



Breedon Trading Limited
Denbigh Quarry
Denbigh, Denbighshire

Extension to Existing Mineral Workings

Hydrological & Hydrogeological Impact Assessment

02nd Febuary 2022

Appendix 9.4 Site Discharge Permit

23 JUN 1998



ASiantaeth yr
Amgylchedd
ENVIRONMENT
AGENCY

ych cyf/Your ref.

yn cyf/Our ref.

CG0333601

Dyddiad/Date:

18th June 1998

Mr S. Treacy
Senior Estate Surveyor
Tarmac Quarry Products
1 Lismore Road
Buxton
Derbyshire
SK17 9AP

Dear Mr Treacy

RE: WATER RESOURCES ACT 1991, SCHEDULE 10 (AS AMENDED BY THE ENVIRONMENT ACT 1995) APPLICATION FOR VARIATION OF CONSENT TO DISCHARGE NO CG0333601.

Further to your application for variation of consent of the Agency to discharge under the provisions of Section 88 of the Water Resources Act 1991, I enclose the Agency's formal notice of the variations made to the conditions of the consent to discharge Trade Effluent from Graig Quarry, Denbigh.

Under the present Scheme of Charges for Discharges to Controlled Waters an annual charge will be made for all consents to discharge, except where the discharge is of sewage effluent of five cubic metres or less per day. This charge is based on information derived from the conditions attached to the consent to discharge, as outlined in the enclosed leaflet. A change in conditions may therefore result in a change in annual charge, you may therefore receive a revised bill in due course.

If you are not satisfied with the new conditions of the consent you may appeal against the decision to the Secretary of State for Wales at the Welsh Office, Cathays Park, Cardiff CF1 3NQ.

Please take careful note that if the holder of the consent changes, you must inform the Agency **IN WRITING** as soon as possible of the name of the new holder. This to ensure that the rights and charges associated with the Consent are transferred to the new holder. A certificate of Holder notice will be sent to you shortly which is designed for this purpose, and should be kept safely with the Consent until required.

Asiantaeth yr Amgylchedd
Llwyn Brian, Ffordd Penlan, Parc Menai, Bangor LL57 4DE.
Ffon 01248 670770, Ffacs 01248 670561, GTN 7-26 X 4000

Environment Agency
Llwyn Brian, Ffordd Penlan, Parc Menai, Bangor LL57 4DE.
Tel 01248 670770, Fax 01248 670561, GTN 7-26 X 4000



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ENVIRONMENT
AGENCY

If you have any questions regarding the enforcement of this consent please contact Mr Dave Andrew, Team Leader Environment Protection, Environment Agency, Chester Road, Buckley, CH7 3AJ. Tel 01244 550124.

Yours sincerely,

BRIAN BOOTH
Team Leader Customer Contact

Enc.

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Llwyn Brian, Ffordd Penlan, Parc Menai, Bangor LL57 4DE.
Ffon 01248 670770, Ffacs 01248 670561, GTN 7-26 X 4000

Environment Agency
Llwyn Brian, Ffordd Penlan, Parc Menai, Bangor LL57 4DE.
Tel 01248 670770, Fax 01248 670561, GTN 7-26 X 4000

CONSENT NO. CG0333601



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WATER RESOURCES ACT 1991

SECTION 88 - SCHEDULE 10

(AS AMENDED BY THE ENVIRONMENT ACT 1995)

NOTICE OF MODIFICATION OF CONSENT TO DISCHARGE

TO: Tarmac Heavy Building Materials (UK) Ltd
PO Box 8
Millfields Road
Ettingshall
Wolverhampton WV4 6JP

Following a review of the conditions of its consent, the **ENVIRONMENT AGENCY** ("The Agency") in pursuance of its powers under the Water Resources Act 1991 **HEREBY MODIFIES ITS CONSENT** to the making of a discharge **OF TRADE EFFLUENT** as follows:

Trade Effluent
with respect to Consent No. CG0333601 issued on the 21st September 1992

FROM: Tarmac Quarry Products Ltd

AT: Graig Quarry, Graig Road, Denbigh

TO: Tributary of Henllan Brook

HEREAFTER SUBJECT TO the conditions set out in the following schedule(s):

Trade Effluent

Schedule No. CG0333601 01

Subject to the provisions of Paragraphs 7 and 8 of Schedule 10 of the Water Resources Act 1991, no notice shall be served by the Agency, which alters the effect of modifications made by this notice, without the agreement in writing of the consent holder, during a period of 4 years from the date this notice is served.

