

For inspection purposes only.  
Consent of copyright owner required for any other use.

## **ATTACHMENT B**

## NEWSPAPER NOTICE



### APPLICATION TO THE ENVIRONMENTAL PROTECTION AGENCY FOR A WASTE WATER DISCHARGE LICENCE

Meath County Council, County Hall, Railway Street, Navan, Co. Meath intends to apply to the Environmental Protection Agency for a Waste Water Discharge Licence for an existing discharge at the Wastewater Treatment Plant in the townland of **Cortown, Kells**, County Meath (National Grid Reference 275,820E 271,360N). The treatment process consists of rotating biological contactors.

The application relates to the following discharge point:

The primary discharge point PSW1 – 275,778E, 271,356N (Receiving Water – Athboy Groundwater Body)

A copy of the following documents shall, as soon as is practicable after receipt by the Agency, be available for inspection or purchase at the headquarters of the Environmental Protection Agency, P.O. Box 3000, Johnstown Castle Estate, Co. Wexford and at Meath County Council, County Hall, Railway Street, Navan, Co. Meath

- (i) the application for a waste water discharge licence
- (ii) such further information relating to the application as may be furnished to the Agency in the course of the Agency's consideration of the application.

Submissions in relation to the application may be made to the Environmental Protection Agency at its headquarters at P.O. Box 3000, Johnstown Castle Estate, Co. Wexford.

For inspection purposes only.  
Consent of copyright owner required for any other use.







For inspection purposes only.  
Consent of copyright owner required for any other use.

## **ATTACHMENT D**



**JENNINGS O'DONOVAN**  
& PARTNERS  
CONSULTING ENGINEERS

Finisklin Business Park  
Sligo

T: 071-91 61416 / 071-91 29292  
F: 071-91 61080

E: info@jodireland.com  
W: www.jodireland.com

4654/122/001/YMcM

12<sup>th</sup> November 2009

Ms. Mary Boothman,  
Development Application Unit,  
Department of the Environment,  
Dùn Scéine,  
Hardcourt Lane,  
**Dublin 2.**

**Re: EPA Waste Water Discharge Licence for 16 Villages in County Meath**

Dear Mary,

Jennings O'Donovan & Partners are preparing EPA Waste Water Discharge Certificates Applications for Meath sewerage schemes in County Meath listed below:

1. Ardcah Sewerage Scheme (discharge to groundwater)
2. Ballinabrackey Sewerage Scheme (discharges to surface water)
3. Batterstown Sewerage Scheme (discharges to surface water)
4. Bellewstown Sewerage Scheme (discharges to Groundwater)
5. Bohermeen Sewerage Scheme (discharges to surface water)
6. Castletown Sewerage Scheme (discharges to surface water)
7. Clonalvy Sewerage Scheme (discharges to groundwater)
8. Carnaross Sewerage Scheme (discharges to groundwater)
9. Cortown Sewerage Scheme (discharges to groundwater)
10. Dunderry Sewerage Scheme (discharges to surface water)
11. Hill of Tara Sewerage Scheme (discharges to groundwater)
12. Kilberry Sewerage Scheme (discharges to surface water)
13. Lloyd, Kells Sewerage Scheme (discharges to surface water)
14. Lobinstown Sewerage Scheme (discharges to surface water)
15. Robinstown Sewerage Scheme (discharges to surface water)
16. Skryne Sewerage Scheme (discharges to surface water)

Please find enclosed site location drawings together with the local designated areas at the sixteen Wastewater Treatment Plants.

Section F of the application relating to the NPWS, requires us to give details of any designation that applies to the receiving water. After consultation with the EPA they advised us to get in contact with you to get a clear picture of the boundary of the SAC and SPA and in addition we require a letter from the NPWS stating whether the discharge is deemed impact the receivers waters or if an "Appropriate Assessment" is to be carried out.

We would be grateful for your input at your earliest convenience as the applications have to be submitted to the EPA by the 22<sup>nd</sup> of December 2009. If you have any questions regarding the above or wish to discuss the application, please do not hesitate to contact this office.

Yours sincerely,



**Yvonne McMonagle**  
**for: Jennings O'Donovan & Partners**

**Encl.**

**c.c. Mr. Gerry Boyle, Meath County Council**

For inspection purposes only.  
Consent of copyright owner required for any other use.

AttachmentD.1 RBD\_Office

From: Yvonne McMonagle  
Sent: 12 November 2009 17:15  
To: 'info@erbd.ie'  
Subject: Meath Villages Wastewater Certificates License Application

Dear Sir/ Madame,

I am currently completing 16 discharge certificates application for Meath County Council as listed below:

1. Ardcah Sewerage Scheme (discharge to groundwater)
2. Ballinabrackey Sewerage Scheme (discharges to surface water)
3. Batterstown Sewerage Scheme (discharges to surface water)
4. Bellewstown Sewerage Scheme (discharges to Groundwater)
5. Bohermeen Sewerage Scheme (discharges to surface water)
6. Castletown Sewerage scheme (discharges to surface water)
7. Clonalvy Sewerage Scheme (discharges to groundwater)
8. Carnaross Sewerage Scheme (discharges to groundwater)
9. Cortown Sewerage Scheme (discharges to groundwater)
10. Dunderry Sewerage Scheme (discharges to surface water)
11. Hill of Tara Sewerage Scheme (discharges to groundwater)
12. Kilberry Sewerage Scheme (discharges to surface water)
13. Lloyd, Kells Sewerage Scheme (discharges to surface water)
14. Lobinstown Sewerage Scheme (discharges to surface water)
15. Robinstown Sewerage Scheme (discharges to surface water)
16. Skryne Sewerage Scheme (discharges to surface water)

A specification of the license application is to get in contact with the local RBD office about the need to monitor certain substances listed in Annex X and XIII of the Water Framework Directive in the receiving waters. Please find attached the associated drawings showing the location of the waste water treatment plants and discharge points.

The section of the application which relates to the monitoring of the substances listed in Annex 8 and 10 are in section D. After consultation with the EPA they advised us to get in contact with yourselves and to see if any of these 69 substances are present in this receiving water and if there is a need for us to monitor some of these parameters. We also require a letter from yourselves to confirm your findings.

According to the EPA they have been in contact with yourselves about this issue and that you will be aware what is needed for the application. If you have any questions about this section you can contact the EPA ring or if there is someone else in the ERBD office I could get in contact with to gather the data.

Looking forward to hearing from you.

Regards,  
Yvonne McMonagle,  
Jennings O'Donovan & Partners,  
Consulting Engineers,  
Finisklin Business Park,  
Sligo.  
Tel.: 071 9161416  
Fax: 071 9161080  
Email: ymcmongale@jodireland.com



AttachmentD.1 RBD\_Office

This e-mail message and any attached file is the property of the sender and is sent in confidence to the addressee only. The contents are not to be disclosed to anyone other than the addressee. Unauthorised recipients are requested to preserve this confidentiality and to advise the sender immediately of any error in transmission. If you experience difficulty with opening any attachments to this message, or with sending a reply by email, please telephone on + 44-(0)1235 438151 or fax on + 44-(0)1235 438188.

Any advice contained in this e-mail or any accompanying file attached hereto is for information purposes only. RPS do not take any responsibility for differences between the original and the transmission copy or any amendments made thereafter. If the addressee requires RPS to be responsible for the contents of this e-mail, RPS will be pleased to issue a signed hard copy of the document upon request.

RPS (Ireland) Limited, company number: NI20604 (Northern Ireland). Registered office: Centurion Court, 85 Milton Park Abingdon Oxfordshire OX14 4RY.  
RPS Group Plc web link: <<http://www.rpsgroup.com>>

*For inspection purposes only.  
Consent of copyright owner required for any other use.*

For inspection purposes only.  
Consent of copyright owner required for any other use.

## **ATTACHMENT D.1**



# MEATH VILLAGES EFFLUENT DISCHARGE SURVEY

## *EXECUTIVE SUMMARY*

For inspection purposes only.  
Consent of copyright owner required for any other use.

