



Section A: WFD Assessment Surface Water Impact

Grid Reference	A1: 222656, 342275				
	A2: 222626, 342219				
	B1: 222600, 342155			A A A A A A A A A A A A A A A A A A A	
	C1: 222671, 342277				
	D1: 222727, 342417		선		
	F1: 223575, 342357		gra		
Chainage/ Map Ref	N/A		ğ		The state of the s
Waterbody Name	River Sillees (Drumke	een)	물		
WFD Waterbody ID	UKGBNI1NW3636010		Site Photograph		V " many the state of the state
Designations (within 1km of compone					
WED Status (Obi 2021/2027)	Poor (Cood/Cood)		Aerial View		
WFD Status (Obj 2021/2027)	Poor (Good/Good)		<u>.</u> <u>.</u>		
FFD Class. (Salmonid/ Cyprinid	Salmonid		Aer		
Abstractions in Vicinity	None				
WFD Element	Current Status	Assessed Post Works Status			
Benthic Invertebrates	Good	Good			
Macrophytes	Good	Good			
Phytobenthos	Good	Good			
Fish	Poor	Poor	hd		
Biochemical oxygen demand	High	High	Site Photograph		
Temperature	High	High	o to		
Dissolved oxygen	Good	Good	풑		
pH	High	High	ite		
Soluble Reactive Phosphorus	Good	Good	S		
Specific pollutants	Good	Good			
Hydrological regime	High	High			
	Good	Good			
Morphological conditions	Good			1	
Priority substances		Good			
		Good		Component ID	1
Priority substances		Do not proceed or complete		Component ID	1
Priority substances Does the component comply with WF	O Objectives 1,2,3,4		90	Component ID Component Type	1 Operational Site Drainage
Priority substances Does the component comply with WF No	N/A Yes – See DMRB Assessments within	Do not proceed or complete Article 4.7 assessment Proceed after NIEA	Component Type		1 Operational Site Drainage





Grid Reference	E1: 223575, 342519				
C. III HOLOTOIGO	H1: 224485, 342838				
Chainage/ Map Ref	N/A			Mary Miles	2013
Waterbody Name	River Erne (Enniskillen)		_		The state of the s
WFD Waterbody ID	UKGBNI1NW36360203		de de		
Designations (within 1km of component)	None		gre		
Designations (within 1km of component)	None		Site Photograph		
WFD Status (Obj 2021/2027)	Poor (Good/Good)		7		
FFD Class. (Salmonid/ Cyprinid	Salmonid				
Abstractions in Vicinity	None		Aerial View		
WFD Element	Current Status	Assessed Post Works Status			
Benthic Invertebrates	Good	Good			
Macrophytes	Good	Good	-		
Phytobenthos	Good	Good	-		
Fish	Poor	Poor	d d		
Biochemical oxygen demand	High	High	Site Photograph		
Temperature	High	High	9		
Dissolved oxygen	Good	Good	F.		
pH	High	High	ite		
Soluble Reactive Phosphorus	Good	Good	, io		
Specific pollutants	Good	Good	-		
Hydrological regime	High	High			
Morphological conditions	Good	Good			
Priority substances	Good	Good			
Does the component comply with WFD Objective	•			Component ID	2
No	N/A	Do not proceed or complete Article 4.7 assessment			
Yes (Justification Provided)	Yes – See DMRB Assessments within Section 10 of EIAR	Proceed after NIEA agreement	Component Type	Component Type	Operational Site Drainage
Yes, with mitigation	N/A	Complete section B	Comp	Component Description, Dimensions, Length etc	Outfalls E1 & H1





Projec	t Component Data Sheet- River Sillees Bridge- Compon	ent 3				
	Grid Reference	222641, 342250				
Ęį	Chainage/ Map Ref	c40-66 (main line)		-		
Location	Waterbody Name	River Sillees (Drumke	en)	-		
2	WFD Waterbody ID	UKGBNI1NW3636010				
	Designations (within 1km of component)	None		d d		
	WFD Status (Obj 2021/2027)	Poor (Good/Good)		gra		
	FFD Class. (Salmonid/ Cyprinid	Salmonid		융		
Watercourse	Abstractions in Vicinity	None		Aerial View Site Photograph		
	WFD Element	Current Status	Assessed Post Works Status			, 有的人, 对
	Benthic Invertebrates	Good	Good	-		多个人等继续。 第一个人的一个人的一个人的一个人的一个人的一个人的一个人的一个人的一个人的一个人的
	Macrophytes	Good	Good			
	Phytobenthos	Good	Good	-	1000 1000 1000 1000 1000 1000 1000 100	建 发展《数据》
	Fish	Poor	Poor	-		77 人人的人情報的表現。其中心
	Biochemical oxygen demand	High	High	۱ _	10000000000000000000000000000000000000	7/公园的图1/8/7/2020年7月3日
	Temperature	High	High	apt		
	Dissolved oxygen	Good	Good	Photograph	美国运送 经工程 计例识别	不 多為 洲川縣 東下罗卜克山东
	рН	High	High	کو		
	Soluble Reactive Phosphorus	Good	Good			
	Specific pollutants	Good	Good	Site		全国政会队 ,这是人在政
¥	Hydrological regime	High	High			
ner	Morphological conditions	Good	Good			
WFD Assessmen	Priority substances	Good	Good			
	Does the component comply with WFD Objectives 1				Component ID	3
	No	N/A	Do not proceed or complete Article 4.7 assessment			
	Yes (Justification Provided)	N/A	Proceed after NIEA agreement	ent Type	Component Type	River Sillees Bridge
	Yes, with mitigation	Yes	Complete section B	Compon	Component Description, Dimensions, Length etc	Bridge Span c36m





