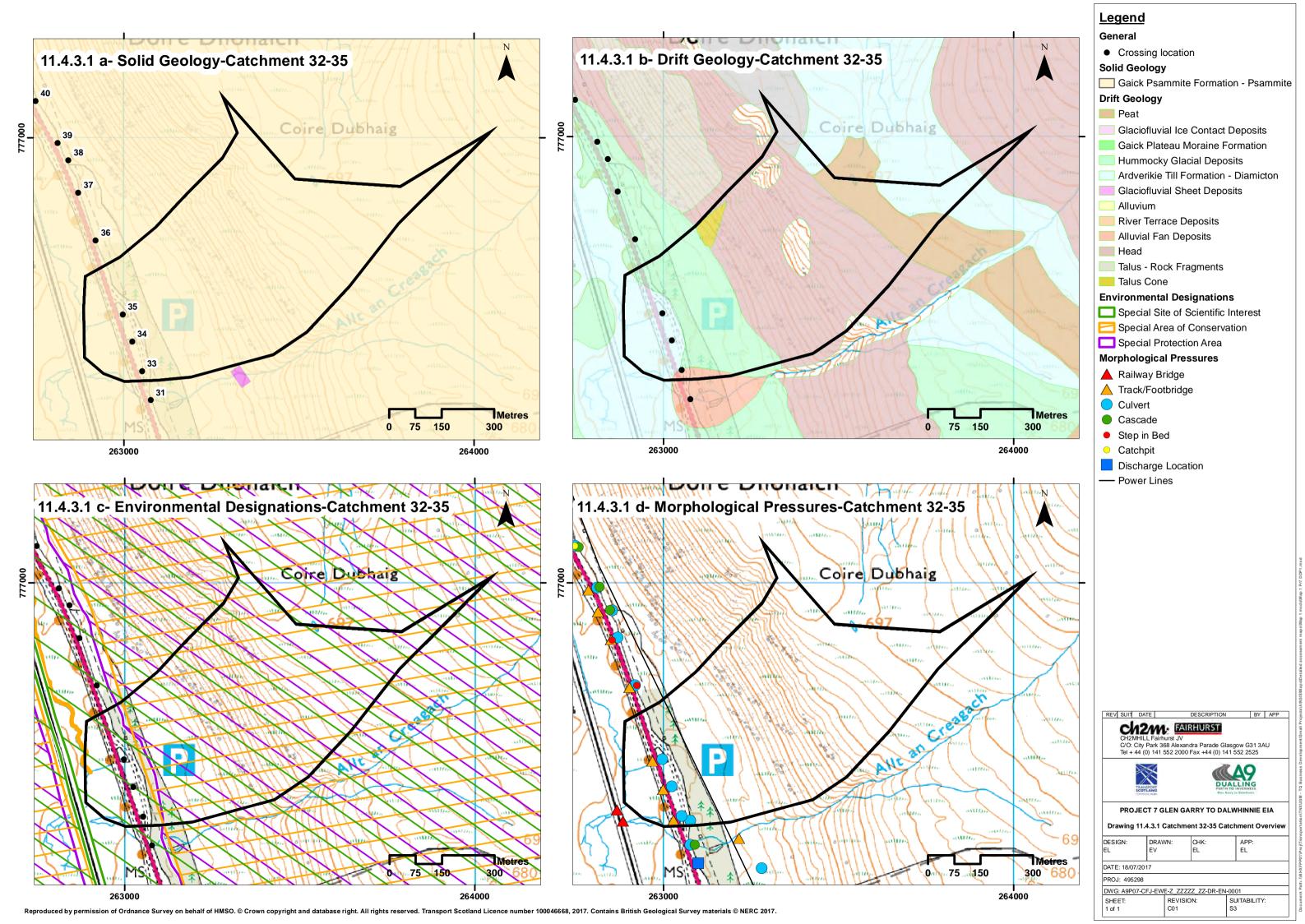
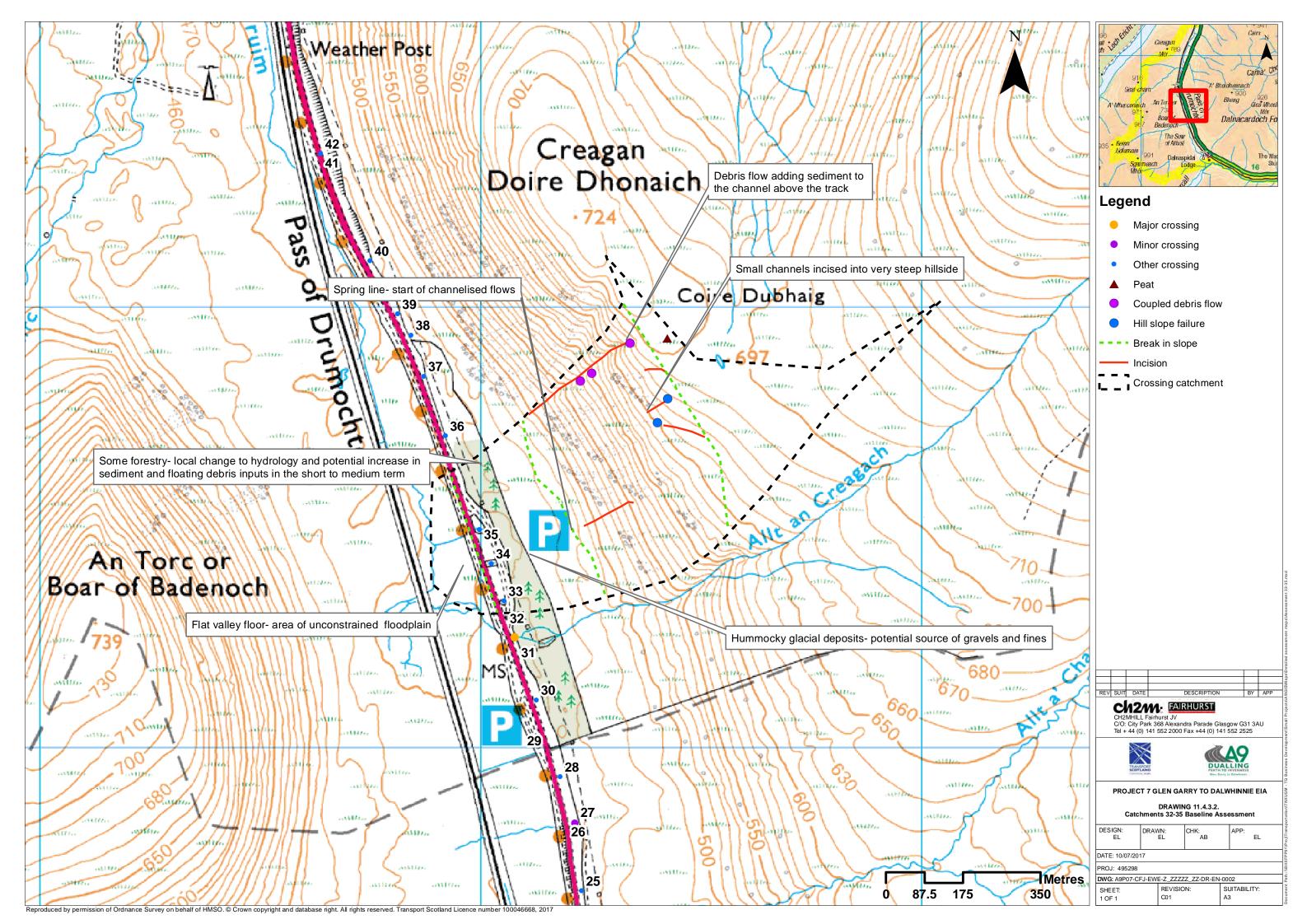
Appendix 11.4

Hydromorphology Assessment Part 4

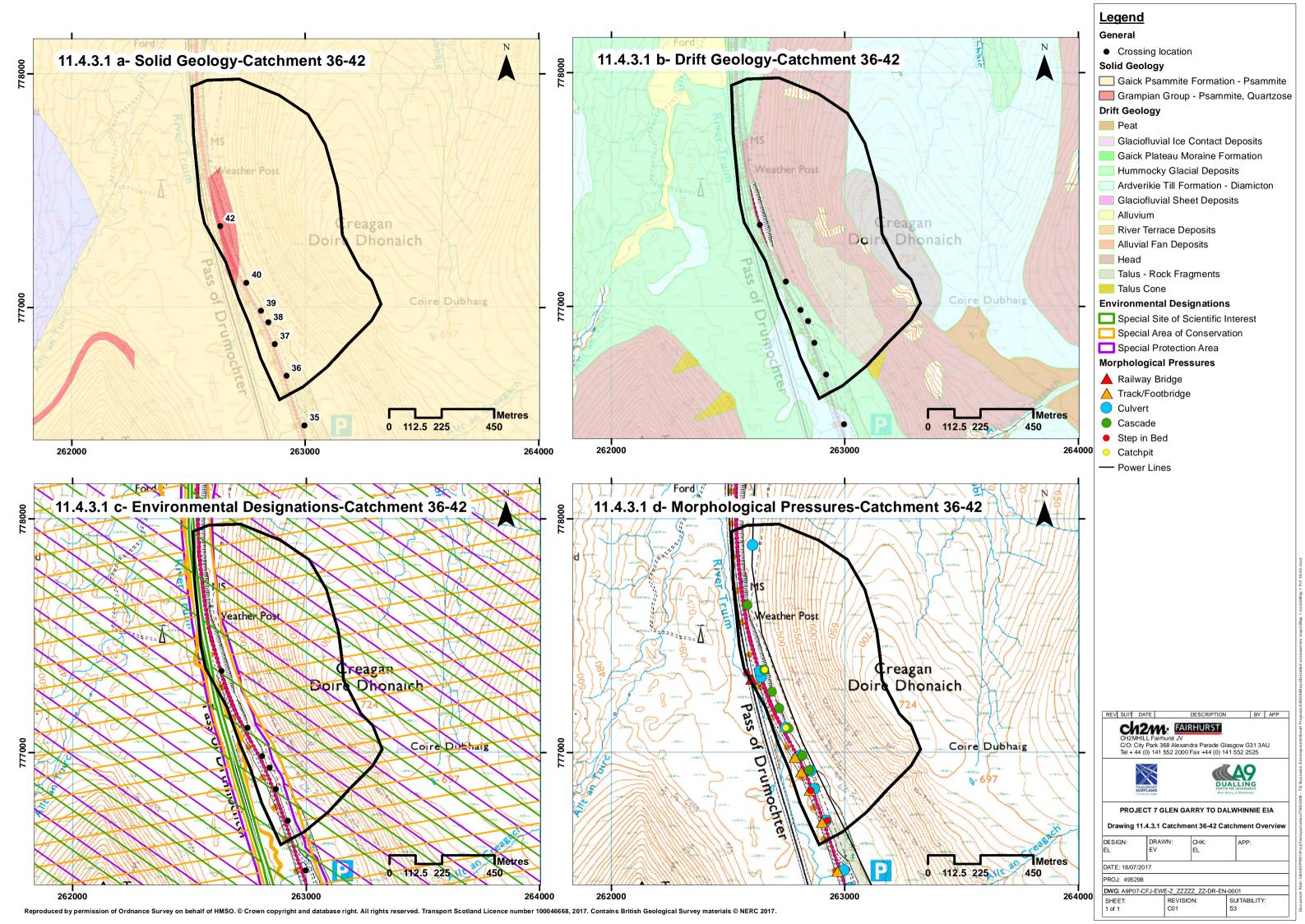


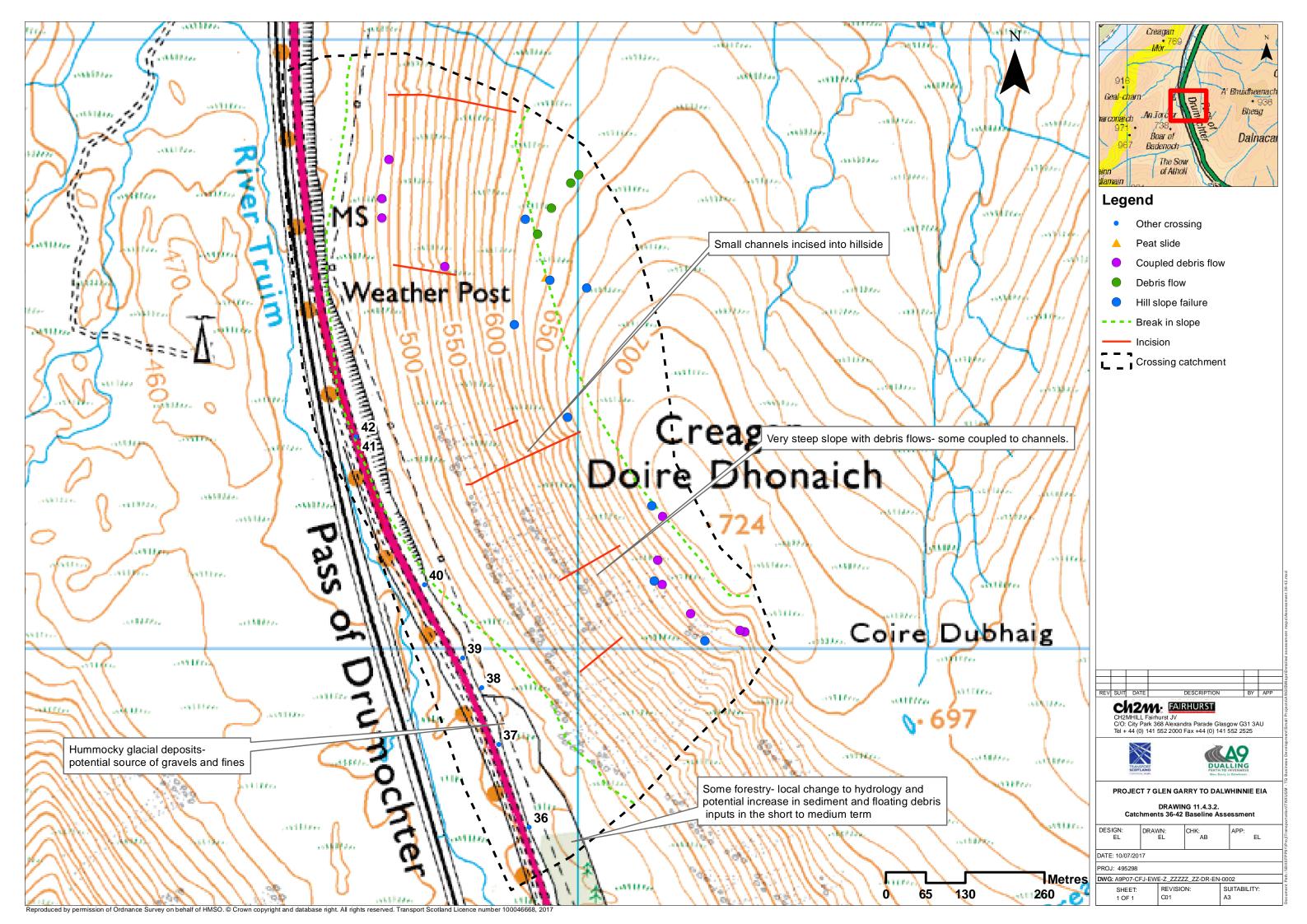
		1	
Catchment No. Catchment Name	32-35		
Catchinient Name		I	
Channel Nature	Nature of water course	Di	rain
Chainer Nature	Size of water course	Ot	ther
	-		
Quantitative	Catchment Area (km²)).4 17
Spatial Elements	Average slope in catchment (°) % Catchment over 750m (for snow melt risk)).1
	Water, flows and levels		ood
WFD classification	Physical condition Overall ecological status		ood ood
		-	
Geology	Majority Bedrock (see Drawing 11.4.3.1 a and b Catchment 32-35)	Gaick Psammite formation-Psammite	Resistant to weathering, impermeable
	Is an alluvial fan present at or near the crossing?	Yes	32/33 on northern edge of alluvial fan of Allt an Creagach. Possible but low risk of avulsion to this channel
	Ramsar	No	
	RdIIISdI	River Spey	Atlantic salmon, freshwater pearl
Environmental designations (see Drawing 11.4.3.1 c, Catchment 32-35)	SAC	Drumochter Hills	mussel, otter, sea lamprey Acidic scree, alpine and subalpine heaths, blanket bog, dry heaths, monntane acid grasslands, mountain willow scrub, plants in crevices on acid rocks, species-rich grassland with mat- grass in upland areas, tall herb communities, wet heathland with cross- leaved
	SPA	Drumochter Hills	Dotterel breeding, merlin breeding
	SSSI	Drumochter Hills	Breeding bird assemblage, fluvial geomorphology of Scotland, montane assemblage, vascular plant assemblage
	Changes in slope and channel confinement	See Drawing 11 / 3	3.2, Catchment 32-35
			Reasonably extensive on flatter slopes
	Is peat present in the catchment?	Yes	in upper catchment
	Is there a bog burst risk?	Yes	Low
	Current valley side or terrace erosion Potential valley side or terrace erosion	None Yes	
	Hill slope failures (including peat slides and debris flows and slides)	Yes	
Sediment source	Hill slope failures coupled to channel	Yes	
and supply - Catchment Scale	Vertical incision present in catchment Bank erosion/lateral migration	Yes None	
Catchinent Scale	Unvegetated bars	None	
	Wooded/forested areas in catchment	Yes	Potential for floating debris to block crossings
	Infrastructure type (see Drawing 11.4.3.1 d, Catchment 32-35)	Track crossing upstream	Crossings may act to reduce sediment inputs downstream
	Comment on sediment source potential in catchment		the till provide a sediment source
	Comment on sediment supply potential to crossing	Steep, channelized slopes s	upply sediment to the drains
	Channel morphology	Engineered	
	Predominant sediment size	Gravel	
Morphology and	Unvegetated bars Vertical incision	None	
Process- Reach	Deposition	High None	Crossing 32
upstream of crossing	Lateral migration/bank erosion	None	
	Infrastructure type (see Drawing 11.4.3.1 d, Catchment 32-35)	Layby	
	Impact of infrastructure Channel realignment	None Yes	
	-		
	Channel morphology	Engineered	
	Predominant sediment size Estimated discharge at 1:200 event (m³/s)	Gravel 1.88	
Morphology and Process- At	Unvegetated bars	None	
crossing	Vertical incision	None	
_	Deposition Lateral migration/bank erosion	Low None	Crossing 34 and 35
	Damaged/unstable drains or armouring	Yes	Crossing 35
			I
	Channel morphology Predominant sediment size	Engineered Gravel	
Manteler	Unvegetated bars	None	
Morphology and Process- Reach	Vertical incision	None	
downstream of	Deposition Lateral migration/bank erosion	High	Crossing 32
crossing	Infrastructure type (see Drawing 11.4.3.1 d, Catchment 32-35)	None NMU Crossing	
	Impact of infrastructure	None	
	Channel realignment	Yes	
Summary behaviour	Small hillslope drainage channels have been formalised	as part of the A9. Channels relatively sta	ble but some activity.