### **Client:**

Meath County Council

### **Consulting Engineers:**

Jennings O'Donovan & Partners  
Consulting Engineers  
Finisklin  
Sligo



Unit 9, Block A,  
Centrepont Business Park  
Oak Road  
Dublin 12  
Tel: (01) 4605912  
Fax: (01) 4605913

Issued 24<sup>th</sup> November 2009



## Cortown

### Site 1

Average Volume - See comments below  
Maximum Volume - See comments below  
Maximum Rate of Discharge - See comments below  
Method of flow measurement - Area velocity flow monitor

Influent Sampling Point: Inlet to treatment works  
Effluent Sampling Point: Inlet to sump before percolation area

**Table 1: Site 1 Sample Analysis Results for the 9<sup>th</sup> November**

Parameter	COD mg/l	pH mg/l	BOD mg/l	Sus. Solids mg/l	Phosphorous ( as P ) mg/l	T. Nitrogen ( as P ) mg/l	Ammonia mg/l
Influent	955	6.9	336	194	5.4	63.295	7.379
Effluent	246	7.0	65	88	7.8	17.395	0.855

**Table 2: Site 1 Sample Analysis Results for the 10<sup>th</sup> November 2009**

Parameter	COD mg/l	pH mg/l	BOD mg/l	Sus. Solids mg/l	Phosphorous ( as P ) mg/l	T. Nitrogen ( as P ) mg/l	Ammonia mg/l
Influent	1197	7.6	413	661	13.0	100.36	19.249
Effluent	223	7.0	36	95	2.2	16.14	0.222

#### Comments

The line where flow monitoring took place at this location was backed up for much of the survey. This caused issues with regard to velocity data capture. As increased depths did not lead directly to an increase in flow an accurate flow could not be calculated based on depth readings

For inspection purposes only.  
Consent of copyright owner required for any other use.

## **ATTACHMENT D.2**





For inspection purposes only.  
Consent of copyright owner required for any other use.

## **ATTACHMENT E.2**



# MEATH VILLAGES EFFLUENT DISCHARGE SURVEY

## *EXECUTIVE SUMMARY*

For inspection purposes only.  
Consent of copyright owner required for any other use.

### **Client:**

Meath County Council

### **Consulting Engineers:**

Jennings O'Donovan & Partners  
Consulting Engineers  
Finisklin  
Sligo



Unit 9, Block A,  
Centrepont Business Park  
Oak Road  
Dublin 12  
Tel: (01) 4605912  
Fax: (01) 4605913

Issued 24<sup>th</sup> November 2009

## Cortown

### Site 1

Average Volume - See comments below  
Maximum Volume - See comments below  
Maximum Rate of Discharge - See comments below  
Method of flow measurement - Area velocity flow monitor

Influent Sampling Point: Inlet to treatment works  
Effluent Sampling Point: Inlet to sump before percolation area

**Table 1: Site 1 Sample Analysis Results for the 9<sup>th</sup> November**

Parameter	COD mg/l	pH mg/l	BOD mg/l	Sus. Solids mg/l	Phosphorous ( as P ) mg/l	T. Nitrogen ( as P ) mg/l	Ammonia mg/l
Influent	955	6.9	336	194	5.4	63.295	7.379
Effluent	246	7.0	65	88	7.8	17.395	0.855

**Table 2: Site 1 Sample Analysis Results for the 10<sup>th</sup> November 2009**

Parameter	COD mg/l	pH mg/l	BOD mg/l	Sus. Solids mg/l	Phosphorous ( as P ) mg/l	T. Nitrogen ( as P ) mg/l	Ammonia mg/l
Influent	1197	7.6	413	661	13.0	100.36	19.249
Effluent	223	7.0	36	95	2.2	16.14	0.222

#### Comments

The line where flow monitoring took place at this location was backed up for much of the survey. This caused issues with regard to velocity data capture. As increased depths did not lead directly to an increase in flow an accurate flow could not be calculated based on depth readings



For inspection purposes only.  
Consent of copyright owner required for any other use.

### **ATTACHMENT E.3**

[illegible]

For inspection purposes only.  
Consent of copyright owner required for any other use.

## **ATTACHMENT E.4**



## For Quality and Excellence in Laboratory Analysis



Quality Systems and Laboratory Services

P.O. Box 27,  
Strandfield Business Park,  
Rosslare Road,  
Wexford  
Tel/Fax 053 9145600  
Email: info@qlab.ie

### Test Report Copy

Customer: Jennings O'Donovan & Pa  
Consulting Engineers  
Finisklin Business Park  
Sligo  
Co. Sligo  
Account.: 9413

Report No.: 51595  
Report Date: 01/12/2009  
Received Date: 10/11/2009  
Analysis Date: 11/11/2009  
Order No.:  
Page: 1 of 2  
Revision Date:

Sample ID: 77158

Description: Final Effluent Sample taken @ Courtown 10.11.09 08.45hrs by Conor (Q-Lab)

Ref No:

ID	Test	SOP	Results
<input type="checkbox"/> 77158	Total Nitrogen as N, mg/l	STM-C-13.1.0	7.1
<input type="checkbox"/> 77158	Copper as Cu, mg/l	Subcontracted	0.096 ✓
<input type="checkbox"/> 77158	Chromium as Cr mg/l	Subcontracted	<0.001 ✓
<input type="checkbox"/> 77158	Arsenic as As mg/l	Subcontracted	0.0004 ✓
<input type="checkbox"/> 77158	Sulphates as SO <sub>4</sub> , mg/l	STM-C-18.2.0	110
<input type="checkbox"/> 77158	Ortho Phosphates (as mg P/L)	STM-C-20.2.0	5.9
<input type="checkbox"/> 77158	Total Phosphorous as P, mg/l	STM-C-19.2.0	6.6
<input checked="" type="checkbox"/> 77158	pH value	STM-C-3.1.00	7.33
<input type="checkbox"/> 77158	Nitrites as NO <sub>2</sub> , mg/l	STM-C-8.2.04	0.218
<input type="checkbox"/> 77158	Zinc as Zn mg/l	Subcontracted	0.0858 ✓
<input type="checkbox"/> 77158	Dissolved oxygen, mg/l	STM-C-10.3.0	6.19
<input checked="" type="checkbox"/> 77158	COD mg/l	STM-C-11.2.0	203
<input checked="" type="checkbox"/> 77158	BOD, mg/l	STM-C-10.2.0	59
<input type="checkbox"/> 77158	Ammonia as NH <sub>3</sub> -N, mg/l	STM-C-7.2.04	3.9
<input checked="" type="checkbox"/> 77158	Suspended Solids, mg/l	STM-C-2.1.00	50
<input checked="" type="checkbox"/> 77158	Conductivity, uS/cm @ 20°C	STM-C-4.1.00	702
<input checked="" type="checkbox"/> 77158	Nitrates as NO <sub>3</sub> mg/l	STM-C-9.3.08	3.6
<input type="checkbox"/> 77158	Simazine ug/l	Subcontracted	<0.01 ✓
<input type="checkbox"/> 77158	Xylenes ug/l	Subcontracted	<0.5 ✓
<input type="checkbox"/> 77158	Tributyltin ug/l	Subcontracted	<0.02 ✓ 0.001
<input type="checkbox"/> 77158	Boron as B mg/l	Subcontracted	0.08
<input type="checkbox"/> 77158	Nickel as Ni mg/l	Subcontracted	0.0027 ✓

For Quality and Excellence in Laboratory Analysis



Quality Systems and Laboratory Services

P.O. Box 27,  
Strandfield Business Park,  
Rosslare Road,  
Wexford  
Tel/Fax 053 9145600  
Email: info@qlab.ie

**Test Report**  
**Copy**

Customer: Jennings O'Donovan & Pa  
Consulting Engineers  
Finisklin Business Park  
Sligo  
Co. Sligo  
Account.: 9413

Report No.: 51595  
Report Date: 01/12/2009  
Received Date: 10/11/2009  
Analysis Date: 11/11/2009  
Order No.:  
Page: 2 of 2  
Revision Date:

<input type="checkbox"/>	77158	Fluoride as F, mg/l	Subcontracted	0.45	—
<input type="checkbox"/>	77158	Phenols, ug/l	Subcontracted	<0.5	
<input type="checkbox"/>	77158	Cyanide mg/l	Subcontracted	0.0170	✓
<input type="checkbox"/>	77158	Toluene ug/l	Subcontracted	<0.5	✓
<input type="checkbox"/>	77158	Lead as Pb, mg/l	Subcontracted	0.0005	✓
<input type="checkbox"/>	77158	Dichloromethane ug/l	Subcontracted	<5.0	✓
<input type="checkbox"/>	77158	Atrazine ug/l	Subcontracted	<0.01	✓
<input type="checkbox"/>	77158	Barium as Ba mg/l	Subcontracted	0.0213	
<input type="checkbox"/>	77158	Selenium as Se mg/l	Subcontracted	0.0003	
<input type="checkbox"/>	77158	Mercury as Hg mg/l	Subcontracted	<0.00002	
<input type="checkbox"/>	77158	Cadmium as Cd mg/l	Subcontracted	<0.0001	
<input checked="" type="checkbox"/>	77158	Total Hardness as CaCO <sub>3</sub> , mg/l	STM-C-6.1.00	170	
<input type="checkbox"/>	77158	Temperature, °C	STM-C-41.1.0	11.1	

Comments:

Report Authorised By:

*Peter O'Byrne*

Peter O'Byrne Chem. Lab. Manager

Results relate only to Items Tested. Report must not be reproduced except in full without prior consultation.

