral
SWF 21 Field ditch tributaries of Balnagowan Burn	Potential for temporary increase in hardstanding areas and/or soil compaction during construction works to result in temporary increased runoff rates in to the water feature.	Hydrology and flood risk	 Drains a very small sized catchment. Does not receive flow from any tributaries. Receptors: Aberdeen to Inverness Railway Line; proposed Scheme*; and farm land. SWF 21 is not identified on the SEPA flood map. SWF 21 is located upstream of the proposed Scheme. 	High	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral
	increase in fine geomorphology Arti	WFD morphology parameter status: not classified. Artificial watercourse through forestry. Channel choked with vegetation.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods.	Negligible	Neutral	
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: woodland/forestry and agriculture. Potential additional pollutant sources: diffuse rural sources and road and railway drainage.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight



Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact		
(Feature)	Fotential impact	Allinbule		importance	Miligation	Magnitude	Significance	
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral	
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Minor	Slight	
SWF 22 Alton Burn	Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse. Temporary construction structures placed within flood risk zone or for flow diversion of the water feature may temporarily increase flood risk locally and be susceptible to flood damage. Potential for temporary increase in	Hydrology and flood risk	 Drains a small sized catchment. Receives flow from at least one direct tributary. Receptors: <10 residential properties; Aberdeen to Inverness Railway Line; proposed Scheme*; and farm land. Flood risk to numerous properties in Nairn and agricultural land. SEPA flood map indicates active floodplain with the potential to affect properties. SWF 22 has one existing culvert within the vicinity of the proposed Scheme. The existing culvert (SWF 22-A) has been assessed as posing a flood risk as the watercourse is simulated to go out of bank during the design event simulation. The culvert crosses a minor road and therefore may pose flood risk to the road. 	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral	



Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact		
(Feature)	Potential impact	Allfibule		importance	Miligation	Magnitude	Significance	
	hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.							
	Temporary increase in fine sediment from construction of road, culverts and outfall. Diversion/ damming of flow during in-channel works to construct culverts.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Limited riparian buffer zone. Extensive channel realignment. Overdeep and overwide channel which is choked with vegetation.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods, conduct in- channel works during low flow and limit the extent of disturbance.	Negligible	Neutral	
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. CAR licence identified in SEPA data for surface water abstraction for Kildrummie Farm. Surrounding land use: agriculture, rural grassland; some urban/residential downstream. Potential additional pollutant sources: diffuse rural	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight	

Water Body	Potential Impact	Attribute	Indicator of Quality	Importonoo	Mitigation	Residual impact		
(Feature)	Potential impact	Attribute	Indicator of Quality	Importance	Mitigation	Magnitude	Significance	
		Dilution and removal of waste products Biodiversity	sources and road and railway drainage. Low pollutant dilution/dispersal capacity. CAR discharges: none. WFD overall ecological status: not classified.	Low		Negligible	Neutral Slight	
			'Moderate' equivalent assumed. Fisheries status: not designated.					
SWF 23 River Nairn	Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse. This is unlikely to have a significant impact on the River Nairn as it is a large watercourse. Temporary construction structures placed within flood risk zone of the River Nairn may temporarily increase flood	Hydrology and flood risk	 Drains a large sized catchment. Receives flow from numerous direct tributaries. Receptors: approximately 40 domestic properties within 2km of proposed bridge; farm buildings; proposed Scheme*; farm land; and ecologically designated watercourse. The SEPA Flood Map indicates flood risk to agricultural land and properties from SWF 23. Baseline modelling confirms the SEPA flood map. 	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral	



Water Body	Potential Impact	Attribute	Indicator of Quality	Importanco	Mitigation	Residual impact		
(Feature)	Potential impact	Allfibule		Importance	Miligation	Magnitude	Significance	
	risk locally and be susceptible to flood damage. Potential for temporary increase in hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.							
	Temporary increase in fine sediment from construction of road, outfall and clear span bridge.	Fluvial geomorphology	 WFD 'Physical Condition' parameter status for River Nairn – Moray Firth to River Farnack confluence: Good. Natural planform with few modifications. Dynamic geomorphology, varied flow types and in-channel habitats. Continuous riparian buffer zone. 	Very high	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods, conduct in- channel works during low flow and limit the extent of disturbance.	Negligible	Neutral	
	Change in water quality	Water quality/supply	WFD water quality status: High (2014). CAR licence identified in SEPA data for surface water abstraction for Kildrummie Farm. Surrounding land use: agriculture; some woodland/forestry; urban/residential downstream (Nairn).	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral	



Water Body	r Body ure) Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
(Feature)	Potential impact	Allfibule		Importance	Miligation	Magnitude	Significance
		Dilution and removal of waste products	Potential additional pollutant sources: diffuse rural/urban sources and road and railway drainage. Medium pollutant dilution/dispersal capacity. CAR discharges: none.	Medium		Negligible	Neutral
		Biodiversity	WFD overall ecological status: Moderate (2014). Protected Area for Freshwater Fish under WFD.	Very high		Negligible	Neutral
SWF 24 Tributary of the River Nairn	Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse. Temporary construction structures placed within flood risk zone or for flow diversion of the water feature may temporarily increase flood risk locally and be susceptible to flood damage. Potential for	Hydrology and flood risk	Drains a very small sized catchment. Receives flow from at least one direct tributary. Receptors: • woodland; • farm land; • proposed Scheme*; and • ecologically designated watercourse. The SEPA Flood Map indicates flood risk to agricultural land from SWF 24.	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral



Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
(Feature)	Potential impact	Allfibule		importance	Miligation	Magnitude	Significance
	temporary increase in hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.						
	Temporary increase in fine sediment from construction of road, culvert and outfalls. Diversion/ damming of flow during in-channel works to construct culvert.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Extensive channel realignment. Lack of riparian zone in places. Modifications such as embankment and culverts present. Channel choked with vegetation.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods, conduct in- channel works during low flow and limit the extent of disturbance.	Negligible	Neutral
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture; woodland/forestry upstream. Potential additional pollutant sources: diffuse rural/urban sources and road drainage.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight
		Dilution and	Low pollutant dilution/dispersal capacity.	Medium		Negligible	Neutral

Water Body	Potential Impact	Attribute	Indicator of Quality	Importonoo	Mitigation	Residual impact	
(Feature)	Potential impact	Attribute	Indicator of Quality	Importance	Mitigation	Magnitude	Significance
		removal of waste products	Two CAR licences for septic tank effluent discharge.				
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Protected Area for Freshwater Fish under WFD (associated water body of the River Nairn).	Very high		Minor	Moderate
SWF 26 Auldearn Burn	Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse. Temporary construction structures placed within flood risk zone or for flow diversion of the water feature may temporarily increase flood risk locally and be susceptible to flood damage. Potential for temporary increase in	Hydrology and flood risk	 Drains a medium sized catchment. Receives flow from at least 14 direct tributaries. Receptors: approximately 20 residential properties; proposed Scheme*; local road network; Auldearn sewerage treatment works; farm land; and ecologically designated watercourse. The SEPA Flood Map indicates flood risk to agricultural land and residential properties from SWF 26. Baseline modelling shows more limited flood extents than the SEPA flood map but out of bank flows are present in the vicinity of the proposed Scheme. 	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral



Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
(Feature)	Potential impact	Allfibule		importance	Miligation	Magnitude	Significance
	hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature. Temporary increase in fine sediment from	Fluvial geomorphology	WFD hydromorphology parameter status: Moderate. Some morphological diversity and varied flow	Medium	Implement appropriate control measures for site runoff and sedimentation.	Negligible	Neutral
	construction of road, culvert, outfalls and realignment. Diversion/ damming of flow during in-channel works to construct culverts.		typed. Gravel and cobble substrate. Limited riparian buffer zone. Channel choked with vegetation in places.		Follow SEPA approved construction methods, conduct in- channel works during low flow and limit the extent of disturbance.		
	Change in water quality	Water quality/supply	WFD water quality status: Moderate (2014). CAR licence identified in SEPA data for surface water abstraction for Househill Farm. Surrounding land use: agriculture; some grassland/woodland. Potential additional pollutant sources: diffuse	Medium	Refer to mitigation outlined for the SWF 01.	Minor	Slight



