ID – 39 (Proposed track crossing - temporary)	Unnamed Drain
Watercourse Description: Large field drain, which is a tributary to the Sauchie Burn, flows to the southeast in a straightened drainage channel	
NGR Ref: 365536 770146	
Photo – Drainage channel further upstream	ESRI aerial imagery of the drainage ditch at proposed crossing point
	
Width of watercourse/ drain (m)	0.6 m
Bed Sediment	Silt
Bank Erosion	No
Natural Channel	No- heavily modified
Existing Crossing	None
Proposed Crossing	Pipe Culvert or Single Span Bridge (temporary). The crossing location is rural and a temporary crossing sized to the 1 in 30 year flow is considered suitable for the location, size of watercourse and temporary nature of the track crossing. Designing for a 1 in 200 year flow (plus climate change) could result in oversizing the crossing, requiring widening of the channel at the crossing and the need for raised embankments, which is not appropriate for a temporary crossing in a rural setting. The proposed design will allow the crossing to be removed at the end of the construction period with no legacy effect on the existing channel. In the event of a higher flood event occurring when the temporary crossing is in place, water would overtop the track and return back into the channel downstream of the track. There are no nearby receptors and there is considered to be no increased flood risk to others.
Additional Mitigation	None
Catchment (km^2)	0.77 km^2
Minor Watercourse	No
Main river catchment	River North Esk
Within catchment of SAC designated river	No

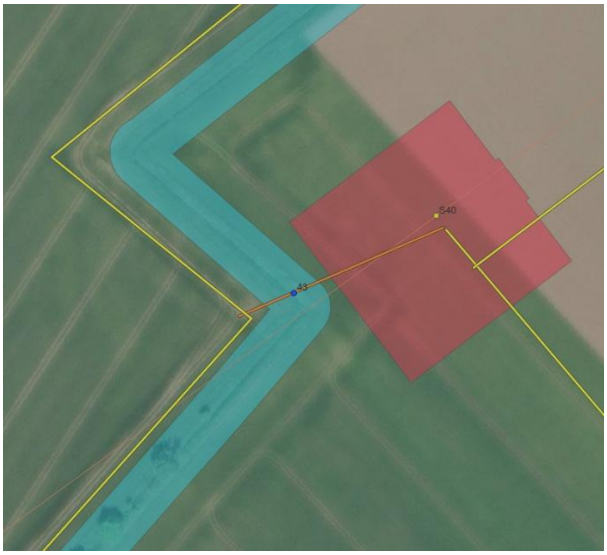
ID – 39 (Proposed track crossing - temporary)	Unnamed Drain
CAR Authorisation Required	Yes – GBR or Registration

ID – 40 (Proposed track crossing - temporary)	Drainage tributary to Sauchie Burn
Watercourse Description: Large field drain tributary to the Sauchie Burn flows to the southeast in a straightened drainage channel.	
NGR Ref: 365590 770300	
Photo – Drainage channel looking upstream	Photo – Drainage channel looking downstream
	
Width of watercourse/ drain (m)	1.1 m
Bed Sediment	Silt
Bank Erosion	No
Natural Channel	No
Existing Crossing	None
Proposed Crossing	Pipe Culvert or Single Span Bridge (temporary). The crossing location is rural and a temporary crossing sized to the 1 in 30 year flow is considered suitable for the location, size of drain and temporary nature of the track crossing. Designing for a 1 in 200 year flow (plus climate change) could result in oversizing the bridge, requiring widening of the channel at the crossing and the need for raised embankments, which is not appropriate for a temporary crossing in a rural setting. The proposed design will allow the crossing to be removed at the end of the construction period with no legacy effect on the existing channel. In the event of a higher flood event occurring when the temporary crossing is in place, water would overtop the track and return back into the channel downstream of the track. There are no nearby receptors and there is considered to be no increased flood risk to others.
Additional Mitigation	None
Catchment (km^2)	0.52 km^2
Minor Watercourse	No
Main river catchment	River North Esk
Within catchment of SAC designated river	No
CAR Authorisation Required	Yes – GBR or Registration

ID – 41 (Existing track crossing)	Unnamed Drain
Watercourse Description: Large field drain within agricultural land at Haughhead Farm flows to the east from a field drain outlet. There is an existing field access crossing with two other crossings further upstream. The proposed access track crossing the drain at the location of the existing crossing.	
NGR Ref: 368107 772574	
Photo – Drainage channel, well defined	Photo – Channel field drain culvert outlet further upstream
	