Grid Reference	Sheet- River Erne Bridge- Component 4	224520, 342771				
Chainage/ Map		c2005-2086 (main line	1	-		14 4 2 1
Waterbody Nar		River Erne (Enniskillen				
WFD Waterbody		UKGBNI1NW36360203	-	_	The state of the s	
	vithin 1km of component)	None	55	ap		
Designations (v	within 1km of component,	None		Photograph		
WFD Status (Ob	oj 2021/2027)	Poor (Good/Good)		<u> </u>		The state of the s
FFD Class. (Saln	nonid/ Cyprinid	Salmonid		(I)		
Abstractions in	Vicinity	None		Aerial View Sit		
WFD Element		Current Status	Assessed Post Works Status			
Benthic Inverte	brates	Good	Good			
Macrophytes		Good	Good			The second second
Phytobenthos		Good	Good		aus de la company de la compan	
Fish		Poor	Poor	4g		
Biochemical ox	ygen demand	High	High	Photograph		
Temperature		High	High	oto		
Dissolved oxyge	en	Good	Good	Pho		
pH		High	High	Site		
Soluble Reactiv	e Phosphorus	Good	Good	- iz		
Specific polluta		Good	Good	-		
Hydrological re		High	High		是一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个	
Morphological		Good	Good		A CONTRACTOR OF THE PARTY OF TH	
Priority substar		Good	Good			
	onent comply with WFD Objectives 1,2,3,				Component ID	4
No		N/A	Do not proceed or complete Article 4.7 assessment			
Yes (Justification	n Provided)	N/A	Proceed after NIEA agreement	Туре	Component Type	River Erne Bridge
Voc with with	ation.	Voc	Complete section P	Component T	Component Description Dimensions Level	n Pridge span c91m
Yes, with mitiga	auon	Yes	Complete section B	ō	Component Description, Dimensions, Lengtl	h Bridge span c81m







Grid Reference	222641, 342250	er Sillees (including Outfall and Brid			
Chainage/ Map Ref	Misc		-		
Waterbody Name	River Sillees (Drumke	nonl	-		The state of the s
WFD Waterbody ID	UKGBNI1NW3636010		_		No.
		U44	ے		
Designations (within 1km of component)	None		grap		
WFD Status (Obj 2021/2027)	Poor (Good/Good)		ğ		and the same of th
FFD Class. (Salmonid/ Cyprinid	Salmonid		٥ť		A DESCRIPTION OF THE PROPERTY
Abstractions in Vicinity	None		Aerial View Site Photograph		
WFD Element	Current Status	Assessed Post Works Status			
Benthic Invertebrates	Good	Good			
Macrophytes	Good	Good	-		
Phytobenthos	Good	Good	-		
Fish	Poor	Poor	듄		
Biochemical oxygen demand	High	High	Photograph		
Temperature	High	High	ğ		
Dissolved oxygen	Good	Good	ڳ ڳ		
pH	High	High	Site I		
Soluble Reactive Phosphorus	Good	Good	<u>i2</u>		
		1 2000			
	Good	Good			
Specific pollutants	Good High	Good High	-		
Specific pollutants Hydrological regime	High	High	-		
Specific pollutants Hydrological regime Morphological conditions	High Good	High Good	- - -		
Specific pollutants Hydrological regime Morphological conditions Priority substances	High Good Good	High	-	Component ID	5
Specific pollutants Hydrological regime Morphological conditions	High Good Good	High Good Good Do not proceed or complete		Component ID	5
Specific pollutants Hydrological regime Morphological conditions Priority substances Does the component comply with WFD Object	High Good Good	High Good Good	Component Type	Component ID Component Type	5 River Sillees – General construction activities





Grid Reference	224520, 342771			The same	
Chainage/ Map Ref	Misc			The state of the s	
Waterbody Name	River Erne (Enniskille	n)		The state of the second	
WFD Waterbody ID	UKGBNI1NW3636020		q		The state of the s
Designations (within 1km of component)	None		Photograph		
WFD Status (Obj 2021/2027)	Poor (Good/Good)		矣		
FFD Class. (Salmonid/ Cyprinid	Salmonid		a		
Abstractions in Vicinity	None		Aerial View Sit		
WFD Element	Current Status	Assessed Post Works Status			
Benthic Invertebrates	Good	Good			
Macrophytes	Good	Good			
Phytobenthos	Good	Good			
Fish	Poor	Poor	년		
Biochemical oxygen demand	High	High	graph		
Temperature	High	High	Photog		
Dissolved oxygen	Good	Good	P.		
pH	High	High	Site		
Soluble Reactive Phosphorus	Good	Good	Š		
Specific pollutants	Good	Good			
Hydrological regime	High	High			
Morphological conditions	Good	Good			
Priority substances	Good	Good			
Does the component comply with WFD Objectives				Component ID	6
No	N/A	Do not proceed or complete Article 4.7 assessment			
Yes (Justification Provided)	N/A	Proceed after NIEA agreement	ment Type	Component Type	River Erne – General construction activities
Yes, with mitigation	Yes	Complete section B	Compo	Component Description, Dimensions, Length etc	General construction activities



