

Water Framework Directive Groundwater Monitoring Programme

Site Information

Glenamaddy - Bushtown Spring



The Glenamaddy town supply consists of the Bushtown spring from which approximately 550m³/d is abstracted on average. The spring discharges from a karstified limestone aquifer.



Galway

August 2011

SITE INFORMATION					
Site Name:	Glenamaddy - Bushtown Spring		County:	Galway	
RBD:	Shannon IRBD		EU Reporting Code:	---	
Easting:	162305		GWB Name:	Suck South	
Northing:	264702		GWB Code:	IE_SH_G_225	
Site Use:	Drinking Water (PWS)		Drinking Water Code:	1200PUB1021	
Hydrometric Area:	30		Water Level Monitoring Network:	Level	Flow
Townland:	MEELICK			N	N
Ownership:	Galway Co Co				
Water Quality Monitoring Network:	Surveillance		Operational (Point)		Operational (Diffuse)
	N		N		N
Site Comments:	Spring is located in low lying boggy field.				

SITE DIRECTIONS	
Location and Access Information:	Take R364 out the Ballymoe road from Glenamaddy. After 2km take a left for Loughpark/Bushtown. Then take next left after about 300m. Then take next right. Small white Pumphouse is on right hand side.
Additional Comments:	---

WELL INFORMATION					
Monitoring Point Type:	Spring	Abstraction Rate (m³/d):	550	Ground Elevation (m OD):	---
Borehole Log Available:	---	Total Drilled Depth (m bgl):	n/a	Depth to Bedrock (m bgl):	---
Top of Casing (m agl):	---	Upper Casing Diameter (mm):	---	Lower Casing Diameter (mm):	---
Final Borehole Depth (m):	---	Upper Casing Bottom Depth (m bgl) :	---	Lower Casing Bottom Depth (m bgl):	---
Screen Interval (m bgl):	---	Screen Type (PVC,Steel,other):	---	Screen Slot Size (mm):	---
Grout Type (cement,bentonite):	---	Grouted above (m bgl):	---	Grout Volume Injected (m³):	---
Gravel Pack Interval (m bgl):	---	Gravel Pack Volume (m³):	---	Open Hole Interval (m bgl):	---
Potential Yield (m³/day):	---	Comments on Monitoring Site:	Pumps abstract approximately 550m³/d and there is an overflow most of the year except in prolonged dry periods. There are no data on the overflow.		
Specific Capacity (m³/d/m):	---				
Static Water Level (m bgl):	---				
Scheme Name:	Glenamaddy Town Supply	Number of Abstraction Points in the Scheme:	1	Source Report Available	N
Source Report Info:	Source report exists for nearby Glenamaddy-Dunmore supply, sourced at the Gortgarrow spring.				
Scheme Summary:	Single spring serving town of Glenamaddy, which also obtains water from Gortgarrow Spring.				

HYDROGEOLOGY							
GEOLOGY	Soil:	Cutaway/cutover peat (Cut)				Subsoil Permeability:	Low
	Subsoil:	Peat (Cut)					
	Bedrock:	Dinantian Pure Bedded Limestones					
HYDROGEOLOGY	Aquifer Category:	Rkc	Vulnerability at Monitoring site:	Low	Flow Regime:	Karstified	
ZONE OF CONTRIBUTION	Estimated ZOC Size (km²):	1.93	ZOC Delineated By:	TOBIN (CK)	Recharge Estimate (mm/yr):	163	
	ZOC Delineation Comments:	Based on topography, abstraction (+50% - there is an unquantified overflow); RBD boundary is assumed to be a groundwater divide. Total mean discharge is unknown, therefore actual ZOC is not precisely known.					
Groundwater Vulnerability within ZOC (% area):	Extreme (X)	Extreme (E)	High	Moderate	Low	High to Low	Unclassified
	0.27	20.63	17.3	18.22	43.57	0	0
HYDROCHEMISTRY							
Hydrochemical Signature:	Ca-HCO3		Additional Water Chemistry Information:	Few data available. Nitrate concentrations average 11.6mg/l NO3 but there is an upward trend. Reported exceedances of iron and manganese and total coliforms.			
Alkalinity (mg/l HCO3):	Average:	Range:					
	---	---					
Hardness (mg/l CaCO3):	Average:	Range:					
	---	---					
Conductivity (uS/cm):	Average:	Range:					
	690	595-821					
Monitoring Record Period:	From:	To:					
	2001	2001					
RISK ASSESSMENT							
Pressure (e.g., Nitrates, Phosphates, Abstractions):	Diffuse		Typical Contaminants:	Phosphates			
Risk Category:	At risk, high confidence		GWB Status:	Poor			
Impact Potential within ZOC (% area):	Extreme:	High:	Moderate:	Low:	Negligible:		
	0.00	17.99	19.36	56.09	6.56		
OTHER INFORMATION							