Water Body (Feature) Potential	Detential Impact	Attribute	Indicator of Quality	Importonoo	Mitigation	Residual impact		
(Feature)	Potential impact	Attribute	Indicator of Quality	Importance	Mitigation	Magnitude	Significance	
		Dilution and removal of waste products	rural/urban sources and road drainage. Medium pollutant dilution/dispersal capacity. CAR discharges: none.	Medium		Negligible	Neutral	
		Biodiversity	WFD overall ecological status: Moderate (2014). Protected Area for Freshwater Fish under WFD (associated water body of the River Nairn).	Very high		Minor	Moderate	
SWF 31 Auldearn Burn - Brightmony Tributary	Potential for temporary increase in hardstanding areas and/or soil compaction during construction works to result in temporary increased runoff rates in to the water feature.	Hydrology and flood risk	Drains a small sized catchment. Receives flow from at least five direct tributaries. Receptors: • <5 residential properties; • existing A96 [†] ; • proposed Scheme*; and • farm land. The SEPA Flood map indicates flood risk to agricultural land and some downstream properties. SWF 31 is located to the south of the proposed Scheme. SWF 31 has been included in the SWF 26 model as it is a tributary of SWF 26. The baseline modelling indicates a lesser degree of flooding than the SEPA flood map.	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral	
	Temporary increase in fine sediment from construction of road.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Embanked, realigned watercourse with straight planform and overdeep cross-section. Limited riparian buffer zone.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods.	Negligible	Neutral	

Water Body	Detential Impact	Attribute	Indicator of Quality	Importonoo	Milliontion	Residual impact	t
(Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Magnitude	Significance
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. CAR licence identified in SEPA data for surface water abstraction for Kildrummie Farm. Surrounding land use: agriculture and woodland/forestry. Potential additional pollutant sources: diffuse rural sources and road drainage.	High	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR licence identified in SEPA data for combined sewer overflow discharge.	Medium		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Negligible	Neutral
SWF 33 Drain at Penick Farm	Drain at Penick increase in flood r	Hydrology and flood risk	Drains a very small sized catchment. Does not receives flow from any tributaries. Receptors: • <5 residential properties; • existing A96 [†] ; • local road network; and • farm land. SWF 33 is not identified on the SEPA flood map.	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral
	Temporary increase in fine sediment from construction of road.		WFD hydromorphology parameter status: not classified. Straightened watercourse with limited riparian buffer zone.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods.	Negligible	Neutral



Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact		
(Feature)	Fotential impact	Allfibule		importance	Miligalion	Magnitude	Significance	
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture. Potential additional pollutant sources: diffuse rural sources and road drainage.	High	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral	
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral	
	Bic	Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Negligible	Neutral	
SWF 34 Tributary of Auldearn Burn (4)	Construction of carriageway near SWF. No potential impacts identified for this water feature.	Hydrology and flood risk	Drains a small sized catchment. Receives flow from at least one direct tributary. Receptors: • <5 residential properties; • existing A96 [†] ; • proposed Scheme*; and • farm land. The SEPA Flood map indicates flood risk to agricultural land from this SWF. SWF 34 has one existing culvert (SWF 34-1) within close proximity to the proposed Scheme.	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral	
	Temporary increase in fine sediment from construction of road.	Fluvial geomorphology	WFD morphology parameter status: not classified. Extensive channel realignment. Channel choked with vegetation in places.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods.	Negligible	Neutral	
	Change in water	Water	Not classified under WFD. 'Good' water quality	High	Refer to mitigation outlined for the	Negligible	Neutral	



Water Body	Potential Impact	Attribute	Indicator of Quality	Importonce	Mitigation	Residual impact	
(Feature)	Potential impact	Attribute		Importance		Magnitude	Significance
	quality	quality/supply	assumed. Surrounding land use: agriculture; some grassland/woodland. Potential additional pollutant sources: diffuse rural sources and road drainage.		SWF 01.		
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Negligible	Neutral
SWF 35 Drain, tributary of Auldearn Burn - Brightmony Tributary	Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse. Potential for temporary increase in hardstanding areas and soil compaction during construction works to result in temporary	Hydrology and flood risk	Drains a very small catchment. Does not receive flow from any tributaries. Receptors: farm land.	Low		Negligible	Neutral



Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact		
(Feature)	Potential impact	Allfibule		Importance	Miligation	Magnitude	Significance	
	increased runoff rates in to the water feature.							
	Temporary increase in fine sediment from construction of road and outfall.	Fluvial geomorphology	WFD morphology parameter status: not classified. Small, realigned channel with scattered tree lining.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods.	Negligible	Neutral	
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture and woodland/forestry. Potential additional pollutant sources: diffuse rural sources.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight	
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral	
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Minor	Slight	
Loch Flemington		Hydrology and flood risk	 Shallow loch. It is believed to be a naturally controlled loch with a complex outflow system with significant surface groundwater interactions. Receptors: approximately 20 residential properties; local road network; farm land; and ecologically designated water body. 	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral	

Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
(Feature)	Fotential impact	Allfibule				Magnitude	Significance
Ponds	Change in water quality	Biodiversity	Chapter 11 (Ecology and Nature Conservation) identifies the pond habitats as being of less than authority level importance.	Low	Refer to mitigation outlined for the SWF 01.	Minor	Neutral

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Table 2: Summary of Residual Impacts on Surface Water Features (SWFs) during Operation

Water Body	Potential Impact	Attribute	Indicator of Quality	Importonoo	Million	Residual im	pact
(Feature)	Potential impact	Attribute	Indicator of Quality	Importance	Mitigation	Magnitude	Significance
SWF 01 Inshes Burn	Potential for increased impervious surfaces due to carriageway near SWF.	Hydrology and flood risk	Drains a relatively small catchment. Receives water from at least three direct tributaries. Receptors: Retail Park; existing A96 [†] ; and local road network. Identified by the SEPA flood map to pose a flood risk to residential areas in its upper reaches during a 0.5% AEP event. In its lower reaches (in the immediate vicinity of the A96 road crossing) there is limited flood risk to surrounding properties/industry. There are no culverts in close proximity to the proposed Scheme which could pose a flood risk.	Very high	No specific mitigation required. Adhere to generic mitigation measures	Negligible	Neutral
	Potential for alterations to flow and sediment regime due to increased impervious surfaces associated with new road.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Channel choked with vegetation, extensively realigned with a trapezoidal cross section and reinforced banks. The channel was culverted under several roads.	Low	Incorporate appropriate drainage system to ensure substantial flow and sediment is transported to attenuation ponds.	Negligible	Neutral
SWF 02 Scretan Burn	Potential impact to flood risk due to alteration to area draining to the catchment due to road drainage and due to three	Hydrology and flood risk	Drains a small sized catchment. Receives water from at least five direct tributaries. Receptors: • Retail Park;	Very high	Wet retention pond designed to limit road drainage outflow to the greenfield pre-development runoff rate of a 50% AEP (one in two year return period) flood	Negligible	Neutral

Residual impact Water Body Mitigation **Potential Impact** Attribute Indicator of Quality Importance (Feature) Magnitude Significance existing A96[†]; road drainage outfalls event. • discharge to SWF 02. • proposed Scheme*; and No specific flood risk mitigation Alterations to flood risk required. Adhere to generic farm land. due to: removal of Ashton mitigation measures This SWF flows in close proximity to numerous Farm access road culvert, residential areas and the lower reaches of the culvert extension and SWF may pose a flood risk to agricultural land, channel realignment. road and railways, and the retail park at Possible loss of flood Smithton. storage due to road SWF 02 has no associated flood risk in the construction. vicinity of the proposed Scheme due to its Increased impervious existing (SWF 02-2) or proposed culvert (SWF surfaces due to 02-1 carriageway near SWF. Potential for alterations to Fluvial Medium Adhere to guidance set by SEPA Minor Slight WFD hydromorphology parameter status: not geomorphology classified. flow and sediment regime on culverting of watercourses, due to increased bank protection, intakes and Channel choked with vegetation and extensively impervious surfaces, outfalls and river crossings realigned. Bed substrate consisting of culvert. outfalls and (SEPA 2006, 2008, 2010 and fine/coarse gravels, some variability in flow channel realignment. 2012). types. Change to channel Incorporate appropriate drainage morphology due to system to ensure substantial increase in artificial bed flow and sediment is transported and bank material and to attenuation ponds. channel realignment. Consult with a geomorphologist at design phase to incorporate the following: Minimise the length of realignment, culverts and number of in-channel structures.

Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual im	pact
(Feature)		Allfibule		importance	Mitigation	Magnitude	Significance
					Ensure in-channel structures are positioned correctly to minimise scour and alterations to natural flow. Maintain gradient and length of water feature to prevent siltation through culvert/realigned channel or scour around in- channel structures. Maintain channel sinuosity and create natural bed and identify other possible improvements to water feature morphology and habitats.		
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture and urban/residential. Potential additional pollutant sources: road and railway drainage and diffuse rural/urban sources.	High	Runoff from catchments A, B and C to pass through filter drains and wet retention pond prior to outfall.	Negligible	Neutral
		Dilution and removal of waste products	Low/Medium pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Negligible	Neutral
SWF 03 Cairnlaw Burn	Potential impact to flood risk due to alteration to area draining to the	Hydrology and flood risk	Drains a medium sized catchment. Receives water from at least eight direct	Very high	SWF03 and SWF06 are hydraulically linked and the proposed solution provides	Negligible	Neutral

Residual impact Water Body **Potential Impact** Attribute Indicator of Quality Mitigation Importance (Feature) Magnitude Significance mitigation to both watercourses. catchment due to road tributaries. drainage direction and due Provision of a flood bypass Receptors: to two outfalls discharging channel in in SWF06 to prevent <10 residential properties; to SWF 03. flooding of land that would be existing A96[†]: . occupied by the proposed Alterations to flood risk proposed Scheme*: • Scheme. In conjunction it is due to: local road network: • proposed to increase the online reconstruction/extension of Aberdeen to Inverness Railway Line; ٠ storage capacity of the realigned Barn Church Road culvert. farm land: and ٠ section of the Cairnlaw Burn and realignment of potential upstream impacts in Culloden. provide a control in flows at • watercourse and proposed culvert C04. construction of two new SEPA map indicates flood risk to agricultural culverts. land, properties, the railway and a road. The Wet retention pond designed to SWF and its tributaries also flow in close limit road drainage outflow to the Possible loss of flood proximity to numerous residential areas greenfield pre-development storage due to road (including a school) in the upper reaches of the runoff rate of a 50% AEP (one in construction. catchment. two year return period) flood Increased impervious event. SWF 03 has two existing culverts in the vicinity surfaces due to carriageway near SWF. of the proposed Scheme. The model results indicate the existing A96 is at risk from the surcharging of the existing culverts and flood flows coming out of bank. Potential for alterations to Fluvial WFD 'Physical Condition' parameter status: Medium Refer to mitigation listed for Minor Slight flow and sediment regime geomorphology Moderate. SWF 02. due to increased Predominantly cobble bed with depositional impervious surfaces. features. Diversity of flow types. Morphological culverts, outfalls and alterations for mixed farming. channel realignments. Change to channel morphology due to increase in artificial bed



Water Body	Detential Impact	Attribute	Indicator of Quality	Immertence	Mitigation	Residual im	pact
(Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Magnitude	Significance
	and bank material and channel realignment.						
	Change in water quality	Water quality/supply	WFD water quality status: Good (2014). Surrounding land use: agriculture, some urban/residential. Potential additional pollutant sources: road and railway drainage and diffuse rural/urban sources.	High	Runoff from catchments D and E to pass through filter drains and wet retention pond prior to outfall.	Negligible	Neutral
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	 WFD overall ecological status: Moderate (2014). Fisheries status: not designated. Presence of fish species of International importance identified in Chapter 11 (Habitats and Biodiversity). 	Medium		Negligible	Neutral
SWF 04 Tributary of Cairnlaw Burn (1)	Increased impervious surfaces due to carriageway near SWF.	Hydrology and flood risk	Drains a small sized catchment. Receives water from at least four direct tributaries. Receptors: <10 residential properties; existing A96[†]; proposed Scheme*; local road network; Aberdeen to Inverness Railway Line; farm land; and potential upstream impacts in Culloden. 	Very high	Refer to mitigation listed for SWF 01.	Negligible	Neutral

Residual impact Water Body **Potential Impact** Mitigation Attribute Indicator of Quality Importance (Feature) Magnitude Significance No SEPA flood map information (catchment less than 3km²). The SWF flows through residential areas, across the railway and crosses a number of roads therefore posing a potential flood risk This watercourse joins SWF 03 before reaching the A96. Any culvert associated flood risk will be linked to SWF 03 and therefore this SWF has been included in the SWF 03 hydraulic model. Baseline modelling results indicate flood flows would remain in bank. Potential for alterations to Fluvial WFD hydromorphology parameter status: not Medium Refer to mitigation listed for Negligible Neutral flow and sediment regime geomorphology classified. SWF 01. due to increased Cobble substrate and depositional features impervious surfaces including side bars. Rippled flow and vegetated associated with new road. riparian buffer. Negligible Neutral **SWF 05** Potential impacts to flood Hydrology and Drains a very small sized catchment. Very high flood risk risk due to channel Tributary of Does not receive flow from any tributaries. Cairnlaw Burn (2) realignment. Receptors: Increased impervious <5 residential properties; • surfaces due to existing A96[†]; • carriageway near SWF. proposed Scheme*; ٠ Aberdeen to Inverness Railway Line; • farm land; and • grounds of former hotel. • This SWF is not included in the SEPA Flood Map as its catchment is less than 3km². Potential flood risk to surrounding land/grounds



Residual impact Water Body **Potential Impact** Attribute Indicator of Quality Mitigation Importance (Feature) Magnitude Significance of the former hotel. This watercourse joins SWF 03 before reaching the A96. Any culvert associated flood risk will be linked to SWF 03 and therefore this SWF has been included in the SWF 03 hydraulic model. Baseline modelling results indicate flood flows would remain in bank. Potential for alterations to Fluvial WFD hydromorphology parameter status: not Nealiaible Neutral Low Incorporate appropriate drainage flow and sediment regime geomorphology classified. system to ensure substantial due to increased flow and sediment is transported No distinct channel evident and no channel impervious surfaces, and to attenuation ponds. substrate (i.e. only detritus and earth as per channel realignment. surrounding forest floor) in the downstream Consult with a geomorphologist Change to channel at design phase to incorporate section. morphology due to the following: channel realignment. Minimise the length of realignment. Maintain gradient and length of water feature to prevent siltation through realigned channel. Maintain channel sinuosity and create natural bed and identify other possible improvements to water feature morphology and habitats. Negligible Neutral **SWF 06** Potential impact to flood Hydrology and SWF03 and SWF06 are Drains a small sized catchment. Very high flood risk hydraulically linked and the risk due to alteration to Kenneth's Black Receives water from at least three direct proposed solution provides Well area draining to the tributaries. mitigation to both watercourses. catchment due to road Receptors: Provision of a flood bypass drainage direction and one 10-20 residential properties;