Width of watercourse/ drain (m)	0.8 m
Bed Sediment	Silt
Bank Erosion	No
Natural Channel	No
Existing Crossing	Existing crossing with stone arch culvert (500 mm wide culvert)
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km^2)	0.51 km^2
Minor Watercourse	Yes
Main river catchment	River North Esk
Within catchment of SAC designated river	No
CAR Authorisation Required	No

Section D

ID – 42 **(Existing track crossing)**	**Unnamed Drain**
Watercourse Description: Large field drainage channel flows to the south towards the Ducat Water. The existing track crosses the drainage channel via a 300 mm culvert.	
NGR Ref: 371368 775492	
Photo – Drainage channel alongside road viewed just downstream from crossing	Photo – 300mm culvert
	
Width of watercourse/ drain (m)	0.7 m
Bed Sediment	Silt
Bank Erosion	No
Natural Channel	No
Existing Crossing	Existing crossing (300 mm culvert)
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km^2)	0.58 km^2
Minor Watercourse	No
Main river catchment	River North Esk
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 43 (Proposed track crossing - permanent)	Large Drainage ditch tributary to Luther Water
Watercourse Description: Large drainage ditch tributary flows southeast at proposed crossing location but then turns southwest just metres downstream. Channel is straightened and well-defined.	
NGR Ref: 372673, 775810	
ESRI aerial imagery shows proposed crossing location of drainage ditch	
	
Width of watercourse/ drain (m)	0.8 m
Bed Sediment	Unknown
Bank Erosion	No
Natural Channel	No
Existing Crossing	None
Proposed Crossing	Pipe Culvert or Single Span Bridge (permanent)
Additional Mitigation	None
Catchment (km^2)	1.38 km^2
Minor Watercourse	Yes
Main river catchment	River North Esk
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 44 (Existing track crossing)	Luther Water
Watercourse Description: Luther Water flows southwest beneath a concrete bridge crossing at this locality. The existing bridge provides field access. The channel is wide with shallow depths, and the watercourse has been heavily modified and straightened. Additionally there is an adjacent ditch which feeds into the Luther Water downstream (ditch has a 1 m culvert).	
NGR Ref: 372643 776149	
Photo – Luther Water looking northeast upstream	Photo – Existing bridge crossing
	
Width of watercourse/ drain (m)	3.2 m
Bed Sediment	Silt to cobble
Bank Erosion	No
Natural Channel	Natural watercourse, but heavily modified/straightened channel
Existing Crossing	Existing bridge crossing
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km^2)	22.58 km^2
Minor Watercourse	No
Main river catchment	River North Esk
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 45 (Existing track crossing)	Scotch Haugh Burn (Luther Water tributary)
Watercourse Description: Scotch Haugh Burn flows southeast in a heavily modified channel that is well-defined and straightened. Watercourse flows beneath existing track crossing in 1000 mm culvert.	
NGR Ref: 372378 776704	
Photo – Drain looking downstream to southeast	Photo – 1000 mm culvert
	
Width of watercourse/ drain (m)	1.0 m
Bed Sediment	Silt
Bank Erosion	No
Natural Channel	No, artificially straightened
Existing Crossing	Existing bridge crossing
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km^2)	4.54 km^2
Minor Watercourse	No
Main river catchment	River North Esk
Within catchment of SAC designated river	No
CAR Authorisation Required	No

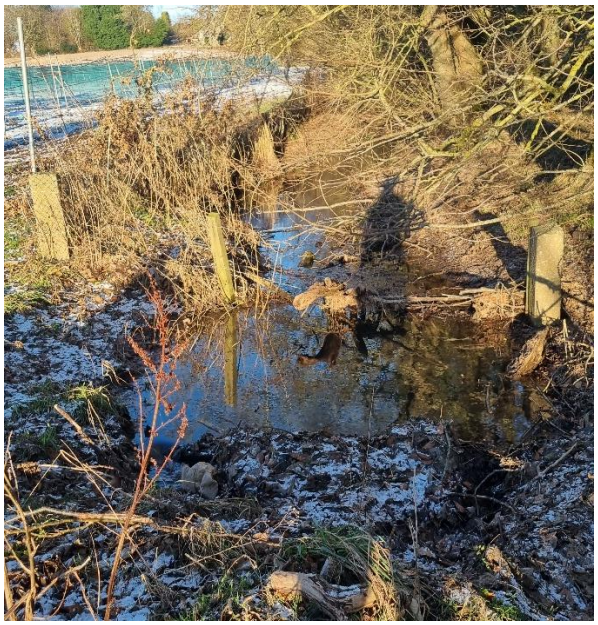
ID – 46 (Proposed track crossing - temporary)	Unnamed Drain
Watercourse Description: Large drainage ditch with existing field access crossing just 15 m downstream of proposed temporary track crossing. The drainage ditch flows to the south and at the crossing downstream flows through a 450 mm pipe culvert then is diverted to the east.	
NGR Ref: 373514 776307	
Photo – Drainage channel crossing looking upstream to the north.	Photo – 450 mm pipe culvert outlet, 15 m downstream of proposed temporary track crossing.
	