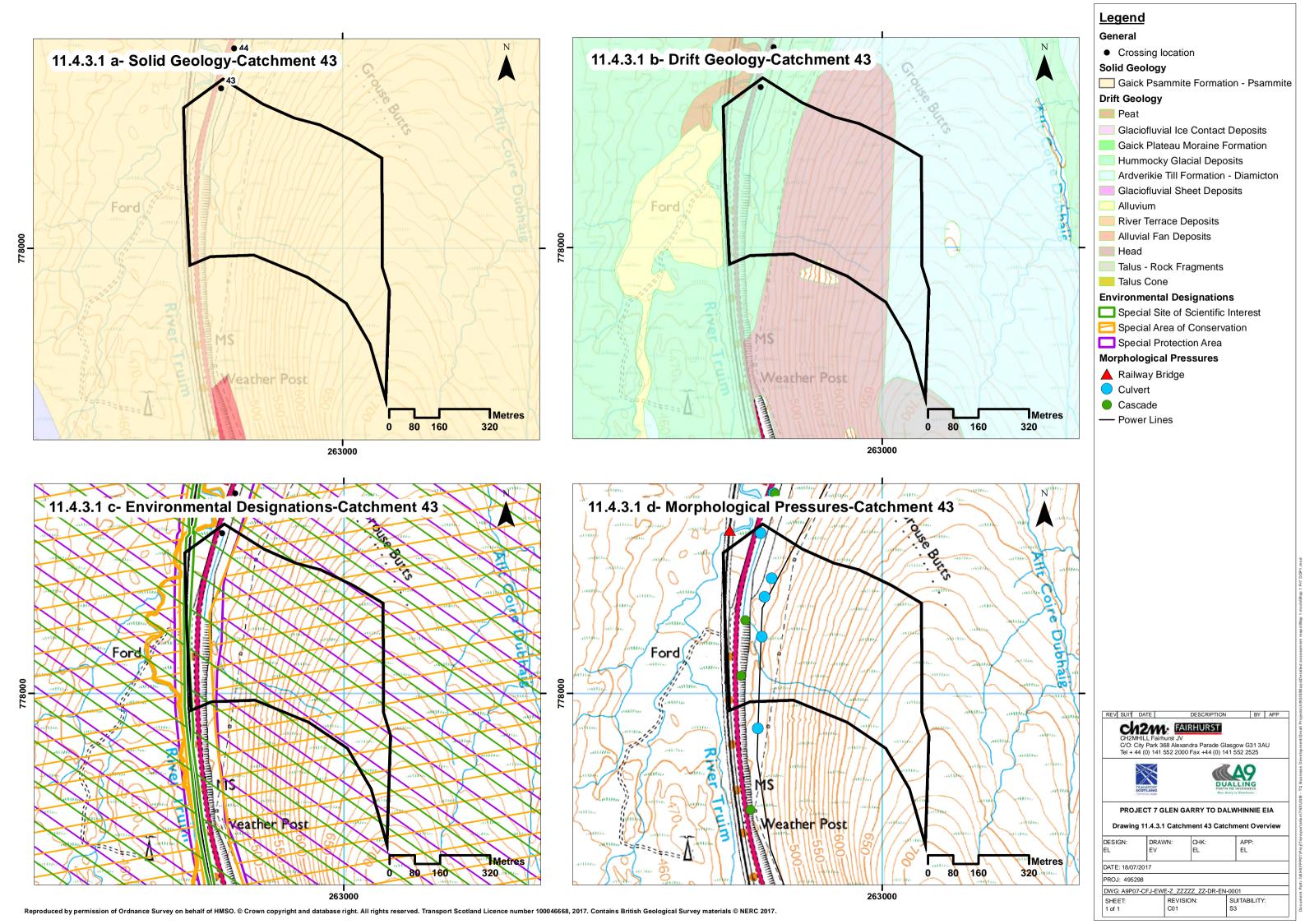


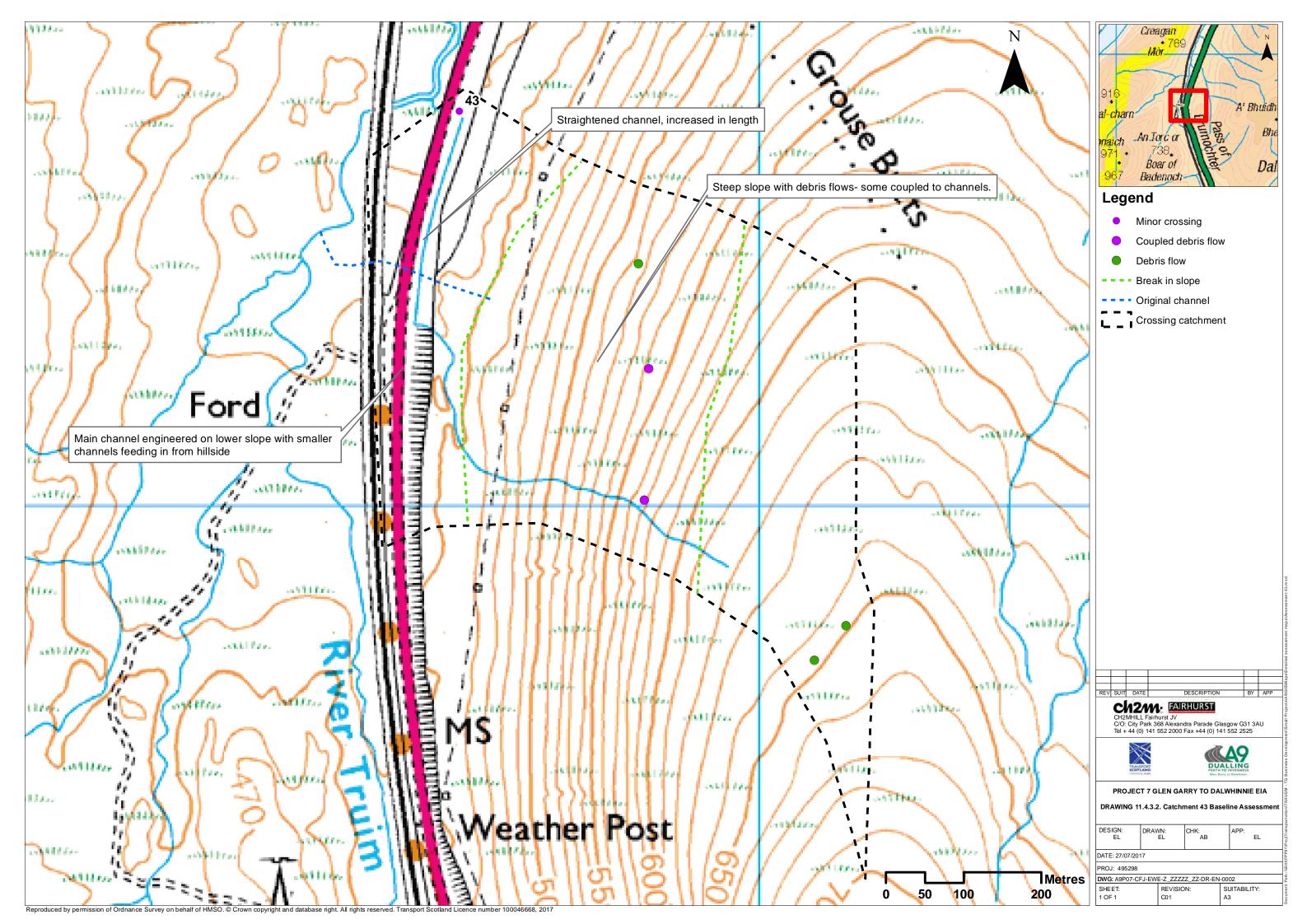
		_	
Catchment No.	36-42	_	
Catchment Name	-	1	
	Nature of water course	Di	rain
Channel Nature	Size of water course		her
	Size of Mater course	1	
	Catchmont Area (km²)		0.7
Quantitative	Catchment Area (km²) Average slope in catchment (°)		23
Spatial Elements	% Catchment over 750m (for snow melt risk)		0
		_	
WFD classification	Water, flows and levels Physical condition		bood
WFD classification	Overall ecological status		ood ood
		-	
		2112 21 2 2 2	
Geology	Majority Bedrock (see Drawing 11.4.3.1 a and b Catchment 36-42)	Gaick Psammite formation-Psammite	Resistant to weathering, impermeable
	Is an alluvial fan present at or near the crossing?	None	
	Ramsar	None	
		River Spey	Atlantic salmon, freshwater pearl
			mussel, otter, sea lamprey
			Acidic scree, alpine and subalpine
			heaths, blanket bog, dry heaths,
Environmental	SAC		monntane acid grasslands , mountain
designations (see		Drumochter Hills	willow scrub, plants in crevices on acid
Drawing 11.4.3.1 c,			rocks, species-rich grassland with mat-
Catchment 36-42)			grass in upland areas, tall herb
			communities, wet heathland with cross- leaved
	SPA	Drumochter Hills	Dotterel breeding, merlin breeding
			Breeding bird assemblage, fluvial
	SSSI	Drumochter Hills	geomorphology of Scotland, montane
			assemblage, vascular plant assemblage
		-!-	!
	Changes in slope and channel confinement		.2, Catchment 36-42
	Is peat present in the catchment?	None	
	Is there a bog burst risk? Current valley side or terrace erosion	None None	
	Potential valley side or terrace erosion	None	
	Hill slope failures (including peat slides and debris flows and slides)	Yes	
Sediment source	Hill slope failures coupled to channel	Yes	
and supply -	Vertical incision present in catchment	Yes	
Catchment Scale	Bank erosion/lateral migration Unvegetated bars	None None	
	Wooded/forested areas in catchment	None	
	Infrastructure type (see Drawing 11.4.3.1 d, Catchment 36-42)	Track crossing upstream	Crossings may act to reduce sediment
			inputs downstream
	Comment on sediment source potential in catchment Comment on sediment supply potential to crossing		the till provide a sediment source s supply sediment to the drains
	confinent on seament supply potential to crossing	very steep, charmenzed stope	s supply scannent to the drains
	Channel morphology	Engineered	
	Predominant sediment size	Gravel	
Morphology and	Unvegetated bars Vertical incision	None Low	
Process- Reach	Deposition	Low	
upstream of crossing	Lateral migration/bank erosion	None	
crossing	Infrastructure type (see Drawing 11.4.3.1 d, Catchment 36-42)	Cascade	With gravel bed
	Impact of infrastructure	None	
<u> </u>	Channel realignment	None	1
	Channel morphology	Engineered	
	Predominant sediment size	Gravel	
	Estimated discharge at 1:200 event (m³/s)	3.86 (Crossing 36)	Design flows for all crossings 36-42 0.55
Morphology and Process- At	Unvegetated bars	, , ,	m³/s
crossing	Vertical incision	None None	
	Deposition	Low	
	Lateral migration/bank erosion	None	
	Damaged/unstable drains or armouring	None	
	Channel morphology	Engineered	
	Predominant sediment size	None	
Morphology and	Unvegetated bars	None	
Process- Reach	Vertical incision	None	
downstream of	Deposition Lateral migration/bank erosion	None	
crossing	Infrastructure type (see Drawing 11.4.3.1 d, Catchment 36-42)	None NMU crossing	
	Impact of infrastructure	None	
	Channel realignment	None	
Summary	Small hillslope drainage channels have been formalised as part of the A		
behaviour	suggesting sediment inputs from hillslope. Upstream cascade (4		vs some downstream incision.
	Need to consider sedimen	t transport through the crossings.	
1			



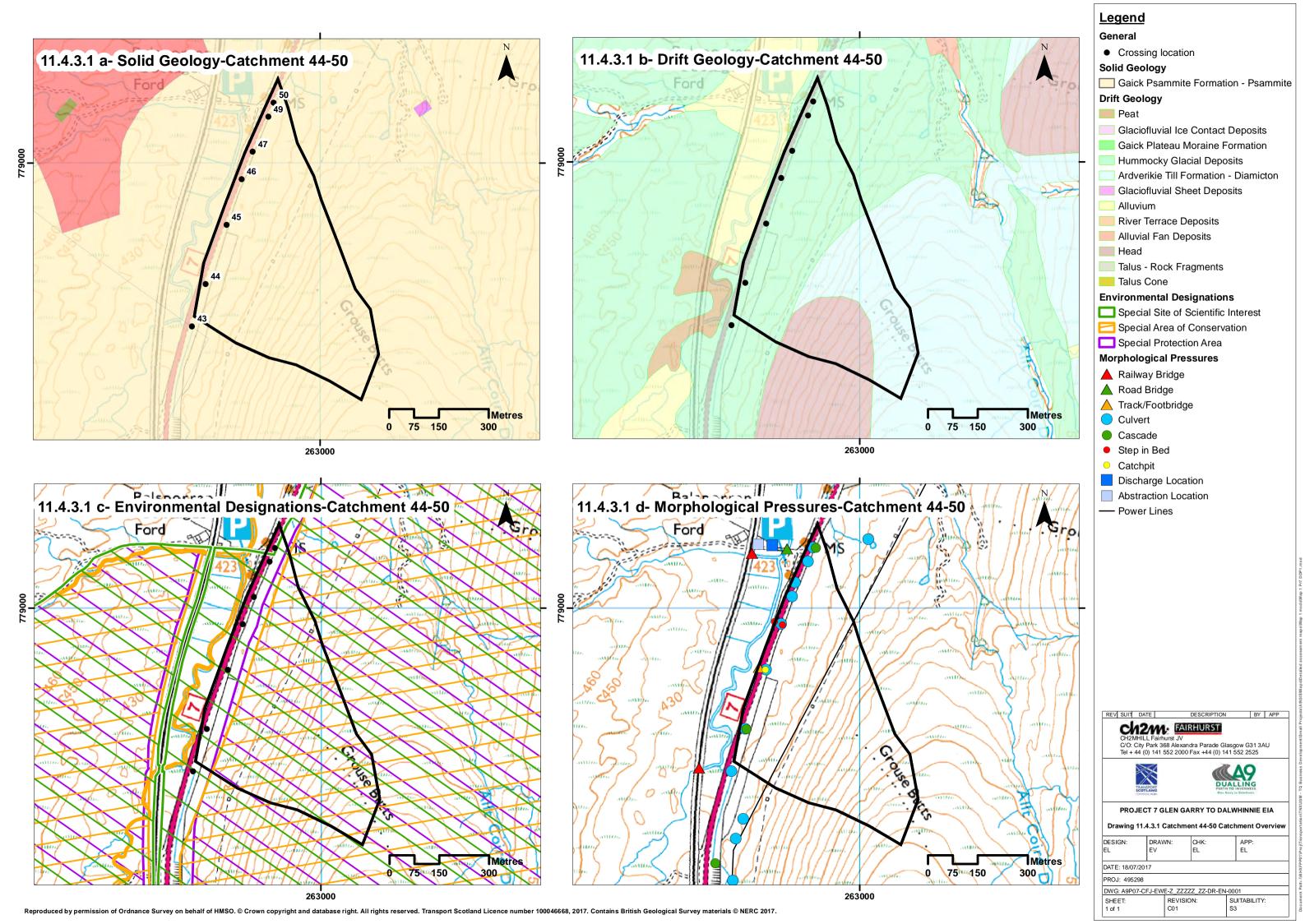


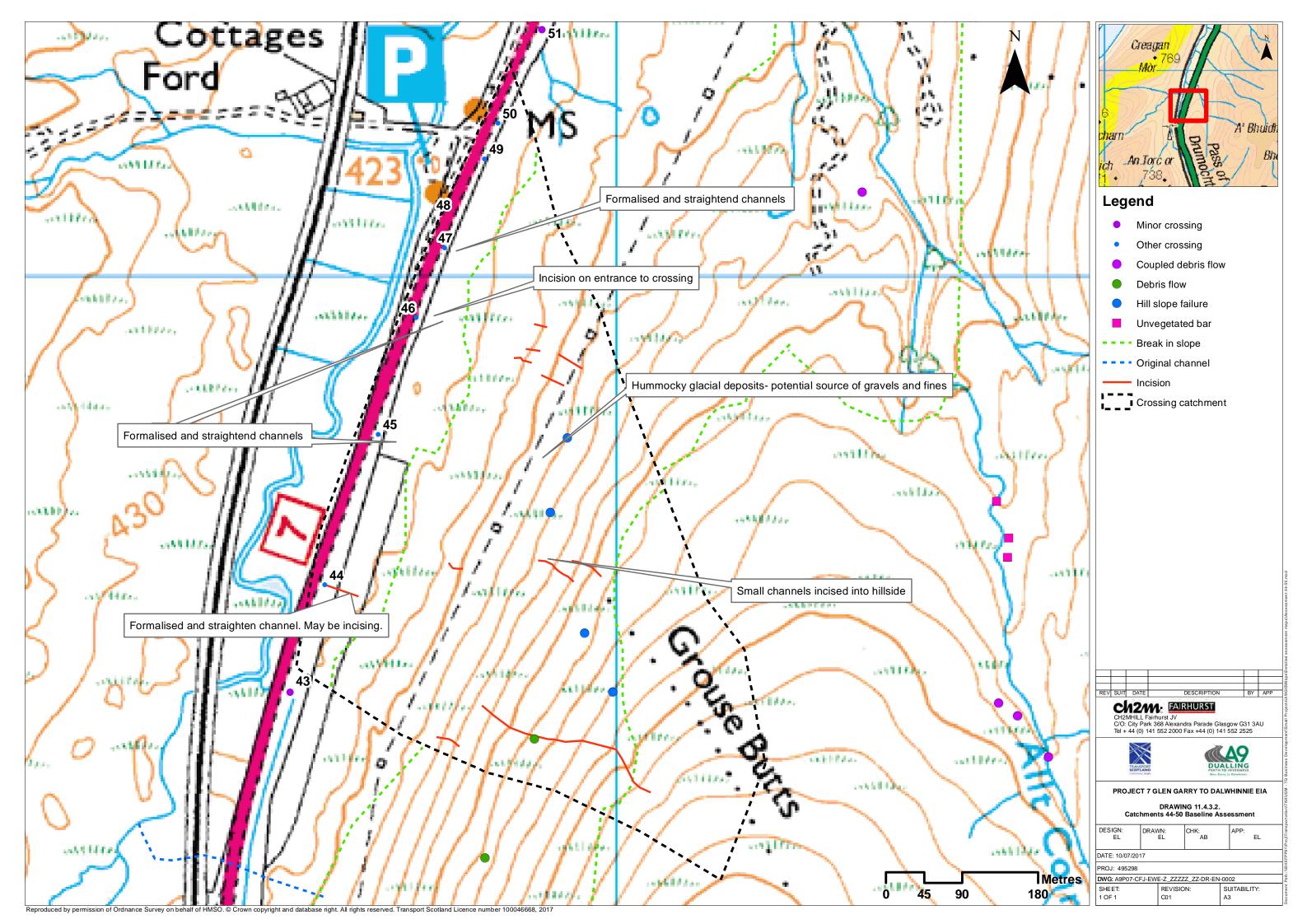
Catchment Name Asture of water course	Natural Minor 0.34 16 0 Good Good Good Good He Resistant to weathering, impermeable Atlantic salmon, freshwater pearl mussel, otter, sea lamprey
Channel Nature Nature of water course Size of water course Quantitative Spatial Elements Catchment Area (km²) % Catchment over 750m (for snow melt risk) WFD classification Overall ecological status Majority Bedrock (see Drawing 11.4.3.1 a and b Catchment 43) Is an alluvial fan present at or near the crossing? Ramsar No River Spey	Minor 0.34 16 0 Good Good Good Resistant to weathering, impermeable Atlantic salmon, freshwater pearl
Catchment Area (km²) Catchment Area (km²) Average slope in catchment (*) % Catchment over 750m (for snow melt risk)	Minor 0.34 16 0 Good Good Good Resistant to weathering, impermeable Atlantic salmon, freshwater pearl
Catchment Area (km²) Average slope in catchment (*) Average slope in catchment (*) % Catchment over 750m (for snow melt risk) WFD classification Physical condition Overall ecological status	0.34 16 0 Good Good Good Feel Resistant to weathering, impermeable Atlantic salmon, freshwater pearl
Average slope in catchment (*) % Catchment over 750m (for snow melt risk) WFD classification WFD classification Overall ecological status Majority Bedrock (see Drawing 11.4.3.1 a and b Catchment 43) Is an alluvial fan present at or near the crossing? Ramsar No River Spey	16 0 Good Good Good He Resistant to weathering, impermeable Atlantic salmon, freshwater pearl
Average slope in catchment (*) % Catchment over 750m (for snow melt risk) WFD classification WFD classification Geology Majority Bedrock (see Drawing 11.4.3.1 a and b Catchment 43) Is an alluvial fan present at or near the crossing? Ramsar No River Spey	16 0 Good Good Good Good Atlantic salmon, freshwater pearl
Average slope in catchment (*) % Catchment over 750m (for snow melt risk) WFD classification WFD classification Geology Majority Bedrock (see Drawing 11.4.3.1 a and b Catchment 43) Is an alluvial fan present at or near the crossing? Ramsar No River Spey	Good Good Good te Resistant to weathering, impermeable Atlantic salmon, freshwater pearl
Water, flows and levels	Good Good Good Resistant to weathering, impermeable Atlantic salmon, freshwater pearl
Physical condition Overall ecological status	Good Good te Resistant to weathering, impermeable Atlantic salmon, freshwater pearl
Physical condition Overall ecological status	Good Good te Resistant to weathering, impermeable Atlantic salmon, freshwater pearl
Overall ecological status Majority Bedrock (see Drawing 11.4.3.1 a and b Catchment 43) Is an alluvial fan present at or near the crossing? Ramsar No River Spey	Good te Resistant to weathering, impermeable Atlantic salmon, freshwater pearl
Ramsar No River Spey SAC	Atlantic salmon, freshwater pearl
Ramsar No River Spey SAC	Atlantic salmon, freshwater pearl
SAC	Atlantic salmon, freshwater pearl
Ramsar No River Spey	
Ramsar No River Spey	
River Spey	
River Spey	
sac	
SAC	
SAC	
SAC	Acidic scree, alpine and subalpine
I SAC	heaths, blanket bog, dry heaths,
Environmental	monntane acid grasslands , mountain
designations (see Drumochter Hills	willow scrub, plants in crevices on acid
Drawing 11.4.3.1 c,	rocks, species-rich grassland with mat- grass in upland areas, tall herb
Catchment 43)	communities, wet heathland with cross-
	leaved
SPA Drumochter Hills	Dotterel breeding, merlin breeding
	Breeding bird assemblage, fluvial
SSSI Drumochter Hills	geomorphology of Scotland, montane
	assemblage, vascular plant assemblage
	1.4.3.2, Catchment 43
Is peat present in the catchment? None	
Is there a bog burst risk? Current valley side or terrace erosion None	
Potential valley side or terrace erosion None	_
Hill slope failures (including peat slides and debris flows and slides) Yes	
Hill slope failures coupled to channel	
Sediment source Vertical incision present in catchment Yes	Upstream of the track
and supply - Bank erosion/lateral migration None	
Catchment Scale Unvegetated bars None Wooded/forested areas in catchment None	
Wooded/forested areas in catchment None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 43) Track crossing	_
Sediment may enter the channels fr	om debris flows from steep slopes and from
comment on sediment source potential in catchment erosion of glacial deposi	ts in the flatter hummocky areas
	s have potential to supply sediment to the
	ope will reduce the speed of supply to the crossing
	LIOSSING
	Straightened channel, increase length,
Channel morphology Engineered	engineered bed and banks
Predominant sediment size None	
Morphology and Unvegetated bars None	
Process- Reach upstream of Vertical incision None Deposition None	
crossing Lateral migration/bank erosion None	
Infrastructure type (see Drawing 11.4.3.1 d, Catchment 43) Drains	
Impact of infrastructure None	
Channel realignment Yes	
Channel morphology Engineered	
Predominant sediment size None	
	Design flow given as 0.93 m ³ /s, which
1	appears based on 30 year return period
Morphology and Estimated discharge at 1:200 event (m ³ /s) N/A	event.
Process- At	1
Process- At crossing Unvegetated bars None	-
Process- At crossing Unvegetated bars Vertical incision None	
Process-factorsosing Trossing Unvegetated bars Vertical incision Deposition None None	
Process-At crossing Unvegetated bars Vertical incision Deposition None None	
Process-At crossing Unvegetated bars None Vertical incision None Deposition None Deposition None Damaged/unstable drains or armouring None	
Process-At crossing Interest of the control of the	
Process-At crossing Proces	
Process-fat crossing Process-fat cross-fat cross-fa	As channel adjusts to changing notition
Process-At crossing Proces	As channel adjusts to changing position of Truim
Process-At crossing Investment of the control of t	As channel adjusts to changing position of Truim
Morphology and Process-Reach Process-Reach Morphology and Process-Reach Process-Reach Process-Reach Process-Reach Process-Reach Process-Reach Process-Reach Process-Reach Process-Reach None None None None None None Plane-Riffle Process-Reach Process-Reach Vertical incision None	
Process-A t crossing and process-A t crossing	
Process-A trossing Process-Reach downstream of crossing Process-Reach downstream of C	
Morphology and Process-A trossing and Process-Reach downstream of crossing and Process-Reach downstream of crossing and Process Reach downstream of Crossing and	
Process-At crossing and process-At crossing and process and proces	of Truim
Process-At crossing at the cro	of Truim
Process-At crossing Investigated bars Vertical incision Deposition Lateral migration/bank erosion Damaged/unstable drains or armouring Channel morphology Morphology and Process-Reach downstream of crossing Infrastructure type (see Drawing 11.4.3.1 d, Catchment 43) Impact of infrastructure Channel realignment Vertical incision Low Deposition Lateral migration/bank erosion Low Infrastructure type (see Drawing 11.4.3.1 d, Catchment 43) None Small hillsloge channels have been formalised in a single straight, road-parallel channel at the hottom of the	of Truim Slope, which then cross the A9 in a single ely hood of sediment reaching the crossing.