Residual impact Water Body **Potential Impact** Attribute Indicator of Quality Mitigation Importance (Feature) Magnitude Significance existing A96[†]; channel in in SWF06 to prevent road drainage outfall • discharge to SWF 06. flooding of land that would be proposed Scheme*; • occupied by the proposed Potential alterations to local access road; • Scheme. In conjunction it is flood risk due to: Aberdeen to Inverness Railway Line: and • proposed to increase the online reconstruction/extension of farm land. • storage capacity of the realigned Barn Church Road culvert. SEPA map indicates flood risk to agricultural section of the Cairnlaw Burn and realignment of land and a number of residential properties. provide a control in flows at watercourse and The SWF also runs in close proximity to a proposed culvert C04. construction of five new school grounds, residential areas and crosses culverts. Wet retention pond designed to the railway and a number of roads potential limit road drainage outflow to the Possible loss of flood resulting in flood risk. greenfield pre-development storage due to road SWF 06 has three existing culverts in the runoff rate of a 50% AEP (one in construction. vicinity of the proposed Scheme. Baseline two year return period) flood Increased impervious modelling indicates flood flows would come out event. surfaces due to of bank and present risk to the existing A96 and carriageway near SWF. properties nearby. Potential for alterations to Fluvial WFD hydromorphology parameter status: not Low Refer to mitigation listed for Negligible Neutral classified. SWF 02. flow and sediment regime aeomorpholoav due to increased Extensive channel realignment and culverted impervious surfaces, under several roads and access tracks. culvert. outfalls and Fragmented riparian zone. channel realignments. Change to channel morphology due to increase in artificial bed and bank material and channel realignment. Not classified under WFD. 'Good' water quality Negligible Neutral Water High Runoff from Catchment F to Change in water quality



Water Body

Potential Impact Attribute Indicator of Quality Mitigation Importance (Feature) Magnitude Significance assumed. pass through filter drains and quality/supply Surrounding land use: agriculture; wet retention pond prior to urban/residential and forestry upstream. outfall. Potential additional pollutant sources: diffuse rural/urban sources and road and railway drainage. Low pollutant dilution/dispersal capacity. Negligible Neutral Dilution and Medium CAR licence for sewage treatment works final removal of waste effluent discharge. products Negligible Neutral **Biodiversitv** WFD overall ecological status: not classified. Medium 'Moderate' equivalent assumed. Fisheries status: not designated. Negligible Neutral **SWF 07** Potential alterations to Hydrology and Drains a very small sized catchment. Very high Refer to mitigation listed for flood risk SWF 01. Drain at Allanfearn flood risk due to Does not receive flow from any tributaries. realignment of channel Receptors: and the construction of a <5 residential properties; • new culvert. existing A96[†]: • Possible loss of flood proposed Scheme*; ٠ storage due to road minor access road: ٠ construction Aberdeen to Inverness Railway Line; ٠ Loss of a small area of the catchment to road major sewage treatment works; and ٠ drainage. farm land. • Increased impervious This SWF is not identified on SEPA flood map surfaces due to as the drain has a catchment area of less than carriageway near SWF. 3km². There is a potential flood risk to a small number of dwellings as well as surround land due to its close proximity to them. SWF 07 has two existing culverts downstream

of the proposed Scheme. The two existing

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Residual impact

Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual im	pact
(Feature)	Potential impact	Allfibule		importance	Miligation	Magnitude	Significance
			culverts pose a flood risk to the area of land surrounding the culverts as they have been assessed as going out of bank during the design event.				
	Potential for alterations to flow and sediment regime due to increased impervious surfaces, culvert and channel realignments. Change to channel morphology due to increase in artificial bed and bank material and channel realignment.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Artificial watercourse with no natural channel or bank features (overdeep and trapezoidal cross section). Channel choked with vegetation.	Low	Adhere to guidance set by SEPA on culverting of watercourses, bank protection, and river crossings (SEPA 2006, 2010 and 2012). Incorporate appropriate drainage system to ensure substantial flow and sediment is transported to attenuation ponds. Consult with a geomorphologist at design phase to incorporate the following: Minimise the length of realignment, culverts and number of in-channel structures. Ensure in-channel structures are positioned correctly to minimise scour and alterations to natural flow. Maintain gradient and length of water feature to prevent siltation through culvert/realigned channel or scour around in- channel structures. Maintain channel sinuosity and	Negligible	Neutral

Water Body	Potential Impact	Attributo	Indicator of Quality	Importance	Mitigation	Residual im	pact
(Feature)		Allfibule		importance	Mitigation	Magnitude	Significance
	Potential Impact Potential impact to flood risk due to alteration to area draining to the catchment due to road drainage direction and one road drainage outfall discharge to SWF 08. Alterations to flood risk due to realignment of watercourse and construction of new culvert. Possible loss of flood	Attribute Hydrology and flood risk	Indicator of Quality Drains a small sized catchment. Receives flow from at least three direct tributaries. Receptors: • <5 residential properties;	Importance Very high	Mitigation create natural bed and identify other possible improvements to water feature morphology and habitats. Refer to mitigation listed for SWF 02.		
	storage due to road construction. Alterations to catchment area draining to watercourse due to road drainage direction.		SWF 08 has one existing culvert downstream of the proposed Scheme. The existing culvert (SWF 08-A) poses a flood risk to the area of land surrounding the culvert as it has been assessed as going out of bank during the design event. The culvert crosses under the existing A96 and therefore may pose a flood risk to the road.				
	Potential for alterations to flow and sediment regime due to increased impervious surfaces,	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Artificial watercourse with limited natural channel or bank features (overdeep and	Low	Refer to mitigation listed for SWF 02.	Negligible	Neutral



Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual im	pact
(Feature)	Potential impact	Allfibule		Importance	Miligation	Magnitude	Significance
	culvert, outfall and channel realignment. Change to channel morphology due to increase in artificial bed and bank material and channel realignment.		trapezoidal cross section). Channel choked with vegetation.				
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture; urban/residential and forestry upstream. Potential additional pollutant sources: diffuse rural sources, road and railway drainage; and urban/residential.	High	Runoff from Catchment G to pass through filter drains and wet retention pond prior to outfall.	Negligible	Neutral
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR licence for combined sewer overflow and emergency overflow discharge.	Medium		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Negligible	Neutral
SWF 09 Tributary of Rough Burn	Potential impact to flood risk due to alteration to area draining to the catchment due to road drainage direction and two road drainage outfall discharges to SWF 09. Alterations to flood risk due to construction of a	Hydrology and flood risk	Drains a small sized catchment. Receives flow from at least four direct tributaries. Receptors: • existing A96 [†] ; • proposed Scheme*; and • farm land. The SEPA Flood Map (0.5% AEP event outline) indicates potential flood risk to agricultural land,	Very high	Provision of compensatory flood storage near culvert SWF09-A to extend the current flood plain area. This is to mitigate the loss of floodplain area to the scheme. Wet retention pond designed to limit road drainage outflow to the greenfield pre-development runoff rate of a 50% AEP (one	Negligible	Neutral

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Potential Impact

Possible loss of flood

Increased impervious

carriageway near SWF.

Potential for alterations to

flow and sediment regime

storage due to road

new culvert.

construction

surfaces due to

due to increased

impervious surfaces.

culvert and outfalls.

Change to channel

morphology due to

and bank material.

increase in artificial bed

Water Body

(Feature)

Residual impact Attribute Indicator of Quality Mitigation Importance Magnitude Significance a property as well as a number of roads and in two year return period) flood the railway. A small number of properties are event. also in relatively close proximity to the SWF. SWF 09 has two existing culvert within the vicinity of the proposed Scheme. The existing culverts (SWF 09-A and 09-B) pose a flood risk to the area of land surrounding the culverts as both culverts have been assessed as going out of bank during the design event. Adhere to guidance set by SEPA Negligible Fluvial WFD hydromorphology parameter status: not Low Neutral classified. geomorphology on culverting of watercourses, bank protection, intakes and Embanked, straightened watercourse with outfalls and river crossings limited natural channel or bank features (SEPA 2006, 2008, 2010 and (overdeep and trapezoidal cross section). 2012). Channel choked with vegetation. Incorporate appropriate drainage system to ensure substantial flow and sediment is transported

to attenuation ponds.

the following:

structures.

flow.