Dated this 18th day of June 1998

Signed
Team Leader Water Quality Consents

Asiantaeth yr Amgylchedd
Ffordd Caer, Bwcle, Sir Fflint CH7 3AJ Ffon 01244 550124 Ffacs 01244 550144

Environment Agency
Buckley Road, Buckley, Flintshire CH7 3AJ Tel 01244 550124 Fax 01244 550144

CONSENT NO.	CG0333601
SCHEDULE NO.	CG0333601 01
DATED	18th June 1998



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CONDITIONS OF CONSENT TO DISCHARGE

Trade Effluent ("the Discharge")

FROM: Tarmac Quarry Products Ltd., Graig Quarry, Graig Road, Denbigh.

1. (a) The Discharge shall not contain any poisonous, noxious or polluting matter or solid waste matter.
- (b) Provided that the Discharge hereby consented is made in accordance with the following conditions of this consent, such discharge shall not be taken to be in breach of condition (a) above by reason of containing substances or having properties identified in and controlled by these conditions.

NATURE

2. The Discharge shall consist solely of trade effluent from Tarmac Quarry Products Ltd., Graig Quarry, Graig Road, Denbigh.

LOCATION

3. The Discharge shall be made in the manner and at the place specified as:
 - (a) discharging via a pipe;
 - (b) discharging to tributary of Henllan Brook;
 - (c) at National Grid Reference SJ 0532 6684;
 - (d) shown marked 'Discharge & Sampling Point' on Plan CG0333601 attached as Annex 1.

SAMPLING POINTS

4. The outlet from the inteceptor shall be constructed, maintained and appropriately labelled so that a representative sample of the Discharge may be obtained at National Grid Reference SJ 0532 6684 as shown marked "Discharge & Sampling Point" on Plan CG0333601.

CONSENT NO.	CG0333601
SCHEDULE NO.	CG0333601 01



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VOLUME

5. The volume of the Discharge shall not exceed 260 cubic metres per day.
6. The rate of discharge shall not exceed 6 litres per second.

FLOW MEASUREMENT

7. Flow measurement structure(s) shall be provided and maintained to enable the instantaneous flow rate and daily volume of the Discharge to be measured or determined as required.

COMPOSITION

8. The discharge shall not contain more than 60 milligrammes per litre of suspended solids (dried at 105 degrees Celsius)
9. The pH of the discharge shall remain at all times between 5 and 9 pH units.

OPERATION

10. As far as is reasonably practicable, the works shall be operated so as to prevent:
 - (a) any matter being present in the Discharge, other than matter specifically covered by numerical conditions in this consent, to such an extent as to cause the receiving waters, or any waters of which the receiving waters are a tributary, to be poisonous or injurious to fish in those waters, or to the spawning grounds, spawn or food of fish in those waters, or otherwise cause damage to the ecology of those waters; and
 - (b) the Discharge from having any other adverse environmental impact.

MAINTENANCE

11. The plant shall be operated and maintained in accordance with good operational practice such that :
 - i). It remains fully operational except at times of unavoidable mechanical breakdown which shall be attended to, and the Agency informed of the failure as soon as practicable after the failure.

CONSENT NO.	CG0333601
SCHEDULE NO.	CG0333601 01



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- ii). Following the failure all equipment shall be returned to normal operation as soon as practicable,
- iii). The interceptor shall be cleaned and desludged at sufficient frequency and in such a manner to prevent carryover of solids in breach of this consent.

CONSENT NO.	CG033360101
SCHEDULE NO.	CG0333601 01



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ANNEX 1

Plan CG0333601

GRAIG QUARRY, DENBIGH



Eich cyf/Your ref.

Ein cyf/Our ref:

Ymholiadau/Enquiries.