Width of watercourse/ drain (m)	0.9 m
Bed Sediment	Silt
Bank Erosion	No
Natural Channel	No
Existing Crossing	None. There is however an existing field access crossing 15 m downstream that could potentially be utilised (with a 450 mm culvert).
Proposed Crossing	Pipe Culvert or Single Span Bridge (temporary). The crossing location is rural and a temporary crossing sized to the 1 in 30 year flow or to maintain the existing capacity of the channel is considered suitable for the location, size of watercourse and temporary nature of the track crossing. Designing for a 1 in 200 year flow (plus climate change) could result in oversizing the crossing, requiring widening of the channel at the crossing and the need for raised embankments, which is not appropriate for a temporary crossing in a rural setting. The crossing and temporary track is within the future flood risk area associated with the Luther Water, so the track (and any bridge embankments) will not be raised. In the event of a higher flow event, it is considered that the existing culvert already restricts flood flows downstream and water could overtop the banks of the drain in the current situation. The temporary crossing will be no smaller than the existing culvert and therefore will not increase flood risk to other receptors.
Additional Mitigation	None
Catchment (km^2)	0.29 km^2
Minor Watercourse	Yes
Main river catchment	Bervie Water

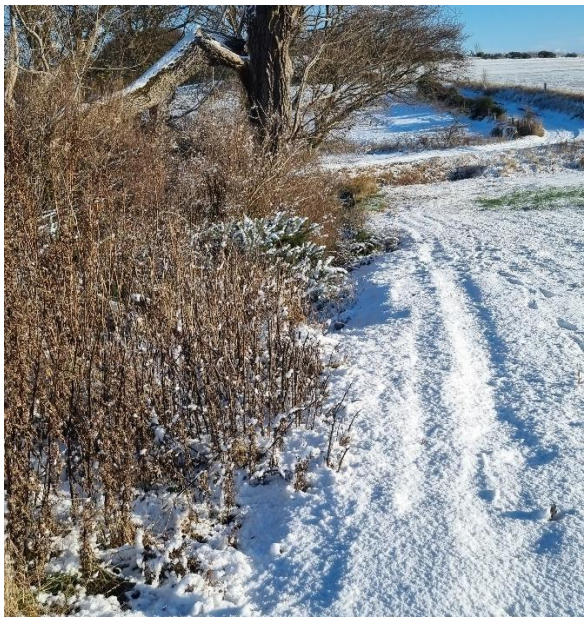
ID – 46 (Proposed track crossing - temporary)	Unnamed Drain
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 47 (Existing track crossing)	Unnamed Drain
Watercourse Description: Small drain flowing to the southeast. Dry at time of survey with very blocked small 250 mm culvert.	
NGR Ref: 374250 776929	
Photo – Drainage channel viewed looking north	Photo – Shows vegetated blocked culvert
	
Width of watercourse/ drain (m)	0.9 m
Bed Sediment	Silt
Bank Erosion	No
Natural Channel	No
Existing Crossing	Existing crossing (250 mm pipe culvert)
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km^2)	0.44 km^2
Minor Watercourse	No
Main river catchment	Bervie Water
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 48 (Existing track crossing)	Mossend Burn
Watercourse Description: Mossend Burn flows east beneath road in large arch culvert. Watercourse has been straightened in this area.	
NGR Ref: 374420 777687	
Photo – Mossend Burn looking west, upstream	
	