Project	Component Data Sheet- River Sillees Boat Turning Pool -	Component 7				
_	Grid Reference	222641, 342250				
ţi	Chainage/ Map Ref	Misc				The same of the sa
Location	Waterbody Name	River Sillees (Drumkee	en)			
7	WFD Waterbody ID	UKGBNI1NW3636010		_		4
	Designations (within 1km of component)	None		raph		
	WFD Status (Obj 2021/2027)	Poor (Good/Good)		Photograph		The same of the sa
	FFD Class. (Salmonid/ Cyprinid	Salmonid				
Watercourse	Abstractions in Vicinity	None		Aerial View Site		
	WFD Element	Current Status	Assessed Post Works Status			
	Benthic Invertebrates	Good	Good			
	Macrophytes	Good	Good			
	Phytobenthos	Good	Good			
	Fish	Poor	Poor	된		
	Biochemical oxygen demand	High	High	graph		
	Temperature	High	High	ğ		
	Dissolved oxygen	Good	Good	Photo		
	pH	High	High	Site I		
	Soluble Reactive Phosphorus	Good	Good	Š		
int	Specific pollutants	Good	Good			
essment						
	Hydrological regime	High	High			
Ass	Morphological conditions	Good	Good			
<u>ا</u>	Priority substances	Good	Good		Common and ID	17
WFD Ass	Does the component comply with WFD Objectives 1,2,3		5		Component ID	7
	No	N/A	Do not proceed or complete Article 4.7 assessment			
	Yes (Justification Provided)	N/A	Proceed after NIEA agreement	ponent Type	Component Type	River Sillees – Boat turning pool
	Yes, with mitigation	Yes	Complete section B	Сотроп	Component Description, Dimensions, Length etc	Excavation of material and bank/bed protection measures

Section B: Details of Mitigation required to Comply with WFD Objectives







Scheme Component e.g. Culvert, bridge, other crossing, diversion, outfall, etc	Objective 1: To prevent deterioration in the ecological status of the water body.	Objective 2 To prevent the introduction of impediments to the attainment of Good WFD status for the water body.	Objective 3: To ensure that the attainment of the WFD objectives for the water body are not compromised.	Objective 4: To ensure the achievement of the WFD objectives in other water bodies within the same catchment are not permanently excluded or compromised.
	Describe mitigation required to meet objective 1:	Describe mitigation required to meet objective 2:	Describe mitigation required to meet objective 3:	Describe mitigation required to meet objective 4:
Component 3: River Sillees Bridge	Construction Environmental Management Plan (CEMP) in place and method statements will be prepared and agreed with the relevant statutory bodies. Fluvial geomorphologist to be involved in detail design of bridge. Please refer to Section 10 of the Environmental Statement for detailed information.	As stated under objective 1.	As stated under objective 1.	As stated under objective 1.
Component 4: River Erne Bridge	Construction Environmental Management Plan (CEMP) in place and method statements will be prepared and agreed with the relevant statutory bodies. Fluvial geomorphologist to be involved in detail design of bridge. Please refer to Section 10 of the Environmental Statement for detailed information.	As stated under objective 1.	As stated under objective 1.	As stated under objective 1.
Component 5: General Construction Activities Potentially Impacting River Sillees (including Outfall and Bridge Construction)	Construction Environmental Management Plan (CEMP) in place and method statements will be prepared and agreed with the relevant statutory bodies. Please refer to Section 10 of the Environmental Statement for detailed information.	As stated under objective 1.	As stated under objective 1.	As stated under objective 1.
Component 6: General Construction Activities Potentially Impacting River Erne (including Outfall and Bridge Construction)	Construction Environmental Management Plan (CEMP) in place and method statements will be prepared and agreed with the relevant statutory bodies. Please refer to Section 10 of the Environmental Statement for detailed information.	As stated under objective 1.	As stated under objective 1.	As stated under objective 1.
Component 7: River Sillees - Boat Turning Pool	Construction Environmental Management Plan (CEMP) in place and method	As stated under objective 1.	As stated under objective 1.	As stated under objective 1.





A4 Enniskillen Southern Bypass Environmental Impact Assessment Report



statements will be prepared and agreed		
with the relevant statutory bodies. Fluvial		
geomorphologist to be involved in detail		
design of pool. Please refer to Section 10 of		
the EIAR for detailed information.		

HIGHWAYS	Highways Aç	gency Water I	Risk Assessment	Tool	version 1.0 Noven	nber 2009)				
AGENCY	Annual Average Co	ncentration	oluble - Acute Impact Copper Pass		Zinc Pass		S	iment - Chroni ediment deposit ccumulating? ktensive?	•	Lov	ed as: w flow Vel m/s position Index
Location Details											
Road number		A4 Enniskillen	Southern Bypass		HA Area / DBFO	number					
Assessment type		Cumulative as	sessment excluding s	ediment	s (outfalls betweer	100m a	and 1km apart)	-			-
OS grid reference of assessm	ent point (m)	Easting	222727				Northing	342417			
OS grid reference of outfall str	ucture (m)	Easting	222727				Northing	342417			
Outfall number					List of outfall		A1	A2		B1	
Receiving watercourse		River Sillees	River Sillees		cumulative assessmen		C1	D1			
EA receiving water Detailed R	WFD ID: UKGBNI1NW363610144			Assessor and affiliation							
Date of assessment		29/11/2017			Version of assessment						
Notes											
Step 1 Runoff Quality	AADT >10,000 and	d <50,000 ▼	Climatic region	Colder	Wet	Rai	nfall site Ardta	naig (SAAR 1343.	9mm)		•
Step 2 River Impacts	Annual 95%ile river f	low (m ³ /s)	0.43	(Enter z	ero in Annual 95%	ile river t	flow box to assess	Step 1 runoff a	uality only)		
	Impermeable road ar	rea drained (ba)		•	ble area draining to						
	•	, ,			•		(IIII)				
	Base Flow Index (BF	1)	0.51	Is the di	scharge in or within	n 1 km u	pstream of a protec	ted site for cons	servation?		Yes -
For dissolved zinc only	Water hardness	Medium = 50-200	CaCO3/I								
For sediment impact only	Is there a downstream	m structure, lake	, pond or canal that re	duces th	ne velocity within 10	00m of tl	he point of discharg	e?	No	▼ D]
	Tier 1 Estimated	d river width (m)	5								-
	Tier 2 Bed width	n (m)	3	Manning	g's n 0.07		Side slope (m/m)	0.5	Long slope	e (m/m)	0.0001