Dyddiad/Date

EP3/QU/Denbigh Quarry

Joanne Evans

Ext 4507

29th November 1999ASIANTAETH YR
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ENVIRONMENT
AGENCY WALES

Paul Burfitt,
Tarmac Quarry Products Limited,
Headquarters,
Millfields Road,
Ettinghall,
Wolverhampton,
West Midlands,
WV4 6JP

Dear Paul,

RE: DENBIGH QUARRY, DENBIGHSHIRE, NORTH WALES.

I refer to your letter dated 27th November 1999 and our subsequent telephone conversation regarding your requesting for a modification to the current discharge consent (CG0333601) held by Tarmac for the Denbigh Quarry site.

I have forward a copy of your letter to our consents department who will implement the necessary modifications to Consent Number CG0333601, so as to reflect the change in situation at site i.e. addition of water from the upper quarry and increase in maximum daily flow to 117 litres/second. Once the modification has been completed the Agency will reissue the consent

However, until you receive a copy of the modified consent the Agency has no objections to the discharge of water from the upper quarry, providing that the discharge at all times complies with the quality conditions imposed on the site's existing consent and passes through the existing site sample point. If you have any queries with regard to the above or require further assistance or information, please do not hesitate to contact me.

Yours sincerely

JOANNE EVANS**Environment Protection Officer**

(EP310308/APH)

Asiantaeth yr Amgylchedd Cymru
Ffordd Cacr, Bwcle, Sir y Fflint CH7 3AJ
Ffon 01244 550124 Ffacs 01244 550144

Environment Agency Wales
Chester Road, Buckley, Flintshire CH7 3AJ
Tel 01244 550124 Fax 01244 550144



Breedon Trading Limited
Denbigh Quarry
Denbigh, Denbighshire

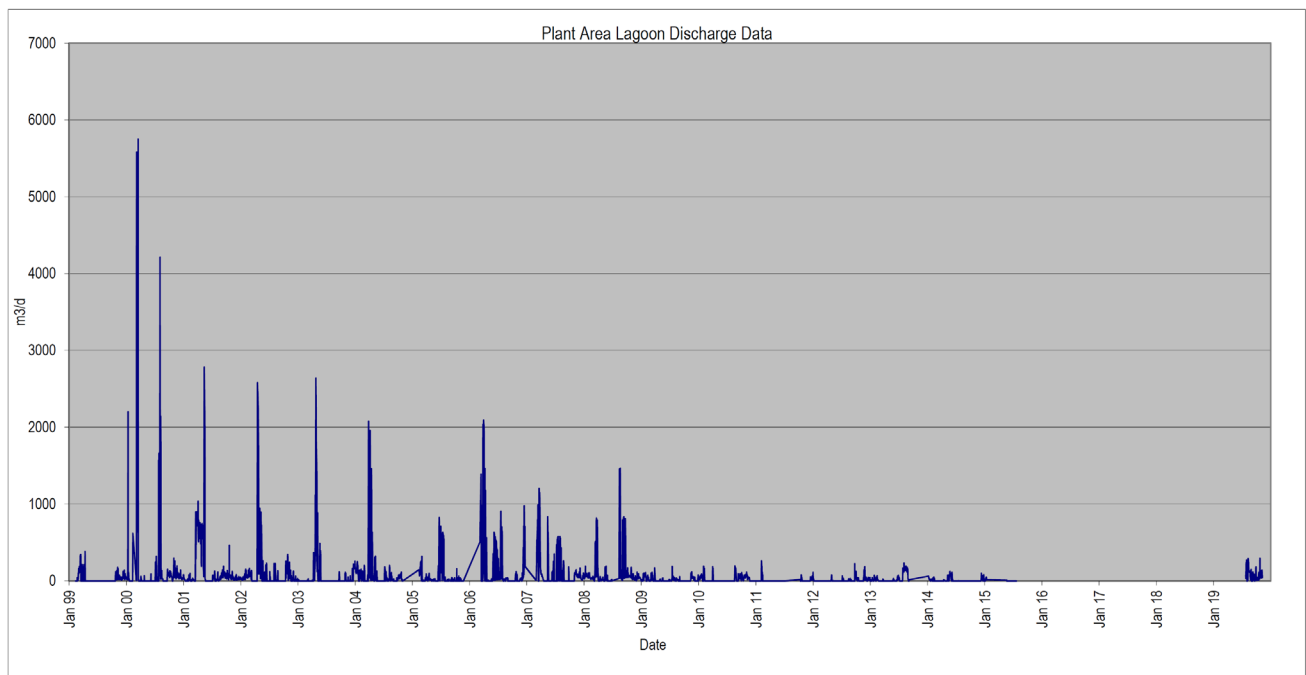
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Appendix 9.5 Site Discharge Records