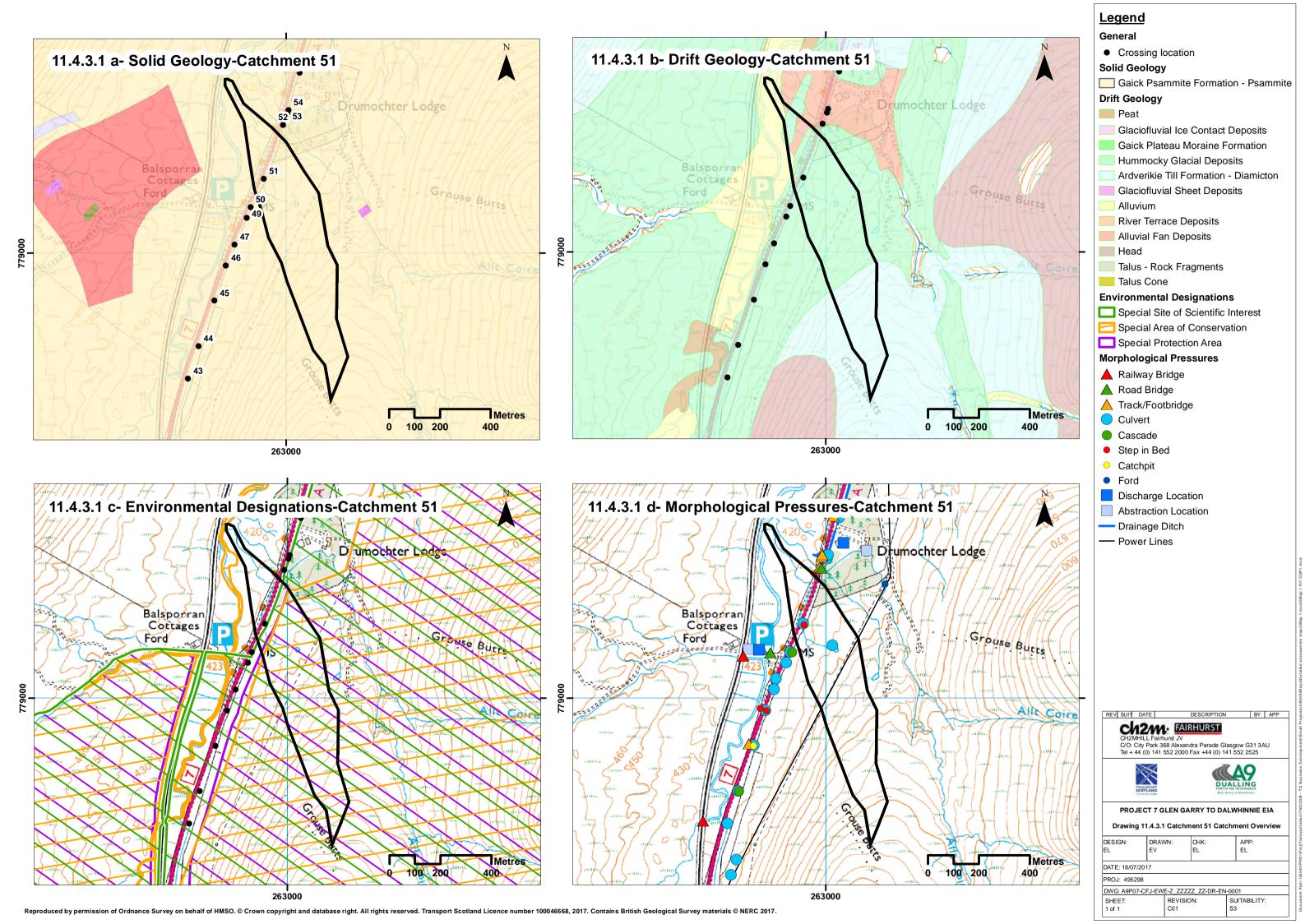


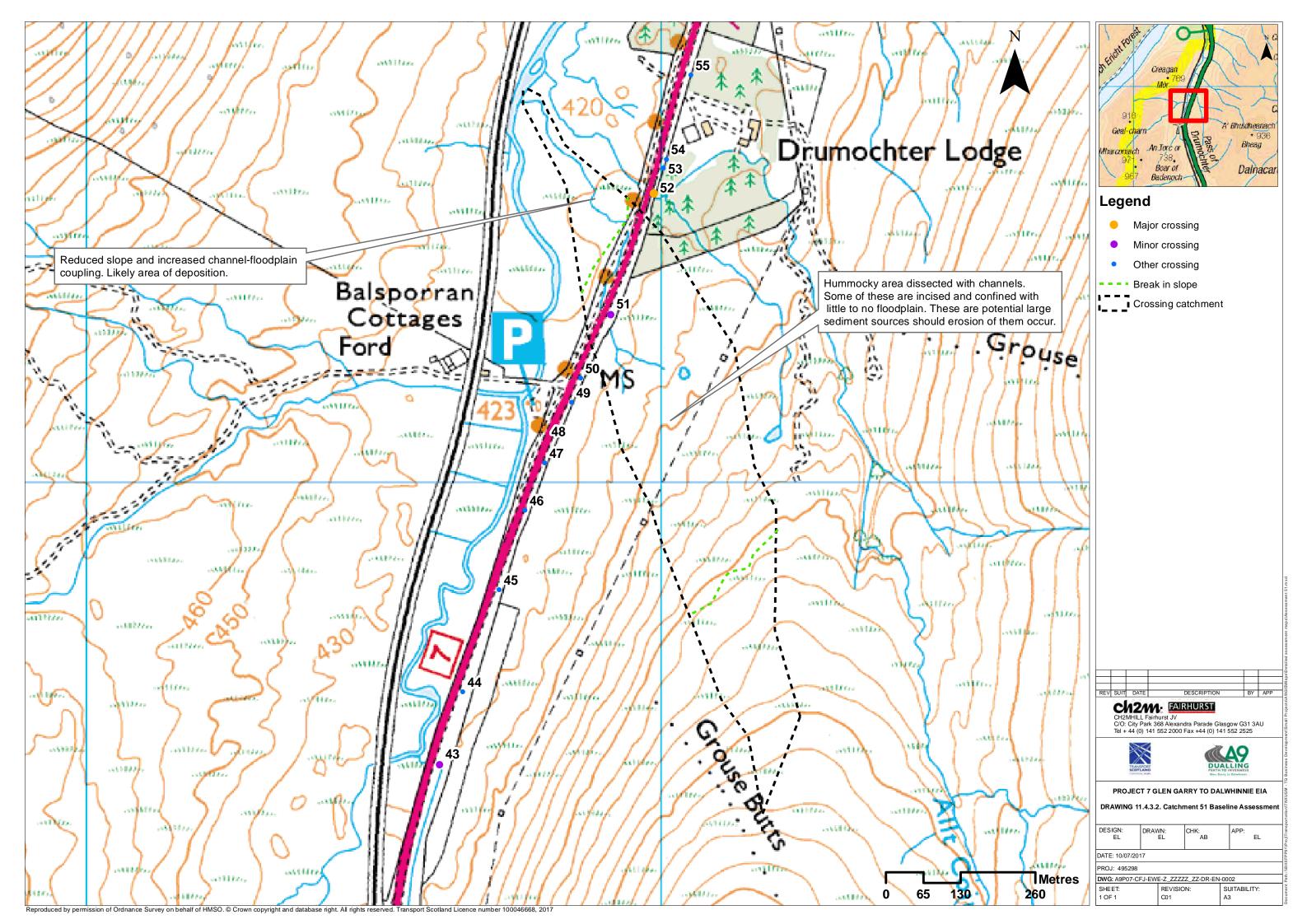
Catch Catc	tre of water course of water course hment Area (km²) age slope in catchment (*) ttchment over 750m (for snow melt risk) er, flows and levels ical condition all ecological status ority Bedrock (see Drawing 11.4.3.1 a and b Catchment 44-50) alluvial fan present at or near the crossing?	0 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	tural her .3 3.5 0 ood ood ood Resistant to weathering, impermeable Acidic scree, alpine and subalpine
Channel Nature Quantitative Spatial Elements WFD classification Geology Major Geology Nature Catch Avera % Catch Avera (% Catch Avera	of water course hment Area (km²) age slope in catchment (*) stchment over 750m (for snow melt risk) er, flows and levels ical condition all ecological status ority Bedrock (see Drawing 11.4.3.1 a and b Catchment 44-50) alluvial fan present at or near the crossing?	Ot Ot Ot Gradier Psammite No	her 1.3 3.5 0 Dood Dood Dood Resistant to weathering, impermeable
Channel Nature Quantitative Spatial Elements Catch Avera % Cat WFD classification Watel Overa Major Geology Is an a	of water course hment Area (km²) age slope in catchment (*) stchment over 750m (for snow melt risk) er, flows and levels ical condition all ecological status ority Bedrock (see Drawing 11.4.3.1 a and b Catchment 44-50) alluvial fan present at or near the crossing?	Ot Ot Ot Gradier Psammite No	her 1.3 3.5 0 Dood Dood Dood Resistant to weathering, impermeable
Channel Nature Quantitative Spatial Elements WFD classification Geology Major Geology Is an a	of water course hment Area (km²) age slope in catchment (*) stchment over 750m (for snow melt risk) er, flows and levels ical condition all ecological status ority Bedrock (see Drawing 11.4.3.1 a and b Catchment 44-50) alluvial fan present at or near the crossing?	Ot Ot Ot Gradier Psammite No	her 1.3 3.5 0 Dood Dood Dood Resistant to weathering, impermeable
Quantitative Spatial Elements Catch Avera % Cat WFD classification Physic Overa Major Geology Is an a	hment Area (km²) age slope in catchment (*) ttchment over 750m (for snow melt risk) er, flows and levels ical condition all ecological status ority Bedrock (see Drawing 11.4.3.1 a and b Catchment 44-50) alluvial fan present at or near the crossing?	Gaick Psammite formation-Psammite	3.5 0 Dood Dood Resistant to weathering, impermeable
Spatial Elements Avera % Cat WFD classification Geology Major Is an a	age slope in catchment (*) itchment over 750m (for snow melt risk) er, flows and levels ical condition all ecological status prity Bedrock (see Drawing 11.4.3.1 a and b Catchment 44-50) a alluvial fan present at or near the crossing?	Good Good Good Good Good Good Good Good	3.5 0 ood ood Resistant to weathering, impermeable
Spatial Elements Avera % Cat WFD classification Geology Major Is an a	age slope in catchment (*) itchment over 750m (for snow melt risk) er, flows and levels ical condition all ecological status prity Bedrock (see Drawing 11.4.3.1 a and b Catchment 44-50) a alluvial fan present at or near the crossing?	Good Good Good Good Good Good Good Good	3.5 0 ood ood Resistant to weathering, impermeable
Water Water Water Water Physic Overa Major Is an a	er, flows and levels ical condition rall ecological status prity Bedrock (see Drawing 11.4.3.1 a and b Catchment 44-50) a alluvial fan present at or near the crossing?	Go Go Go Gaick Psammite formation-Psammite	ood ood ood Resistant to weathering, impermeable
WFD classification Physic Overa Geology Is an a	er, flows and levels ical condition all ecological status ority Bedrock (see Drawing 11.4.3.1 a and b Catchment 44-50) alluvial fan present at or near the crossing?	Go Go Go Gaick Psammite formation-Psammite	ood ood Resistant to weathering, impermeable
WFD classification Physic Overa Geology Is an a	all ecological status ority Bedrock (see Drawing 11.4.3.1 a and b Catchment 44-50) alluvial fan present at or near the crossing?	Go Go Gaick Psammite formation-Psammite	ood ood Resistant to weathering, impermeable
Geology Major	all ecological status prity Bedrock (see Drawing 11.4.3.1 a and b Catchment 44-50) alluvial fan present at or near the crossing?	Gaick Psammite formation-Psammite	Resistant to weathering, impermeable
Geology Is an a	ority Bedrock (see Drawing 11.4.3.1 a and b Catchment 44-50) alluvial fan present at or near the crossing?	Gaick Psammite formation-Psammite	Resistant to weathering, impermeable
Geology Is an a	alluvial fan present at or near the crossing?	No	
Is an a	·		Acidic scree, aloine and subalnine
Ramsi	sar	No	Acidic scree, alnine and subalnine
Rams	sar	No	Acidic scree, alpine and subalnine
North St			Acidic scree, alpine and subalnine
Environmental designations (see Drawing 11.4.3.1 c,		Drumochter Hills	heaths, blanket bog, dry heaths, monntane acid grasslands , mountain willow scrub, plants in crevices on acid rocks, species-rich grassland with mat- grass in upland areas, tall herb communities, wet heathland with cross-
Catchment 44-50)			leaved
SPA		Drumochter Hills	Dotterel breeding, merlin breeding
SSSI		Drumochter Hills	Breeding bird assemblage, fluvial geomorphology of Scotland, montane assemblage, vascular plant assemblage
	-		
	nges in slope and channel confinement		.2, Catchment 44-50
	eat present in the catchment?	None None	
	ere a bog burst risk? ent valley side or terrace erosion	None None	
	ential valley side or terrace erosion	Yes	
	slope failures (including peat slides and debris flows and slides)	Yes	
Sediment source Hill sle	slope failures coupled to channel	Yes	
	ical incision present in catchment	Yes	
	c erosion/lateral migration egetated bars	None None	
	egetated bars aded/forested areas in catchment	None	
	structure type (see Drawing 11.4.3.1 d, Catchment 44-50)	Track crossing upstream	Crossings may act to reduce sediment
			inputs downstream
	ment on sediment source potential in catchment		the till provide a sediment source upply sediment to the drains
comn	ment on sediment supply potential to crossing	steep, channelized slopes si	uppry seument to the urdins
Chann	nnel morphology	Engineered	Crossing 46 - Cascade upstream
Predo	ominant sediment size	Various	
	egetated bars	None	
Process- Reach	ical incision osition	Medium Medium	Crossing 44 and 46
upstream of	ral migration/bank erosion	None	Crossing 44 and 47
Infras	structure type (see Drawing 11.4.3.1 d, Catchment 44-50)	Yes	Track crossing
	act of infrastructure	Fixed banks	
Chanr	nnel realignment	Yes	All crossings
Chann	nnel morphology	Engineered	
	ominant sediment size	Gravels	
Worphology and	nated discharge at 1:200 event (m³/s)	N/A	Individual design flows 0.15-0.55m ³ /s
	egetated bars ical incision	None None	
	osition	None	
Latera	ral migration/bank erosion	None	
Dama	aged/unstable drains or armouring	None	
Chan-	nnel morphology	Engineered	
	lominant sediment size	None visible	
Morphologyand	egetated bars	None	
Process- Reach	ical incision	None	
downstroom of	osition	None	
Latera	ral migration/bank erosion estructure type (see Drawing 11.4.3.1 d, Catchment 44-50)	None	
	act of infrastructure	None None	
	nnel realignment	Yes	All crossings
Summary behaviour	Small hillslope drainage channels have been formalised as part of the		