Width of watercourse/ drain (m)	1.6 m
Bed Sediment	Mix silt to cobble
Bank Erosion	No
Natural Channel	No
Existing Crossing	Existing Stone Arch bridge crossing
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km^2)	1.44 km^2
Minor Watercourse	No
Main river catchment	Bervie Water
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 49 (Existing track crossing)	Mossend Burn
Watercourse Description: Mossend Burn flows west beneath existing in culvert of unknown dimensions.	
NGR Ref: 374716 777667	
Photo – Mossend Burn looking west, upstream	
	
Width of watercourse/ drain (m)	0.7 m
Bed Sediment	Mix silt to cobble
Bank Erosion	No
Natural Channel	No
Existing Crossing	Existing crossing (Culvert dimensions and condition unknown)
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km^2)	1.41 km^2
Minor Watercourse	Yes
Main river catchment	Bervie Water
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 50 (Existing track crossing)	Nursery Burn
Watercourse Description: Nursery Burn flows south beneath the existing track in a 600 mm pipe culvert.	
NGR Ref: 374688 777954	
Photo – Nursery Burn looking upstream to the north	Photo – looking downstream
	
Width of watercourse/ drain (m)	1.4 m
Bed Sediment	Gravel to cobble
Bank Erosion	No
Natural Channel	Yes
Existing Crossing	Existing crossing (600 mm pipe culvert)
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km^2)	1.40 km^2
Minor Watercourse	No
Main river catchment	Bervie Water
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 51 (Proposed track crossing - temporary)	Unnamed Drain
Watercourse Description: Minor unnamed drain flows downslope to the east; channel is very unstructured and shallow further west and much deeper and better defined in the east.	
NGR Ref: 374874 778225	
Photo – Shallow poorly defined drain section further west	Photo – Deeper section of channel further east is heavily vegetated
	
Width of watercourse/ drain (m)	0.3 m
Bed Sediment	Silt
Bank Erosion	No
Natural Channel	No
Existing Crossing	None
Proposed Crossing	Pipe Culvert or Single Span Bridge (temporary). The crossing location is rural and a temporary crossing sized to the 1 in 30 year flow is considered suitable for the location, size of drain and temporary nature of the track crossing. Designing for a 1 in 200 year flow (plus climate change) could result in oversizing the crossing which is not appropriate for a temporary crossing in a rural setting. The catchment area of the drain is small and flood flows in this drain will be low In the event of a higher flood event occurring when the temporary crossing is in place, water would overtop the track and return back into the channel downstream of the track. There are no nearby receptors and there is considered to be no increased flood risk to others.
Additional Mitigation	None
Catchment (km^2)	0.05 km^2
Minor Watercourse	Yes
Main river catchment	Bervie Water
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 52 (Existing track crossing)	Unnamed Drain
Watercourse Description: Drainage channel is not mapped but is wide and well defined here with an existing culvert at the track crossing. The channel flows to the south draining commercial agricultural area.	
NGR Ref: 374867 778281	
Photo – Drainage channel at crossing looking south	Photo – Drainage channel viewed looking north
	
Width of watercourse/ drain (m)	0.9 m
Bed Sediment	Mix silt to pebble
Bank Erosion	No
Natural Channel	No
Existing Crossing	Existing crossing (stone box culvert 600 mm wide by 300 mm high)
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km^2)	0.02 km^2
Minor Watercourse	Yes
Main river catchment	Bervie Water
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 53 (Proposed track crossing - temporary)	Unnamed Drain
Watercourse Description: Drainage ditch flows to the west. Vegetated channel and highly modified, straightened drainage ditch draining commercial agricultural area. No water/ flow at the time of survey.	
NGR Ref: 374905 779347	
Photo – Drainage ditch, barely any flow and vegetated	Photo – Drain further downstream
	
Width of watercourse/ drain (m)	0.5 m
Bed Sediment	Silt
Bank Erosion	No
Natural Channel	No
Existing Crossing	None
Proposed Crossing	Pipe Culvert or Single Span Bridge (temporary). The crossing location is rural and a temporary crossing sized to the 1 in 30 year flow is considered suitable for the location, size of drain and temporary nature of the track crossing. Designing for a 1 in 200 year flow (plus climate change) could result in oversizing the crossing, requiring widening of the channel at the crossing and the need for raised embankments, which is not appropriate for a temporary crossing in a rural setting. In the event of a higher flood event occurring when the temporary crossing is in place, water would overtop the track and return back into the channel downstream of the track. There are no nearby receptors and there is considered to be no increased flood risk to others.
Additional Mitigation	None
Catchment (km^2)	0.02 km^2
Minor Watercourse	Yes
Main river catchment	Bervie Water
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 54 (Proposed track crossing - temporary)	Unnamed Drain
Watercourse Description: Drainage channel flows to the east from field drain outlet.	
NGR Ref: 374443 780365	
Photo – View of watercourse from further upstream looking to the east at field drain outlet	
	