Date	Opening (x10 m3)	Closing (x10 m3)	Total (m3)	Water depth	Hours Pumped	Notes
19/07/1999	10118	10129	110	4	5.5	
20/07/1999	10129	10147	180	4	5	
21/07/1999	10147	10221	740	3.9	20	
22/07/1999	10221	10297	760	3.9	24	
23/07/1999	10297	10300	30	3.8	24	Flow meter broke
24/07/1999	10300	10300	0	3.7	24	Flow meter broke
25/07/1999	10300	10300	0	3.5	24	Flow meter broke
26/07/1999	10300	10389	890	3.6	24	
27/07/1999	10389	10469	800	3.5	24	
28/07/1999	10469	10576	1070	3.4	24	
29/07/1999	10576	10663	870	3.3	24	
30/07/1999	10663	10751	880	3	24	
31/07/1999	10751	10855	1040	3	24	
01/08/1999	10855	10948	930	3	24	
02/08/1999	10948	11049	1010	2.9	24	
03/08/1999	11049	11138	890	2.9	24	
04/08/1999	11138	11217	790	2.9	24	
05/08/1999	11217	11302	850	2.9	24	
06/08/1999	11302	11370	680	2.8	24	
07/08/1999	11370	11435	650	2.8	24	
08/08/1999	11435	11435	0		0	
09/08/1999	11435	11512	770	2.8	24	
10/08/1999	11512	11601	890	2.7	24	
11/08/1999	11601	11665	640	2.7	24	
12/08/1999	11665	11717	520	2.7	24	
13/08/1999	11717	11788	710	2.6	24	
14/08/1999	11788	11868	800	2.6	24	
15/08/1999	11868	11938	700	2.6	24	
16/08/1999	11938	12017	790	2.4	24	
17/08/1999	12017	12097	800	2.3	24	
18/08/1999	12097	12164	670	2.3	21.5	
19/08/1999	12164	12250	860	2.1	24	
20/08/1999	12250	12329	790	2.1	24	
21/08/1999	12329	12413	840	1.8	24	
22/08/1999	12413	12413	0		0	
23/08/1999	12413	12491	780	1.7	24	
24/08/1999	12491	12580	890	1.6	24	
25/08/1999	12580	12659	790	1.6	24	
26/08/1999	12659	12722	630	1.5	24	
27/08/1999	12722	12794	720	1.5	18	Water pump broke
28/08/1999	12794	12873	790	1.1	24	
29/08/1999	12873	12957	840	1.2	24	
30/08/1999	12957	12957	0			Depth & usage hours not recorded
31/08/1999	12957	13036	790			Depth & usage hours not recorded
01/09/1999	13036	13121	850			Depth & usage hours not recorded
02/09/1999	13121	13207	860			Depth & usage hours not recorded
03/09/1999	13207	13299	920			Depth & usage hours not recorded
04/09/1999	13299	13389	900			Depth & usage hours not recorded
05/09/1999	13389	13448	590			Depth & usage hours not recorded
06/09/1999	13448	13533	850	1.2	24	
07/09/1999	13533	13625	920	1.2	24	
08/09/1999	13625	13717	920	1	24	
09/09/1999	13717	13811	940	1	24	
10/09/1999	13811	13899	880	1	24	
11/09/1999	13899	13984	850	0.9	24	
12/09/1999	13984	14038	540	0.8	15	
13/09/1999	14038	14105	670	0.8	18	
14/09/1999	14105	14166	610	0.8	18	
15/09/1999	14166	14197	310	0.8	8	
16/09/1999	14197	14240	430	0.6	12	
17/09/1999	14240	14275	350	0.5	12	
18/09/1999	14275	14275	0		0	