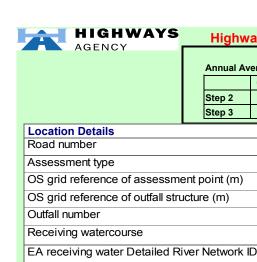
Step 3 Mitigation		Estimated effectiveness							
	Brief description	Treatment for solubles (%)	Attenuation for solubles - restricted discharge rate (l/s)	Settlement of sediments (%)					
Existing measures		0	Unlimited	0 D					
Proposed measures		0	Unlimited	0 D					

Show Detailed Results

HIGHWAYS AGENCY	Highways Ag	jency Water	Risk Assessment	Tool	version 1.0 Novem	nber 2009)					
AGENCY	Annual Average Co		oluble - Acute Impact Copper	:	Zinc			Sedimer	nt - Chroni	c Impact		
	Copper Step 2 0.00 Step 3 -	2inc 0.01 ug/l - ug/l	Pass		Pass	Alert.	Protected Area.		nulating?	No No		d as: flow Vel m/s osition Index
Location Details	Стор С							Extonic		<u> </u>		Soldon macx
Road number		A4 Enniskillen	Southern Bypass		HA Area / DBFO	number						
Assessment type		Cumulative as	sessment including se	ediments	s (outfalls within 10	0m)						•
OS grid reference of assessm	ent point (m)	Easting	222671				Northing		342277			
OS grid reference of outfall str	ructure (m)	Easting	222671		_		Northing		342277			
Outfall number					List of outfalls cumulative asset		A1		A2		C1	
Receiving watercourse		River Sillees			Curiulative asses	SSMEN						
EA receiving water Detailed F	River Network ID	WFD ID: UKG	BNI1NW363610144		Assessor and affil	liation						
Date of assessment		29/11/2017			Version of assess	ment						
Notes					,				l			
Step 1 Runoff Quality	AADT >10,000 and	I <50,000 ▼	Climatic region	Colder	Wet <u></u>	Rai	nfall site	Ardtalnaig (SAAR 1343.	9mm)		•
Step 2 River Impacts	Annual 95%ile river fl	low (m³/s)	0.43	(Enter z	ero in Annual 95%i	le river	flow box to ass	ess Step	1 runoff qu	ality only)		
	Impermeable road ar	ea drained (ha)	0.883	Permea	ble area draining to	outfall	(ha) 0					
	Base Flow Index (BF	1)	0.51	Is the di	scharge in or withir	າ 1 km ເ	ipstream of a pr	otected s	site for cons	servation?		Yes 🔻
For dissolved zinc only	Water hardness	Medium = 50-200	CaCO3/I									
For sediment impact only	Is there a downstrear	n structure, lake	e, pond or canal that re	duces th	ne velocity within 10	00m of t	he point of discl	harge?		No	0 T D	
	Tier 1 Estimated	d river width (m)	24.65									
	Tier 2 Bed width	ı (m)	8.202	Manning	g's n 0.04		Side slope (m	/m)	1	Long slo	ope (m/m)	0.0016

Step 3 Mitigation			E	Estimated effec	tiveness	;	
	Brief description	Treatmer solubles		Attenuatio solubles - res discharge rat	tricted	Settlemer sediments	
Existing measures		0	D	Unlimited	D	0	D
Proposed measures		0	D	Unlimited	D	0	D

Show Detailed Results



Proposed measures

Highways Agency Water Risk Assessment Tool version 1.0 November 2009 Soluble - Acute Impact Copper **Annual Average Concentration** Copper Zinc 0.00 ug/l 0.00 Pass

ZINC	
Pass	Alert. Protected Area

Sediment - Chronic Impact Sediment deposition for this site is judged as: No Accumulating? 0.35 Low flow Vel m/s

	Step 3 -	- ug/i				Extensive	NO	-	Deposition inc	Jex
Location Details										
Road number		A4 Enniskillen S	outhern Bypass	HA Area / DBFC) number					
Assessment type		Non-cumulative	assessment (single	outfall)						•
OS grid reference of assessme	ent point (m)	Easting	222626		Northing	3422	19			
OS grid reference of outfall stru	ucture (m)	Easting	222626		Northing	3422	19			
Outfall number		A2	·	List of outfa	-					
Receiving watercourse		River Sillees		cumulative ass	essment					
EA receiving water Detailed Ri	iver Network ID	WFD ID: UKGBI	NI1NW363601044	Assessor and af	filiation					
Date of assessment		28/11/2017		Version of asses	sment					
Notes										
Step 1 Runoff Quality	AADT >10,000 and	d <50,000 -	Climatic region	Colder Wet	Rainfall site	Ardtalnaig (SAAR	1343.9mm)			•
Step 2 River Impacts	Annual 95%ile river f	,		(Enter zero in Annual 95%) Permeable area draining	_	assess Step 1 rund	off quality only	')		
	Base Flow Index (BF	i)	0.51	Is the discharge in or with	in 1 km upstream of a	a protected site for	conservation	?	Yes -	
For dissolved zinc only	Water hardness	Medium = 50-200 C	aCO3/I							
For sediment impact only		d river width (m)	24.65	duces the velocity within 1 Manning's n 0.04	100m of the point of d	_		No 🔻		6
Step 3 Mitigation		Brief descriptio	n	Treatment for solubles (%)	Attenuation for solubles - restricted discharge rate (l/s	Settlement sed sediments ((%)		et Impact	