☒ Indicates Accredited Test. Opinions and Comments are not included in the scope of Accreditation

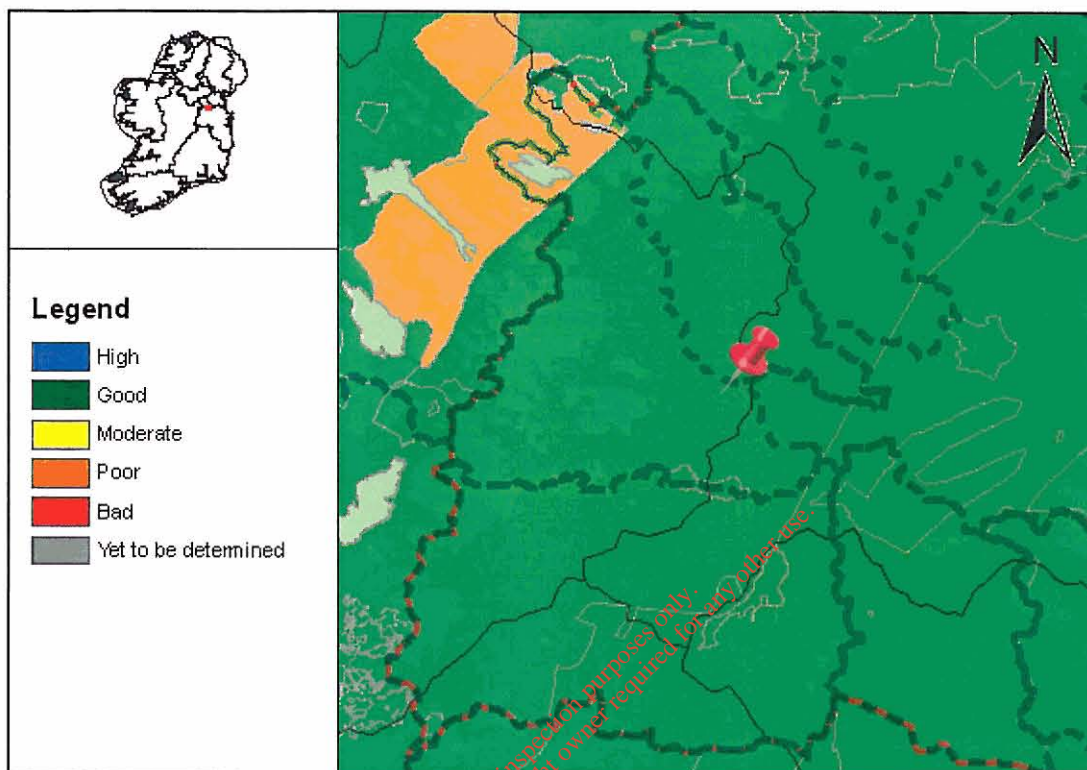


For inspection purposes only.  
Consent of copyright owner required for any other use.

## **ATTACHMENT F.1**



## Full Report for Waterbody Athboy



Date Reported to Europe: 22/12/2008

Date Report Created 01/12/2009





**Summary Information:**

**WaterBody Category:** Groundwater Waterbody

**WaterBody Name:** Athboy

**WaterBody Code:** IE\_EA\_G\_001

**Overall Status:** Good

**Overall Objective:** Protect

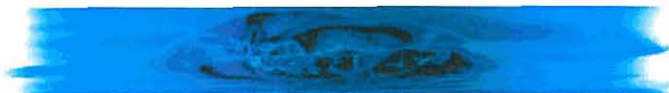
**Overall Risk:** 2a Probably Not At Risk

**Applicable Supplementary Measures:** Unsewered;  
Report data based upon Draft RBMP, 22/12/2008.

For inspection purposes only.  
Consent of copyright owner required for any other use.

Date Reported to Europe: 22/12/2008

Date Report Created 01/12/2009



## Chemical and Quantitative Status Report

**WaterBody Category:** Groundwater Waterbody

**WaterBody Name:** Athboy

**WaterBody Code:** IE\_EA\_G\_001

**Overall Status Result:** Good

	Status Element Description	Result
	<b>Groundwater Quality</b>	
WB	Water Balance Status	GS-HC
INT	Saline Intrusions Status	GS-HC
DW	Drinking Waters Status	GS-HC
DIF	Diffuse Elements (General) Status	GS-HC
	<b>Groundwater Quality (Point Source)</b>	
CL	Contaminated Land Status	GS-HC
MI	Mine Status	GS-HC
UR	Urban Status	GS-HC
PTO	Overall Point Source Status	GS-HC
	<b>Groundwater Quality (General)</b>	
GQ	General Groundwater Quality Status	GS-HC
	<b>Surface Water</b>	
TC	Transitional & Coastal Status	GS-HC
SWO	Surface Water Quality Overall Status	GS-HC
SWQ	Surface Water Quantity Overall Status	GS-HC
	<b>Groundwater Dependent Terrestrial Ecosystems</b>	
TE	GWDTE Status	GS-HC
	<b>Overall</b>	
QUO	Overall Quantitative Status	GS-HC
O	Final Status Classification	Good

Date Reported to Europe: 22/12/2008

Date Report Created 01/12/2009



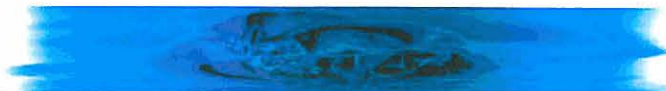
## Risk Report

**WaterBody Category:** Groundwater Waterbody  
**WaterBody Name:** Athboy  
**WaterBody Code:** IE\_EA\_G\_001  
**Overall Risk Result:** 2a Probably Not At Risk

Risk Test Description		Risk	
Groundwater Quality			
WB	Water Balance Risk	2b	Not At Risk
INT	Intrusions Risk	2b	Not At Risk
DW	Drinking Waters Risk	2b	Not At Risk
DIF	Diffuse Elements (General) Risk	2a	Probably Not At Risk
Groundwater Quality (Point Risk)			
LF	Landfill Risk	2a	Probably Not At Risk
QY	Quarry Risk	2b	Not At Risk
UW	UWWT Risk	2b	Not At Risk
CL	Contaminated Land Risk	2b	Not At Risk
MI	Mine Risk	2b	Not At Risk
UR	Urban Risk	2b	Not At Risk
Groundwater Quality (General)			
GQ	General Groundwater Quality Risk	2a	Probably Not At Risk
Surface Water			
RV	River Risk	2b	Not At Risk
TC	Transitonal & Coastal Risk	2b	Not At Risk
SWO	Surface Water Quality Overall Risk	2b	Not At Risk
SWQ	Surface Water Quantity Overall Risk	2b	Not At Risk
Groundwater Dependent Terrestrial Ecosystems			
TE	GWDTE Risk	2b	Not At Risk
Overall Risk			
RA	Overall Risk	2a	Probably Not At Risk

Date Reported to Europe: 22/12/2008

Date Report Created 01/12/2009



## Objectives Report

**WaterBody Category:** Groundwater Waterbody

**WaterBody Name:** Athboy

**WaterBody Code:** IE\_EA\_G\_001

**Overall Objective:** Protect

Objectives Description		Result
<b>Objectives</b>		
OB1	Groundwater Quantitative Objective	Protect
OB2	Groundwater Chemical Objective	Protect
OBO	Overall Objective	Protect
<b>Deadline</b>		
EX	Revised Objective Deadline	2015
OBO	Overall Objective and Deadline	Protect

For inspection purposes only.  
 Consent of copyright owner required for any other use.