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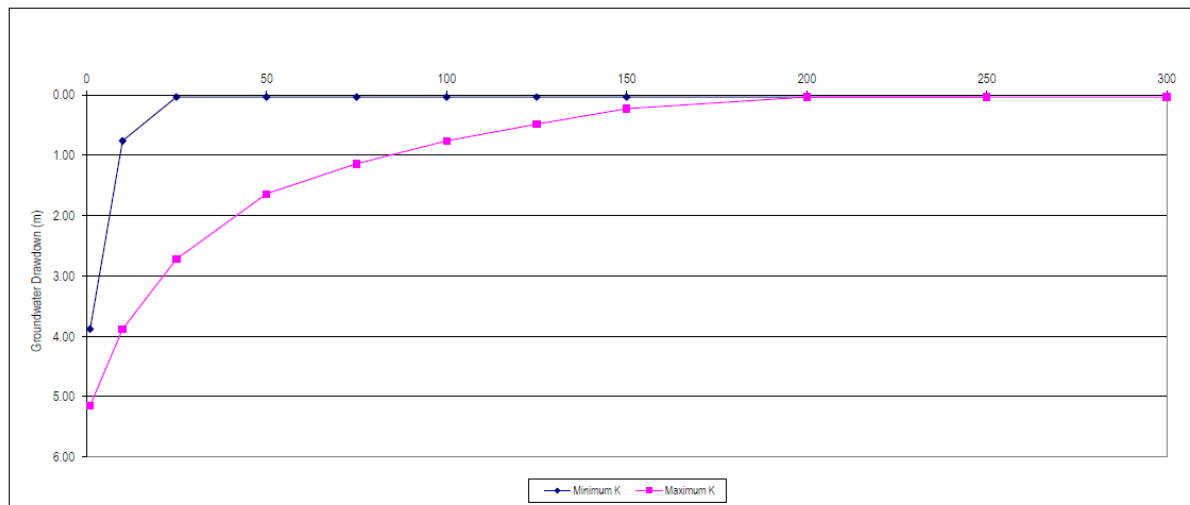
Appendix 9.6 Dewatering Assessment

METHODOLOGIES: Existing Site

Radius of Influence CIRIA $Ro = C \times S \times \sqrt{K}$
Discharge Modified Todd - Impermeable base $Q = \pi K (dh^2 / \ln(r2/r1))$
Distance Drawdown CIRIA "Percentage" method
Input Variables Red text

Ro & Q

Required drawdown in void (dh)	5.4							
length of void	141							
width of void	88.7							
C	3000							
		K (m/s)	K (m/d)	Ro	r	R	Q(m3/d)	Q(l/s)
Min		1.157E-06	0.1	17.4	63	81	38	0.4
Max		1.157E-04	10	174.3	63	237	691	8.0