0

D

Unlimited

D

0

D

HIGHWA	YS 15-1 A		Diele Assessment T	taal				
AGENCY	Annual Average C Coppe Step 2 0.00 Step 3 -	S oncentration	Risk Assessment T oluble - Acute Impact Copper Pass	Zinc Pass		Sediment - Chronic Sediment deposition Accumulating? Extensive?	tion for this site is judged	l as: flow Vel m/s osition Index
Location Details								
Road number				HA Area / DBFO	number			
Assessment type		Non-cumulativ	e assessment (single o	outfall)				
OS grid reference of asse	. , ,	Easting	222656		Northing	342276		
OS grid reference of outfa	ll structure (m)	Easting	222656		Northing	342276		
Outfall number		A1		List of outfall				
Receiving watercourse		River Sillees		cumulative asse	ssment			
EA receiving water Detail	ed River Network ID	WFD ID: UKG	BNI1NW363601044	Assessor and affi	liation		-	
Date of assessment		27/11/2017		Version of assess	sment			
Notes				'		,		
Step 1 Runoff Qualit	⊻ AADT >10,000 ar	nd <50,000	Climatic region	Colder Wet	Rainfall site A	rdtalnaig (SAAR 1343.	.9mm)	-
Step 2 River Impacts	Annual 95%ile river Impermeable road a Base Flow Index (Bl	rea drained (ha)	0.547 P	Enter zero in Annual 95% Permeable area draining to s the discharge in or within	o outfall (ha)		,	Yes ▼
For dissolved zinc only	Water hardness	Low = <50mg Ca	CO3/I					
For sediment impact on	-	d river width (m)	24.65	uces the velocity within 10	00m of the point of disch		No ▼ □	0.0016
	Dea widt	()		Maining 3 11	J Clac Slope (III)	,	Long Slope (III/III)	
Step 3 Mitigation		Brief descript	ion	Treatment for	Estimated effectiveness Attenuation for	Settlement of	Predict In	npact
Existing measures				solubles (%)	solubles - restricted discharge rate (l/s) Unlimited	sediments (%)	Show Detaile	d Results

0

Proposed measures

D

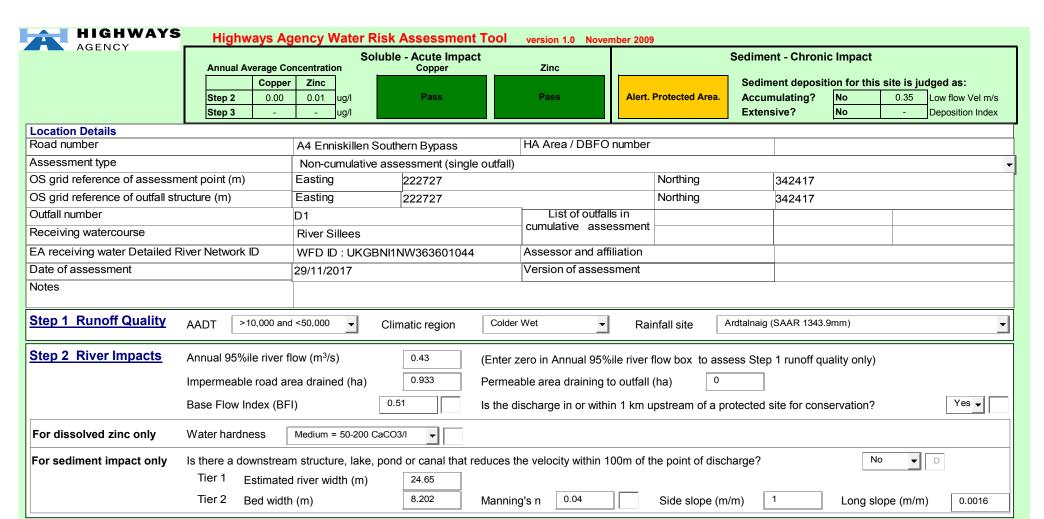
D

0

Unlimited

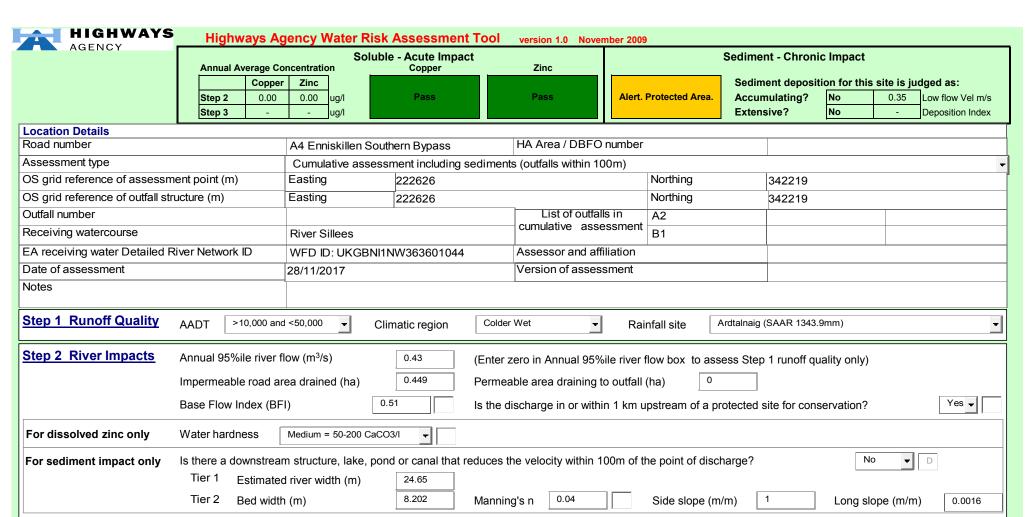
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D