Date Reported to Europe: 22/12/2008

Date Report Created 01/12/2009



## Basic Measures Report

**WaterBody Category:** Groundwater Waterbody

**WaterBody Name:** Athboy

**WaterBody Code:** IE\_EA\_G\_001

Basic Measures Description		Applicable
<b>Key Directives</b>		
BA	Bathing Waters Directive	Yes
BI	Birds Directive	No
HA	Habitats Directive	No
DW	Drinking Waters Directive	Yes
SEV	Major Accidents and Emergencies (Seveso) Directive	Yes
EIA	Environmental Impact Assessment Directive	Yes
SE	Sewage Sludge Directive	Yes
UW	Urban Waste Water Treatment Directive	Yes
PL	Plant Protection Products Directive	Yes
NI	Nitrates Directive	Yes
IP	Integrated Pollution Prevention Control Directive	Yes
<b>Other Stipulated Measures</b>		
CR	Cost recovery for water use	Yes
SU	Promotion of efficient and sustainable water use	Yes
DWS	Protection of drinking water sources	Yes
AB	Control of abstraction and impoundments	Yes
PT	Control of point source discharges	Yes
DI	Control of diffuse source discharges	Yes
GWD	Authorisation of discharges to groundwater	Yes
PS	Control of priority substances	No
MOR	Control of physical modifications to surface waters	No
OA	Controls on other activities impacting on water status	Yes
AP	Prevention or reduction of the impact of accidental pollution incidents	Yes

Date Reported to Europe: 22/12/2008

Date Report Created 01/12/2009



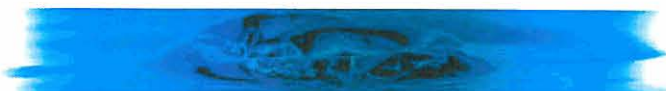
**water matters**  
*"help us plan!"*



For inspection purposes only.  
Consent of copyright owner required for any other use.

Date Reported to Europe: 22/12/2008

Date Report Created 01/12/2009



## Unsewered Properties Supplementary Measures Report

**WaterBody Category:** Groundwater Waterbody

**WaterBody Name:** Athboy

**WaterBody Code:** IE\_EA\_G\_001

	<b>Supplementary Measures for Unsewered Properties</b>	<b>Applicable</b>
SP1	Amend building regulations	Yes
SP2	Establish certified expert panels for site investigation and certification of installed systems	Yes
SP3	Assess applications for new unsewered systems by applying risk mapping/decision support systems and codes of practice	Yes
SP4	Carry out an inspection programme in prioritised locations for existing systems and record results in an action tracking system	Yes
SP5	Enforce requirements for percolation	following inspection
SP6	Enforce requirements for de-sludging	Yes
SP7	Consider connection to municipal systems	Where feasible

For inspection purposes only.  
 Consent of copyright owner required for any other use.

Date Reported to Europe: 22/12/2008

Date Report Created 01/12/2009

# Response Matrices

You will need to print a

**Vulnerability Map**

**Aquifer Map**

**Source Protection Area map**

for your calculations.

## Groundwater Protection Zones

### Groundwater Protection Responses for Landfills

### The IPC Landspreading of Organic Wastes

### The On-site Wastewater Treatment Systems for Single Houses

e.g. Septic Tank Systems

For further information please [click here](#)

## Disclaimer

The entire data set is designed for general information and strategic planning usage.

The Geological Survey of Ireland (GSI) makes no warranties on its fitness for any other purpose.

The burden for determining fitness for other uses lies with the user. Information supplied is based on the material available in GSI at the time of production and should not be regarded as complete data on the elements or areas being considered. Furthermore, uncertainty is an inherent element in drawing geological boundaries and local details are generalised to fit the original mapping and interpretation scale of 1:50,000. Evaluation of specific sites and circumstances will normally require further and more detailed assessments, and will often require site investigations.

It is intended that statutory authorities should apply a scheme in decision-making on the basis that the best available data are being used. The onus is then on a developer to provide new information which would enable the zonation to be altered and improved and, in certain circumstances, the planning or regulatory response to be changed.

For inspection purposes only.  
Consent of copyright owner required for any other use.

## Matrix of Groundwater Protection Zones

VULNERABILITY RATING	SOURCE PROTECTION ZONES		RESOURCE PROTECTION ZONES					
			Regionally Important Aquifers		Locally Important Aquifers		Poor Aquifers	
	<i>Inner (SI)</i>	<i>Outer (SO)</i>	<i>Rk</i>	<i>Rf/Rg</i>	<i>Lm/Lg</i>	<i>LI</i>	<i>PI</i>	<i>Pu</i>
Extreme (E)	SE-E	SO-E	Rk-E	Rf-E	Lm-E	LI-E	PI-E	Pu-E
High (H)	SE-H	SO-H	Rk-H	Rf-H	Lm-H	LI-H	PI-H	Pu-H
Moderate (M)	SE-M	SO-M	Rk-M	Rf-M	Lm-M	LI-M	PI-M	Pu-M
Low (L)	SE-L	SO-L	Rk-L	Rf-L	Lm-L	LI-L	PI-L	Pu-L

Arrows indicate direction of decreasing risk

[Back to Top](#)

For inspection purposes only.  
 Consent of copyright owner required for any other use.

# Groundwater Protection Responses for Landfills – Summary

## Response Matrix for Landfills

VULNERABILITY RATING	SOURCE PROTECTION AREA		RESOURCE PROTECTION Aquifer Category					
			Regionally Important (R)		Locally Important (L)		Poor Aquifers (P)	
	Inner	Outer	Rk	R/Rg	Lm/Lg	Ll	P1	Pu
Extreme (E)	R4	R4	R4	R4	R3 <sup>2</sup>	R2 <sup>2</sup>	R2 <sup>2</sup>	R2 <sup>1</sup>
High (H)	R4	R4	R4	R4	R3 <sup>1</sup>	R2 <sup>1</sup>	R2 <sup>1</sup>	R1
Moderate (M)	R4	R4	R4	R3 <sup>1</sup>	R2 <sup>2</sup>	R2 <sup>1</sup>	R2 <sup>1</sup>	R1
Low (L)	R4	R3 <sup>1</sup>	R3 <sup>1</sup>	R3 <sup>1</sup>	R1	R1	R1	R1

In all cases standards prescribed in the EPA Landfill Site Design Manual (EPA 1999) or conditions of a waste licence will apply

**R1** Acceptable subject to guidance in the EPA Landfill Design Manual or conditions of a waste licence

**R2<sup>1</sup>** Acceptable subject to guidance outlined in the EPA Landfill Design Manual or conditions of a waste licence

- Special attention should be given to checking for the presence of high permeability zones. If such zones are present then the landfill should only be allowed if it can be proven that the risk of leachate movement to these zones is insignificant. Special attention must be given to existing wells down-gradient of the site and to the projected future development of the aquifer

**R2<sup>2</sup>** Acceptable subject to guidance outlined in the EPA Landfill Design Manual or conditions of a waste licence

- Special attention should be given to checking for the presence of high permeability zones. If such zones are present then the landfill should only be allowed if it can be proven that the risk of leachate movement to these zones is insignificant. Special attention must be given to existing wells down-gradient of the site and to the projected future development of the aquifer
- Groundwater control measures such as cut-off walls or interceptor drains may be necessary to control high water table or the head of leachate may be required to be maintained at a level lower than the water table depending on site conditions

**R3<sup>1</sup>** Not generally acceptable unless it can be shown that:

- the groundwater in the aquifer is confined or
- there will be no significant impact on the groundwater and
- it is not practicable to find a site in a lower risk area

**R3<sup>2</sup>** Not generally acceptable unless it can be shown that:

- there is a minimum consistent thickness of 3 metres of low permeability subsoil present
- there will be no significant impact on the groundwater and
- it is not practicable to find a site in a lower risk area

**R4** Not acceptable

- This guidance is for the siting of landfills for non-hazardous wastes
- New landfills should not generally be developed on regionally important aquifers
- The siting, design, operation and monitoring of landfills must comply with the guidelines outlined in the EPA's Landfill manuals except where facilities hold a waste licence issued by the EPA
- It is recommended that all landfills be located in, or as near as possible to, the zone in the bottom right hand corner of the matrix
- Special attention should be given to checking for the presence of more permeable zones such as faults particularly in fractured bedrock

[Back to Top](#)