Consult with a geomorphologist at design phase to incorporate

Minimise the length of culverts and number of in-channel

Ensure in-channel structures are positioned correctly to minimise scour and alterations to natural

Residual impact Water Body **Potential Impact** Mitigation Attribute Indicator of Quality Importance (Feature) Magnitude Significance Maintain gradient and length of water feature to prevent siltation through culvert or scour around in-channel structures. Not classified under WFD. 'Good' water quality Minor Slight Hiah Runoff from catchments H and I Change in water quality Water assumed. beneficial beneficial to pass through filter drains and quality/supply Surrounding land use: agriculture; forestry wet retention pond prior to upstream. outfall. Potential additional pollutant sources: diffuse rural sources and road and railway drainage. Low pollutant dilution/dispersal capacity. Negligible Neutral Dilution and Low CAR discharges: none. removal of waste products Slight Minor WFD overall ecological status: not classified. Medium Biodiversity beneficial beneficial 'Moderate' equivalent assumed. Fisheries status: not designated. Negligible Neutral **SWF 10** No construction works Hydrology and Drains a very small sized catchment. Refer to mitigation listed for Very high flood risk SWF 01. Indirect tributary of within 100m of this SWF. Does not receive flow from any tributaries. Potential upstream Rough Burn (1) Receptors: propagation of water levels existing A96[†]: • due to modifications to proposed Scheme*; and • SWF 09 downstream of farm land. • the confluence. This SWF is not identified in the flood extent (0.5% AEP event) on SEPA flood map. This SWF feeds into SWF 12 which is at risk. Negligible Neutral **SWF 11** Hydrology and Drains a very small sized catchment. Refer to mitigation listed for There is no direct impact Very high from the proposed flood risk SWF 01. Indirect tributary of Does not receive flow from any tributaries. Rough Burn (2) Scheme on this Receptors: watercourse. Potential



Residual impact Water Body **Potential Impact** Attribute Indicator of Quality Mitigation Importance (Feature) Magnitude Significance existing A96[†]; upstream propagation of • water levels due to • proposed Scheme*; and modifications to SWF 09 farm land. downstream of the This SWF is not identified in the flood extent confluence. (0.5% AEP event) on SEPA flood map. Increased impervious SWF 11 has one existing culvert within the surfaces due to vicinity of the proposed Scheme. The existing carriageway near SWF. culverts (SWF 11-A) poses a flood risk to the area of land surrounding the culvert as the culvert has been assessed as going out of bank during the design event. The watercourse joins SWF 09 before reaching the proposed Scheme. Potential for alterations to Fluvial WFD hydromorphology parameter status: not Refer to mitigation listed for Low Negligible Neutral flow and sediment regime geomorphology classified. SWF 01. due to increased Embanked, straightened watercourse with impervious surfaces limited natural channel or bank features associated with new road. (overdeep and trapezoidal cross section). Channel choked with vegetation. Negligible Neutral **SWF 12** Alterations to flood risk Hydrology and Drains a medium sized catchment. Very high Two flood relief culverts are flood risk proposed to allow connectivity due to channel Rough Burn Receives flow from at least 12 direct tributaries. of existing overland flood flow realignment and Receptors: routes through the scheme (as construction of new farm; culvert. per baseline). <5 residential properties; ٠ Loss of catchment area to existing A96[†]: • road drainage. proposed Scheme*; and . Possible loss of flood farm land. storage due to road • construction. Properties and a factory identified at potential



Residual impact Water Body **Potential Impact** Attribute Indicator of Quality Mitigation Importance (Feature) Magnitude Significance Increased impervious risk of flooding predominantly downstream of surfaces due to the proposed Scheme. Dam and sluice carriageway near SWF. upstream of the proposed Scheme could be affected. SWF 12 has two existing culverts (SWF 12-A/12-B) in the vicinity of the proposed Scheme. Out of bank flows from upstream of the proposed Scheme are modelled to flow across the route. WFD 'Physical Condition' parameter status: Refer to mitigation listed for Potential for alterations to Fluvial High Minor Slight geomorphology SWF 07. Good. flow and sediment regime due to increased Bedrock and cobble bed. Natural planform impervious surfaces. along most of channel, including waterfalls, culvert and channel however modifications present, particularly realignment. downstream of the existing A96. Choked with Change to channel vegetation in places. morphology due to increase in artificial bed and bank material and channel realignment. Negligible Neutral **SWF 13** Potential impact to flood Hydrology and Drains a very small sized catchment. Very high Refer to mitigation listed for risk due to alteration to flood risk SWF 02. Tributary of Does not receive flow from any tributaries. area draining to the 'Unnamed Burn -Receptors: Castle Stuart to catchment due to road <5 residential properties; • drainage direction and two source existing A96[†]; • road drainage outfall (Tornagrain)' (1) proposed Scheme*; and discharges to SWF 13. farm land. • Alterations to flood risk Tributary not shown on the SEPA Flood extent due to construction of new outline (0.5% AEP). A property at Kerrowaird is



Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual im	pact
(Feature)	Fotential impact	Allibule		importance	Mitigation	Magnitude	Significance
	culvert. Possible loss of flood storage due to road construction Increased impervious surfaces due to carriageway near SWF.		located within 40 meters of the watercourse and therefore at potential flood risk. SWF 13 has two existing culvert within the vicinity of the proposed Scheme One of the existing culverts (SWF 13-2) poses a flood risk to the area of land surrounding the culvert as the watercourse has been assessed as going out of bank during the design event.				
	Potential for alterations to flow and sediment regime due to increased impervious surfaces, culvert and outfalls. Change to channel morphology due to increase in artificial bed and bank material.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Re-profiled banks. Choked with vegetation. Extensive channel realignment.	Low	Refer to mitigation listed for SWF 09.	Negligible	Neutral
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture; some woodland/forestry. Potential additional pollutant sources: diffuse rural sources and road and railway drainage.	High	Runoff from catchments J and K to pass through filter drains and wet retention pond prior to outfall.	Minor beneficial	Slight beneficial
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Minor beneficial	Slight beneficial

Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual im		
(Feature)	Potential impact	Allfibule		importance	Miligation	Magnitude	Significance	
SWF 14 Unnamed Burn - Castle Stuart to source (Tornagrain)	Potential alterations to flood risk due to construction of new culvert. Possible loss of flood storage due to road construction. Increased impervious surfaces due to carriageway near SWF.	Hydrology and flood risk	 Drains a small sized catchment. Receives flow from at least 10 direct tributaries. Receptors: existing A96[†]; proposed Scheme*; and farm land. SEPA flood map (0.5% AEP flood extent outline) indicates flood risk to agricultural land, properties, roads and the railway. There are also a few properties in the middle/upper reaches of the catchment located in close proximity to the SWF and therefore at potential flood risk. SWF 14 has one existing culvert within the vicinity of the proposed Scheme. The existing culvert (SWF 14-A) has not been assessed as posing a flood risk as the watercourse was simulated to say in bank during the design event simulation. 	Very high	Refer to mitigation listed for SWF 01.	Negligible	Neutral	
	Potential for alterations to flow and sediment regime due to increased impervious surfaces and culvert. Change to channel morphology due to increase in artificial bed and bank material.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Intermittent riparian buffer zone. Extensive channel realignment. Re-profiled banks. Embanked channel choked with vegetation.	Low	Adhere to guidance set by SEPA on culverting of watercourses, bank protection, and river crossings (SEPA 2006, 2010 and 2012). Incorporate appropriate drainage system to ensure substantial flow and sediment is transported to attenuation ponds. Consult with a geomorphologist	Negligible	Neutral	

Water Body	Detential Impact	Attribute	Indianter of Quality		Mitigation	Residual im		
(Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Magnitude	Significance	
					at design phase to incorporate the following: Minimise the length of culverts. Ensure culverts are positioned correctly to minimise scour and alterations to natural flow. Maintain gradient and length of culvert to prevent siltation or scour around the structures.			
SWF 15 Tributary of 'Unnamed Burn - Castle Stuart to source (Tornagrain)' (2)	Potential alterations to flood risk due to construction of new culvert. Loss of catchment area to road drainage. Possible loss of flood storage due to road construction. Increased impervious surfaces due to carriageway near SWF.	Hydrology and flood risk	Drains a very small sized catchment. Does not receive flow from any tributaries. Receptors: • existing A96 [†] ; • proposed Scheme*; • farm land; and • woodland. Not identified on SEPA flood map flood extent outline for the 0.5% AEP event. Anecdotal evidence indicating flooding at the confluence of SWF 14 and 15 resulting in flooding to woodland/agricultural land. SWF 15 has three existing culverts within the vicinity of the proposed Scheme. One of the existing culverts (SWF 15-A) has been assessed as posing a flood risk as the watercourse is simulated to go out of bank during the design event simulation.	Very high	Refer to mitigation listed for SWF 01.	Negligible	Neutral	
	Potential for alterations to flow and sediment regime	Fluvial	WFD hydromorphology parameter status: not	Low	Refer to mitigation listed for	Negligible	Neutral	



Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual im	pact
(Feature)	Potential impact	Attribute	Indicator of Quality	Importance	Mitigation	Magnitude	Significance
	due to increased impervious surfaces and culvert. Change to channel morphology due to increase in artificial bed and bank material.	geomorphology	classified. Extensive channel realignment. Re-profiled banks. Overdeep channel choked with vegetation.		SWF 14.		
SWF 16 Tributary of Ardersier Burn	 Potential impact to flood risk due to alteration to area draining to the catchment due to road drainage direction and three road drainage outfall discharges to SWF 16. Potential alterations to flood risk due to channel realignment and construction of new culverts. Possible loss of flood storage due to road construction. Increased impervious surfaces due to carriageway near SWF. 	Hydrology and flood risk	Drains a medium sized catchment. Receives flow from at least 15 direct tributaries. Receptors: • <5 residential properties; • farm; • Inverness Airport; • existing A96 [†] ; • proposed Scheme*; • local road network; and • farm land. SEPA map indicates flood risk to agricultural land and Inverness airport. SWF 16 has two existing culverts (SWF 16-A and SWF 16-B) in the vicinity of the proposed Scheme. Baseline modelling confirms the SEPA flood map.	Very high	Provision of a flood storage area upstream of the C14 culvert, requiring an engineered earth bund. This would fall under the jurisdiction of the Reservoirs Act (Scotland) 2011 Wet retention pond designed to limit road drainage outflow to the greenfield pre-development runoff rate of a 50% AEP (one in two year return period) flood event.	Negligible	Neutral
	Potential for alterations to flow and sediment regime due to increased impervious surfaces,	Fluvial geomorphology	WFD 'Physical Condition' parameter status upstream section 'Mid Coul to source': Good (2014). WFD 'Physical Condition' parameter status	Low	Refer to mitigation listed for SWF 02.	Negligible	Neutral

Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual im	pact
(Feature)		Allfibule		importance	Miligation	Magnitude	Significance
	culverts, outfalls and channel realignment. Change to channel		downstream section 'sea to Mid Coul' (HMWB): Bad (2014). Extensive channel realignment. Culverted in				
	morphology due to		several locations, particularly due to runway and				
	increase in artificial bed and bank material and channel realignment.		airport infrastructure.				
	Change in water quality	Water quality/supply	WFD water quality status (Mid Coul to source): Good (2014). WFD water quality status (sea to Mid Coul): Moderate (2014). CAR licence identified in SEPA data for surface water abstraction for Culblair Farm. Surrounding land use: agriculture; some forestry towards the top of the catchment; Inverness Airport in the lower catchment.	High	Runoff from catchments L, V and M to pass through filter drains and wet retention pond prior to outfall.	Negligible	Neutral
			Potential additional pollutant sources: diffuse				
			rural sources, aircraft fuel and associated				
			pollutants, road and railway drainage and historic contaminants from disused railway.				
		Dilution and removal of waste products	Low/Medium pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status (Mid Coul to source): Good (2014).	Low		Negligible	Neutral
			WFD overall ecological potential (sea to Mid Coul): Bad (2014).				
			Fisheries status: not designated.				
SWF 17	Potential alterations to	Hydrology and flood risk	Drains a very small sized catchment.	High	Design refinement to earthworks	Negligible	Neutral
Drains at Culblair	flood risk due to construction of new	noou nsk	Receives flow from at least two direct		will remove this impact.		

Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual im	pact
(Feature)	Potential impact	Allinbule		importance	Miligation	Magnitude	Significance
	culverts. Loss of catchment area to road drainage. Possible loss of flood storage due to road construction. Increased impervious surfaces due to carriageway near SWF.		 tributaries. Receptors: <10 residential properties; farm; proposed Scheme*; Aberdeen to Inverness Railway Line; and farm land. SWF 17 is not identified on the SEPA flood map. SWF 17 feeds into SWF 16 which is identified as being at risk. SWF 17 has one existing culvert (SWF 17-A) within the vicinity of the proposed Scheme. The existing culvert is assessed as posing a flood risk as the watercourse was simulated to go out of bank during the design event simulations. Culvert SWF 17-A also goes underneath the railway line and therefore there is a potential flood risk to the railway line from this watercourse. 				
	Potential for alterations to flow and sediment regime due to increased impervious surfaces and two culverts. Change to channel morphology due to increase in artificial bed and bank material.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Realigned channel with limited riparian buffer zone. Artificial drain – no natural channel or bank features.	Low	Refer to mitigation listed for SWF 02.	Negligible	Neutral
SWF 18	Potential impact to flood	Hydrology and	Drains a small sized catchment.	Very high	Refer to mitigation listed for	Negligible	Neutral

Residual impact Water Body **Potential Impact** Attribute Indicator of Quality Mitigation Importance (Feature) Magnitude Significance flood risk SWF 02. risk due to alteration to Receives flow from at least five direct Indirect tributary drains of Ardersier area draining to the tributaries. Burn catchment due to road Receptors: drainage direction and one <5 residential properties; • road drainage outfall two farms: • discharge to SWF 18. existing A96[†]: • Potential alterations to proposed Scheme*; and ٠ flood risk due to channel farm land. realignment and SEPA Flood map indicates flood risk to construction of two new agricultural land from SWF 18. culverts. SWF 18 has three existing culverts within the Possible loss of flood vicinity of the proposed Scheme. Existing storage due to road culvert SWF 18-A has been assessed as construction. posing a flood risk as the watercourse was Increased impervious simulated to go out of bank during the design surfaces due to event simulation. carriageway near SWF. Potential for alterations to Fluvial WFD hydromorphology parameter status: not Low Refer to mitigation listed for Negligible Neutral classified. SWF 02. flow and sediment regime geomorphology due to increased Limited riparian buffer zone. Re-profiled banks, impervious surfaces, overdeep channel with hard bank reinforcement culverts, outfall and in places. Extensive channel realignment. channel realignment. Channel choked with vegetation. Change to channel morphology due to increase in artificial bed and bank material and channel realignment. Not classified under WFD. 'Good' water quality Minor Slight High Change in water quality Water Runoff from Catchment N to assumed. beneficial beneficial



Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual im	pact
(Feature)	Fotential impact	Allinbule		importance	Mitigation	Magnitude	Significance
		quality/supply Dilution and removal of waste products	Surrounding land use: agriculture/forestry and Inverness Airport. Potential additional pollutant sources: diffuse rural sources, aircraft fuel and associated pollutants, and road and railway drainage. Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low	pass through filter drains and wet retention pond prior to outfall.	Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Minor beneficial	Slight beneficial
SWF 19 Balnagowan Burn	Potential impact to flood risk due to alteration to area draining to the catchment due to road drainage direction and three road drainage outfall discharges to SWF 19. Potential alterations to flood risk due to construction of two new culverts. Possible loss of flood storage due to road construction. Increased impervious surfaces due to carriageway near SWF.	Hydrology and flood risk	 Drains a small sized catchment. Receives flow from at least 10 direct tributaries. Receptors: existing A96[†]; proposed Scheme*; and farm land. SEPA Flood map indicates flood risk to agricultural land. SWF 19 has two existing culverts within the vicinity of the proposed Scheme. The SWF 19-A culvert crosses underneath the current A96 and is located within close proximity to the proposed Scheme. The other existing culvert SWF 19-B crosses the railway line and is located upstream of the proposed Scheme. Given the culverts have been simulated to go out of bank they poses a direct flood risk to the existing A96 and to the railway line. 	Very high	Refer to mitigation listed for SWF 02.	Negligible	Neutral