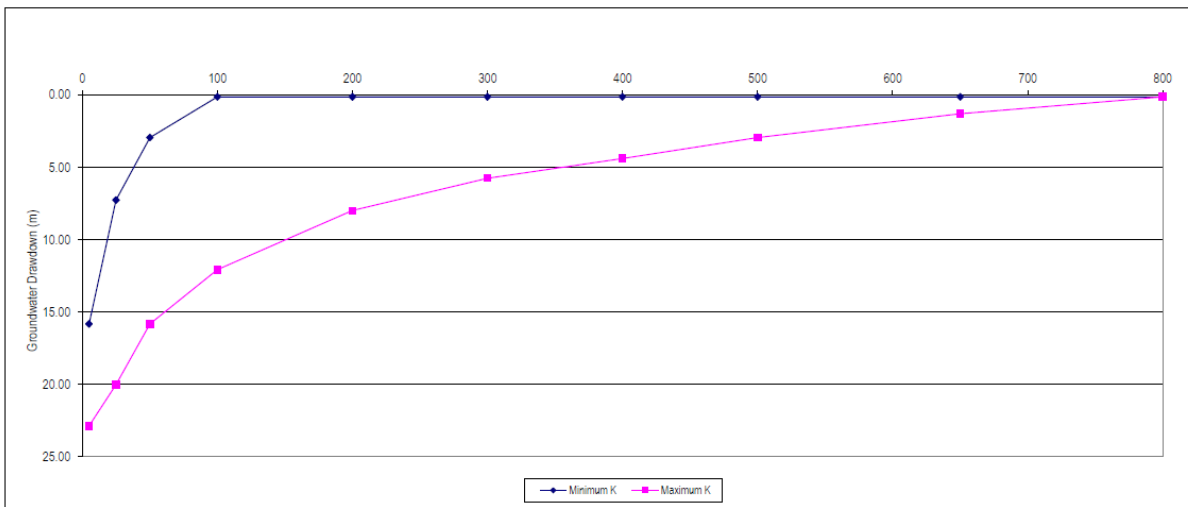


METHODOLOGIES: Proposed Development

Radius of Influence	CIRIA $Ro = C \times S \times \sqrt{K}$
Discharge	Modified Todd - Impermeable base $Q = \pi()K (dh^2 / \ln (r2/r1))$
Distance Drawdown	CIRIA "Percentage" method
Input Variables	Red text

Ro & Q

Required drawdown in void (dh)	24						
length of void	385						
width of void	138						
C	3000						
	K (m/s)	K (m/d)	Ro	r	R	Q(m3/d)	Q(l/s)
Min	1.157E-06	0.1	77.5	130	208	387	4.5
Max	1.157E-04	10	774.6	130	905	9329	108.0





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Denbigh, Denbighshire

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Appendix 9.7 Estimation of Greenfield Runoff Rate

Calculated by:	Peter Simpson
Site name:	Denbigh Quarry
Site location:	Denbigh

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013), the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Site Details

Latitude:	53.18999° N
Longitude:	3.42042° W
Reference:	1635957768
Date:	Nov 21 2019 11:44

Runoff estimation approach

IH124

Site characteristics

Total site area (ha):	6.9
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Methodology

Q _{BAR} estimation method:	Calculate from SPR and SAAR
SPR estimation method:	Calculate from SOIL type

Soil characteristics

	Default	Edited
SOIL type:	4	4
HOST class:	N/A	N/A
SPR/SPRHOST:	0.47	0.47

Hydrological characteristics

	Default	Edited
SAAR (mm):	773	773
Hydrological region:	9	9
Growth curve factor 1 year:	0.88	0.88
Growth curve factor 30 years:	1.78	1.78
Growth curve factor 100 years:	2.18	2.18
Growth curve factor 200 years:	2.46	2.46

Notes

(1) Is $Q_{\text{BAR}} < 2.0$ l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is $\text{SPR/SPRHOST} \leq 0.3$?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates

	Default	Edited
Q _{BAR} (l/s):	37.41	37.41
1 in 1 year (l/s):	32.92	32.92
1 in 30 years (l/s):	66.59	66.59
1 in 100 year (l/s):	81.56	81.56
1 in 200 years (l/s):	92.03	92.03

This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at www.uksuds.com/terms-and-conditions.htm. The outputs from this tool are estimates of greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of this data in the design or operational characteristics of any drainage scheme.

Return period (yrs)	Urbanised peak flow (m ³ /s)	Urbanised direct runoff (ML)	As-rural peak flow (m ³ /s)	As-rural direct runnof (ML)
1	0.113232433	1.293503884	0.043254408	0.540567632
2	0.126589845	1.452919201	0.048449612	0.61182885
5	0.174882437	2.031706698	0.067924273	0.878724638
10	0.212534454	2.485578874	0.083833885	1.096744447
30	0.282396114	3.33365992	0.115004532	1.523857534
50	0.321431425	3.810826055	0.133338119	1.775051592
75	0.354420294	4.21554568	0.149338758	1.994032687
100	0.37870855	4.5142108	0.161420727	2.159035615
200	0.43939755	5.263983179	0.192675305	2.585637444
1000	0.587488529	7.113891338	0.275136125	3.709815105



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Denbigh, Denbighshire

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Appendix 9.8 Preferred Fluids Handling Procedure

Introduction

Inappropriate storage and handling of fuels and oils can result in contamination of ground, ground water and surface water.