# Groundwater Protection Responses for Landspreading – Summary

## Response Matrix for Landspreading

VULNERABILITY RATING	SOURCE PROTECTION AREA		RESOURCE PROTECTION Aquifer Category					
			Regionally Important (R)		Locally Important (L)		Poor Aquifers (P)	
	Inner	Outer	R <sub>k</sub>	R <sub>l</sub> /R <sub>g</sub>	L <sub>m</sub> /L <sub>g</sub>	L <sub>l</sub>	P <sub>l</sub>	P <sub>u</sub>
Extreme (E)	R <sub>4</sub>	R <sub>4</sub>	R <sub>3</sub> <sup>1</sup>	R <sub>3</sub> <sup>2</sup>	R <sub>3</sub> <sup>1</sup>	R <sub>3</sub> <sup>1</sup>	R <sub>3</sub> <sup>1</sup>	R <sub>3</sub> <sup>1</sup>
High (H)	R <sub>4</sub>	R <sub>2</sub> <sup>1</sup>	R <sub>1</sub>	R <sub>1</sub>	R <sub>1</sub>	R <sub>1</sub>	R <sub>1</sub>	R <sub>1</sub>
Moderate (M)	R <sub>3</sub> <sup>1</sup>	R <sub>2</sub> <sup>1</sup>	R <sub>1</sub>	R <sub>1</sub>	R <sub>1</sub>	R <sub>1</sub>	R <sub>1</sub>	R <sub>1</sub>
Low (L)	R <sub>3</sub> <sup>1</sup>	R <sub>2</sub> <sup>1</sup>	R <sub>1</sub>	R <sub>1</sub>	R <sub>1</sub>	R <sub>1</sub>	R <sub>1</sub>	R <sub>1</sub>

**R<sub>1</sub>** Acceptable, subject to normal good practice

**R<sub>2</sub><sup>1</sup>** Acceptable subject to a maximum organic nitrogen load (including that deposited by grazing animals) not exceeding 170 kg/hectare/yr

**R<sub>3</sub><sup>1</sup>** Not generally acceptable, unless a consistent minimum thickness of 1 m of soil and subsoil can be demonstrated

**R<sub>3</sub><sup>2</sup>** Not generally acceptable, unless a consistent minimum thickness of 2 m of soil and subsoil can be demonstrated

**R<sub>3</sub><sup>3</sup>** Not generally acceptable, unless no alternative areas are available and detailed evidence is provided to show that contamination will not take place

**R<sub>4</sub>** Not acceptable

- If contamination by nitrate (or other contaminants) is a problem in any particular area then more restrictive responses may be necessary. Monitoring carried out under any Local Authority or Agency authorisation will assist in determining whether or not a variation in any of these responses is required
- The total nitrogen (organic and inorganic) load applied should not exceed Teagasc's nutrient recommendations for growing crops
- No spreading should be allowed within 50 m of groundwater sources
- In karst limestone areas features such as swallow holes, caves and streams connected to karst systems must be taken into account. Landspreading should not occur within 30 m of karst features
- Landspreading should coincide with the growing season so that the nutrients applied will be utilised by the growing crop
- Landspreading should be avoided when soil conditions prevent infiltration or when heavy rain is forecast within 48 hours. It is generally unacceptable to carry out landspreading during the period November to February inclusive. Operators who are considering landspreading during this period should consult the relevant authority.
- Site investigations (e.g. trial pits, auger holes, boreholes) should reach sufficient depths to show that the minimum required subsoil thickness is present. In extreme vulnerability areas or within source protection areas there should be at least one investigation point per hectare. In all other cases the sampling points should be at a minimum frequency of one per 5 hectares

[Back to Top](#)

# Groundwater Protection Responses for On-site Wastewater Systems for Single Houses - Summary

The potential suitability of a site for the development of an on-site system is assessed using the methodology outlined in *Wastewater Treatment Manual: Treatment Systems for Single Houses* (EPA 2000). The groundwater protection responses set out below should be used during the desk study assessment of a site to give an early indication of the suitability of a site for an on-site system. Information from the on-site assessment should be used to confirm or modify the response.

Response Matrix for On-site Treatment Systems

VULNERABILITY RATING	SOURCE PROTECTION AREA *		RESOURCE PROTECTION Aquifer Category					
			Regionally Important		Locally Important		Poor Aquifers	
	Inner (SI)	Outer (SO)	R1	R2	L1/L2	L1	P1	P2
Extreme (E)	R2 <sup>1</sup>	R3 <sup>1</sup>	R2 <sup>1</sup>	R2 <sup>2</sup>	R2 <sup>1</sup>	R2 <sup>2</sup>	R2 <sup>1</sup>	R2 <sup>2</sup>
High (H)	R2 <sup>1</sup>	R2 <sup>1</sup>	R2 <sup>1</sup>	R1	R1	R1	R1	R1
Medium (M)	R2 <sup>1</sup>	R2 <sup>1</sup>	R1	R1	R1	R1	R1	R1
Low (L)	R1 <sup>1</sup>	R1	R1	R1	R1	R1	R1	R1

For public group scheme or industrial water supply sources where protection zones have not been delineated the arbitrary distances given in DCLG/EPA/GSI (1999) of 300 m for the Inner Protection Area (SI) and 1000 m for the Outer Protection Area (SO) should be used as a guide up-gradient of the source.

- R1** Acceptable subject to normal good practice (i.e. system selection, construction, operation and maintenance in accordance with EPA (2000)).
- R2<sup>1</sup>** Acceptable subject to normal good practice. Where domestic water supplies are located nearby, particular attention should be given to the depth of subsoil over bedrock such that the minimum depths required (EPA 2000) are met and that the likelihood of microbial pollution is minimised.
- R2<sup>2</sup>** Acceptable subject to normal good practice and the following additional condition:  
1) There is a minimum thickness of 2 m unsaturated soil/subsoil beneath the invert of the percolation trench of a conventional septic tank system.
- OR**
- 1) A treatment system other than a conventional septic tank system as described in EPA (2000) is installed with a minimum thickness of 0.6 m unsaturated soil/subsoil with P/T values from 1 to 50 (in addition to the polishing filter which should be a minimum depth of 0.6 m), beneath the invert of the polishing filter (i.e. 1.2 m in total for a soil polishing filter).
- R2<sup>3</sup>** Acceptable subject to normal good practice, condition 1 above and the following additional condition:  
2) The authority must be satisfied that, on the evidence of the groundwater quality of the source and the number of existing houses, the accumulation of significant nitrate and/or microbiological contamination is unlikely.
- R2<sup>4</sup>** Acceptable subject to normal good practice, conditions 1 and 2 above and the following additional condition:  
3) No on-site treatment system should be located within 60 m of the public group scheme or industrial water supply source.
- R3<sup>1</sup>** Not generally acceptable, unless: A conventional septic tank system is installed with a minimum thickness of 2 m unsaturated soil/subsoil beneath the invert of the percolation trench (i.e. an increase of 0.8 m from the EPA manual).
- OR**
- A treatment system other than a conventional septic tank system, as described in EPA (2000), is installed with a minimum thickness of 0.6 m unsaturated soil/subsoil with P/T values from 1 to 50 (in addition to the polishing filter which should be a minimum depth of 0.6 m), beneath the invert of the polishing filter (i.e. 1.2 m in total for a soil polishing filter).

\* For the purpose of this matrix, the Inner Protection Area (SI) is defined as the area within 300 m of the source and the Outer Protection Area (SO) is defined as the area within 1000 m of the source.

AND

subject to the following conditions

- 1) The authority must be satisfied that, on the evidence of the groundwater quality of the source and the number of existing houses, the accumulation of significant nitrate and/or microbiological contamination is unlikely
- 2) No on-site treatment system should be located within 60 m of the public group scheme or industrial water supply source.
- 3) A management and maintenance agreement is completed with the systems supplier.

- R3: Not generally acceptable unless: A treatment system other than a conventional septic tank system as described in EPA (2000), is installed with a minimum thickness of 1.2 m unsaturated soil/subsoil with P/T values from 1 to 50. (in addition to the polishing filter which should be a minimum depth of 0.6 m) beneath the invert of the polishing filter (i.e. 1.8 m in total for a soil polishing filter)

AND

subject to the following conditions

- 1) The authority must be satisfied that, on the evidence of the groundwater quality of the source and the number of existing houses, the accumulation of significant nitrate and/or microbiological contamination is unlikely
- 2) No on-site treatment system should be located within 60 m of the public group scheme or industrial water supply source.
- 3) A management and maintenance agreement is completed with the systems supplier.

### Additional Requirements for the Location of On-site Treatment Systems Adjacent to Receptors at Risk, such as Wells and Karst Features

Table 1 below provides recommended distances between receptors and percolation area or polishing filters, in order to protect groundwater. Use of the depths and distances in this table does not guarantee that pollution will not be caused, rather it will reduce the risk of significant pollution occurring.

