

Table 9-D.1 Assessment of Routine Runoff of the Scheme: Simple Assessment

Hydraulic Catchment	Receiving Watercourse	River Ecosystem Classification	Chainage	Road Section/Type	Rainfall	Impermeable area of new road	V_H	Q95	V_R	Dilution	Two way traffic AADT (2025 High Growth)	Deatiled Assessment Required Yes/no?
					mm	ha	m^3	$m^3 s^{-1}$	$m^3 day^{-1}$			
A	Egerton Stream	No data available, assumed RE3/RE4	0-1500	Urban	10	2.600	195.0	0.001	86.40	0.44	<27,000	Yes
B	Combe Haven	RE4 (inferred from river stretch downstream of outfall)	1500-2700	Rural	10	1.720	129.0	0.001	86.40	0.67	<27,000	Yes
C	Watermill Stream	RE2	2700-3120	Rural	10	0.600	45.0	0.007	604.80	13.44	<27,000	No
D	Drainage ditch (Powdermill Stream historic channel)	RE3	3120-4330	Rural	10	1.930	144.8	0.009	777.60	5.37	<27,000	No
E	Drainage Ditch immediately before Decoy Wood Pond	No data available, assumed RE2/3	4330-5500	Mostly rural - urban from 5250)	10	1.320	99.0	0.002	172.80	1.75	<27,000	Yes

Key	Definition
V_H	Runoff volume from the road
Q95	The flow exceeded in the recieving watercourse
V_R	Daily volume of river flow

Table 9-D.2 Assessment of Routine Runoff for the Scheme: Detailed Assessment

Hydraulic Catchment	Chainage	Receiving Watercourse	Quality	Impermeable area of new road	Rainfall	Runoff Volume with runoff coefficient 0.75 (V)	Annual Average Daily Traffic (AADT)	Soluble Copper Build-up Rates (Annex III Table 3.1)	Total dissolved Copper 5 day build up per drainage area	Total dissolved copper 5 day build up per drainage area with mitigation	Total Zinc Build-up Rates (Annex III Table 3.1)	Total zinc 5 day build up per drainage area	Total zinc 5 day build up per drainage area with mitigation	Q95	V _R	Upstream Copper concentration	Predicted dispersion Copper concentration	Predicted dispersion Copper concentration with combined mitigation	Copper EQS	Upstream Zinc concentration	Predicted dispersion Zinc concentration	Predicted dispersion Zinc concentration with combined mitigation	Zinc EQS	Comment
				ha	mm/day	m ³ /day	vehicles/day	kg/ha/a	kg/5days	kg/5days	kg/ha/a	kg/5days	kg/5days	m ³ /sec	m ³ /day	(95%) mg/l	mg/l	mg/l	mg/l	(95%) mg/l	mg/l	mg/l	mg/l	
A (Aa 1.15ha; Ab 1.45ha)	0-1500	Egerton Stream	No data available, assumed RE3/RE4	2.600	10	195.0	<27,000	0.4	0.01425	0.009347178	2	0.07123	0.028272329	0.001	86.40	0.056	0.068	0.050	0.112	1	0.560	0.408	2	No existing copper or zinc concentration data. Therefore, following DMRB guidance we have assumed a concentration at half that of the EQS limit.
B (Ba 1.01ha; Bb 0.71ha)	1500-2700	Combe Haven	RE4 (inferred from river stretch downstream of outfall)	1.720	10	129.0	<27,000	0.4	0.00942	0.006183518	2	0.04712	0.017367288	0.001	86.40	0.00134	0.044	0.029	0.112	0.01904	0.226	0.088	2	
C (Ca 0.6ha)	2700-3120	Watermill Stream	RE2	0.600	10	45.0	<27,000	0.4	0.00329	0.002157041	2	0.01644	0.006058356	0.007	604.80	0.00207	0.007	0.005	0.112	0.01773	0.042	0.026	0.5	
D (Da 0.75ha; Db 0.58ha; Dc 0.6ha)	3120-4330	Drainage Ditch (Powdermill Stream historic channel)	RE3	1.930	10	144.8	<27,000	0.4	0.01058	0.006938482	2	0.05288	0.019487712	0.009	777.60	0.00111	0.012	0.008	0.112	0.01468	0.070	0.034	2	
E (1.32ha)	4330-5500	Drainage Ditch (before Decoy Wood Pond)	No data available, assumed RE2/3	1.320	10	99.0	<27,000	0.4	0.00723	0.00474549	2	0.03616	0.013328384	0.002	172.80	0.056	0.062	0.053	0.112	0.025	0.149	0.065	0.5	No existing copper or zinc concentration data. Therefore, following DMRB guidance we have assumed a concentration at half that of the EQS limit.

Combined "Effective" Mitigation Measures ²		Copper removal efficiency ¹	Zinc removal efficiency ¹
Mitigation 1	Kerbs and gullies or grass swales	10	10
Mitigation 2	Carrier pipes	10	10
Mitigation 3	By-pass petrol interceptor	10	30
Mitigation 4a (except Egerton Stream)	Extended detention pond with reed-beds ³	10	35
Mitigation 4b (Egerton Stream Only)	Underground Storage tank	10	30

NB1) Removal efficiencies are based on the November 2002 DMRB version. These removal factors are considered as estimates only.

NB2) "Effective" mitigation refers to those aspects of the drainage design that will attenuate pollutants in highway runoff.

NB3) Pollution removal efficiency of extended detention ponds is based on the minimum dry pond storage rates and does not take into consideration biofiltration of any planted reed-beds i.e. worst case.