This procedure covers

Bulk storage of fuels and oils, including waste oil

Filling of bulk storage tanks

Storage and handling of drums

Refuelling operations

Procedure for emptying bunded areas

Fuel and oil spills

Bulk storage of fuels and oils, including waste oil

1. All fuels and oils in bulk shall be kept in bunded storage, the location of which shall be identified on a site plan.
2. The walls and floor of storage bunds must be impervious to oil.
3. Tank filling points shall be inside the bunded area.
4. Delivery lines shall be overhead or, if underground, sleeved.
5. Delivery nozzles shall be stored inside the bund and locked when not in use.
6. Bund drain valves, where fitted, shall be designed so that they can only be removed by key or hand held tool, except when emptying the bund under controlled conditions.
7. All bulk storage tanks shall be appropriately labelled with contents and capacity.
8. Spill kits shall be provided close to hand.
9. Bunded areas shall be checked weekly for build up of oil residues, rainwater or debris.
10. The inside of the bund shall have a line painted to identify when 10% of the capacity has been filled by rainwater etc.

Filling of bulk storage tanks

1. A member of site staff must supervise all tank filling operations.
2. Storage tank levels must be checked to gauge spare capacity before starting filling operations.
3. Check delivery hoses and hose connections for leaks.
4. Report spillages and leaks and clean them up promptly, disposing of waste correctly according to the requirements of prevailing regulation(s).

Storage and handling of drums

1. All drums and containers used for the storage of fuels and oils, including waste oil, shall be appropriately labelled and kept in designated areas identified on a site plan. This will include temporary storage areas.
2. All drums or containers will be kept in bunded storage or on bund trays. This will include temporary storage.
3. Where drum taps are fitted these should be secure. The tap should be positioned over a bund tray to collect drips and spillage.
4. No drum shall be stored in the open without a drum cap fitted.
5. Drums shall be secured when moving them about the site.

6. Report spillages and leaks and clean them up promptly.
7. Spill kits shall be provided.
8. Drum storage areas shall be checked weekly for evidence of poor practice.

Refuelling operations

1. The person refuelling the vehicle must be present throughout the entire refuelling operation.
2. Check vehicle fuel tank level before starting refuelling operations to gauge how much fuel is required.
3. Check delivery hose from the pump / tank to the nozzle for leaks.
4. All delivery nozzles shall be fitted with an automatic cut-out to prevent over-filling.
5. Ensure delivery nozzle is held upright when moving between storage tank and vehicle.
6. Operatives should be prepared to react to any gas oil splashing out whilst re-fuelling.
7. Fuel delivery nozzles shall be locked or similarly disabled when not in use.
8. Report spillages and leaks and clean them up promptly.

Procedure for emptying bunded areas

1. Authority of site management is required before emptying a bund.
2. Details of bund emptying shall be recorded and maintained on site.
3. If the contents of the bund include floating oil then the water underneath this oil should be carefully pumped out. The remaining oil coated water should be collected and disposed of through a licensed contractor.
4. The reason for bund contamination shall be investigated.

Fuel and oil spills

1. Any spillage that cannot be cleaned up promptly with a rag or use of a shovel-full of absorbent material must be reported to the site Manager or his designated deputy who will co-ordinate the response and investigate the cause.
2. Spills to ground shall be absorbed and prevented from spreading by using absorbent materials such as sand, fies, absorbent mats, paper or cloth.
3. Halt the movement of fuel or oil towards a watercourse by creating a barrier in front of it by sand bagging, deployment of absorbent boom or use of 3mm or finer dust.
4. If oil enters a watercourse, prevent it spreading by deploying an absorbent boom.
5. If spilt oil or fuel leaves the site the Site Manager must inform the Environment Agency.
6. Contaminated materials from clean-up should be put in an appropriately labelled container and disposed of through a licensed contractor in line with regulatory requirements as stipulated by the Environment Agency.