	Annex 11.4.3 - Hydromorphological	catemient Assessment 31	
Catchment No.	51		
Catchment Name	-		
	Nature of water course	Nat	tural
Channel Nature			
	Size of water course	Mi	nor
		_	
Quantitative	Catchment Area (km²)		18
Spatial Elements	Average slope in catchment (°) % Catchment over 750m (for snow melt risk)		9 0
	A Catchinent over 750m (for show merchisk)		0
	Water, flows and levels	Go	ood
WFD classification	Physical condition	Go	ood
	Overall ecological status	Go	ood
	Majority Bedrock (see Drawing 11.4.3.1 a and b Catchment 51)	Gaick Psammite formation-Psammite	Resistant to weathering, impermeable
Geology			Adjacent catchment has alluvial fan
	Is an alluvial fan present at or near the crossing?	No	deposits but this crossing unlikely to
	is an anavarian present at a real are crossing.		affected by channel avulsion in that
			catchment
	Ramsar	No	
	Toni Sur	River Spey	Atlantic salmon, freshwater pearl
			mussel, otter, sea lamprey
			Acidic scree, alpine and subalpine
	SAC		heaths, blanket bog, dry heaths,
Environmental	SAC	Drumochter Hills	monntane acid grasslands , mountain willow scrub, plants in crevices on acid
designations (see		Diumochter rims	rocks, species-rich grassland with mat-
Drawing 11.4.3.1 c, Catchment 51)			grass in upland areas, tall herb
Catemient 31)			communities, wet heathland with cross-
	SPA	Drumochter Hills	Potteral broading, marlin broading
		Dramoditei IIIIIS	Dotterel breeding, merlin breeding
	SSSI	Drumochter Hills	Breeding bird assemblage, fluvial
	3331	Drumocnter Hills	geomorphology of Scotland, montane assemblage, vascular plant assemblage
			assemblage, vascular plant assemblage
	Changes in slope and channel confinement	See Drawing 11 A	.3.2, Catchment 51
	Is peat present in the catchment?	No	5.2, eaterment 51
	Is there a bog burst risk?	No	
	Current valley side or terrace erosion	No	
	Potential valley side or terrace erosion	Yes	
	Hill slope failures (including peat slides and debris flows and slides) Hill slope failures coupled to channel	No No	
	Vertical incision present in catchment	No	
Sediment source	Bank erosion/lateral migration	No	
and supply -	Unvegetated bars	No	
Catchment Scale		.,	Small area upstream of crossing but
	Wooded/forested areas in catchment	Yes	channel does not cross so unlikely to
	Infrastructure type (see Drawing 11.4.3.1 d, Catchment 51)	No	have floating debris
			however the mounds of glacial material
	Comment on sediment source potential in catchment		ent to the channel if it were to erode
			nt them
	Comment on sediment supply potential to crossing		potential to transport sediment to the
		Cro	ssing
	Channel morphology	Plane bed	
	Predominant sediment size	Cobbles	
Morphology and	Unvegetated bars	None	
Process- Reach	Vertical incision	None	
upstream of	Deposition	Low	
crossing	Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 51)	Low Track crossing	
	Impact of infrastructure	Fixed banks	
	Channel realignment	Yes	Straightened
	Channel marsheless	Fugir d	T
	Channel morphology Predominant sediment size	Engineered Gravel - Cobbles	
	Estimated discharge at 1:200 event (m³/s)		0.55 m ³ /s design flow
Morphology and	Unvegetated bars	None	o.55 m /s design now
Process- At crossing	Vertical incision	None	
Crossing	Deposition	Low	
	Lateral migration/bank erosion	None	
	Damaged/unstable drains or armouring	None	l
	Channel morphology	Plane bed	
	Predominant sediment size	None visible	
	Unvegetated bars	None	
Morphology and	Vertical incision	None	
Process- Reach	Deposition Lateral migration/bank erosion	None None	
downstream of	Infrastructure type (see Drawing 11.4.3.1 d, Catchment 51)	NMU crossing	
crossing		Fixing bed and bank position, potential	
	Impact of infrastructure	to impound flows	
	Channel realignment	Yes	Possible parallel realignment
			undertaken to accommodate A9
Summary	Little sediment is currently entering channel, however there is notential	al for greater sediment inputs should the o	hannel start to erode into the glacial
Summary behaviour	Little sediment is currently entering channel, however there is potention mounds. Also construction of ETL track will have caused at least		

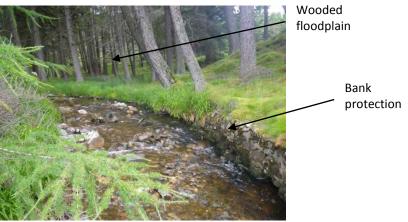




Annex 11.4.3 - Hydromorphological Catchment Assessment - 52			
Catchment No. Catchment Name	52		
catchment Name	<u> </u>	I 	
Channel Nature	Nature of water course		tural
	Size of water course	M	ajor
0	Catchment Area (km²)	3	3.5
Quantitative Spatial Elements	Average slope in catchment (°)		14
	% Catchment over 750m (for snow melt risk)	31%	
wro de la co	Water, flows and levels		ood
WFD classification	Physical condition Overall ecological status		ood ood
	Majority Bedrock (see Drawing 11.4.3.1 a and b Catchment 52)	Gaick Psammite formation-Psammite	Resistant to weathering, impermeable
Geology	Is an alluvial fan present at or near the crossing?	Yes	Crossing on alluvial fan with its apex c. 400m u/s of crossing. Limited risk of avulsion as fan looks relatively stable (very mature pine trees growing on it). However, Jin200 event would generate 18 m3/s discharge which may cause partial avulsion and some flow to find new routes across alluvial fan.
	Ramsar	None	None
		River Spey	Atlantic salmon, freshwater pearl mussel, otter, sea lamprey Acidic scree, alpine and subalpine
Environmental designations (see Drawing 11.4.3.1 c, Catchment 52)	SAC	Drumochter Hills	heaths, blanket bog, dry heaths, monntane acid grasslands, mountain willow scrub, plants in crevices on acid rocks, species-rich grassland with mat- grass in upland areas, tall herb communities, wet heathland with cross- leaved
	SPA	Drumochter Hills	Dotterel breeding, merlin breeding
	SSSI	Drumochter Hills	Breeding bird assemblage, fluvial geomorphology of Scotland, montane assemblage, vascular plant assemblage
	Changes in slope and channel confinement		.3.2, Catchment 52
	Is peat present in the catchment? Is there a bog burst risk?	No No	
	Current valley side or terrace erosion	Yes	
	Potential valley side or terrace erosion Hill slope failures (including peat slides and debris flows and slides)	Yes Yes	
	Hill slope failures coupled to channel Vertical incision present in catchment	Yes No	
Sediment source and supply -	Bank erosion/lateral migration	Yes	
Catchment Scale	Unvegetated bars	Yes	Chance of floating debris blocking
	Wooded/forested areas in catchment	Yes	crossing
	Infrastructure type (see Drawing 11.4.3.1 d, Catchment 52)	Track crossing Debris flows and hillslope failur	e supply sediment to the channel
	Comment on sediment source potential in catchment	Unvegetated bars close to the cre	oss also provide a sediment source
	Comment on sediment supply potential to crossing	Catchment above the snow line so susc	Illslope failures to couple with channel. eptible to high snowmelt discharges with obilise sediment
	Channel morphology	Plane bed	
	Predominant sediment size Unvegetated bars	Cobble and boulder	
Morphology and Process- Reach	Vertical incision	None	
upstream of	Deposition Lateral migration/bank erosion	Low	
crossing	Infrastructure type (see Drawing 11.4.3.1 d, Catchment 52)	None	
	Impact of infrastructure Channel realignment	None Likely- but before OS mapping	
	Channel morphology Predominant sediment size	Plane bed Boulder to gravel	
Morphology and	Estimated discharge at 1:200 event (m³/s)	17.88	
Process- At	Unvegetated bars Vertical incision	Yes None	
crossing	Deposition	Medium	
	Lateral migration/bank erosion Damaged/unstable drains or armouring	Low None	
	Channel morphology	Plane-Riffle	
	Predominant sediment size	Cobble and Gravel	
Morphology and	Unvegetated bars Vertical incision	Yes Low	
Process- Reach downstream of	Deposition	Medium	
crossing	Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 52)	Low None	
	Impact of infrastructure	None	
-	Channel realignment	Likely- but before OS mapping	
Summary behaviour	Sediment is available in the upper catchment and transported downstrear bars close to the crossing with the potential to be mobilised downstrea Catchment is susceptible to flooding from snow melt. Immediately upstres is the risk of avulsion (full or partial channel abandonment) and finding much less likely to	m during high flows. Bars increase poten am of the road the channel flows through	tial of lateral and vertical movement. n its alluvial fan. At very high flows there
	l		



Photograph 11.4.3.79-Downstream



Photograph 11.4.3.81- Upstream to wooded floodplain



Photograph 11.4.3.82-Downstream into crossing- Gravel and cobble bed



Recent bank protection

Photograph 11.4.3.83-Left bank



Photograph 11.4.3.85-Downstream to new bank protection

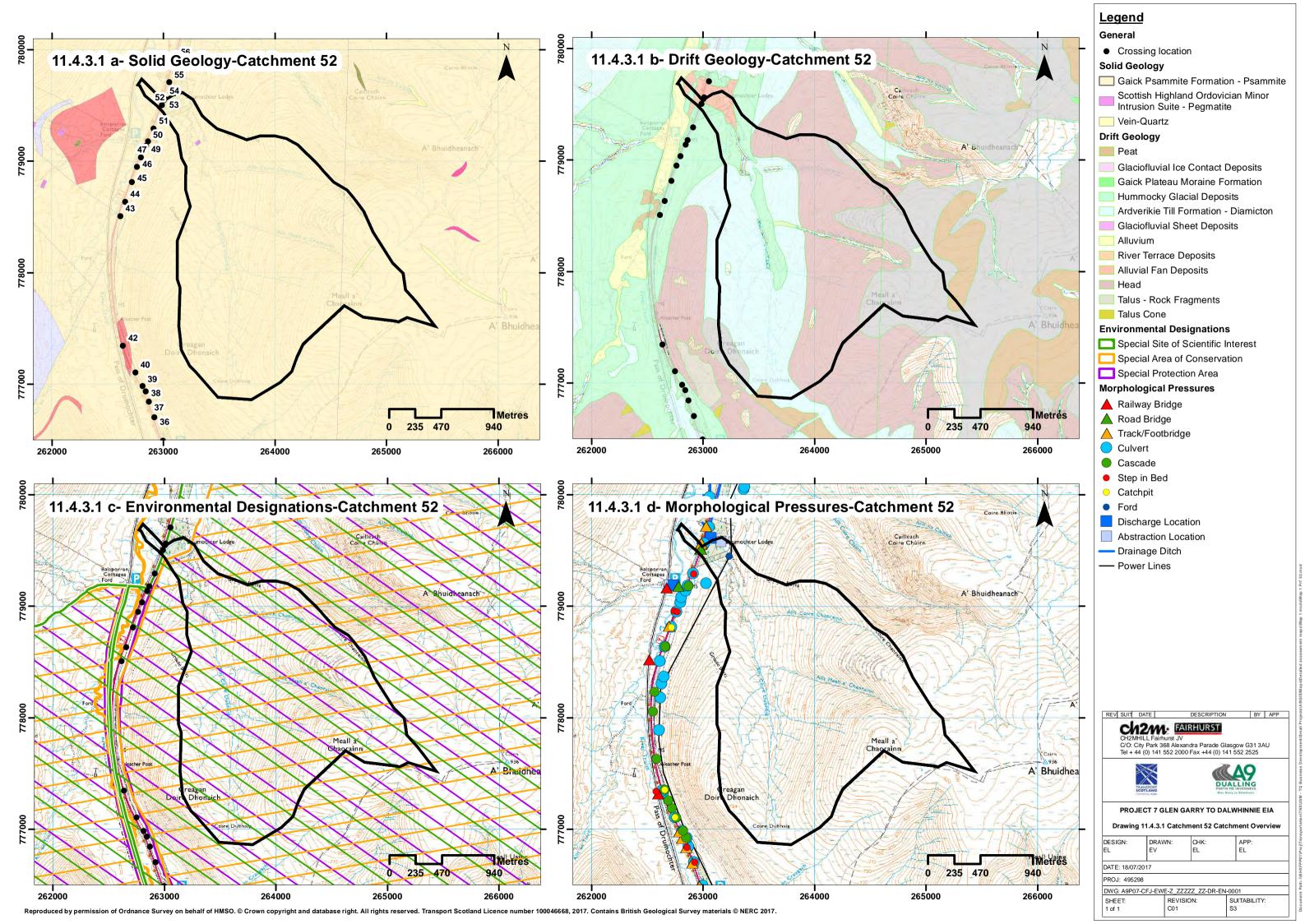


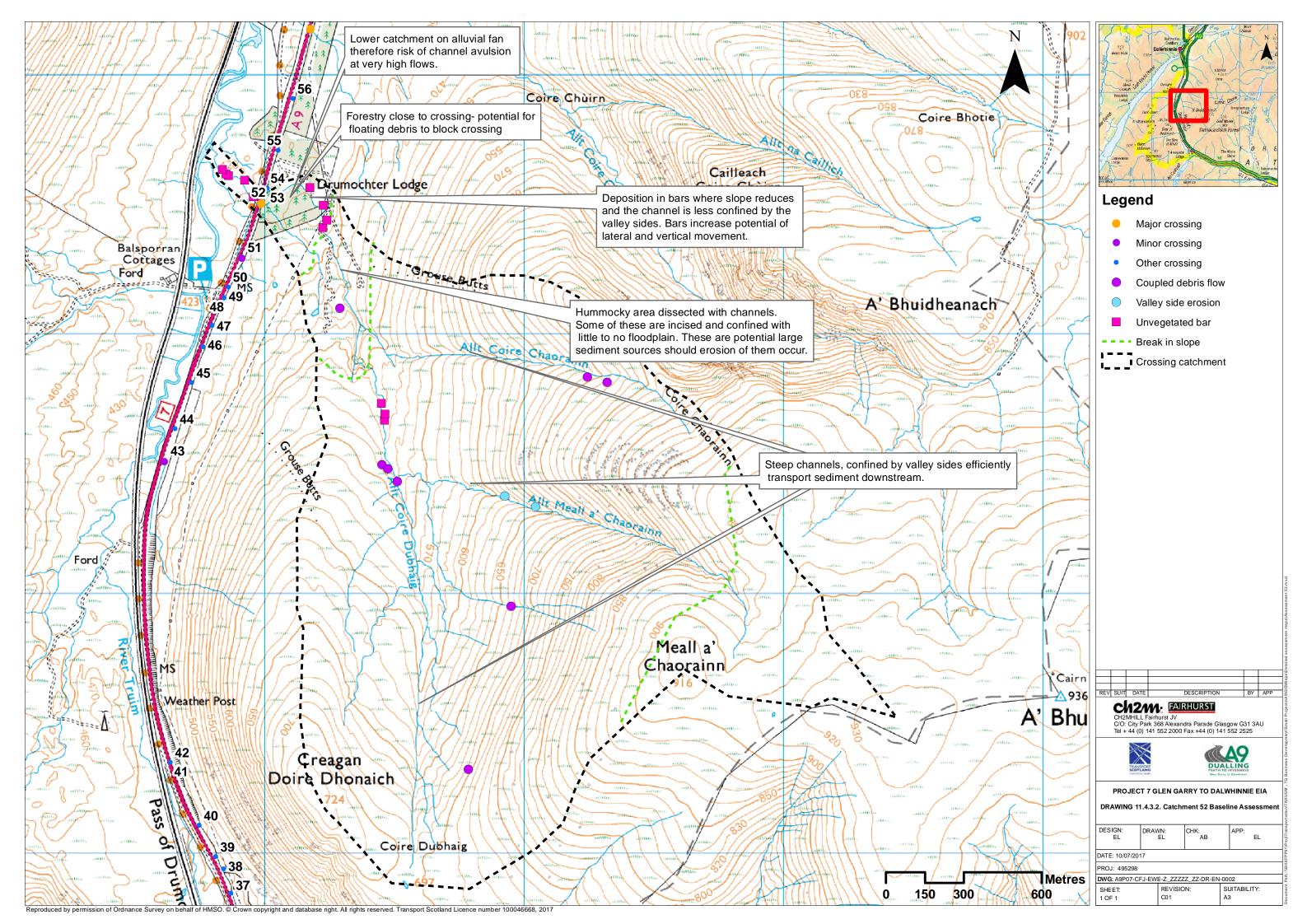
Photograph 11.4.3.84 -Upstream to plain bed channel through wooded floodplain