Width of watercourse/ drain (m)	0.5 m
Bed Sediment	Silt
Bank Erosion	No
Natural Channel	No
Existing Crossing	None
Proposed Crossing	Pipe Culvert or Single Span Bridge (temporary). The crossing location is rural and a temporary crossing sized to the 1 in 30 year flow is considered suitable for the location, size of watercourse and temporary nature of the track crossing. Designing for a 1 in 200 year flow (plus climate change) could result in oversizing the bridge, requiring widening of the channel at the crossing and the need for raised embankments, which is not appropriate for a temporary crossing in a rural setting. The proposed design will allow the crossing to be removed at the end of the construction period with no legacy effect on the existing channel. In the event of a higher flood event occurring when the temporary crossing is in place, water would overtop the track and return back into the channel downstream of the track. There are no nearby receptors and there is considered to be no increased flood risk to others.
Additional Mitigation	None
Catchment (km^2)	0.11 km^2
Minor Watercourse	Yes
Main river catchment	Bervie Water
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 55 (Existing track crossing)	Unnamed Drain
Watercourse Description: Drain flows east towards the Bervie Water. There is an existing agricultural track crossing with a culvert of unknown dimensions and condition.	
NGR Ref: 374959 780655	
ESRI aerial imagery of drain	
	
Width of watercourse/ drain (m)	0.8 m
Bed Sediment	Mix silt to pebble
Bank Erosion	No
Natural Channel	No
Existing Crossing	Existing field crossing, culvert unknown dimensions
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km^2)	2 km^2
Minor Watercourse	Yes
Main river catchment	Bervie Water
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 56 (Existing track crossing)	Pilketty Burn
Watercourse Description: Three drains converge and are culverted beneath the existing road crossing forming the headwaters of the Pilketty Burn which flows south from the crossing.	
NGR Ref: 376125 782033	
Photo – Views convergence of 3 watercourse feeding into culvert inlet	Photo – Culvert (crossing) outlet looking southeast downstream along Pilketty Burn
	
Width of watercourse/ drain (m)	1.6 m
Bed Sediment	Mix silt to cobble
Bank Erosion	No
Natural Channel	No
Existing Crossing	Existing crossing (stone arch with hidden 500 mm pipe)
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km^2)	0.78 km^2
Minor Watercourse	No
Main river catchment	Bervie Water
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 57 (Existing track crossing)	Killer Burn
Watercourse Description: The watercourse flows to the east, one of several headwater tributary branches of the Killer Burn which converge nearby downstream, beneath an existing track crossing.	
NGR Ref: 377233 784216	
Photo – Shows Killer Burn flowing east	Photo – Culvert outlet of tributary to Killer Burn
	
Width of watercourse/ drain (m)	0.9 m
Bed Sediment	Mix silt to pebble
Bank Erosion	No
Natural Channel	No - heavily modified
Existing Crossing	Existing track crossing with 450 mm pipe culvert
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km^2)	0.32 km^2
Minor Watercourse	Yes
Main river catchment	Carron Water
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 58 (Proposed track crossing - temporary)	Unnamed Drain
Watercourse Description: The unnamed drain flows west and is a tributary of the Killer Burn. The drain channel is heavily vegetated at the proposed temporary track crossing location.	
NGR Ref: 378441 784227	
Photo – Very vegetated drainage channel, looking downstream to the west	Photo – Drainage channel, looking upstream to the east
	