Table 1. Recommended Minimum Distance between a Receptor and a Percolation Area or Polishing Filter

T or P Value	Type of soil/subsoil*	Depth of soil/subsoil (m) above bedrock (see note 1, 2, 3, 6)	Minimum distance (m) from receptor to percolation area or polishing filter***				
			Public Water Supply	Karst feature	down-gradient domestic well or flow direction is unknown (see note 4)	Domestic well alongside (no gradient)	up-gradient domestic well
>50	CLAY; silty, sandy CLAY (e.g. clayey till); CLAY/SILT.	1.2 >3.0	60	15	40 30	25	15
10-30	Sandy SILT; clayey, silty SAND; clayey, silty GRAVEL (e.g. sandy till).	1.2 >6.0	60	15	45 30	25	15
<10	SAND; GRAVEL; silty SAND	2.0*** 2.0*** >8.0***	60	15	60 40 30	25	15

\* BS5830 descriptions

\*\* water table 1.2-2.0m

\*\*\* water table >2.0m

\*\*\*\* The distance from the percolation area or polishing filter means the distance from the periphery of the percolation area or polishing filter and not the centre.

#### Notes:

- 1 Depths are measured from the invert level of the percolation trench
- 2 Depths and distances can be related by interpolation, e.g. where the thickness of silty sandy CLAY is 1.2 m, the minimum recommended distance from the well to percolation area is 40 m; where the thickness is 3.0 m, the distance is 30 m. Distances for intermediate depths can be approximated by interpolation.
- 3 Where bedrock is shallow (<2 m below invert of the trench), greater distances may be necessary where there is evidence of the presence of preferential flow paths (e.g. cracks, roots) in the subsoil.
- 4 Where the minimum subsoil thicknesses are less than those given above, site improvements and systems other than conventional systems as described in EPA (2000) may be used to reduce the likelihood of contamination.
- 5 If effluents and bacteria enter bedrock rapidly (within 1-2 days), the distances given may not be adequate where the percolation area is in the zone of contribution of a well. Further site specific evaluation is necessary.
- 6 Where bedrock is known to be karstified or highly fractured, greater depths of subsoil may be advisable to minimise the likelihood of contamination.

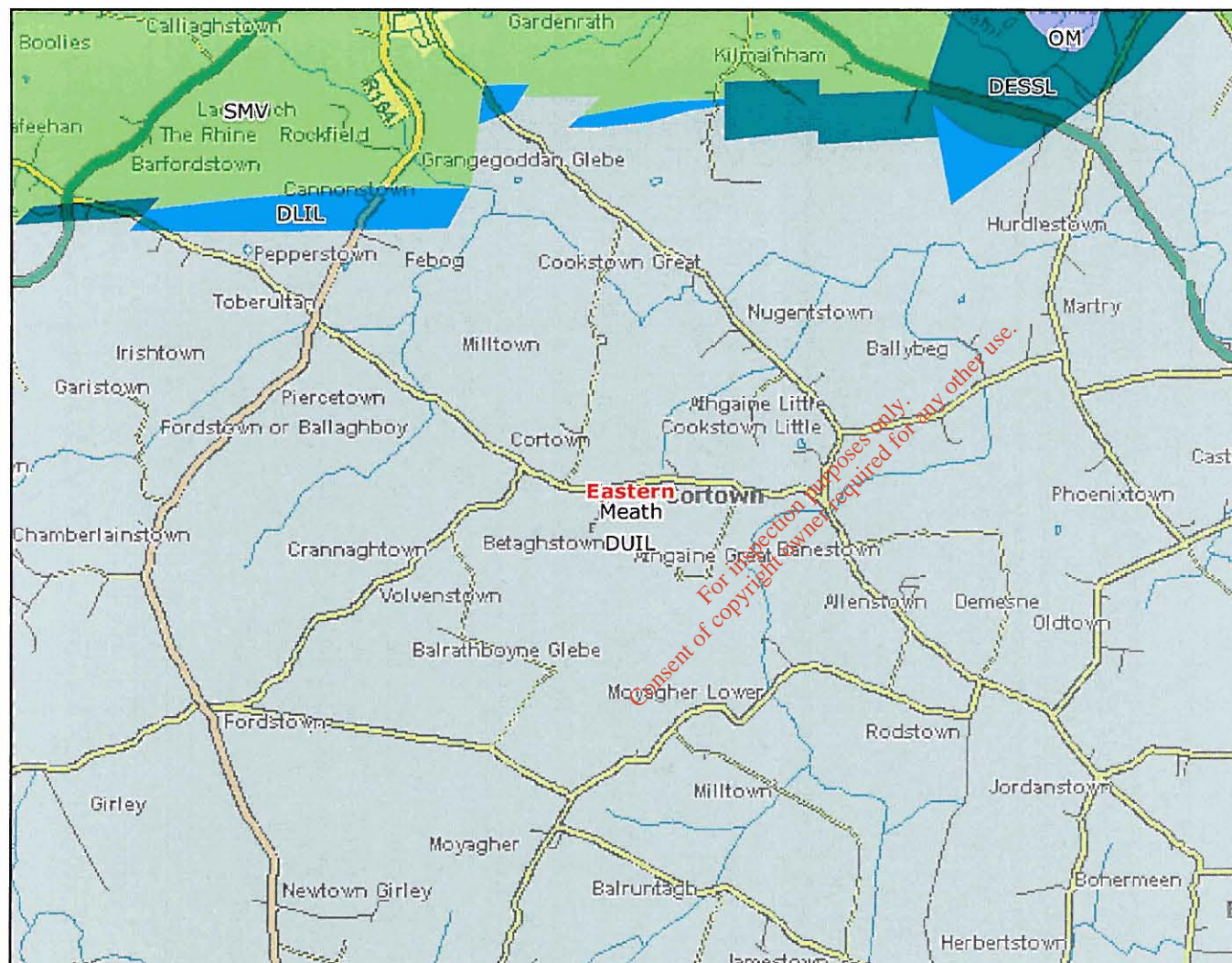
[Back to Top](#)

**For further information please [click here](#)**





## Cortown - Draft Generalised Bedrock Map



### Legend

National Draft Generalised Bedrock Map

- BV - Basalts and other Volcanic rocks
- CM - Cambrian Metasediments
- DDL - Dinantian Dolomitised Limestones
- DESSL - Dinantian early Sandstones, Shales and Limestones
- DKS - Devonian Kiltorcan type Sandstones
- DLIL - Dinantian Lower Impure Limestones
- DMSC - Dinantian Mudstones and Sandstones Cork Group
- MSSL - Dinantian Mixed Sandstones, Shales and Limestones
- DORS - Devonian Old Red Sandstones
- DPBL - Dinantian Pure Bedded Limestones
- DPUL - Dinantian Pure Unbedded Limestones
- DS - Dinantian Sandstones
- DSL - Dinantian Shales and Limestones
- DUIL - Dinantian Upper Impure Limestones
- GII - Granites and other Igneous Intrusive rocks
- NSA - Namurian Sandstones
- NSH - Namurian Shales
- NU - Namurian Undifferentiated
- OM - Ordovician Metasediments
- OV - Ordovician Volcanics
- PM - Precambrian Marbles
- PQGS - Precambrian Quartzites, Gneisses and Schists
- PTMG - Permo Triassic Mudstones and Gypsum
- PTS - Permo Triassic Sandstones
- SMV - Silurian Metasediments and Volcanics
- WSA - Westphalian Sandstones
- WSH - Westphalian Shales

- RBD Boundaries
- County Boundaries

0 1250 2500 3750 m.