Tributary inflow

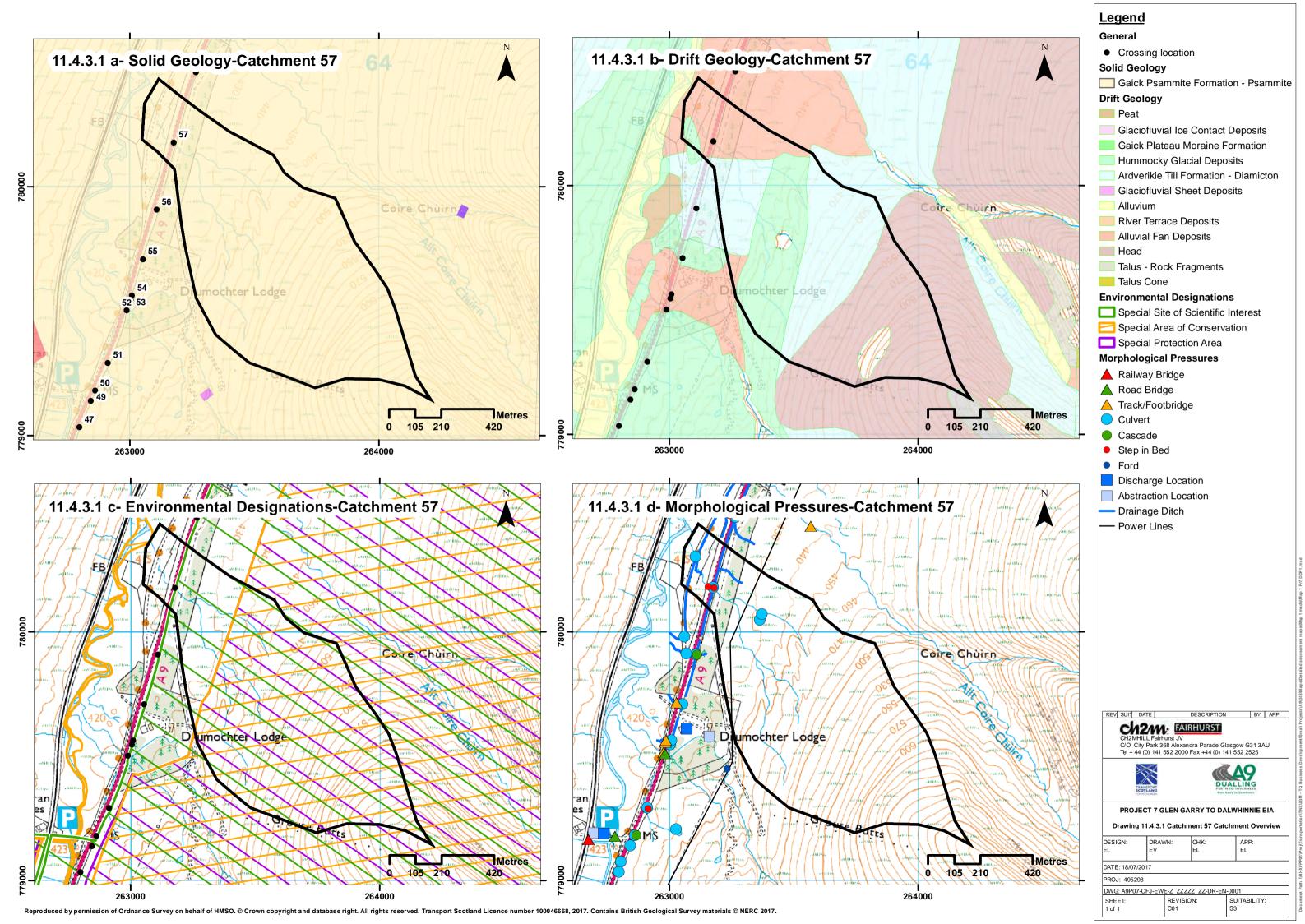


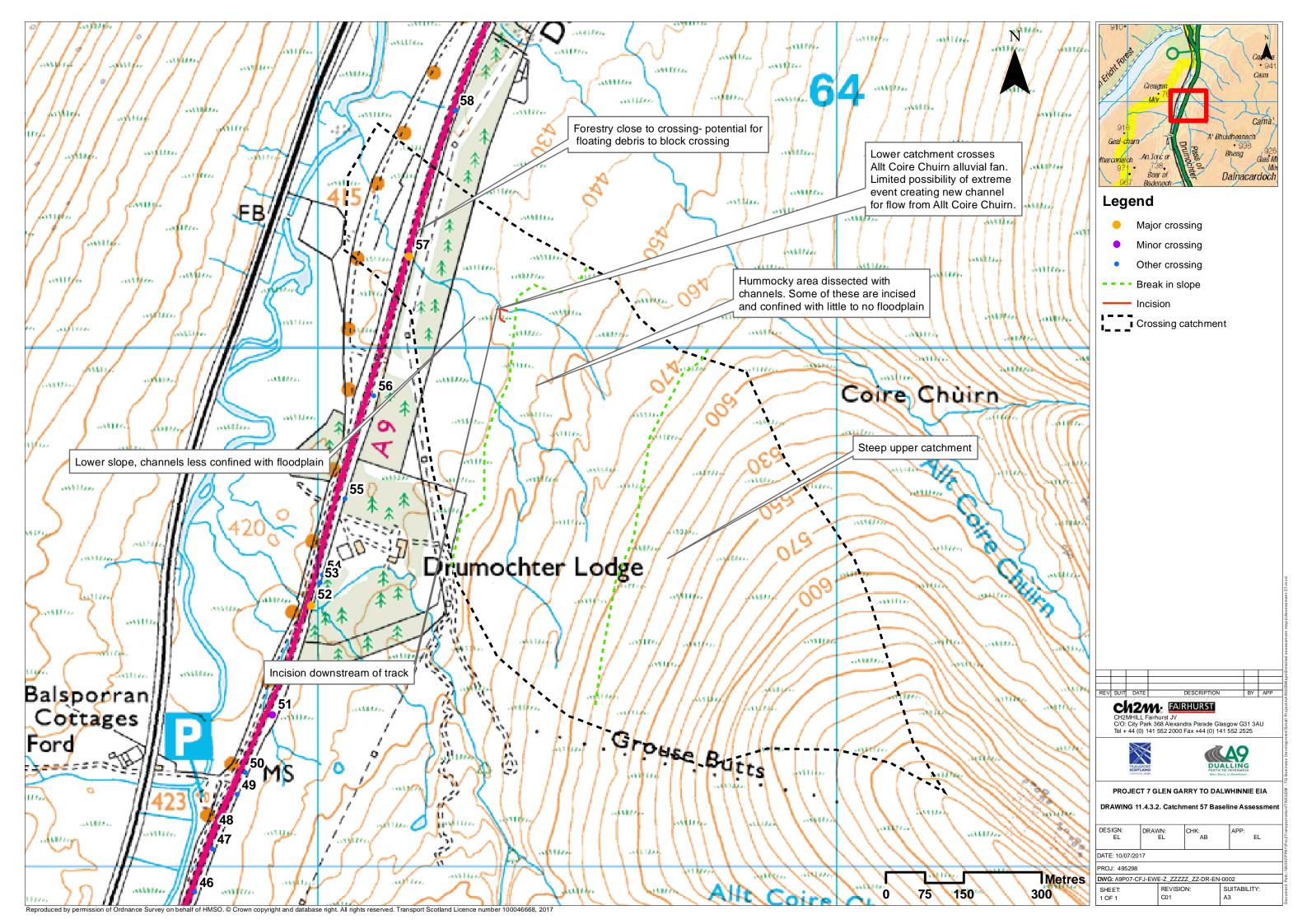
Photograph 11.4.3.86-Tributary inflow





	Annex 11.4.3 - Hydromorphological		
Catchment No. Catchment Name	57	_	
catemient italie			
Channel Nature	Nature of water course	Na	tural
Chainlei Nature	Size of water course	M	ajor
	[a., ., ., ., ., ., ., ., ., ., ., ., ., .).7
Quantitative	Catchment Area (km²) Average slope in catchment (°)		12
Spatial Elements	% Catchment over 750m (for snow melt risk)		0
	Water, flows and levels		ood
WFD classification			ood
	Overall ecological status	G	bod
			I
	Majority Bedrock (see Drawing 11.4.3.1 a and b Catchment 57)	Gaick Psammite formation-Psammite	Resistant to weathering, impermeable
Geology			
	Is an alluvial fan present at or near the crossing?	Yes	Lower catchment (u/s of road) is part o
i	9.		the Allt Coire Chùirn alluvial fan
	T		
	Ramsar	No	
		River Spey	Atlantic salmon, freshwater pearl
			mussel, otter, sea lamprey
			Acidic scree, alpine and subalpine
			heaths, blanket bog, dry heaths,
Environmental designations (see	SAC	Drumochter Hills	monntane acid grasslands, mountain willow scrub, plants in crevices on acid
Drawing 11.4.3.1 c,			rocks, species-rich grassland with mat-
Catchment 57)			grass in upland areas, tall herb
			communities, wet heathland with cross leaved
	SPA	Drumochter Hills	Dotterel breeding, merlin breeding
			Breeding bird assemblage, fluvial
	SSSI	Drumochter Hills	geomorphology of Scotland, montane
			assemblage, vascular plant assemblage
	Changes in slope and channel confinement Is peat present in the catchment?	See Drawing 11.4 No	.3.2, Catchment 57
	Is there a bog burst risk?	No	
	Current valley side or terrace erosion	No	
	Potential valley side or terrace erosion Hill slope failures (including peat slides and debris flows and slides)	Yes Yes	
Sediment source	Hill slope failures coupled to channel	No	
and supply -	Vertical incision present in catchment	Yes	Yes but at a low level- limited sediment
Catchment Scale	Bank erosion/lateral migration	No	supply to channel
	Unvegetated bars	No	
	Wooded/forested areas in catchment	Yes	Potential for floating debris blocking crossing
	Infrastructure type (see Drawing 11.4.3.1 d, Catchment 57)	None	Ci Ossing
	Comment on sediment source potential in catchment		t but it is not currently coupled with the I transport sediment downstream
	Comment on sediment supply potential to crossing	Steep and commed channels wil	i transport seuiment downstream
	Channel morphology	Plane bed	
	Predominant sediment size Unvegetated bars	Boulder to gravel No	
Morphology and	Vertical incision	None	
Process- Reach upstream of	Deposition	Low	
crossing	Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 57)	Low Track crossing	
	Impact of infrastructure	Incision downstream	Sediment source
	Channel realignment	Unclear	
	Channel morphology	Engineered	
	Predominant sediment size	None	
	Estimated discharge at 1:200 event (m ³ /s)	4.15	Need to consider possibility of flow
Morphology and	Estimated discharge at 1:200 event (m /s)	4.13	being received from Allt Coire Chùirn in extreme events
Process- At crossing	Unvegetated bars	None	
	Vertical incision Deposition	None	
	Lateral migration/bank erosion	None None	
	Damaged/unstable drains or armouring	None	
	Channel morphology	Plane bed	
	Predominant sediment size	Gravel	
	Unvegetated bars	Yes-small	
Morphology and Process- Reach	Vertical incision Deposition	None Low	
downstream of	Lateral migration/bank erosion	None	
crossing	Infrastructure type (see Drawing 11.4.3.1 d, Catchment 57)	NMU crossing	
	Impact of infrastructure	None Unclear- may be natural change on	
	Channel realignment	channel position	
	Sediment is available in the catchment but it is not currently coupled		
	the contract of the contract o	I channels have notential to be a future ser	timent cource through erosion Channel
Summary	with potential for erosion and sediment delivery in the future. Confined		
Summary behaviour	with potential for erosion and sediment delivery in the future. Commete currently stable. Several drains also drain into the crossing. Channel cro some flow from Allt Coire Chüirn in extreme events, but there is no mo	ses very large Allt Coire Chùirn alluvial fan	and therefore there is a risk of receiving
	currently stable. Several drains also drain into the crossing. Channel cro	ses very large Allt Coire Chùirn alluvial fan	and therefore there is a risk of receiving



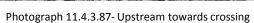


T	Annex 11.4.3 - Hydromorphological C	7	
Catchment No. Catchment Name	59 	-	
,			
Channel Nature	Nature of water course		tural
	Size of water course	IVI	ajor
Quantitative	Catchment Area (km²)		.49
Spatial Elements	Average slope in catchment (°) % Catchment over 750m (for snow melt risk)		0
WFD classification	Water, flows and levels Physical condition		ood
WID classification	Overall ecological status		ood
Geology	Majority Bedrock (see Drawing 11.4.3.1 a and b Catchment 59)	Gaick Psammite formation-Psammite	Resistant to weathering, impermeable
	Is an alluvial fan present at or near the crossing?	Yes	Major alluvial fan present in lower
	is an anuviarian present at or near the crossing:	ics	catchment (crossing cuts through it)
	Ramsar	No	
		River Spey	Atlantic salmon, freshwater pearl
			mussel, otter, sea lamprey
			Acidic scree, alpine and subalpine
	SAC		heaths, blanket bog, dry heaths, monntane acid grasslands , mountain
Environmental designations (see		Drumochter Hills	willow scrub, plants in crevices on acid rocks, species-rich grassland with mat-
Drawing 11.4.3.1 c,			grass in upland areas, tall herb
Catchment 59)			communities, wet heathland with cross leaved
	SPA	Drumochter Hills	Dotterel breeding, merlin breeding
			Breeding bird assemblage, fluvial
	SSSI	Drumochter Hills	geomorphology of Scotland, montane
			assemblage, vascular plant assemblage
	Changes in slope and channel confinement	See Drawing 11.4	.3.2, Catchment 59
	Is peat present in the catchment?	Yes	Some peat in upper catchment
	Is there a bog burst risk?	Yes	But unlikely. Risk small relative to other
	is there a bog burst risk:	tes	risks associated with high mineral sediment delivery and mobility
	Current valley side or terrace erosion	Yes	Supplying sediment to channel
	Potential valley side or terrace erosion Hill slope failures (including peat slides and debris flows and slides)	Yes Yes	
Sediment source	Hill slope failures coupled to channel	Yes	High sediment supply to channel
and supply -	Vertical incision present in catchment	Yes	In steeper areas upstream Laterally mobile channel on lower
Catchment Scale			
-accomment scale	Bank erosion/lateral migration	Yes	slopes
	Unvegetated bars	Yes	
			slopes High sediment supply potential to crossing Potential for floating debris blocking
	Unvegetated bars	Yes	slopes High sediment supply potential to crossing
State	Unvegetated bars Wooded/forested areas in catchment	Yes Yes Foot bridge near crossing High sediment source potential from	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing coupled hillslope failure and valley side
State	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment	Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedim	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing coupled hillstope failure and valley side upper catchment ent to lower gradient area (alluvial fan)
Section Sealer	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59)	Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedim	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing coupled hillslope failure and valley side upper catchment
Jan Jede	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing	Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedim upstream of crossing, where	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing coupled hillstope failure and valley side upper catchment ent to lower gradient area (alluvial fan)
	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size	Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedim upstream of crossing, where Wandering Cobbles and gravels	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing coupled hillslope failure and valley side upper catchment ent to lower gradient area (alluvial fan) deposition forming bars occurs
Morphology and Process- Reach	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Univegetated bars Vertical incision	Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedim upstream of crossing, where Wandering Cobbles and gravels Yes Low	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing coupled hillstope failure and valley side upper catchment ent to lower gradient area (alluvial fan)
Morphology and Process- Reach upstream of	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Unvegetated bars	Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedim upstream of crossing, where Wandering Cobbles and gravels Yes	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing coupled hillslope failure and valley side upper catchment ent to lower gradient area (alluvial fan) deposition forming bars occurs
Morphology and Process- Reach	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59)	Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedim upstream of crossing, where Wandering Cobbles and gravels Yes Low High Medium Foot bridge	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing coupled hillslope failure and valley side upper catchment ent to lower gradient area (alluvial fan) deposition forming bars occurs Extensive coarse sediment available
Morphology and Process- Reach upstream of	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion	Yes Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedim upstream of crossing, where Wandering Cobbles and gravels Yes Low High Medium	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing coupled hillslope failure and valley side upper catchment ent to lower gradient area (alluvial fan) deposition forming bars occurs Extensive coarse sediment available
Morphology and Process- Reach upstream of	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Impact of infrastructure Channel realignment	Yes Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedim upstream of crossing, where Wandering Cobbles and gravels Yes Low High Medium Foot bridge Fixing bank location Possible straightening upstream	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing coupled hillslope failure and valley side upper catchment ent to lower gradient area (alluvial fan) deposition forming bars occurs Extensive coarse sediment available
Morphology and Process- Reach upstream of	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Impact of infrastructure	Yes Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedim upstream of crossing, where Wandering Cobbies and gravels Yes Low High Medium Foot bridge Fixing bank location Possible straightening upstream Plane bed Cobbles and gravels	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing coupled hillslope failure and valley side upper catchment ent to lower gradient area (alluvial fan) deposition forming bars occurs Extensive coarse sediment available
Morphology and Process- Reach upstream of crossing	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Impact of infrastructure Channel morphology Predominant sediment size Estimated discharge at 1.200 event (m³/s)	Yes Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedim upstream of crossing, where Wandering Cobbles and gravels Yes Low High Medium Foot bridge Fixing bank location Possible straightening upstream Plane bed Cobbles and gravels	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing coupled hillslope failure and valley side upper catchment ent to lower gradient area (alluvial fan) deposition forming bars occurs Extensive coarse sediment available
Morphology and Process- Reach upstream of crossing	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Impact of infrastructure Channel realignment Channel morphology Predominant sediment size Estimated discharge at 1:200 event (m³/s) Unvegetated bars	Yes Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedim upstream of crossing, where Wandering Cobbies and gravels Yes Low High Medium Foot bridge Fixing bank location Possible straightening upstream Plane bed Cobbies and gravels 16.42 Yes Low Low Low Possible straightening upstream	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing coupled hillslope failure and valley side upper catchment ent to lower gradient area (alluvial fan) deposition forming bars occurs Extensive coarse sediment available
Morphology and Process- Reach upstream of crossing	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Impact of infrastructure Channel realignment Channel morphology Predominant sediment size Estimated discharge at 1:200 event (m³/s) Unvegetated bars Vertical incision Deposition	Yes Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedim upstream of crossing, where Wandering Cobbles and gravels Yes Low High Medium Foot bridge Fixing bank location Possible straightening upstream Plane bed Cobbles and gravels Plane bed Cobbles and gravels 16.42 Yes Low High	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing coupled hillslope failure and valley side upper catchment ent to lower gradient area (alluvial fan) deposition forming bars occurs Extensive coarse sediment available
Morphology and Process- Reach upstream of crossing	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Impact of infrastructure Channel realignment Channel morphology Predominant sediment size Estimated discharge at 1:200 event (m³/s) Unvegetated bars	Yes Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedim upstream of crossing, where Wandering Cobbies and gravels Yes Low High Medium Foot bridge Fixing bank location Possible straightening upstream Plane bed Cobbies and gravels 16.42 Yes Low Low Low Possible straightening upstream	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing coupled hillslope failure and valley side upper catchment ent to lower gradient area (alluvial fan) deposition forming bars occurs Extensive coarse sediment available
Morphology and Process- Reach upstream of crossing	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Impact of infrastructure Channel realignment Channel morphology Predominant sediment size Estimated discharge at 1:200 event (m³/s) Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Damaged/unstable drains or armouring	Yes Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedim upstream of crossing, where Wandering Cobbles and gravels Yes Low High Medium Foot bridge Fixing bank location Possible straightening upstream Plane bed Cobbles and gravels 16.42 Yes Low High Medium None	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing coupled hillslope failure and valley side upper catchment ent to lower gradient area (alluvial fan) deposition forming bars occurs Extensive coarse sediment available
Morphology and Process- Reach upstream of crossing	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Impact of infrastructure Channel morphology Predominant sediment size Estimated discharge at 1.200 event (m³/s) Unvegetated bars Vertical incision Deposition Deposition Lateral migration/bank erosion Deposition Deposition Deposition Lateral migration/bank erosion Demaged/unstable drains or armouring Channel morphology Predominant sediment size	Yes Yes Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedin upstream of crossing, where Wandering Cobbles and gravels Yes Low High Medium Foot bridge Fixing bank location Possible straightening upstream Plane bed Cobbles and gravels 16.42 Yes Low High Medium None Wandering Cobbles and gravels	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing coupled hillslope failure and valley side upper catchment ent to lower gradient area (alluvial fan) deposition forming bars occurs Extensive coarse sediment available
Morphology and Process- Reach upstream of crossing	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Impact of infrastructure Channel realignment Channel morphology Predominant sediment size Estimated discharge at 1:200 event (m³/s) Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Deposition Lateral migration/bank erosion Damaged/unstable drains or armouring Channel morphology	Yes Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedim upstream of crossing, where Wandering Cobbles and gravels Yes Low High Medium Foot bridge Fixing bank location Possible straightening upstream Plane bed Cobbles and gravels 16.42 Yes Low High Medium None Wandering	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing coupled hillslope failure and valley side upper catchment area (alluvial fan) deposition forming bars occurs Extensive coarse sediment available
Morphology and Process- Reach upstream of crossing Morphology and Process- At crossing	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Impact of infrastructure Channel realignment Channel morphology Predominant sediment size Estimated discharge at 1:200 event (m³/s) Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Deposition Damaged/unstable drains or armouring Channel morphology Predominant sediment size Unvegetated bars Vertical incision Damaged/unstable drains or armouring Channel morphology Predominant sediment size Unvegetated bars Veredominant sediment size Unvegetated bars	Yes Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedim upstream of crossing, where Wandering Cobbles and gravels Yes Low High Medium Foot bridge Fixing bank location Possible straightening upstream Plane bed Cobbles and gravels 16.42 Yes Low High Medium None Wandering Cobbles and gravels Yes Low High Medium None	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing Coupled hillstope failure and valley side upper catchment ent to lower gradient area (alluvial fan) deposition forming bars occurs Extensive coarse sediment available Within confines of terraces
Morphology and Process- Reach upstream of crossing Morphology and Process- At crossing	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Impact of infrastructure Channel realignment Channel morphology Predominant sediment size Estimated discharge at 1:200 event (m³/s) Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Demaged/unstable drains or armouring Channel morphology Predominant sediment size Estimated discharge at 1:200 event (m³/s) Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Damaged/unstable drains or armouring Channel morphology Predominant sediment size Unvegetated bars Vertical incision	Yes Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedim upstream of crossing, where Wandering Cobbles and gravels Yes Low High Medium Foot bridge Fixing bank location Possible straightening upstream Plane bed Cobbles and gravels 16, 42 Yes Low High Medium None Wandering Cobbles and gravels 16, 42 Yes Low High Medium None	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing Coupled hillstope failure and valley side upper catchment upper catchment lent to lower gradient area (alluvial fan) deposition forming bars occurs Extensive coarse sediment available Within confines of terraces
Morphology and Process- Reach upstream of crossing Morphology and Process- At crossing Morphology and Process- Reach downstream of	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Impact of infrastructure Channel realignment Channel morphology Predominant sediment size Estimated discharge at 1:200 event (m³/s) Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Deposition Damaged/unstable drains or armouring Channel morphology Predominant sediment size Unvegetated bars Vertical incision Damaged/unstable drains or armouring Channel morphology Predominant sediment size Unvegetated bars Veredominant sediment size Unvegetated bars	Yes Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedim upstream of crossing, where Wandering Cobbles and gravels Yes Low High Medium Foot bridge Fixing bank location Possible straightening upstream Plane bed Cobbles and gravels 16.42 Yes Low High Medium None Wandering Cobbles and gravels Yes Low High Medium None	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing Coupled hillstope failure and valley side upper catchment ent to lower gradient area (alluvial fan) deposition forming bars occurs Extensive coarse sediment available Within confines of terraces
Morphology and Process- Reach upstream of crossing Morphology and Process- At crossing	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Impact of infrastructure Channel morphology Predominant sediment size Estimated discharge at 1:200 event (m³/s) Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Demaged/unstable drains or armouring Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Damaged/unstable drains or armouring Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion	Yes Yes Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedim upstream of crossing, where Wandering Cobbles and gravels Yes Low High Medium Foot bridge Fixing bank location Possible straightening upstream Plane bed Cobbles and gravels 16.42 Yes Low High Medium None Wandering Cobbles and gravels 16.49 Yes Low High Medium None	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing Coupled hillstope failure and valley side upper catchment ent to lower gradient area (alluvial fan) deposition forming bars occurs Extensive coarse sediment available Within confines of terraces Within confines of terraces NMU route and structure of unknown purpose (possibly containing utilities) Fixes bank position. Restricts passage or
Morphology and Process- Reach upstream of crossing Morphology and Process- At crossing Morphology and Process- Reach downstream of	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Impact of infrastructure Channel realignment Channel morphology Predominant sediment size Estimated discharge at 1:200 event (m³/s) Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Damaged/unstable drains or armouring Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Damaged/unstable drains or armouring Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Damaged/unstable drains or armouring Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59)	Yes Yes Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedim upstream of crossing, where Wandering Cobbles and gravels Yes Low High Medium Foot bridge Fixing bank location Possible straightening upstream Plane bed Cobbles and gravels 16.42 Yes Low High Medium None Wandering Cobbles and gravels 16.49 Yes Low High Medium None	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing Coupled hillstope failure and valley side upper catchment ent to lower gradient area (alluvial fan) deposition forming bars occurs Extensive coarse sediment available Within confines of terraces Within confines of terraces NMU route and structure of unknown purpose (possibly containing utilities) Fixes bank position. Restricts passage or sediment, particularly the 'unknown'
Morphology and Process- Reach upstream of crossing Morphology and Process- At crossing Morphology and Process- Reach downstream of	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Impact of infrastructure Channel morphology Predominant sediment size Estimated discharge at 1:200 event (m³/s) Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Demaged/unstable drains or armouring Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Damaged/unstable drains or armouring Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion	Yes Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedim upstream of crossing, where Wandering Cobbles and gravels Yes Low High Medium Foot bridge Fixing bank location Possible straightening upstream Plane bed Cobbles and gravels 16.42 Yes Low High Medium None Wandering Cobbles and gravels 16.42 Yes Low High Medium None Wandering Cobbles and gravels Yes Medium High Medium Yes	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing Potential for floating debris blocking crossing Coupled hillstope failure and valley side upper catchment ent to lower gradient area (alluvial fan) deposition forming bars occurs Extensive coarse sediment available Within confines of terraces Within confines of terraces NMU route and structure of unknown purpose (possibly containing utilities) Fixes bank position. Restricts passage of sediment, particularly the 'unknown' structure (evidence in aerial photos for some dredging of channel u/s of this
Morphology and Process- Reach upstream of crossing Morphology and Process- At crossing Morphology and Ophology and Process- At crossing	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Impact of infrastructure Channel realignment Channel morphology Predominant sediment size Estimated discharge at 1:200 event (m³/s) Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Damaged/unstable drains or armouring Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Damaged/unstable drains or armouring Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Damaged/unstable drains or armouring Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59)	Yes Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedim upstream of crossing, where Wandering Cobbles and gravels Yes Low High Medium Foot bridge Fixing bank location Possible straightening upstream Plane bed Cobbles and gravels 16.42 Yes Low High Medium None Wandering Cobbles and gravels 16.42 Yes Low High Medium None Wandering Cobbles and gravels Yes Medium High Medium Yes	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing Potential for floating debris blocking crossing coupled hillslope failure and valley side upper catchment ent to lower gradient area (alluvial fan) deposition forming bars occurs Extensive coarse sediment available Within confines of terraces Within confines of terraces NMU route and structure of unknown purpose (possibly containing utilities) Fixes bank position. Restricts passage or sediment, particularly the 'unknown' structure (evidence in aerial photos for sediment, particularly the 'unknown' structure (evidence in aerial photos for sediment, particularly the 'unknown' structure (evidence in aerial photos for
Morphology and Process- Reach upstream of crossing Morphology and Process- At crossing Morphology and Ophology and Process- At crossing	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Impact of infrastructure Channel realignment Channel morphology Predominant sediment size Estimated discharge at 1:200 event (m³/s) Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Damaged/unstable drains or armouring Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Damaged/unstable drains or armouring Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion	Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedim upstream of crossing, where Wandering Cobbles and gravels Yes Low High Medium Foot bridge Fixing bank location Possible straightening upstream Plane bed Cobbles and gravels 16.42 Yes Low High Medium None Wandering Cobbles and gravels 16.42 Yes Low High Medium None Wandering Cobbles and gravels Yes Medium High Medium Yes Medium Yes Medium Yes	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing Coupled hillslope failure and valley side upper catchment ent to lower gradient area (alluvial fan) deposition forming bars occurs Extensive coarse sediment available Within confines of terraces Within confines of terraces NMU route and structure of unknown purpose (possibly containing utilities) Fixes bank position. Restricts passage o sediment, particularly the 'unknown' structure (evidence in aerial photos for some dredging of channel u/s of this structure).
Morphology and Process- Reach upstream of crossing Morphology and Process- At crossing Morphology and Ophology and Process- At crossing	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Impact of infrastructure Channel realignment Channel morphology Predominant sediment size Estimated discharge at 1:200 event (m³/s) Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Infrastructure Channel morphology Predominant sediment size Estimated discharge at 1:200 event (m³/s) Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Damaged/unstable drains or armouring Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Impact of infrastructure Channel realignment Extensive sediment supply from upper catchment is transported through fan. Currently most of this is within the channel which contributes to t	Yes Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedim upstream of crossing, where Wandering Cobbles and gravels Yes Low High Medium Foot bridge Fixing bank location Possible straightening upstream Plane bed Cobbles and gravels 16.42 Yes Low High Medium None Wandering Cobbles and gravels 16.49 Yes Low High Medium None Wandering Cobbles and gravels Yes Medium High Medium Yes Yes Medium Yes Channel straightened downstream Steep gradient channels and deposited the channel's lateral mobility. This in turn	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing Potential for floating debris blocking crossing Coupled hillstope failure and valley side upper catchment tent to lower gradient area (alluvial fan) deposition forming bars occurs Extensive coarse sediment available Within confines of terraces Within confines of terraces NMU route and structure of unknown purpose (possibly containing utilities) Fixes bank position. Restricts passage or sediment, particularly the 'unknown' structure (evidence in aerial photos for some dredging of channel u/s of this structure). where slope reduces on a major alluvial leads to reworking of the alluvial fan
Morphology and Process- Reach upstream of crossing Morphology and Process- At crossing Morphology and Process- Reach downstream of crossing	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Impact of infrastructure Channel morphology Predominant sediment size Estimated discharge at 1.200 event (m³/s) Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Damaged/unstable drains or armouring Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Damaged/unstable drains or armouring Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Deposition Lateral migration/bank erosion Deposition Lateral migration/bank erosion Deposition Lateral migration/bank erosion Extensive sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Lateral migration/bank erosion Lateral migra	Yes Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedin upstream of crossing, where Wandering Cobbles and gravels Yes Low High Medium Foot bridge Fixing bank location Possible straightening upstream Plane bed Cobbles and gravels 16.42 Yes Low High Medium None Wandering Cobbles and gravels Yes Low High Medium None Vandering Cobbles and gravels Yes Medium None Vandering Cobbles and gravels Yes Medium Yes Medium Yes Channel straightened downstream steep gradient channels and deposited whe channel starteral mobility. This in turn of create pinch points where the channel as needed to be dredged and placed eith an eded to be dredged and placed eith an ed	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing Potential for floating debris blocking crossing Coupled hillstope failure and valley side upper catchment ent to lower gradient area (alluvial fan) deposition forming bars occurs Extensive coarse sediment available Within confines of terraces Within confines of terraces NMU route and structure of unknown purpose (possibly containing utilities) Fixes bank position. Restricts passage or sediment, particularly the 'unknown' structure (evidence in aerial photos for some dredging of channel u/s of this structure). where slope reduces on a major alluvial leads to reworking of the alluvial fan annks are more or less fixed and passage er side of the channel to maintain flow
Morphology and Process- Reach upstream of crossing Morphology and Process- At crossing Morphology and Process- Reach downstream of crossing	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Impact of infrastructure Channel morphology Predominant sediment size Estimated discharge at 1:200 event (m³/s) Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Damaged/unstable drains or armouring Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Damaged/unstable drains or armouring Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Impact of infrastructure Channel realignment Extensive sediment supply from upper catchment is transported through fan. Currently most of this is within the channel which contributes to t sediments and further sediment production. Structures across the channe of sediment and debris is restricted, evidenced by the sediment which under the structures. The majority of the allowial fan formation probably!	Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedim upstream of crossing, where Wandering Cobbles and gravels Yes Low High Medium Foot bridge Fixing bank location Possible straightening upstream Plane bed Cobbles and gravels 16.42 Yes Low High Medium None Wandering Cobbles and gravels 16.49 Yes Low High Medium None Wandering Cobbles and gravels Yes Medium High Medium Yes Medium Yes Cobbles and gravels Yes Medium High Medium Yes Cobbles and gravels Yes Medium High Medium Yes Aligh Medium Yes	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing Potential for floating debris blocking crossing Coupled hillstope failure and valley side upper catchment tent to lower gradient area (alluvial fan) deposition forming bars occurs Extensive coarse sediment available Within confines of terraces Within confines of terraces NMU route and structure of unknown purpose (possibly containing utilities) Fixes bank position. Restricts passage or sediment, particularly the 'unknown' structure (evidence in aerial photos for some dredging of channel u/s of this structure). where slope reduces on a major alluvial leads to reworking of the alluvial fan anaks are more or less fixed and passage er side of the channel to maintain flow Holocene, but there is relatively recent
Morphology and Process- Reach upstream of crossing Morphology and Process- At crossing Morphology and Process- Reach downstream of crossing	Unvegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 59) Impact of infrastructure Channel morphology Predominant sediment size Estimated discharge at 1.200 event (m³/s) Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Damaged/unstable drains or armouring Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Damaged/unstable drains or armouring Channel morphology Predominant sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Deposition Lateral migration/bank erosion Deposition Lateral migration/bank erosion Deposition Lateral migration/bank erosion Extensive sediment size Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Lateral migration/bank erosion Lateral migra	Yes Yes Yes Foot bridge near crossing High sediment source potential from erosion in steep Steep confined channel delivers sedim upstream of crossing, where Wandering Cobbles and gravels Yes Low High Medium Foot bridge Fixing bank location Possible straightening upstream Plane bed Cobbles and gravels Yes Low High Medium Foot bridge Fixing bank location Possible straightening upstream Plane bed Cobbles and gravels 16.42 Yes Low High Medium None Wandering Cobbles and gravels Yes Medium None Wandering Cobbles and gravels Yes Medium Yes Medium Yes Channel straightened downstream steep gradient channels and deposited of the channel's lateral mobility. This in turn of create pinch points where the channel as needed to be dredged and placed eith cook place during deglaciation in the earl hest brrough the alluvial fan. Consideration	slopes High sediment supply potential to crossing Potential for floating debris blocking crossing Potential for floating debris blocking crossing coupled hillslope failure and valley side upper catchment ent to lower gradient area (alluvial fan) deposition forming bars occurs Extensive coarse sediment available Within confines of terraces Within confines of terraces NMU route and structure of unknown purpose (possibly containing utilities) Fixes bank position. Restricts passage of sediment, particularly the 'unknown' structure (evidence in aerial photos for some dredging of channel u/s of this structure). where slope reduces on a major alluvial fan anaks are more or less fixed and passage er side of the channel to maintain flow 'Holocene, but there is relatively recent in needs to be given to the risk of flow