Width of watercourse/ drain (m)	0.4 m
Bed Sediment	Silt
Bank Erosion	Yes
Natural Channel	No
Existing Crossing	None
Proposed Crossing	Pipe Culvert or Single Span Bridge (temporary). The crossing location is rural and a temporary crossing sized to the 1 in 30 year flow is considered suitable for the location, size of drain and temporary nature of the track crossing. Designing for a 1 in 200 year flow (plus climate change) could result in oversizing the crossing, requiring widening of the channel at the crossing and the need for raised embankments, which is not appropriate for a temporary crossing in a rural setting. In the event of a higher flood event occurring when the temporary crossing is in place, water would overtop the track and return back into the channel downstream of the track. There are no nearby receptors and there is considered to be no increased flood risk to others.
Additional Mitigation	None
Catchment (km^2)	0.28 km^2
Minor Watercourse	Yes
Main river catchment	Carron Water
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 59 (Proposed track crossing - temporary)	Unnamed Drain
Watercourse Description: The unnamed drain flows south in well-defined drainage channel and is culverted in a 300 mm pipe for around 300 m to the southeast just downstream of the proposed crossing location. Drain was dry at time of survey.	
NGR Ref: 378441 784227	
Photo – Drainage ditch at point of proposed crossing, dry at time of survey	Photo – Culvert inlet just downstream of proposed crossing
	
Width of watercourse/ drain (m)	1.1 m
Bed Sediment	Silt
Bank Erosion	Yes
Natural Channel	No
Existing Crossing	None, 300 mm pipe culvert just downstream of proposed crossing
Proposed Crossing	Pipe Culvert or Single Span Bridge (temporary). The drain enters an existing culvert just at/downstream of the proposed crossing location, which may already restrict flood flows downstream. The crossing location is rural and a temporary crossing sized to the 1 in 30 year flow or to maintain the existing capacity of the channel is considered suitable for the location, size of watercourse and temporary nature of the track crossing. In the event of a higher flow event occurring when the temporary crossing is in place, it is considered that the existing culvert will already restrict flood flows downstream. The temporary crossing will be no smaller than the existing culvert and therefore will not increase flood risk. There are no nearby receptors and it is considered that the temporary crossing will not increase flood risk to other receptors.
Additional Mitigation	None
Catchment (km^2)	0.49 km^2
Minor Watercourse	Yes
Main river catchment	Carron Water
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 60 (Existing track crossing)	Whiting Burn
Watercourse Description: Whiting Burn flows beneath existing track bridge via a 300 mm pipe culvert crossing to the south.	
NGR Ref: 378532 786105	
Photo – Whiting Burn – upstream of track crossing	Photo – Whiting Burn – from track
	
Width of watercourse/ drain (m)	0.4 m
Bed Sediment	Silt
Bank Erosion	No
Natural Channel	Yes
Existing Crossing	Existing 300 mm pipe culvert
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km^2)	0.41 km^2
Minor Watercourse	Yes
Main river catchment	Carron Water
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 61 (Existing track crossing)	Burn of Elfhill
Watercourse Description: Burn of Elfhill flows beneath existing track crossing to the south. There is an existing culvert, but culvert dimensions are unknown at the time of writing. This crossing is on the Burn of Elfhill and is approximately 300 m downstream from crossing 60.	
NGR Ref: 379197 785944	
Photo – Burn of Elfhill viewed looking upstream (north)	Photo – Culvert outlet on downstream side of existing crossing
	
Width of watercourse/ drain (m)	0.4 m
Bed Sediment	Unknown – likely mixed/pebble
Bank Erosion	No
Natural Channel	Yes
Existing Crossing	Existing culvert (dimensions unknown)
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km^2)	0.60 km^2
Minor Watercourse	No
Main river catchment	Carron Water
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 62 (Existing track crossing)	Burn of Elfhill
Watercourse Description: Burn of Elfhill flows beneath existing track crossing to the south, culvert dimensions unknown.	
NGR Ref: 379042 786220	
Photo – upstream side of Burn of Elfhill in forestry	Photo – Downstream side of Burn of Elfhill
	
Width of watercourse/ drain (m)	0.4 m
Bed Sediment	Pebble
Bank Erosion	No
Natural Channel	Yes
Existing Crossing	Existing culvert (dimensions unknown)
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km^2)	0.36 km^2
Minor Watercourse	Yes
Main river catchment	Carron Water
Within catchment of SAC designated river	No
CAR Authorisation Required	No