Map center: 275806, 271145



Scale: 1:48,614

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

Snapshot Date: 02-Nov-2009



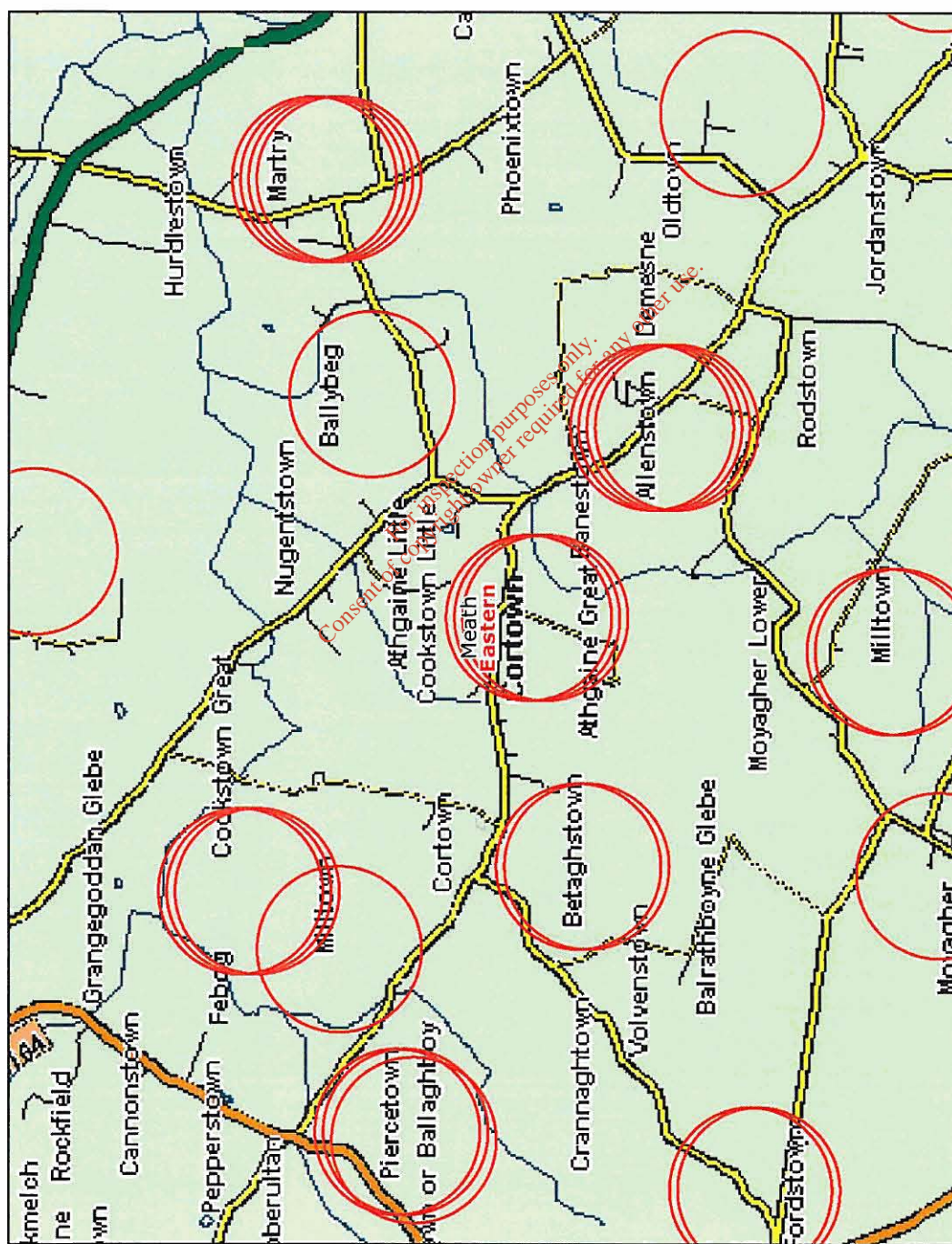


## Cortown - Well Accuracy within 1km Map



- Legend**
- Wells Accuracy within 1km
  - RBD Boundaries
  - County Boundaries

Scale: 1:38,628



Map center: 276491, 271263

3000 m.

2000

1000

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

Snapshot Date: 02-Nov-2009



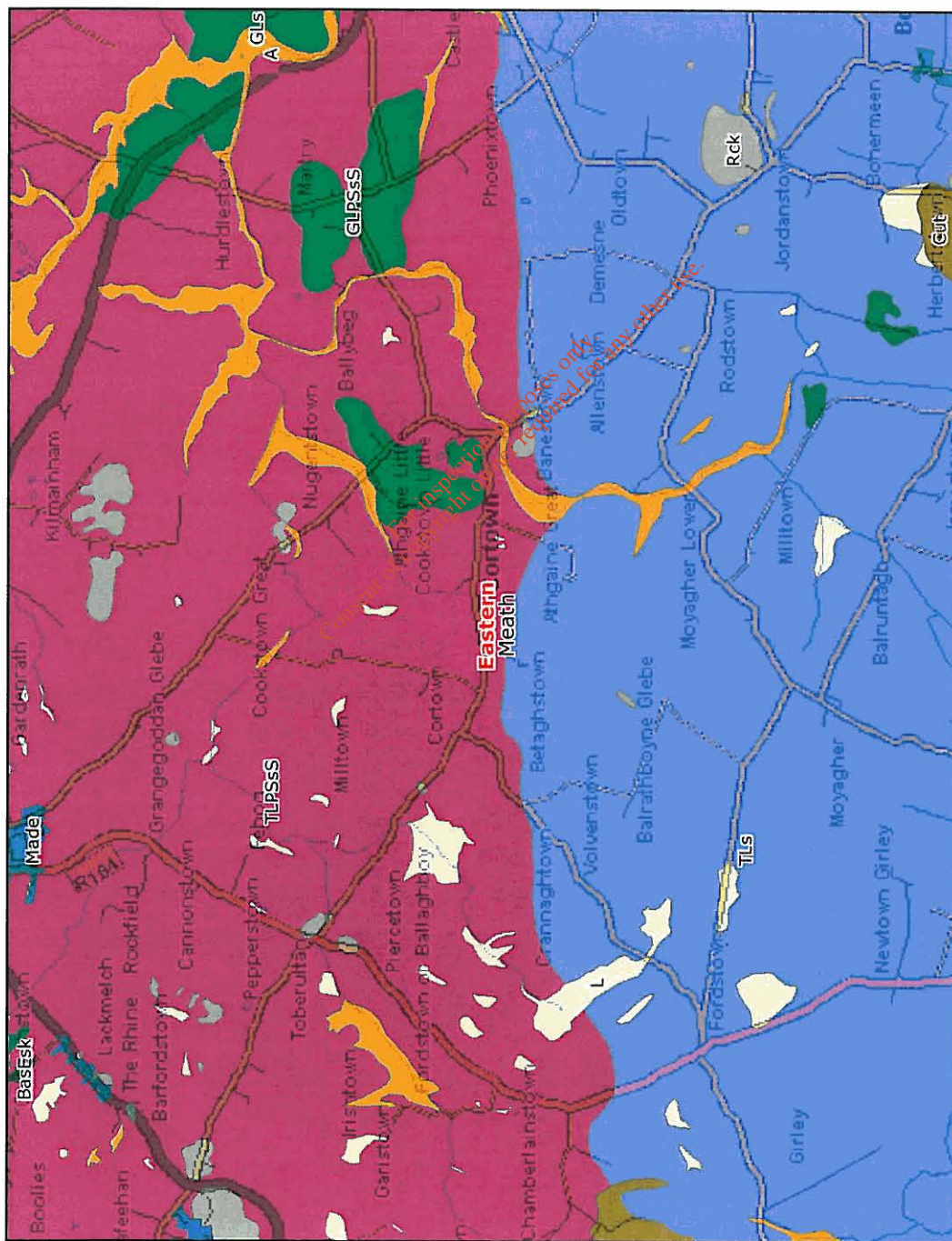


## Cortown - Teagasc Subsoil Data



### Legend

- Eastern RBD Subsoils
- Alluvium
  - Beach sands and gravels
  - Bedrock outcrop and subcrop
  - Esker sands and gravels
  - Glaciofluvial sands and gravels
  - Irish Sea till
  - Lake sediments
  - Made ground
  - Marine/estuarine silts and clays
  - Marsh
  - Peat
  - Scree
  - Till derived chiefly from Cambrian sandstones and shales
  - Till derived chiefly from Devonian sandstones
  - Till derived chiefly from Lower Palaeozoic rocks
  - Till derived chiefly from Namurian rocks
  - Till derived chiefly from basic igneous rocks
  - Till derived chiefly from cherts
  - Till derived chiefly from granite
  - Till derived chiefly from limestone
  - Till derived chiefly from metamorphic rocks
  - Water
  - Windblown sands
  - RBD Boundaries
  - County Boundaries



0 1250 2500 3750 m.