Deposition under bridge

Deposition





Photograph 11.4.3.89 -Steep catchment upstream



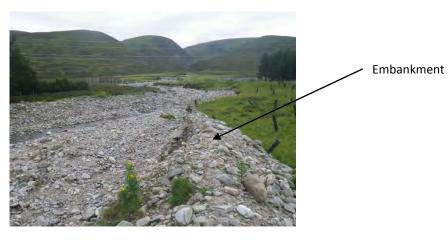
Photograph 11.4.3.88- Erosion of right bank



Photograph 11.4.3.90- Unknown structure crossing downstream



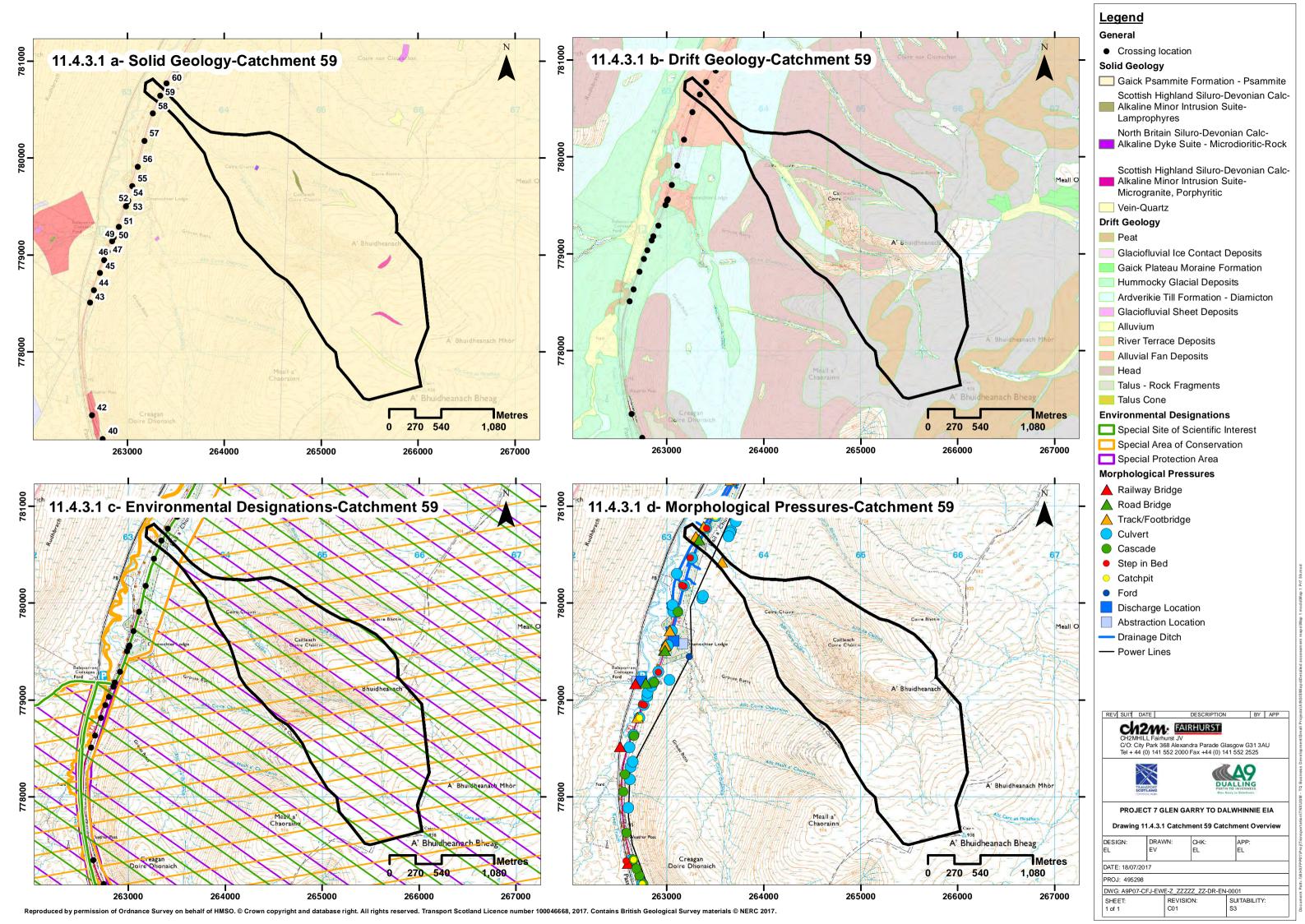
Photograph 11.4.3.91- Downstream to crossing