Site Overview



Holding Tank



Inside Holding Tank

Data Summary Sheet - July 2011

Disclaimer: The data in this document are based on the best available information and understanding at time of writing. Neither the Environmental Protection Agency, nor the individual bodies supplying data for this document and accompanying maps will be responsible for any loss or damage from the use or interpretation of these data.

Rock Unit Geology Map: GSI, 2009

Aquifer Type Map: GSI, 2009

Groundwater Vulnerability Map: GSI, 2009

Soils & Subsoils Type: Teagasc, 2007

Recharge Map: GSI, 2009

Impact Potential Map: EPA, 2009

Risk Assessment Map: EPA WFD Risk Assessment, 2006

Groundwater Body Status: EPA WFD Status Assessment, 2008

Water Quality Data: EPA WFD Monitoring, 2008

Groundwater Threshold Values

Groundwater threshold values for selected parameters:

Nitrate - General Chemical Test/ Drinking Water Test (37.5 mg/l N03)

Ammonium - Drinking Water Test (0.175 mg/l N) / Surface Water Test (0.065 mg/l N)

Molybdate Reactive Phosphorus (MRP) - Surface Water Test (0.035 mg/l P)

Chloride -Saline/Intrusive Test (24 mg/l) / Drinking Water Test (175 mg/l Cl)

Electrical Conductivity -Saline/Intrusive Test (800 µS/cm) / Drinking Water Test (1,875 µS/cm)

Further information on groundwater threshold values is contained in the Groundwater Regulations (S.I. No.9 of 2010).