Map center: 275806, 271145

Scale: 1:48,614

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

Snapshot Date: 02-Nov-2009



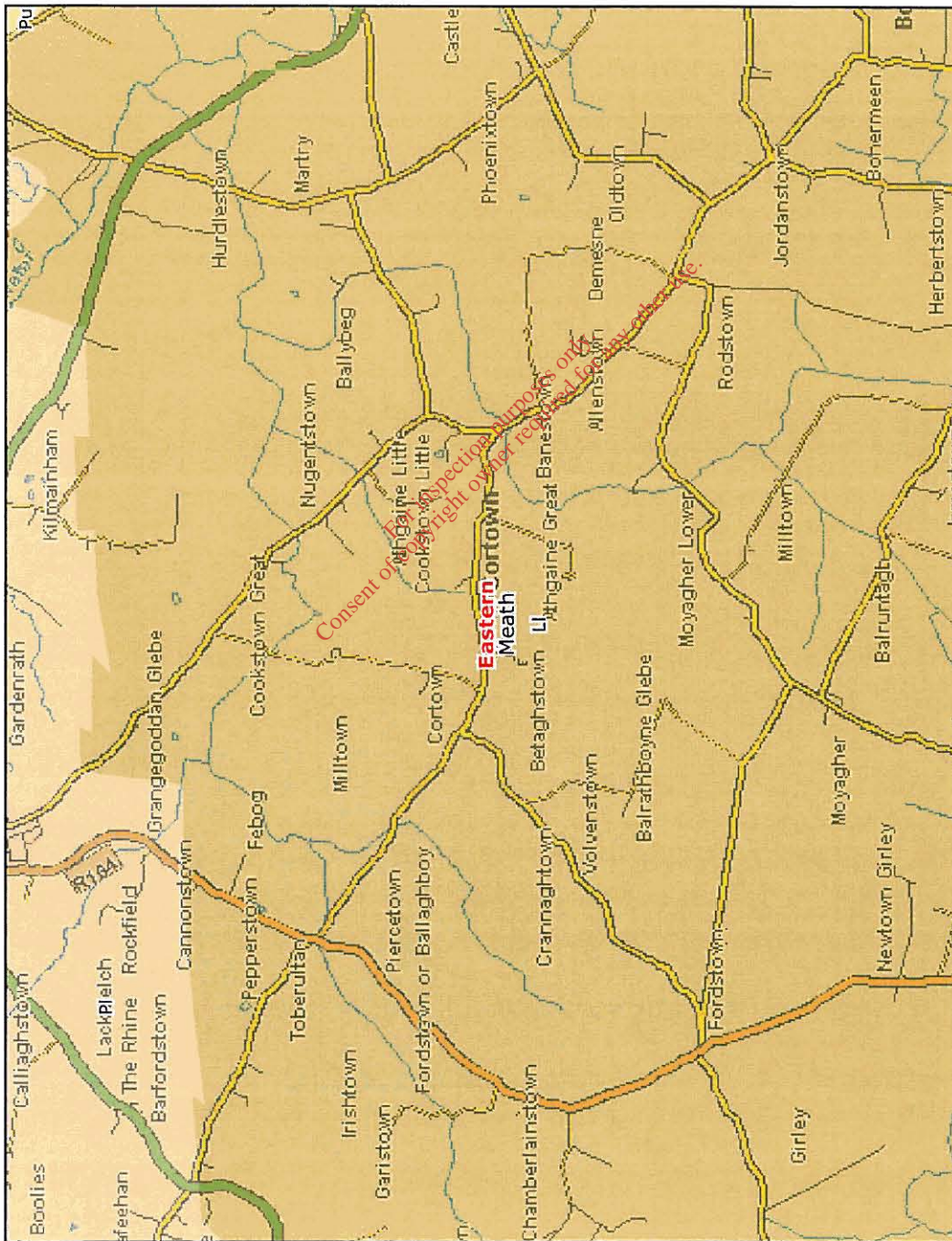


## Cortown - National Draft Bedrock Aquifer Map



### Legend

- National Draft Bedrock Aquifer Map
- Rf - Regionally Important Aquifer - Fissured bedrock
  - Rk - Regionally Important Aquifer - Karstified
  - Rkd - Regionally Important Aquifer - Karstified (diffuse)
  - Rkc - Regionally Important Aquifer - Karstified (conduit)
  - Lm - Locally Important Aquifer - Bedrock which is Generally Moderately Productive
  - Lk - Locally Important Aquifer - Karstified
  - Li - Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones
  - Pl - Poor Aquifer - Bedrock which is Generally Unproductive except for Local Zones
  - Pu - Poor Aquifer - Bedrock which is Generally Unproductive
  - Unclassified
  - RBD Boundaries
  - County Boundaries



0 1250 2500 3750 m.

Map center: 275806, 271145

Scale: 1:48,614

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

Snapshot Date: 02-Nov-2009





### Legend

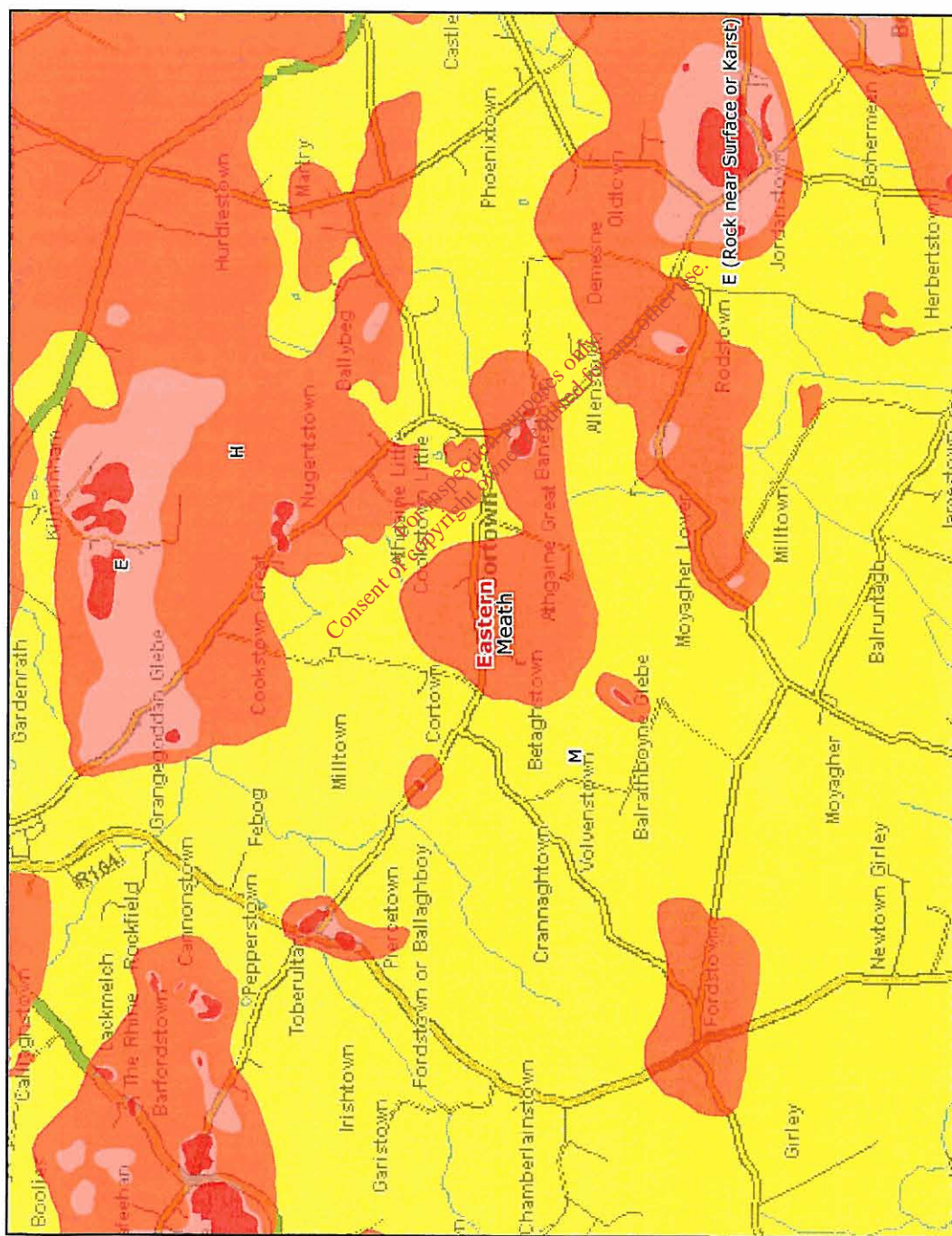
**Legend**

**Eastern Interim Vulnerability**

- E (Rock near Surface or Karst)
- E - Extreme
- H - High
- M - Moderate
- L - Low
- HL - High to Low. Only an interim study took place.
- Water

**RBD Boundaries**

**County Boundaries**



0 1250 2500 3750 m.

Map center: 275806, 271145

Scale: 1:48,614

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

Snapshot Date: 02-Nov-2009