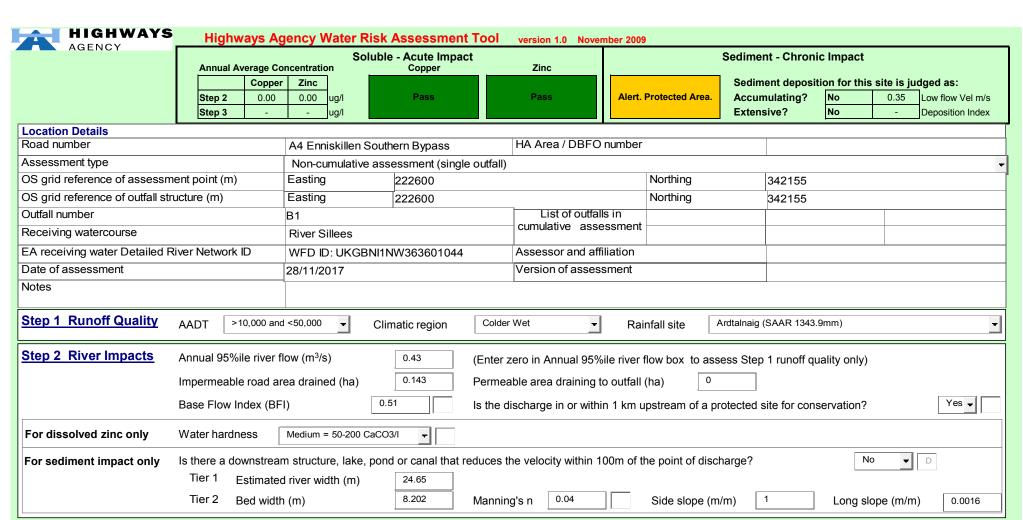
Step 3 Mitigation			E	Estimated effe	ectiveness	3	
	Brief description	Treatmer solubles		Attenuati solubles - re discharge ra	stricted	Settleme sediments	
Existing measures		0	D	Unlimited	▼ D	0	D
Proposed measures		0	D	Unlimited	- □	0	D

Show Detailed Results



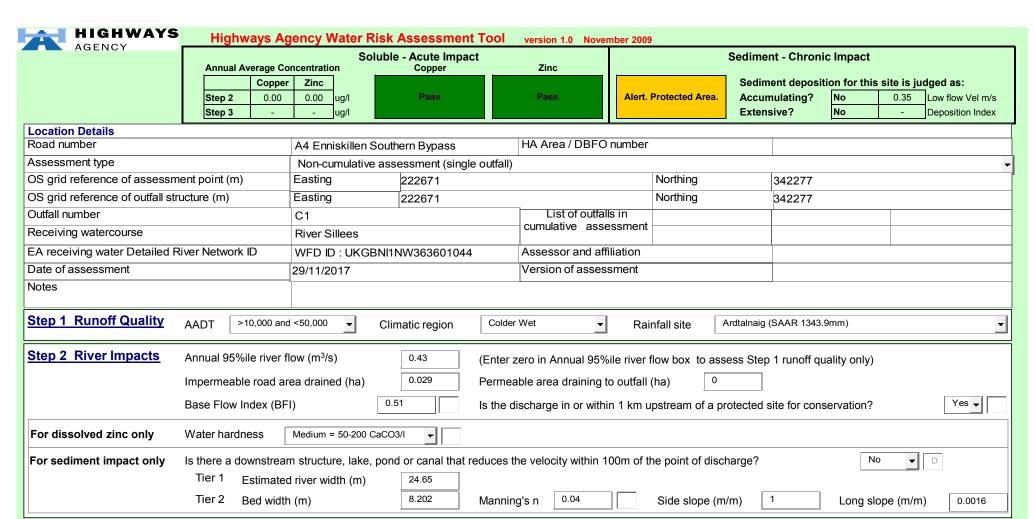
Step 3 Mitigation		Estimated effectiveness						
	Brief description	Treatment for solubles (%)	Attenuation for solubles - restricted discharge rate (l/s)	Settlement of sediments (%)				
Existing measures		0	Unlimited	0 D				
Proposed measures		0	Unlimited	0				

Show Detailed Results



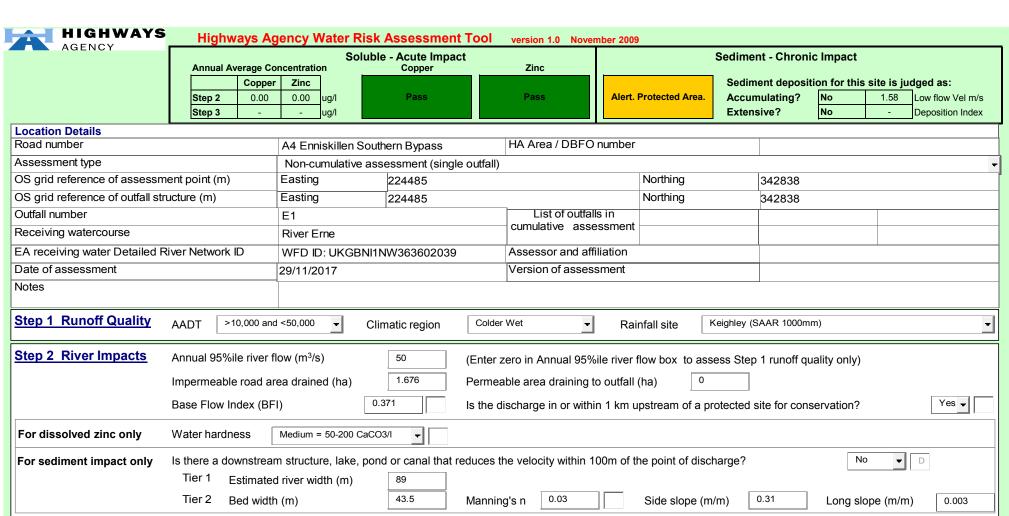
Step 3 Mitigation			Estimated effectiveness	;
	Brief description	Treatment for solubles (%)	Attenuation for solubles - restricted discharge rate (l/s)	Settlement of sediments (%)
Existing measures		0	Unlimited	0
Proposed measures		0	Unlimited	0 D