Water Body	Potential Impact	Attribute	ttribute Indicator of Quality Importance Mitigation	Mitigation	Residual impact		
(Feature)		Allfibule		importance	Mitigation	Magnitude	Significance
	Potential for alterations to flow and sediment regime due to increased impervious surfaces, culverts and outfalls.	Fluvial geomorphology	WFD 'Physical Condition' parameter status: Bad. Limited riparian buffer zone. Extensive channel realignment.	Low	Refer to mitigation listed for SWF 09.	Negligible	Neutral
	Change to channel morphology due to increase in artificial bed and bank material.						
	Change in water quality	Water quality/supply	WFD water quality status: Moderate (2014). Surrounding land use: agriculture. Potential additional pollutant sources: diffuse rural sources and road and railway drainage.	Medium	Runoff from Catchment O to pass through filter drains, swale and wet retention pond prior to outfall.	Negligible	Neutral
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low	Runoff from catchments P and Q to pass through filter drains and wet retention pond prior to	Negligible	Neutral
		Biodiversity	WFD overall ecological status: Bad (2014). Fisheries status: not designated.	Low	outfall.	Negligible	Neutral
SWF 21 Field ditch tributaries of Balnagowan Burn	Increased impervious surfaces due to carriageway near SWF.	Hydrology and flood risk	 Drains a very small sized catchment. Does not receive flow from any tributaries. Receptors: Aberdeen to Inverness Railway Line; proposed Scheme*; and farm land. SWF 21 is not identified on the SEPA flood map. SWF 21 is located upstream of the proposed Scheme. 	High	Refer to mitigation listed for SWF 01.	Negligible	Neutral

Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual im		
(Feature)	Potential impact	Allfibule		importance	Millgallon	Magnitude	Significance	
045.00	Potential for alterations to flow and sediment regime due to increased impervious surfaces associated with new road.	Fluvial geomorphology	WFD morphology parameter status: not classified. Artificial watercourse through forestry. Channel choked with vegetation.	Low	Refer to mitigation listed for SWF 01.	Negligible	Neutral	
SWF 22 Alton Burn	Potential impact to flood risk due to alteration to area draining to the catchment due to road drainage direction and one road drainage outfall discharge to SWF 22. Potential alterations to flood risk due to channel realignment and construction of two new culverts. Possible loss of flood storage due to road construction. Increased impervious surfaces due to carriageway near SWF.	Hydrology and flood risk	 Drains a small sized catchment. Receives flow from at least one direct tributary. Receptors: <10 residential properties; Aberdeen to Inverness Railway Line; proposed Scheme*; and farm land. Flood risk to numerous properties in Nairn and agricultural land. SEPA flood map indicates active floodplain with the potential to affect properties. SWF 22 has one existing culvert within the vicinity of the proposed Scheme. The existing culvert (SWF 22-A) has been assessed as posing a flood risk as the watercourse is simulated to go out of bank during the design event simulation. The culvert crosses a minor road and therefore may pose flood risk to the road. 	Very high	Refer to mitigation listed for SWF 02.	тедіїдіріе		
	Potential for alterations to flow and sediment regime due to increased impervious surfaces, culverts and outfall. Change to channel	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Limited riparian buffer zone. Extensive channel realignment. Overdeep and overwide channel which is choked with vegetation.	Low	Refer to mitigation listed for SWF 09.	Negligible	Neutral	

storage due to road

Water Body

Potential Impact Attribute Indicator of Quality Mitigation Importance (Feature) Magnitude Significance morphology due to increase in artificial bed and bank material. Not classified under WFD. 'Good' water quality Neutral Negligible Change in water quality Water Hiah Runoff from Catchment R to assumed. CAR licence identified in SEPA data quality/supply pass through filter drains and for surface water abstraction for Kildrummie wet retention pond prior to Farm. Surrounding land use: agriculture, rural outfall. grassland; some urban/residential downstream. Potential additional pollutant sources: diffuse rural sources and road and railway drainage. Low pollutant dilution/dispersal capacity. Negligible Neutral Dilution and Low CAR discharges: none. removal of waste products Negligible Neutral Biodiversity WFD overall ecological status: not classified. Medium 'Moderate' equivalent assumed. Fisheries status: not designated. Negligible Neutral SWF 23 Potential impact to flood Hydrology and Drains a large sized catchment. Refer to mitigation listed for Very high flood risk SWF 02. risk due to alteration to **River Nairn** Receives flow from numerous direct tributaries. area draining to the Receptors: catchment due to road • approximately 40 domestic properties drainage direction and one within 2km of proposed bridge; road drainage outfall farm buildings; • discharge to SWF 23. proposed Scheme*; • Potential alterations to farm land; and • flood risk due to • ecologically designated watercourse. construction of a new The SEPA Flood Map indicates flood risk to bridge spanning the river. agricultural land and properties from SWF 23. Possible loss of flood Baseline modelling confirms the SEPA flood



Residual impact



Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact		
(Feature)	Potential impact	Allfibule		importance	Miligation	Magnitude	Significance	
	construction. Increased impervious surfaces due to carriageway near SWF.		map.					
	Potential for alterations to flow and sediment regime due to increased impervious surfaces and outfall. Change to channel morphology due to increase in artificial bed and bank material. Removal of section of riparian zone for clear span bridge abutments.	Fluvial geomorphology	WFD 'Physical Condition' parameter status for River Nairn – Moray Firth to River Farnack confluence: Good. Natural planform with few modifications. Dynamic geomorphology, varied flow types and in-channel habitats. Continuous riparian buffer zone.	Very high	Adhere to guidance set by SEPA on bank protection, intakes and outfalls and river crossings (SEPA 2008, 2010 and 2012). Incorporate appropriate drainage system to ensure substantial flow and sediment is transported to attenuation ponds. Consult with a geomorphologist at design phase to incorporate the following: Ensure in-channel structures are positioned correctly to minimise scour and alterations to natural flow.	Negligible	Neutral	
	Change in water quality	Water quality/supply	 WFD water quality status: High (2014). CAR licence identified in SEPA data for surface water abstraction for Kildrummie Farm. Surrounding land use: agriculture; some woodland/forestry; urban/residential downstream (Nairn). Potential additional pollutant sources: diffuse rural/urban sources and road and railway drainage. 	Very high	Runoff from Catchment S to pass through filter drains, swale and wet retention pond prior to outfall.	Negligible	Neutral	
		Dilution and removal of waste	Medium pollutant dilution/dispersal capacity. CAR discharges: none.	Medium		Negligible	Neutral	

Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
(Feature)		Attribute		importance	Mitigation	Magnitude	Significance
		products					
		Biodiversity	WFD overall ecological status: Moderate (2014). Protected Area for Freshwater Fish under WFD.	Very high		Negligible	Neutral
SWF 24 Tributary of the River Nairn	Potential impact to flood risk due to alteration to area draining to the catchment due to road drainage direction and two road drainage outfall discharges to SWF 24. Potential alterations to flood risk due to construction of a new culvert. Possible loss of flood storage due to road construction. Increased impervious surfaces due to carriageway near SWF.	Hydrology and flood risk	Drains a very small sized catchment. Receives flow from at least one direct tributary. Receptors: • woodland; • farm land; • proposed Scheme*; and • ecologically designated watercourse. The SEPA Flood Map indicates flood risk to agricultural land from SWF 24.	Very high	Refer to mitigation listed for SWF 02.	Negligible	Neutral
	Potential for alterations to flow and sediment regime due to increased impervious surfaces, culvert and outfalls. Change to channel morphology due to increase in artificial bed	Fluvial geomorphology	 WFD hydromorphology parameter status: not classified. Extensive channel realignment. Lack of riparian zone in places. Modifications such as embankment and culverts present. Channel choked with vegetation. 	Low	Refer to mitigation listed for SWF 09.	Negligible	Neutral