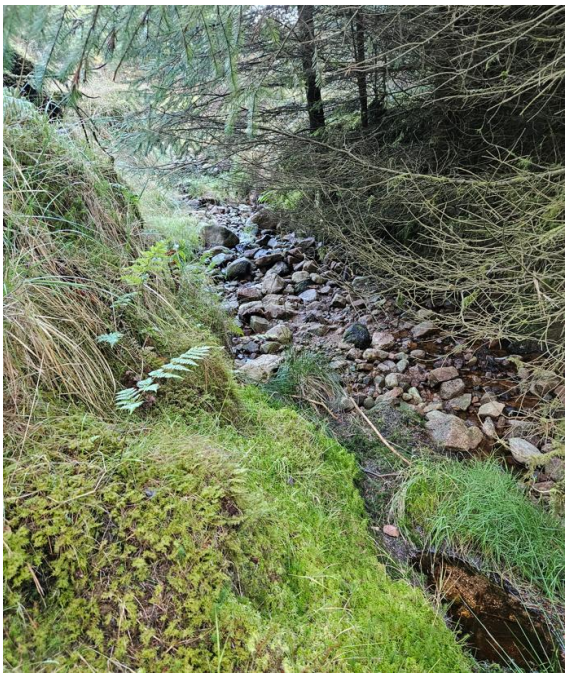
Section E

ID – 63 (Existing track crossing)	**Burn of Day**
Watercourse Description: Burn of Day flows beneath existing track crossing to the east, culvert dimensions unknown.	
NGR Ref: 379998 786787	
Photo – Burn of Day looking upstream	Photo – Burn of Day looking downstream
	
Width of watercourse/ drain (m)	0.6 m
Bed Sediment	Pebble
Bank Erosion	No
Natural Channel	Yes
Existing Crossing	Existing culvert (dimensions unknown)
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km^2)	0.8 km^2
Minor Watercourse	No
Main river catchment	Cowie Water
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 64 (Existing track crossing)	Cowie Water
Watercourse Description: Cowie Water flows beneath existing single span bridge crossing. SEPA future flood mapping indicates that the 200 year + climate change floodplain at the crossing location is approximately 70 m wide, indicating that some of the nearby tracks will have some floodwater during extreme events.	
NGR Ref: 376448 787359	
Photo – Cowie Water – looking upstream from bridge crossing	Photo – Cowie Water – bridge - looking downstream
	
Width of watercourse/ drain (m)	2.9 m Bridge deck is 2.2 m high above channel bed and 6 m wide
Bed Sediment	Cobble, boulder
Bank Erosion	No
Natural Channel	Yes
Existing Crossing	Single span bridge
Proposed Crossing	An overbridging system is proposed at this crossing to allow passing of abnormal loads during the construction phase. This is a temporary 'overbridge' which will sit on the deck of the existing bridge/track. There will be no work in the watercourse and no impact to the bed and bank.
Additional Mitigation	None
Catchment (km^2)	13.2 km^2
Minor Watercourse	No
Main river catchment	Cowie Water
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 65 (Existing track crossing)	West Dumer Burn
Watercourse Description: West Dumer Burn flows beneath existing track via a 1000 mm diameter culvert.	
NGR Ref: 376548 787859	
Photo – West Dumer Burn - upstream of the track	West Dumer Burn - downstream of the track
	
Width of watercourse/ drain (m)	1.3 m
Bed Sediment	Pebble, gravel
Bank Erosion	No
Natural Channel	Yes
Existing Crossing	Existing crossing with 1000 mm pipe culvert
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km^2)	1.35 km^2
Minor Watercourse	No
Main river catchment	Cowie Water
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 66 (Existing track crossing)	East Dumer Burn
Watercourse Description: East Dumer Burn flows beneath existing track through a 2000 mm diameter culvert.	
NGR Ref: 376585 787919	
Photo – East Dumer Burn – upstream of the track	East Dumer Burn – downstream of the track
	
Width of watercourse/ drain (m)	1.7 m
Bed Sediment	Gravel, cobble and boulder
Bank Erosion	No
Natural Channel	Yes
Existing Crossing	Existing crossing with 2000 mm pipe culvert
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km^2)	1.77 km^2
Minor Watercourse	No
Main river catchment	Cowie Water
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 67 (Existing track crossing)	Irish Burn
Watercourse Description: Irish Burn flows beneath existing track, as a natural gravel and cobble bed channel with 1000 mm diameter culvert under the track.	
NGR Ref: 377110 788249	
Photo – Irish burn (upstream of track)	Photo – Irish burn (culvert - downstream of track)
	