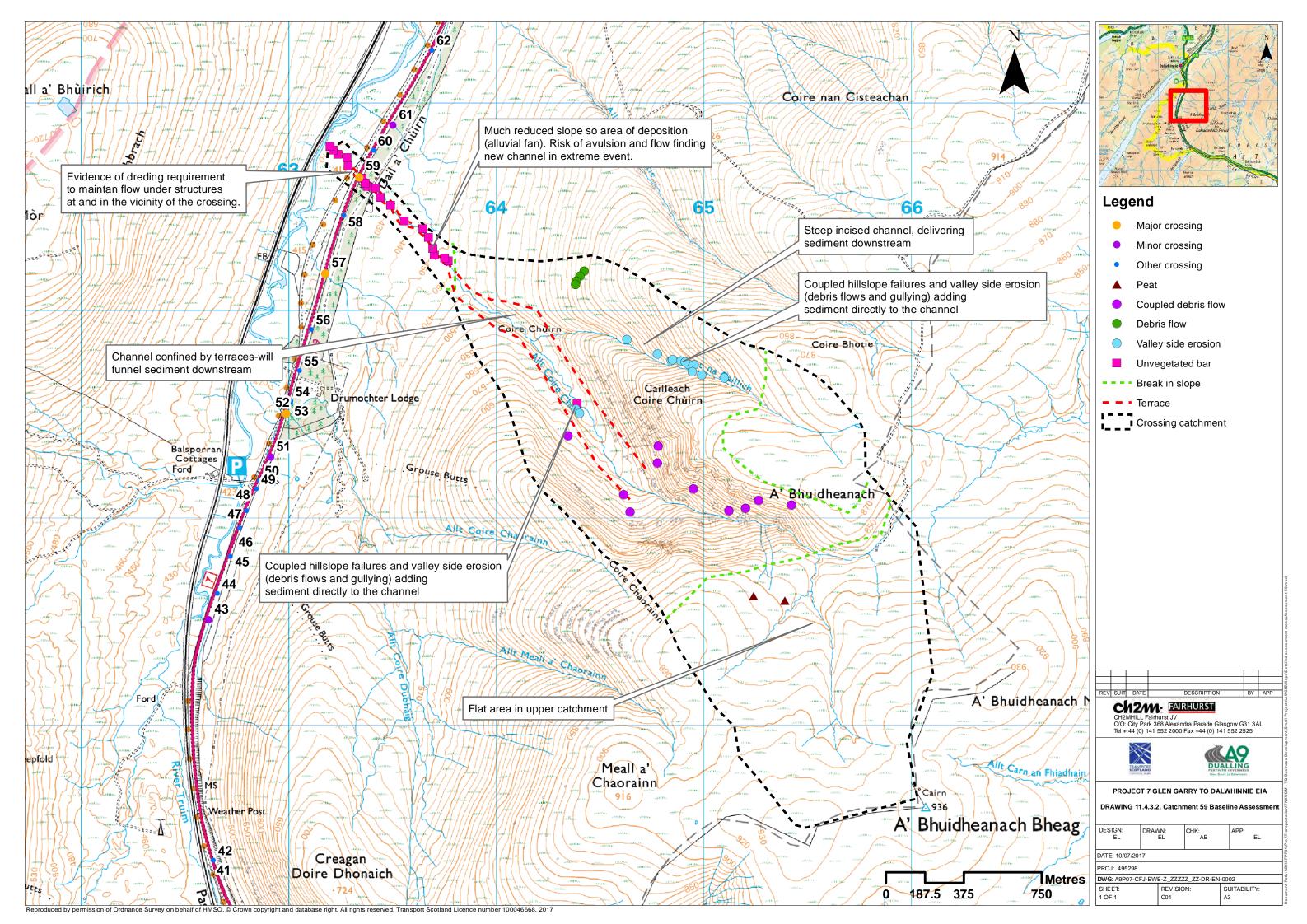


Photograph 11.4.3.93- Deposition upstream of crossing

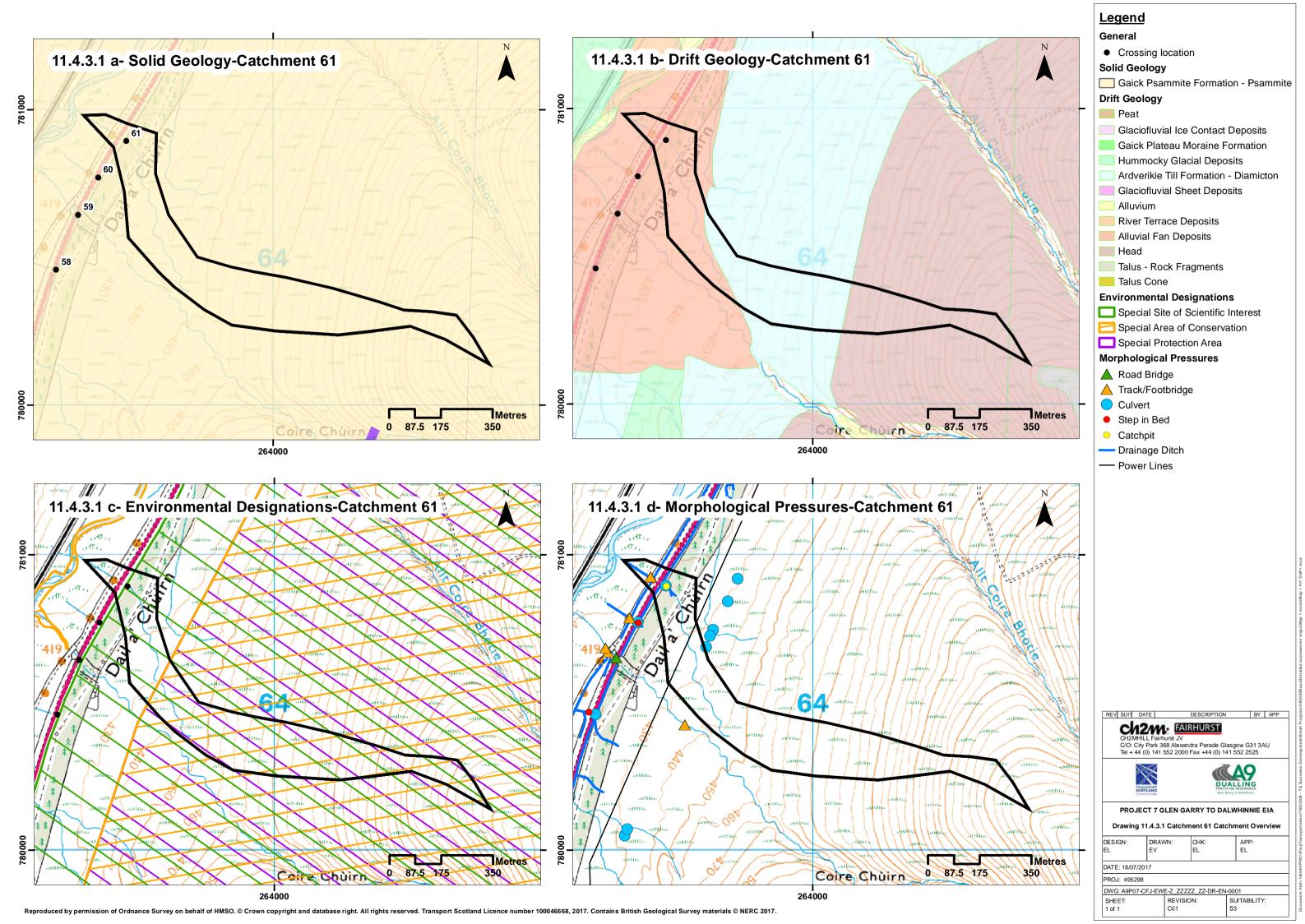


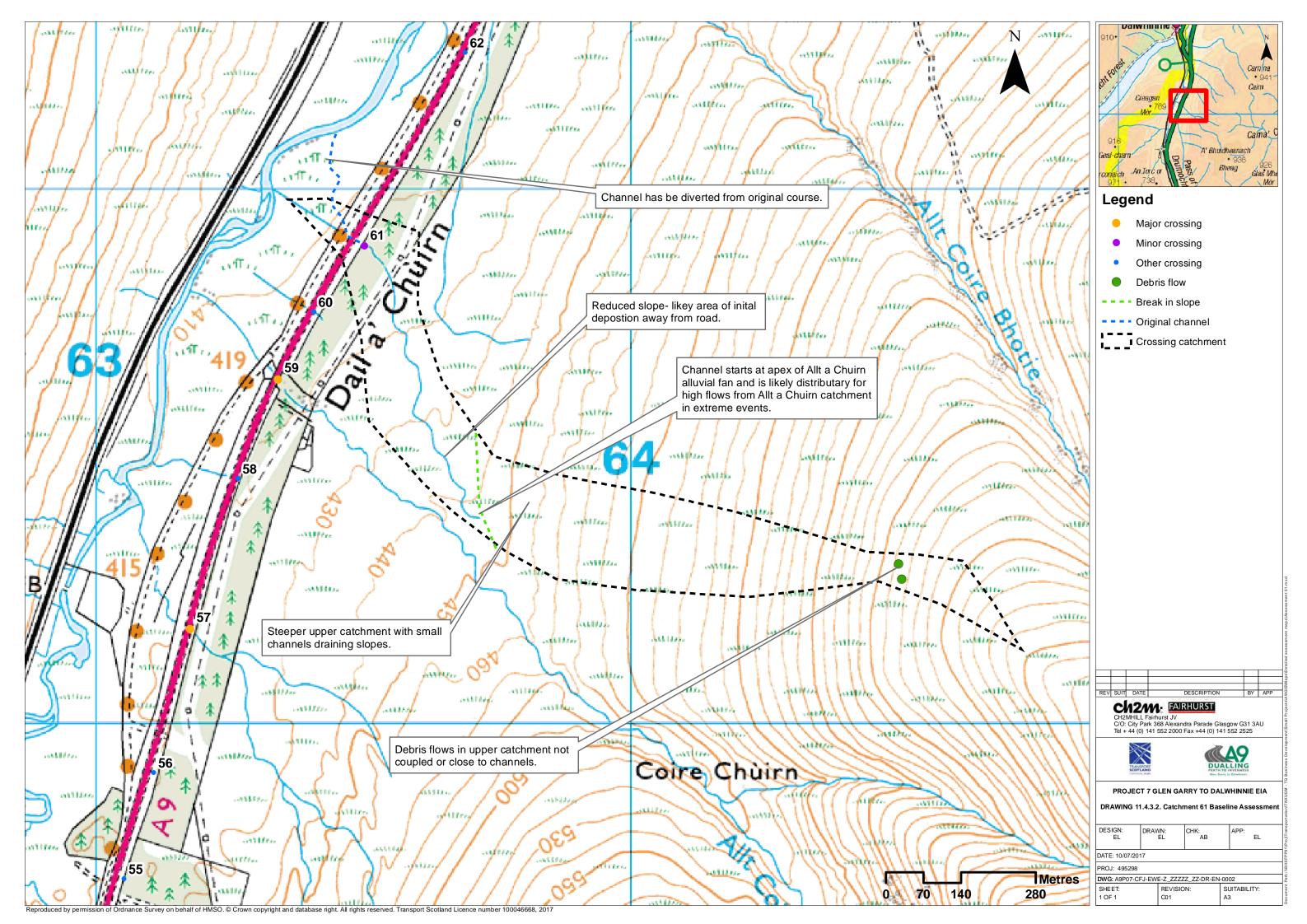
Photograph 11.4.3.92- Bed sediment (Cobbles and boulders)



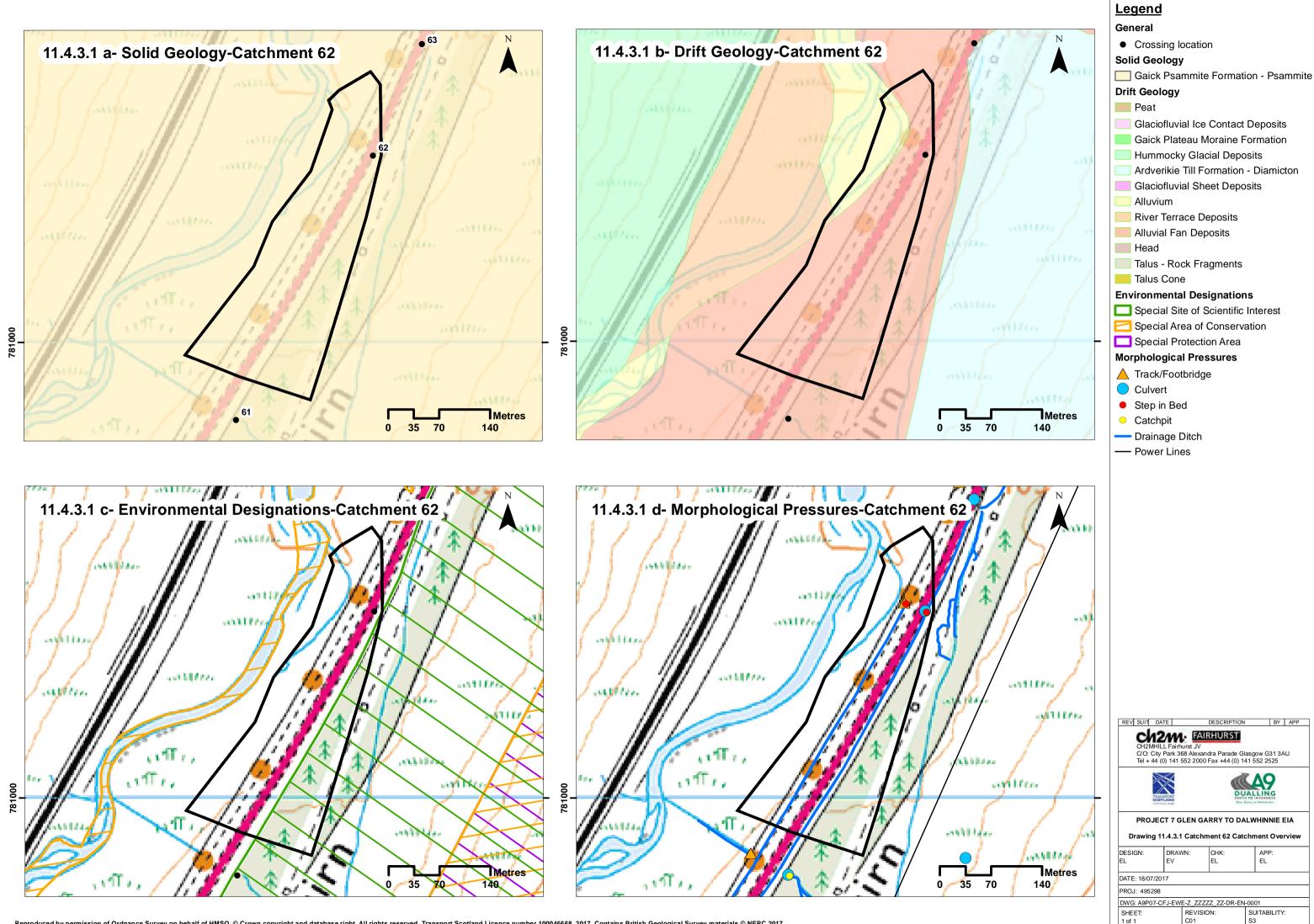


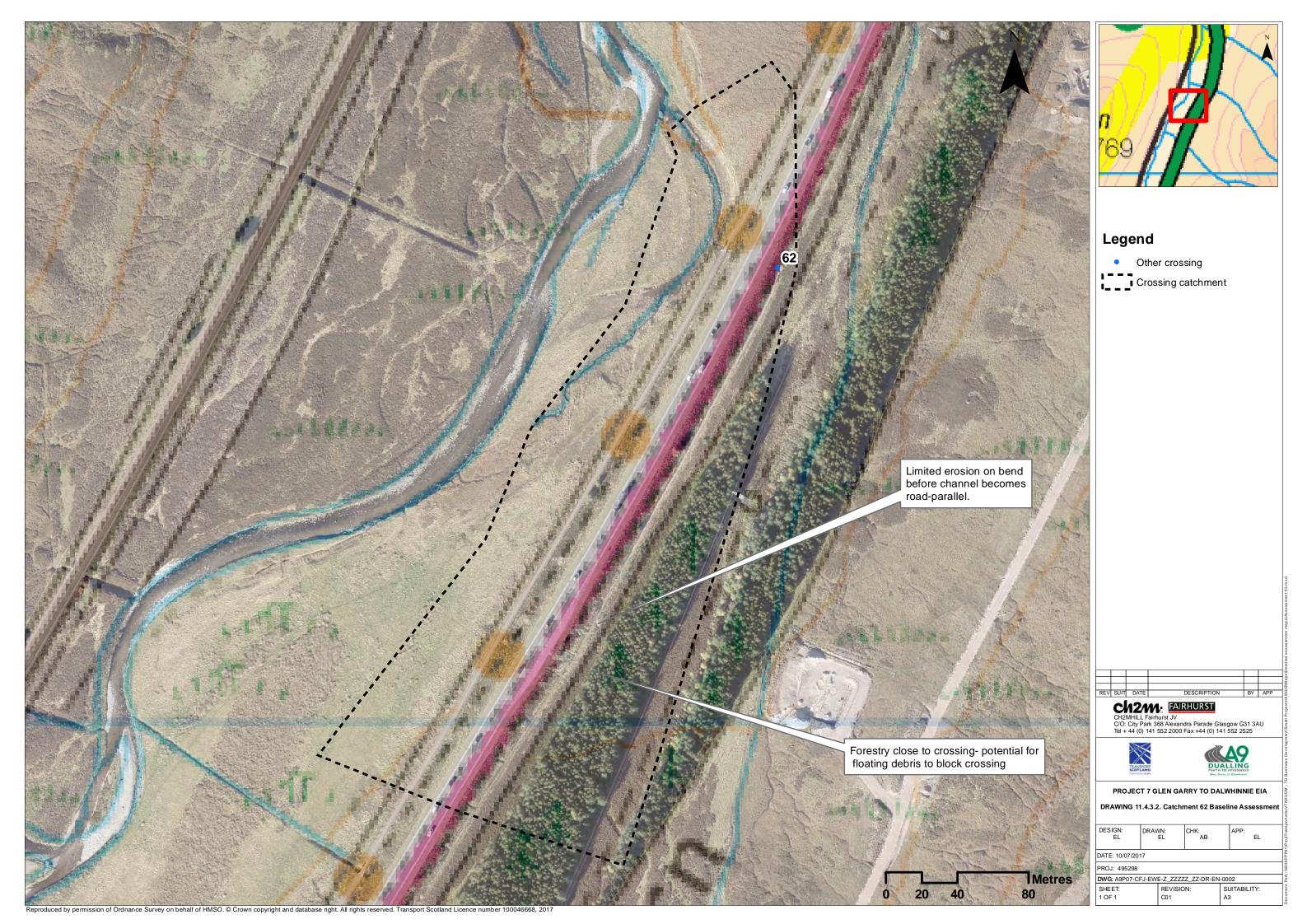
	Annex 11.4.3 - Hydromorphological C	atchment Assessment - 61	
Catchment No.	61		
Catchment Name	-		
	Nature of water course	Na	tural
Channel Nature	Size of water course	М	inor
Quantitative	Catchment Area (km²) Average slope in catchment (°)		1.2 10
Spatial Elements	% Catchment over 750m (for snow melt risk)		0
	Make flavor and levels		ood
WFD classification	Water, flows and levels Physical condition		ood
	Overall ecological status	G	ood
	Addition to Design to Control of the	Gaick Psammite formation-Psammite	
	Majority Bedrock (see Drawing 11.4.3.1 a and b Catchment 61)	Gaick Esammite formation-Esammite	Resistant to weathering, impermeable
Geology			Channel is effectively either high flow
	Is an alluvial fan present at or near the crossing?	Yes	distributary or former course of the Allt a Chùirn (probably the former) which
			diverges from the main channel at the
			alluvial fan apex
	Ramsar	No	
		River Spey	Atlantic salmon, freshwater pearl
			mussel, otter, sea lamprey
			Acidic scree, alpine and subalpine
	SAC		heaths, blanket bog, dry heaths, monntane acid grasslands, mountain
Environmental	SAC	Drumochter Hills	willow scrub, plants in crevices on acid
designations (see Drawing 11.4.3.1 c,			rocks, species-rich grassland with mat- grass in upland areas, tall herb
Catchment 61)			communities, wet heathland with cross-
			leaved
	SPA	Drumochter Hills	Dotterel breeding, merlin breeding
	SSSI	Drumochter Hills	Breeding bird assemblage, fluvial geomorphology of Scotland, montane
			assemblage, vascular plant assemblage
	Changes in slope and channel confinement Is peat present in the catchment?	See Drawing 11.4 None	.3.2, Catchment 61
	Is there a bog burst risk?	None	
	Current valley side or terrace erosion Potential valley side or terrace erosion	None None	
	Hill slope failures (including peat slides and debris flows and slides)	Yes	
	Hill slope failures coupled to channel Vertical incision present in catchment	None None	
Sediment source and supply -	Bank erosion/lateral migration	None	
Catchment Scale	Unvegetated bars	None	Chance of floating debris reaching
	Wooded/forested areas in catchment	Yes	crossing
	Infrastructure type (see Drawing 11.4.3.1 d, Catchment 61)	None Sediment is available within the catchin	ent but its not coupled with the channel,
	Comment on sediment source potential in catchment	slowing the speed to sedim	ent delivery to the crossing.
	Comment on sediment supply potential to crossing		channel is steep so will move sediment channel will receive flow and sediment
	Comment on scument supply potential to crossing		tchment at high flows
	Channel morphology	Plane bed	
	Predominant sediment size	None	
Morphology and	Unvegetated bars Vertical incision	No None	
Process- Reach upstream of	Deposition	None	
crossing	Lateral migration/bank erosion	None None	
	Infrastructure type (see Drawing 11.4.3.1 d, Catchment 61) Impact of infrastructure	None	
	Channel realignment	Yes	Local
	Channel morphology	Engineered	
	Predominant sediment size	N/A	Need to consider channel 62 acting as a
	Estimated discharge at 1:200 event (m³/s)	0.94	high flow distributary channel for the
Morphology and Process- At	Estimated discharge at 1:200 event (m /s)	0.54	Allt a Chùirn and therefore higher flow volumes and sediment
crossing	Unvegetated bars	None	volumes and sediment
	Vertical incision Deposition	None None	
	Lateral migration/bank erosion	None	
	Damaged/unstable drains or armouring	None	
	Channel morphology	Plane bed	
	Predominant sediment size Unvegetated bars	None visible None	
Morphology and	Vertical incision	Low	Signs of some vertical incision, probably
Process- Reach downstream of	Deposition Deposition	None	related to straightening.
crossing	Lateral migration/bank erosion	Low	
	Infrastructure type (see Drawing 11.4.3.1 d, Catchment 61) Impact of infrastructure	None None	
	Channel realignment	Yes	Straightening
			•
	Signs of some vertical incision, probably related to straightening downstrea the apex of the Allt a Chùirn alluvial fan making it highly probably that ir		
Summary	the apex of the Allt a Chuirn alluvial fan making it highly probably that ii (crossing 59) catchment. The morphological evidence (clearly visible ch		
behaviour	indicate it may have been active as such relatively recently. As such a cro	ssing to accommodate higher discharges ent 61 are advisable.	than might be suggested based on the
	Size Of Catchini	circ of are advisable.	
1	ii		