Show Detailed Results



Step 3 Mitigation		I	Estimated effectiveness	
	Brief description	Treatment for solubles (%)	Attenuation for solubles - restricted discharge rate (l/s)	Settlement of sediments (%)
Existing measures		0	Unlimited	0 D
Proposed measures		0	Unlimited	0

Show Detailed Results



Step 3 Mitigation		Estimated effectiveness				
	Brief description	Treatment for solubles (%)	Attenuation for solubles - restricted discharge rate (l/s)	Settlement of sediments (%)		
Existing measures		0	Unlimited	0 D		
Proposed measures		0	Unlimited	0		

Show Detailed Results

Abbreviations

RL Road Length in kilometres

SS Spillage Rates (DMRB Vol 11, Section 3, Part 10,

HD 45/09 - Table D1.1 Serious Spillages in Billion

AADT Annual Average Daily Traffic (use Design year for new road)

%HGV percentage of HGVs

RTR Rural Trunk Road (Table D1.1)

Source Data

RL No Junction 1.210404 km **RL Roundabout** 0.419105 km **RL Side Road** 0 km SS No Junction (RTR) 0.29 km/year SS Roundabout (RTR) 3.09 km/year SS Side Road (RTR) 0.93 km/year **AADT No Junction** 9647 vehicles **AADT Roundabout** 22259 vehicles **AADT Side Road** 0 vehicles %HGV No Junction 4 % %HGV Roundabout 6 % %HGV Side Road 0 %

P_{SPI} Annual Probability of a spillage for each section of road

 P_{SPL} RL * SS * (AADT * 365 * 10^{-9}) * (%HGV/100)

River Erne Reach: P_{SPI}

 $\begin{array}{lll} P_{SPL} \, \text{No Junction} & 4.94394\text{E-}05 \\ P_{SPL} \, \text{Roundabout} & 0.000631293 \\ P_{SPL} \, \text{Side Road} & 0 \\ \text{Total} & 0.000437014 \end{array}$

P_{INC} Annual Probability of a serious pollution

incident for each section of road

 P_{INC} $P_{SPL} * P_{POL}$ where:

P_{POL} the probability, given a spillage, that a serious

pollution incident will result. Probability

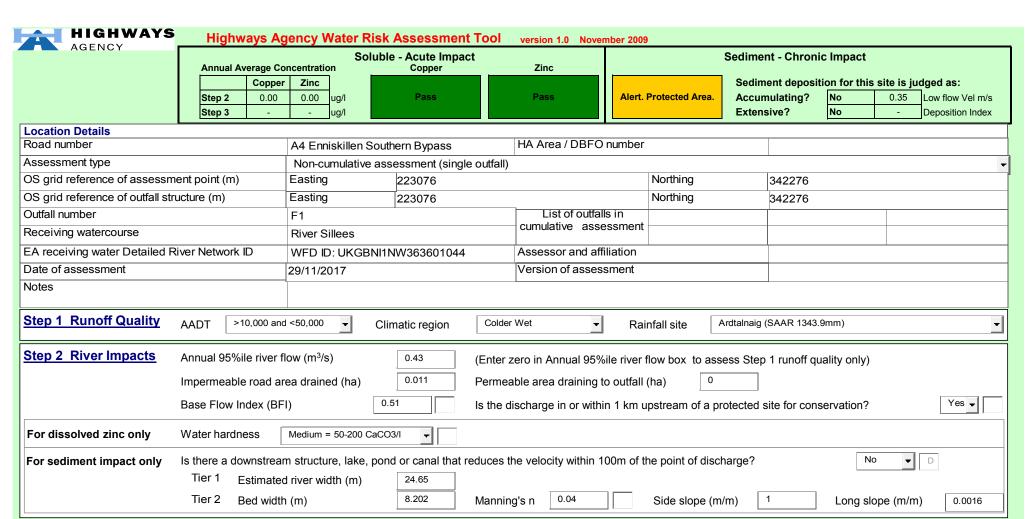
selected from table D1.2

P_{POL} 0.45 (Surface watercourse, Urban)