Width of watercourse/ drain (m)	1.3 m
Bed Sediment	Gravel, cobble, boulder
Bank Erosion	No
Natural Channel	Yes
Existing Crossing	Existing crossing with 1000 mm pipe culvert
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km^2)	0.53 km^2
Minor Watercourse	No
Main river catchment	Cowie Water
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 68 (Existing track crossing)	Unnamed Drain
Watercourse Description: Small unnamed forestry drain which flows beneath existing track in a 500 mm diameter culvert.	
NGR Ref: 378211 788385	
Photo – upstream of track	
	
Width of watercourse/ drain (m)	~ 0.3 m
Bed Sediment	Mixed
Bank Erosion	No
Natural Channel	No
Existing Crossing	Existing crossing with 500 mm pipe culvert
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km^2)	0.05 km^2
Minor Watercourse	Yes
Main river catchment	Cowie Water
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 69 (Existing track crossing)	Unnamed Watercourse
Watercourse Description: Small unnamed burn flows beneath existing track to the south and is culverted under the track. A Private Water Supply (PWS) offtake and tank was observed approximately 30 m downstream of the existing track crossing. It is assumed that this is the PWS for the Tillybreak property.	
NGR Ref: 378268 788409	
Photo – watercourse / culvert looking upstream from track	Photo – watercourse looking downstream from track
	
Width of watercourse/ drain (m)	~ 0.2 – 0.4 m
Bed Sediment	Mixed sediment
Bank Erosion	No
Natural Channel	Yes
Existing Crossing	Existing crossing with 400 mm pipe culvert
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km^2)	0.14 km^2
Minor Watercourse	Yes
Main river catchment	Cowie Water
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 70 (Existing track crossing)	Unnamed Drain
Watercourse Description: The small drain flows southeast and is culverted beneath the existing access track. The drain was dry at the time of the site visit and the culvert was not visible. The drain was clearly heavily modified by forestry.	
NGR Ref: 378602 789396	
Photo – dry drain upstream of track	Photo – dry drain downstream of track
	
Width of watercourse / drain (m)	Estimated ~ 0.9 m
Bed Sediment	Vegetated Channel (no flow at time of site visit)
Bank Erosion	No
Natural Channel	No
Existing Crossing	Existing crossing with culvert of unknown dimensions
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km^2)	0.1 km^2
Minor Watercourse	Yes
Main river catchment	Cowie Water
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 71 (Existing track crossing)	Black Burn
Description: At the crossing location, the Black Burn is crossed by an existing large bridge crossing in a ~ 2.4 m wide channel. Black Burn flows southeast.	
NGR Ref: 378949 789314	
Photo – Black Burn looking downstream 	Photo – Black Burn looking upstream from crossing 
Width of watercourse (m)	2.4 m
Bed Sediment	Mix of pebble and cobble
Bank Erosion	Yes some bank erosion observed near crossing
Natural Channel	Yes
Existing Crossing	Existing Bridge
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km^2)	7.85 km^2
Minor Watercourse	No
Main river catchment	Cowie Water
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 72 (Existing track crossing)	Unnamed Drain
Description: Minor watercourse flows from peat layer overlying clay/rock layer in narrow channel to the west, crosses beneath existing track in 450 mm culvert and spreads into wider channel.	
NGR Ref: 378949 790449	
Photo – Culvert outlet (450 mm) 	Photo – watercourse upstream of crossing, with peat layer overlying clay/rock 
Width of watercourse (m)	0.3 m
Bed Sediment	Mix of silt to cobble
Bank Erosion	Yes some minor erosion
Natural Channel	Yes - modified
Existing Crossing	Existing Crossing with 450 mm pipe culvert
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km^2)	7.85 km^2
Minor Watercourse	Yes
Main river catchment	Cowie Water
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ID – 73 (Existing track crossing)	Calladrum Burn Tributary
Description: Calladrum Burn tributary flows southwest. The watercourse is wider and less vegetated around its extent at this location.	
NGR Ref: 377464 792088	
Photo – View upstream 	Photo – View downstream 
Width of watercourse (m)	0.7 m (extends up to 1.9 m at crossing)
Bed Sediment	Mix of pebble and cobble
Bank Erosion	Yes some bank erosion observed near crossing
Natural Channel	Yes
Existing Crossing	Existing Crossing with 400 mm pipe culvert
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km^2)	0.43 km^2
Minor Watercourse	No
Main river catchment	River Dee
Within catchment of SAC designated river	Yes (River Dee SAC)
CAR Authorisation Required	No