Water Body	Detential Impact	Attribute	Attribute Indiastar of Quality Importance Mitiset	Mitiantian	Residual imp	pact	
(Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Magnitude	Significance
	and bank material.						
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture; woodland/forestry upstream. Potential additional pollutant sources: diffuse rural/urban sources and road drainage.	High	Runoff from catchments T and U to pass through filter drains, swale and wet retention pond prior to outfall.	Negligible	Neutral
		Dilution and	Low pollutant dilution/dispersal capacity.	Medium		Negligible	Neutral
		removal of waste products	Two CAR licences for septic tank effluent discharge.				
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Protected Area for Freshwater Fish under WFD (associated water body of the River Nairn).	Very high		Negligible	Neutral
SWF 26 Auldearn Burn	Potential impact to flood risk due to alteration to area draining to the catchment due to road drainage direction and three road drainage outfall discharges to SWF 26. Potential alterations to flood risk due to channel realignment and construction of a new culvert. Possible loss of flood storage due to road construction.	Hydrology and flood risk	 Drains a medium sized catchment. Receives flow from at least 14 direct tributaries. Receptors: approximately 20 residential properties; proposed Scheme*; local road network; Auldearn sewerage treatment works; farm land; and ecologically designated watercourse. The SEPA Flood Map indicates flood risk to agricultural land and residential properties from SWF 26. Baseline modelling shows more limited flood extents than the SEPA flood map but out of bank flows are present in the vicinity of the 	Very high	Channel widening upstream of culvert C21 with two stage channel design. Wet retention pond designed to limit road drainage outflow to the greenfield pre-development runoff rate of a 50% AEP (one in two year return period) flood event.	Negligible	Neutral



Water Body	Potential Impact	Attribute	Indicator of Quality		Mitigation	Residual im	pact
(Feature)	Potential impact	Attribute	Indicator of Quality	Importance	Mitigation	Magnitude	Significance
	Increased impervious surfaces due to carriageway near SWF.		proposed Scheme.				
	Potential for alterations to flow and sediment regime due to increased impervious surfaces, culvert, outfalls and channel realignment. Change to channel morphology due to increase in artificial bed and bank material and channel realignment.	Fluvial geomorphology	WFD hydromorphology parameter status: Moderate. Some morphological diversity and varied flow typed. Gravel and cobble substrate. Limited riparian buffer zone. Channel choked with vegetation in places.	Medium	Refer to mitigation listed for SWF 02.	Minor	Slight
	Change in water quality	Water quality/supply	WFD water quality status: Moderate (2014). CAR licence identified in SEPA data for surface water abstraction for Househill Farm. Surrounding land use: agriculture; some grassland/woodland.	High	Runoff from catchments W, X and Y to pass through filter drains, swale and wet retention pond prior to outfall.	Negligible	Neutral
		Dilution and removal of waste products	One discharge consent identified by Envirocheck: this discharge is from a septic tank. Potential additional pollutant sources: diffuse rural/urban sources and road drainage.	Medium		Negligible	Neutral
		Biodiversity	WFD overall ecological status: Moderate (2014). Protected Area for Freshwater Fish under WFD (associated water body of the River Nairn).	Very high		Negligible	Neutral

Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact		
(Feature)	Potential impact	Allinbule		importance	Milligation	Magnitude	Significance	
SWF 31 Auldearn Burn - Brightmony Tributary	Potential upstream propagation of water into SWF 31 catchment as the proposed Scheme crosses SWF 26 downstream of the SWF 26/31 confluence. Increased impervious surfaces due to carriageway near SWF.	Hydrology and flood risk	Drains a small sized catchment. Receives flow from at least five direct tributaries. Receptors: • <5 residential properties; • existing A96 [†] ; • proposed Scheme*; and • farm land. The SEPA Flood map indicates flood risk to agricultural land and some downstream properties. SWF 31 is located to the south of the proposed Scheme. SWF 31 has been included in the SWF 26 model as it is a tributary of SWF 26. The baseline modelling indicates a lesser degree of flooding than the SEPA flood map	Very high	Refer to mitigation listed for SWF 01.	Negligible	Neutral	
	Potential for alterations to flow and sediment regime due to increased impervious surfaces associated with new road.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Embanked, realigned watercourse with straight planform and overdeep cross-section. Limited riparian buffer zone.	Low	Refer to mitigation listed for SWF 01.	Negligible	Neutral	
SWF 33 Drain at Penick Farm	Increased impervious surfaces due to carriageway near SWF.	Hydrology and flood risk	Drains a very small sized catchment. Does not receives flow from any tributaries. Receptors: • <5 residential properties; • existing A96 [†] ; • local road network; and	Very high	Refer to mitigation listed for SWF 01.	Negligible	Neutral	

Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual im	pact	
(Feature)	Fotential impact	Allfibule		importance	Mitigation	Magnitude	Significance	
			 farm land. SWF 33 is not identified on the SEPA flood map. 					
	Potential for alterations to flow and sediment regime due to increased impervious surfaces associated with new road	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Straightened watercourse with limited riparian buffer zone.	Low	Refer to mitigation listed for SWF 01.	Negligible	Neutral	
SWF 34 Tributary of Auldearn Burn (4)	Potential propagation of water upstream into SWF 34 catchment as the proposed Scheme crosses SWF 26 downstream of the SWF 26/34 confluence. Loss of catchment area to road drainage. Increased impervious surfaces due to carriageway near SWF.	Hydrology and flood risk	Drains a small sized catchment. Receives flow from at least one direct tributary. Receptors: • <5 residential properties; • existing A96 [†] ; • proposed Scheme*; and • farm land. The SEPA Flood map indicates flood risk to agricultural land from this SWF. SWF 34 has one existing culvert (SWF 34-1) within close proximity to the proposed Scheme.	Very high	Refer to mitigation listed for SWF 01.	Negligible	Neutral	
	Potential for alterations to flow and sediment regime due to increased impervious surfaces associated with new road.	Fluvial geomorphology	WFD morphology parameter status: not classified. Extensive channel realignment. Channel choked with vegetation in places.	Low	Refer to mitigation listed for SWF 01.	Negligible	Neutral	
SWF 35 Drain, tributary of	Potential impact to flood risk due to alteration to	Hydrology and flood risk	Drains a very small catchment. Does not receive flow from any tributaries.	Low	Refer to mitigation listed for SWF 02.	Negligible	Neutral	



Water Body	Potential Impact	Attribute	Indicator of Quality	Importance Mitigation Resid		Residual im	esidual impact	
(Feature)	Fotential impact	Allfibule		importance	Miligation	Magnitude	Significance	
Auldearn Burn - Brightmony Tributary	area draining to the catchment due to road drainage direction and one road drainage outfall discharge to SWF 35. Increased impervious surfaces due to carriageway near SWF.		Receptors: farm land.					
	Potential for alterations to flow and sediment regime due to increased impervious surfaces and outfall. Change to channel morphology due to increase in artificial bed and bank material.	Fluvial geomorphology	WFD morphology parameter status: not classified. Small, realigned channel with scattered tree lining.	Low	Adhere to guidance set by SEPA on bank protection and intakes and outfalls (SEPA 2008 and 2012). Incorporate appropriate drainage system to ensure substantial flow and sediment is transported to attenuation ponds. Consult with a geomorphologist at design phase to incorporate the following: Ensure in-channel structures are positioned correctly to minimise scour and alterations to natural flow.	Negligible	Neutral	
Change in v	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture and woodland/forestry. Potential additional pollutant sources: diffuse rural sources.	High	Runoff from Catchment Z to pass through filter drains, swale and wet retention pond prior to outfall.	Negligible	Neutral	
		Dilution and	Low pollutant dilution/dispersal capacity.	Low		Negligible	Neutral	



Water Body	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual im	pact
(Feature)	Potential impact	Allfibule		Importance	Miligation	Magnitude	Significance
		removal of waste products	CAR discharges: none.				
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium			Neutral
Loch Flemington		Hydrology and flood risk	 Shallow loch. It is believed to be a naturally controlled loch with a complex outflow system with significant surface groundwater interactions. Receptors: approximately 20 residential properties; local road network; farm land; and ecologically designated water body. 	Very high		Negligible	Neutral



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