River Erne Reach: P_{INC}

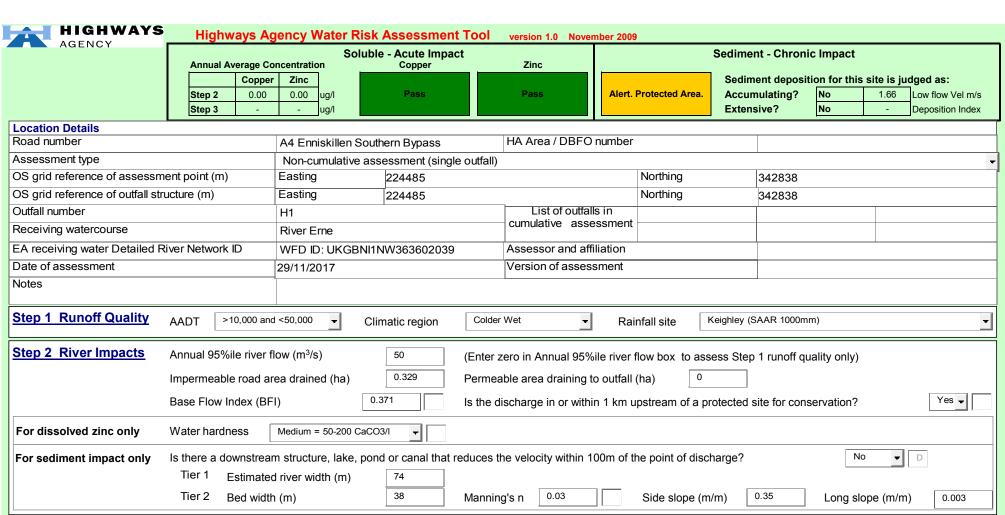
 $\begin{array}{lll} P_{\text{INC}} \ \text{No Junction} & 2.22477\text{E-}05 \\ \\ P_{\text{INC}} \ \text{Roundabout} & 0.000284082 \\ \\ P_{\text{INC}} \ \text{Side Road} & 0 \end{array}$

Total 0.03% therefore acceptable risk



Step 3 Mitigation		ı	Estimated effectiveness	
	Brief description	Treatment for solubles (%)	Attenuation for solubles - restricted discharge rate (l/s)	Settlement of sediments (%)
Existing measures		0	Unlimited	0 D
Proposed measures		0	Unlimited	0

Show Detailed Results



Step 3 Mitigation		Estimated effectiveness		
	Brief description	Treatment for solubles (%)	Attenuation for solubles - restricted discharge rate (l/s)	Settlement of sediments (%)
Existing measures		0	Unlimited	0 D
Proposed measures		0	Unlimited	0 D

Predict	Impact
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Show Detailed Results

Abbreviations

RL Road Length in kilometres

SS Spillage Rates (DMRB Vol 11, Section 3, Part 10,

HD 45/09 - Table D1.1 Serious Spillages in Billion

AADT Annual Average Daily Traffic (use Design year for new road)

%HGV percentage of HGVs

RTR Rural Trunk Road (Table D1.1)

Source Data

RL No Junction 1.210404 km **RL Roundabout** 0.419105 km **RL Side Road** 0 km SS No Junction (RTR) 0.29 km/year SS Roundabout (RTR) 3.09 km/year SS Side Road (RTR) 0.93 km/year **AADT No Junction** 9647 vehicles **AADT Roundabout** 22259 vehicles **AADT Side Road** 0 vehicles %HGV No Junction 4 % %HGV Roundabout 6 % %HGV Side Road 0 %

P_{SPI} Annual Probability of a spillage for each section of road

 P_{SPL} RL * SS * (AADT * 365 * 10^{-9}) * (%HGV/100)

River Erne Reach: P_{SPI}

 $\begin{array}{lll} P_{SPL} \, \text{No Junction} & 4.94394\text{E-}05 \\ P_{SPL} \, \text{Roundabout} & 0.000631293 \\ P_{SPL} \, \text{Side Road} & 0 \\ \text{Total} & 0.000437014 \end{array}$

P_{INC} Annual Probability of a serious pollution

incident for each section of road

 P_{INC} $P_{SPL} * P_{POL}$ where:

P_{POL} the probability, given a spillage, that a serious

pollution incident will result. Probability

selected from table D1.2

P_{POL} 0.45 (Surface watercourse, Urban)

River Erne Reach: P_{INC}

 $\begin{array}{lll} P_{\text{INC}} \ \text{No Junction} & 2.22477\text{E-}05 \\ \\ P_{\text{INC}} \ \text{Roundabout} & 0.000284082 \\ \\ P_{\text{INC}} \ \text{Side Road} & 0 \end{array}$

Total 0.03% therefore acceptable risk

Abbreviations

RL Road Length in kilometres

SS Spillage Rates (DMRB Vol 11, Section 3, Part 10,

HD 45/09 - Table D1.1 Serious Spillages in Billion

AADT Annual Average Daily Traffic (use Design year for new road)

%HGV percentage of HGVs

RTR Rural Trunk Road (Table D1.1)

Source Data

RL No Junction 0.698802 km 0.419476 km **RL Roundabout RL Side Road** 0 km SS No Junction (RTR) 0.29 km/year SS Roundabout (RTR) 3.09 km/year SS Side Road (RTR) 0.93 km/year **AADT No Junction** 9647 vehicles 12642 vehicles **AADT Roundabout AADT Side Road** 0 vehicles %HGV No Junction 4 % %HGV Roundabout 6 % %HGV Side Road 0 %

P_{SPL} Annual Probability of a spillage for each section of road

 P_{SPL} RL * SS * (AADT * 365 * 10^{-9}) * (%HGV/100)

River Sillees Reach: P_{SPL}

 $\begin{array}{ll} P_{SPL} \, \text{No Junction} & 2.85428 \text{E-} 05 \\ P_{SPL} \, \text{Roundabout} & 0.00035886 \\ P_{SPL} \, \text{Side Road} & 0 \end{array}$

P_{INC} Annual Probability of a serious pollution

incident for each section of road

 P_{INC} $P_{SPL} * P_{POL}$ where:

P_{POL} the probability, given a spillage, that a serious

pollution incident will result. Probability

selected from table D1.2

P_{POI} 0.45 (Surface watercourse, Urban)

River Sillees Reach: PINC

 $\begin{array}{lll} P_{\text{INC}} \ \text{No Junction} & 1.28443 \text{E-}05 \\ \\ P_{\text{INC}} \ \text{Roundabout} & 0.000161487 \\ \\ P_{\text{INC}} \ \text{Side Road} & 0 \end{array}$

Total 0.02% therefore acceptable risk