Ramsar Ramsar Ramsar Ro River Spey Atlantic salmon, freshwater pearl mussel, otter, sea lamprey Acidic scree, alpine and subalpine heaths, blanket bog, dry heaths, monntane acid grasslands, mountai willow scrub, plants in crevices on at rocks, species-rich grassland with me grass in upland areas, tall herb communities, wet heathland with cn leaved SPA Drumochter Hills Drumochter Hills Dotterel breeding, merlin breeding, serving breeding breeding breeding breeding breeding geomorphology of Scotland, montan	1		1	
Counted Table Counted Counted Counted Counted Counted		62		
Quantitation Quan	catchment Name	· · · · · · · · · · · · · · · · · · ·	I	
Size of visited courses Other		Nature of water course	Di	rain
Section of Control o	Channel Nature	Size of water course	01	ther
Section of Control o		l	<u> </u>	
Section Content of the Part of	Quantitativo	Catchment Area (km²)	0	.05
Scathment over 750m few rows met risk		Average slope in catchment (°)		
WPO descriptions of the present and the present and or near the crossing? Majority Bedrock (see Drawing 11.4.3.1 a and b Catchment 62) Is an allowal fine present at or near the crossing? Majority Bedrock (see Drawing 11.4.3.1 a and b Catchment 62) Is an allowal fine present at or near the crossing? Pee Catchment is on nonthern edge of All Oliun catchment allowal fan. Majority Bedrock (see Drawing 11.4.3.1 a and b Catchment 62) All and the present at or near the crossing? Majority Bedrock (see Drawing 11.4.3.1 a and b Catchment 62) All and the present and the present at or near the crossing? Majority Bedrock (see Drawing 11.4.3.1 a and b Catchment 62) All and the present and the present at or near the crossing? Majority Bedrock (see Drawing 11.4.3.1 a and b Catchment 62) All and the present and the present at or near the crossing? Majority Bedrock (see Drawing 11.4.3.1 a and b Catchment 62) SAC Drumochter Hills Mills with the passind with the present and the p	.,	% Catchment over 750m (for snow melt risk)		0
WED Castolination Majority Sections (See Drawing 11.4.3.1 a and D Catchment 62) San allowed fine present at or near the crossing? Environmental Conference of the Conferenc		Water flows and levels	Good	
Geology Majority Redrock (see Drawing 11.4.3.1 a and b Catchment G2) San allurial fan present at or near the crossing? Particle of the comment of the comment of the crossing of the comment of the co	WFD classification			
Cardioment along the continued of the				
an alluvial fan present at or near the crossing? Pamisar Pamisar River Spry Adlantic salmon, freshwater pearl musel, offer, see lamprey Adlantic salmon, freshwater pearl musel, offer see lamb, see least, pearl salmon,			-	T
Carbon C		Majority Bedrock (see Drawing 11.4.3.1 a and b Catchment 62)	Gaick Psammite formation-Psammite	Resistant to weathering, impermeable
Familiar No	Geology	, , , , , , , , , , , , , , , , , , ,		
Pammar		Is an alluvial fan present at or near the crossing?	Yes	Catchment is on northern edge of Allt a
Environmental designations (see Drawing 11.4.3.1 c. Catchment 62) SAC Drumochter Hills Dru				Chùirn catchment alluvial fan.
Environmental designations (see Drawing 11.4.1.5 C Actohment 62) ACC Drumochter Hills Drumochter Hi		Damear	No	1
Environmental designations (see Drawing 11.4.3.1.6, Catchment 62) 5AC Drumochter Hills Drumochter Hills willow zero, place health, balancher correction at willow zero, place to depression of the particular communities, and consistent of the particular communities, and communit		Rdilisdi		Adamsia adamsa faraharan adam
Environmental designations (see Drawing 1.1.4.3.1.5. C actionness (5.2) From the Common of Comm			inter spey	
Environmental designations (see Drawing 11.4.3.1.5, Catchment 62) From Wing 11.4.3.1.5, Catchment 62 From Wing 11.4.3.1.5, Catch				musser, otter, sea lamprey
Section Sect				Acidic scree, alpine and subalpine
Drumochter Hills Drumochter Hills Willow scrub, plants in crokers on a rocks, specific grassland with the grass in upland areas, tall herb communication (leaved Drumochter Hills Dottered breeding, merin breeding grass in upland areas, tall herb communication (leaved Drumochter Hills Dottered breeding, merin breeding green probability of the property				heaths, blanket bog, dry heaths,
designations (see Drawing 11.4.3.1, C Catchment 62) SPA Drumochter Hills	Environmental	SAC	Drumochter Hills	monntane acid grasslands , mountain
Cetchment 62) SPA Drumochter Hills Dottered breeding, merin breeding, receing bird assemblage, Nuscular plant assemblage, vascular plant assemblage, vasc			5. amounter (IIII)	
Communities, we health and with or texace SPA				
SPA Drumochter Hills Dottered breeding, meritin breeding Berceding bir dassemblage, fluvial Brown of the state Brown of the	Catchment 62)			communities, wet heathland with cross-
Changes in slope and channel confinement See Drawing 11.4.3.2, Catchment 62				
Changes in stope and channel confinement See Drawing 11.4.3.2, Catchment 62		SPA	Drumochter Hills	Dotterel breeding, merlin breeding
Changes in slope and channel confinement Is pest present in the catchment? See Drawing 11.4.3.2, Catchment 62 Is pest present in the catchment? None Is there a bog burst risk? Current valley add or terrace erosion None Protential valley agd or terrace erosion None Hill slope failures (including peat slides and debris flows and slides) None Wettral incision present in catchment None Sediment source and supply- Bank erosion/harder alingvation None Sediment source and supply- Bank erosion/harder alingvation None Catchment Scale Unregetated bars Wooded/forceard aross in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Comment on sediment source potential in catchment Ocomment on sediment source potential in catchment Comment on sediment supply potential to crossing Morphology and Process-Reach Unregetated bars Comment on sediment supply potential to crossing Low slope so slow transfer of sediment downstream Comment on sediment supply potential to crossing Low slope so slow transfer of sediment downstream Comment on sediment supply potential to crossing Low slope so slow transfer of sediment downstream Comment on sediment size Unregetated bars None Comment on sediment size Comment on sediment size Unregetated bars None Comment on sediment size Comment on sediment size Unregetated bars None Comment on sediment size Comment on sediment size Unregetated bars None Comment on sediment size Unr				Breeding bird assemblage, fluvial
Changes in slope and channel confinement See Drawing 11.4.3.2, Catchment 62		SSSI	Drumochter Hills	geomorphology of Scotland, montane
Is peat present in the catchment? Is there a bog bustrisk? Is there a bog bustrisk? Sediment source proteins a valley side or terrace erosion Hill slope failures (including peat sides and debris flows and sildes) Hill slope failures (coupled to channe) Potential valley side or terrace erosion None Hill slope failures (coupled to channe) Vertical incision present in catchment And supply- Catchment Scale Ash Revision/Hatel an ingration Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Wortcal incision Deposition Lateral migration/hank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Channel morphology and predominant sediment size Wortcal incision Deposition Lateral migration/hank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Channel morphology and predominant sediment size Wortcal incision None Channel morphology and process- Act crossing Channel morphology Predominant sediment size Morphology and process- Reach downstream Morphology and process- Reach downstream Morphology and process Reach downstream of crossing Channel morphology Predominant sediment size Morphology and process Reach downstream of crossing Channel morphology Predominant sediment size Morphology and process Reach downstream of crossing Channel morphology Predominant sediment size Morphology and process Reach downstream of crossing Channel morphology Predominant sediment size Morphology and process Reach downstream of crossing Channel morphology Predomin				assemblage, vascular plant assemblage
Is peat present in the catchment? Is there a bog bustrisk? Is there a bog bustrisk? Sediment source proteins a valley side or terrace erosion Hill slope failures (including peat sides and debris flows and sildes) Hill slope failures (coupled to channe) Potential valley side or terrace erosion None Hill slope failures (coupled to channe) Vertical incision present in catchment And supply- Catchment Scale Ash Revision/Hatel an ingration Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Wortcal incision Deposition Lateral migration/hank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Channel morphology and predominant sediment size Wortcal incision Deposition Lateral migration/hank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Channel morphology and predominant sediment size Wortcal incision None Channel morphology and process- Act crossing Channel morphology Predominant sediment size Morphology and process- Reach downstream Morphology and process- Reach downstream Morphology and process Reach downstream of crossing Channel morphology Predominant sediment size Morphology and process Reach downstream of crossing Channel morphology Predominant sediment size Morphology and process Reach downstream of crossing Channel morphology Predominant sediment size Morphology and process Reach downstream of crossing Channel morphology Predominant sediment size Morphology and process Reach downstream of crossing Channel morphology Predomin				
Is there a bog burst risk? None				.3.2, Catchment 62
Current valley side or terrace erosion None				
Potential valley side or terrace erosion None				
Hill slope failures coupled to channel None Vertical incision present in catchment None West county of the property		Potential valley side or terrace erosion		
Sediment source And Supply Catchment Sank erosion/lateral migration/bank erosion Comment on sediment supply potential to crossing Channel morphology and Process-Reath crossing Channel morphology Channel				
and supply Cathment Scale Lowegetated bars Wooded/forested areas in catchment Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) Comment on sediment supre potential in catchment Comment on sediment supply potential to crossing Comment on sediment supply potential to crossing Channel morphology and Process-Reach upstream of crossing Channel morphology Predominant sediment size Unvegetated bars Morphology and Process-Reach upstream of crossing Channel morphology Predominant sediment size Unvegetated bars Morphology and Process-Reach upstream of crossing Channel morphology Predominant sediment size Unvegetated bars Morphology and Process-At crossing Channel morphology Predominant sediment size Unvegetated bars Morphology and Process-At crossing Channel morphology Predominant sediment size Unvegetated bars Morphology and Process-Reach upstream of crossing Channel morphology Predominant sediment size Unvegetated bars Morphology and Process-Reach upstream of crossing Channel morphology Predominant sediment size Unvegetated bars Morphology and Process-Reach upstream of crossing Channel morphology Predominant sediment size Unvegetated bars Morphology and Process-Reach upstream of crossing Channel morphology Predominant sediment size Unvegetated bars None None Channel morphology Predominant sediment size Unvegetated bars None None Channel morphology Predominant sediment size Unvegetated bars None Non	Sodimont sauss			
Catchment Scale Unvegetated bars None				
Wooded/forested areas in catchment Yes Potential for floating debris Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None No direct sediment supply to channel, yet drain has an apparently natural by Some of this may have arisen from erosion where channel bends to become road-parallel but more in which the drain cut. Comment on sediment supply potential to crossing Low slope so slow transfer of sediment downstream Comment on sediment supply potential to crossing Low slope so slow transfer of sediment downstream Predominant sediment size Gravel Wertical incision None Predominant sediment size Gravel Wertical incision None Deposition Low Deposition Lateral migration/bank erosion None Deposition Lateral migration/bank erosion None Deposition Low Design flow 0.25 m²/s Predominant sediment size Gravel None Deposition None				
Comment on sediment source potential in catchment Comment on sediment source potential in catchment Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Channel morphology Plane bed Process-Reach upstream of crossing Channel morphology Process-Reach upstream of crossing Channel morphology Process-Reach upstream of crossing Channel morphology Morphology and Process-Reach downstream of crossing Channel morphology Process-Reach downstream of crossing Channel morphology Channel morphology Process-Reach downstream of crossing Channel morphology Channel morphology Process-Reach downstream of crossing None Non				Potential for floating debris
Comment on sediment source potential in catchment Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Comment on sediment supply potential to crossing Low slope so slow transfer of sediment downstream Low slope so slow transfer of sediment downstream Low slope so slow transfer of sediment downstream Channel morphology Predominant sediment size Unvegetated bars No Predominant sediment size Unvegetated bars No Deposition Low Low Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) Low Lateral migration/bank erosion Damaged/unstable drains or armouring Channel morphology Morphology and Process- At crossing Morphology and Process- Reach downstream of crossing Channel morphology Predominant sediment size Estimated discharge at 1:200 event (m³/s) N/A Design flow 0.25 m³/s Wertical incision Damaged/unstable drains or armouring None Channel morphology Predominant sediment size Gravel Low Unvegetated bars Vertical incision Damaged/unstable drains or armouring None Channel morphology Plane bed Predominant sediment size Gravel Unvegetated bars Vertical incision None Channel morphology Plane bed Predominant sediment size Gravel Low Low Lateral migration/bank erosion Deposition Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Channel morphology Plane bed Predominant sediment size Gravel Unvegetated bars None Channel morphology Plane bed Predominant sediment size None Channel morphology Plane bed Predominant sediment size None Channel morphology Plane bed None Channel morphology Plane bed Predominant sediment size None Channel morphology Plane bed Predominant sediment size None Channel morphology and predominant sediment size None Channel morphol		Intrastructure type (see Drawing 11.4.3.1 d, Catchment 62)		vet drain has an apparently natural had
Comment on sediment source potential in catchment Comment on sediment supply potential to crossing Comment on sediment supply potential to crossing Comment on sediment supply potential to crossing Channel morphology Predominant sediment size Channel morphology Predominant sediment size Coravel Unvegetated bars Vertical incision Deposition Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Channel morphology Predominant sediment size Crossing Channel morphology Predominant sediment size Channel morphology Predominant sediment size Crossing Channel morphology Predominant sediment size Channel morphology Predominant sediment size Channel morphology Predominant sediment size Crossing Channel morphology Predominant sediment size Channel morphology Predominant sediment size Crossing Channel morphology Predominant sediment size None Channel morphology				
Comment on sediment supply potential to crossing Low slope so slow transfer of sediment downstream		Comment on sediment source potential in catchment		
Channel morphology				
Morphology and Process-Reach Unegetated bars No Deposition Low Learn Impact of infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Deposition Low Learn Impact of infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Deposition Low Deposition Low Deposition Low Deposition Low Deposition Low Deposition		Comment on sediment supply potential to crossing	Low slope so slow transfe	er ot sediment downstream
Morphology and Process-Reach Unegetated bars No Deposition Low Learn imgration/bank erosion Low Learn imgration/bank erosion Low Deposition Low Learn imgration/bank erosion Low Deposition Learn imgration/bank erosion None Deposition Learn imgration/bank erosion None Deposition		Channel morphology	Plane bed	
Morphology and Process-Reach upstream of crossing Unregetated bars Vertical incision None Vertical incision None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Infrastructure				
Process-Reach upstream of crossing Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) Morphology and Process-At crossing Morphology and Process-At crossing Morphology and Process-At crossing Morphology and Process-Reach downstream of crossing and process and channel seal cross and channel cannot be identified on OS mapping or aeric imagery. Some of this sediment supply to channel, yet drain has a seemingly natural bed. Sediment source and channel cannot be identified on OS mapping or aeric imagery. Some of this sediment may have arisen from erosion where the channel bends to become road-parallel but more likely just the alluvial fan mater imagery. Some of this sediment may have arisen from erosion where the channel bends to become road-parallel but more likely just the alluvial fan mater imagery. Some of this sediment may have arisen from erosion where the channel bends to become road-parallel but more likely just the alluvial fan mater imagery.	Morphology and	Unvegetated bars	No	
Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Morphology and Process- At crossing Morphology At Channel morphology Predominant sediment size Unvegetated bars Vertical incision Damaged/unstable drains or armouring Mone Channel morphology Predominant sediment size Unvegetated bars Vertical incision Domoe Unvegetated bars Vertical incision Domoe Unvegetated bars None Mone Mone Morphology Predominant sediment size Unvegetated bars None Mone Morphology Predominant sediment size None None None None Morphology Predominant sediment size None None Morphology Predominant sediment size None Morpho				
Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) Impact of infrastructure Channel morphology Morphology and Process- At crossing Morphology and Process- Reach downstrean of crossing None Channel morphology Predominant sediment size Morphology and Process- Reach downstrean of crossing None Channel morphology Predominant sediment size Morphology and Process- Reach downstrean of crossing None Channel morphology Predominant sediment size Morphology and Process- Reach downstrean of crossing None Channel morphology Predominant sediment size Morphology and Process- Reach downstrean of crossing None Channel morphology Predominant sediment size Morphology and Process- Reach downstrean of crossing None Channel morphology Plane bed Predominant sediment size None Channel morphology Plan				
Impact of infrastructure	crossing			
Channel morphology		Impact of infrastructure	None	
Morphology and Process- At crossing Morphology and Process- At crossing Morphology and Process- At crossing Morphology and Process- Reach downstream of Crossing and Process- Reach downstream of Crossing Morphology and Process- Reach downstream of Crossing and Process- Reach dow		Channel realignment	None	
Morphology and Process- At crossing Morphology and Process- At crossing Morphology and Process- At crossing Morphology and Process- Reach downstream of Crossing and Process- Reach downstream of Crossing Morphology and Process- Reach downstream of Crossing and Process- Reach dow		Channel morphology	Engineered	
Estimated discharge at 1:200 event (m³/s) N/A Design flow 0.25 m³/s				
Process- At crossing Process- At crossing Morphology and Process- Reach downstream of crossing Summary Summary Sheakafur. None description None None None None None None None No	Morphologyard			Design flow 0.25 m ³ /s
Vertical incision None Deposition None Lateral migration/bank erosion None Damaged/unstable drains or armouring None Morphology and Process-Reach downstream of crossing Channel morphology Plane bed Predominant sediment size Gravel Unvegetated bars None Vertical incision None Deposition Low Low Lateral migration/bank erosion Low Low Lateral migration/bank erosion None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Impact of infrastructure None Channel realignment None No direct sediment supply to channel, yet drain has a seemingly natural bed. Sediment source and channel cannot be identified on OS mapping or aerial magery. Some of this sediment may have arisen from erosion where the channel bends to become road-parallel but more likely just the alluvial fan material magery. Some of this sediment may have arisen from erosion where the channel bends to become road-parallel but more likely just the alluvial fan material magery.		Unvegetated bars	None	
Lateral migration/bank erosion None				
Damaged/unstable drains or armouring None	-			
Channel morphology				
Morphology and Process- Reach downstream of crossing Crossing Summary Summary Summary Summary Shebakour None Predominant sediment size Unvegetated bars None None None Low Low Low None None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Impact of infrastructure Channel realignment No direct sediment supply to channel, yet drain has a seemingly natural bed. Sediment source and channel cannot be identified on OS mapping or aeria imagery. Some of this sediment may have arisen from erosion where the channel bends to become road-parallel but more likely just the alluvial fan mate			L	
Unvegetated bars				
Vertical incision Deposition Depositio				
Deposition Dep				
Lateral migration/bank erosion None Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Impact of infrastructure type (see Drawing 11.4.3.1 d, Catchment 62) None Impact of infrastructure Impact of infrastructure None Impact of infrastructure Impact of infras				
Infrastructure type (see Drawing 11.4, 3.1 d, Catchment 62) Impact of infrastructure None Channel realignment No direct sediment supply to channel, yet drain has a seemingly natural bed. Sediment source and channel cannot be identified on OS mapping or aeris imagery. Some of this sediment may have arisen from erosion where the channel bends to become road-parallel but more likely just the alluvial fan mate		Lateral migration/bank erosion	None	
Channel realignment None No direct sediment supply to channel, yet drain has a seemingly natural bed. Sediment source and channel cannot be identified on OS mapping or aeris imagery. Some of this sediment may have arisen from erosion where the channel bends to become road-parallel but more likely just the alluvial fan mate	crossing	Infrastructure type (see Drawing 11.4.3.1 d, Catchment 62)		
Summary Summary Phehaviour Some of this sediment may have arisen from erosion where the channel bends to become road-parallel but more likely just the alluvial fan mate				
Summary hebautour hebautour hebautour		one realignment	I HOME	1
Summary hebautour hebautour hebautour				
hebayiour imagery. Some of this sediment may have arisen from erosion where the channel bends to become road-parallel but more likely just the alluvial fan mate	Summary			
INO WHICH the drain is CUL	•			it more likely just the alluvial fan material
		into winci	. cc c. ann is cut.	





	T	atchment Assessment - 63	
Catchment No. Catchment Name	63		
Catcillient Name	-		
Channel Nature	Nature of water course	Na	tural
Chainlei Nature	Size of water course	M	inor
	. 2.	T	
Quantitative	Catchment Area (km²) Average slope in catchment (°)).7 12
Spatial Elements	% Catchment over 750m (for snow melt risk)		0
	Market flavor and levels		ood
WFD classification	Water, flows and levels Physical condition		ood
	Overall ecological status		ood
			I
	Majority Bedrock (see Drawing 11.4.3.1 a and b Catchment 63)	Gaick Psammite formation-Psammite	Resistant to weathering, impermeable
Caalami			Near the point where the alluvial fans
Geology	Is an alluvial fan present at or near the crossing?	Yes	from Allt Coire a Chùirn and Allt Coire Bhotie coalesce. Due to topography, risk of avulsion from either of these
			two major channels low.
			-
	Ramsar	No	
		River Spey	Atlantic salmon, freshwater pearl mussel, otter, sea lamprey
Environmental designations (see Drawing 11.4.3.1 c, Catchment 63)	SAC	Drumochter Hills	Acidic scree, alpine and subalpine heaths, blanket bog, dry heaths, monntane acid grasslands , mountain willow scrub, plants in crevices on acid rocks, species-rich grassland with matgrass in upland areas, tall herb communities, wet heathland with cross leaved
	SPA	Drumochter Hills	Dotterel breeding, merlin breeding
	SSSI	Drumochter Hills	Breeding bird assemblage, fluvial geomorphology of Scotland, montane assemblage, vascular plant assemblage
	Changes in slope and channel confinement Is peat present in the catchment?	See Drawing 11.4 None	.3.2, Catchment 63
	Is there a bog burst risk?	None	
	Current valley side or terrace erosion	None	
	Potential valley side or terrace erosion Hill slope failures (including peat slides and debris flows and slides)	None Yes	
	Hill slope failures coupled to channel	None	
Sediment source	Vertical incision present in catchment	None	
and supply -	Bank erosion/lateral migration Unvegetated bars	None None	
Catchment Scale	Wooded/forested areas in catchment	Yes	Change of floating debris to execute
			Chance of floating debris to crossing
	Infrastructure type (see Drawing 11.4.3.1 d, Catchment 63)	None Sediment is available within the catchin	lent but its not coupled with the channel
	Comment on sediment source potential in catchment	slowing the speed to sedin	nent delivery to the crossing I, channel is not very steep so will move
	Comment on sediment supply potential to crossing		nt slowly
	Channel morphology	Plane bed	
	Predominant sediment size Unvegetated bars	Cobbles and gravels None	
Morphology and Process- Reach	Vertical incision	None	
upstream of	Deposition	None	
crossing	Lateral migration/bank erosion Infrastructure type (see Drawing 11.4.3.1 d, Catchment 63)	None None	
	Impact of infrastructure	None	
	Channel realignment	Yes	
	Channel morphology Predominant sediment size	Engineered None	
	Estimated discharge at 1:200 event (m³/s)	6.93	This might be from combined 63 and 64 catchments.
Morphology and	Unvegetated bars	None	caccimicino.
Process- At crossing	Vertical incision	None	
	Deposition Lateral migration/bank erosion	None None	
	Damaged/unstable drains or armouring	Some damage to bed protection at downstream end	
	Channel morphology	Plane bed	
	Predominant sediment size	Cobbles and gravels	
Morphology and	Unvegetated bars	Yes	
Process- Reach	Vertical incision Deposition	High Medium	Downstream of confluence with 64 Downstream of confluence with 64
downstream of crossing	Lateral migration/bank erosion	Low	Downstream of confluence with 64
Crossing	Infrastructure type (see Drawing 11.4.3.1 d, Catchment 63)	None	
	Impact of infrastructure Channel realignment	None None	
Summary behaviour	Channel has been realigned u/s of the road, but channel length remain:		ivity. Issues identified downstream of



Photograph 11.4.3.94- Upstream to pipe



Photograph 11.4.3.96- Upstream of crossing, confined channel



Photograph 11.4.3.95- Downstream to confluence with crossing 64, failing channel banks