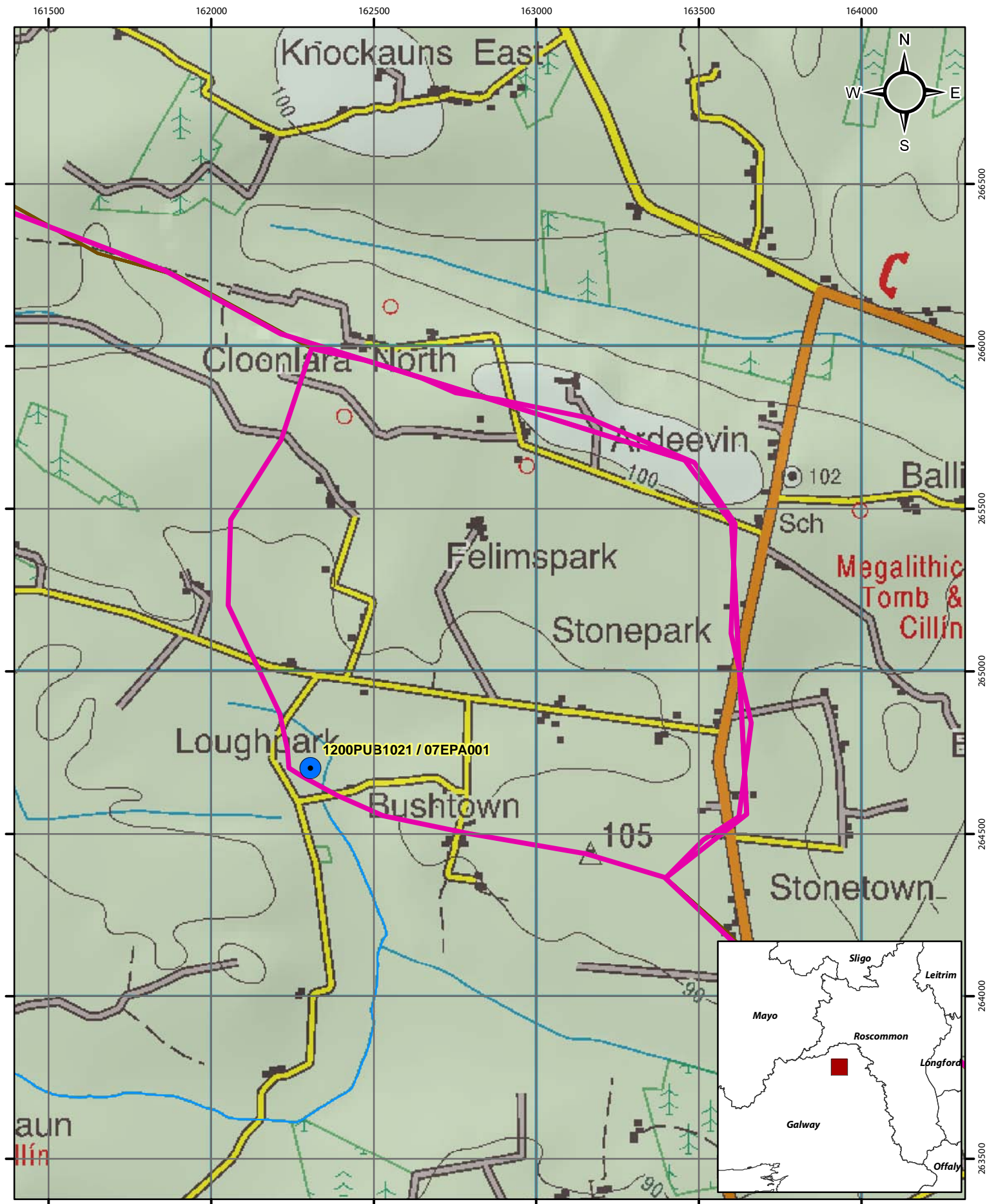
General Downgradient Distances

General Downgradient Distances (XL) applied to boreholes sourced in bedrock aquifers are constrained to estimate approximate limits based on data at the GSI. In some cases they may be higher or lower depending on local conditions.




Rk, Rkd, Lk	225 m
Lm	150 m
LI, PI	60 m

It is assumed that groundwater downgradient of a spring cannot flow back up to the spring, however a precautionary 30m buffer is generally applied which allows for instances where pumping under dry weather periods may induce a drawdown or where the ground may be sloping toward the spring from the downgradient side.

Version 0:	Prepared by		Date:	
Version 1:	Prepared by	TOBIN (CK)	Date:	Feb 2011
Version 2:	Prepared by		Date:	
Version 3:	Prepared by		Date:	
Version 4:	Prepared by		Date:	

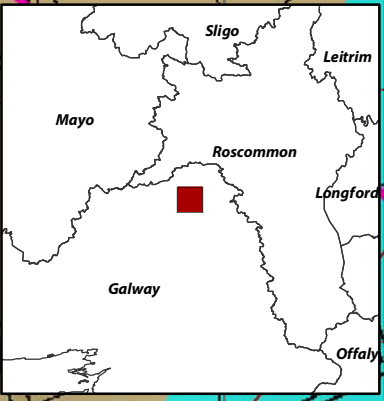
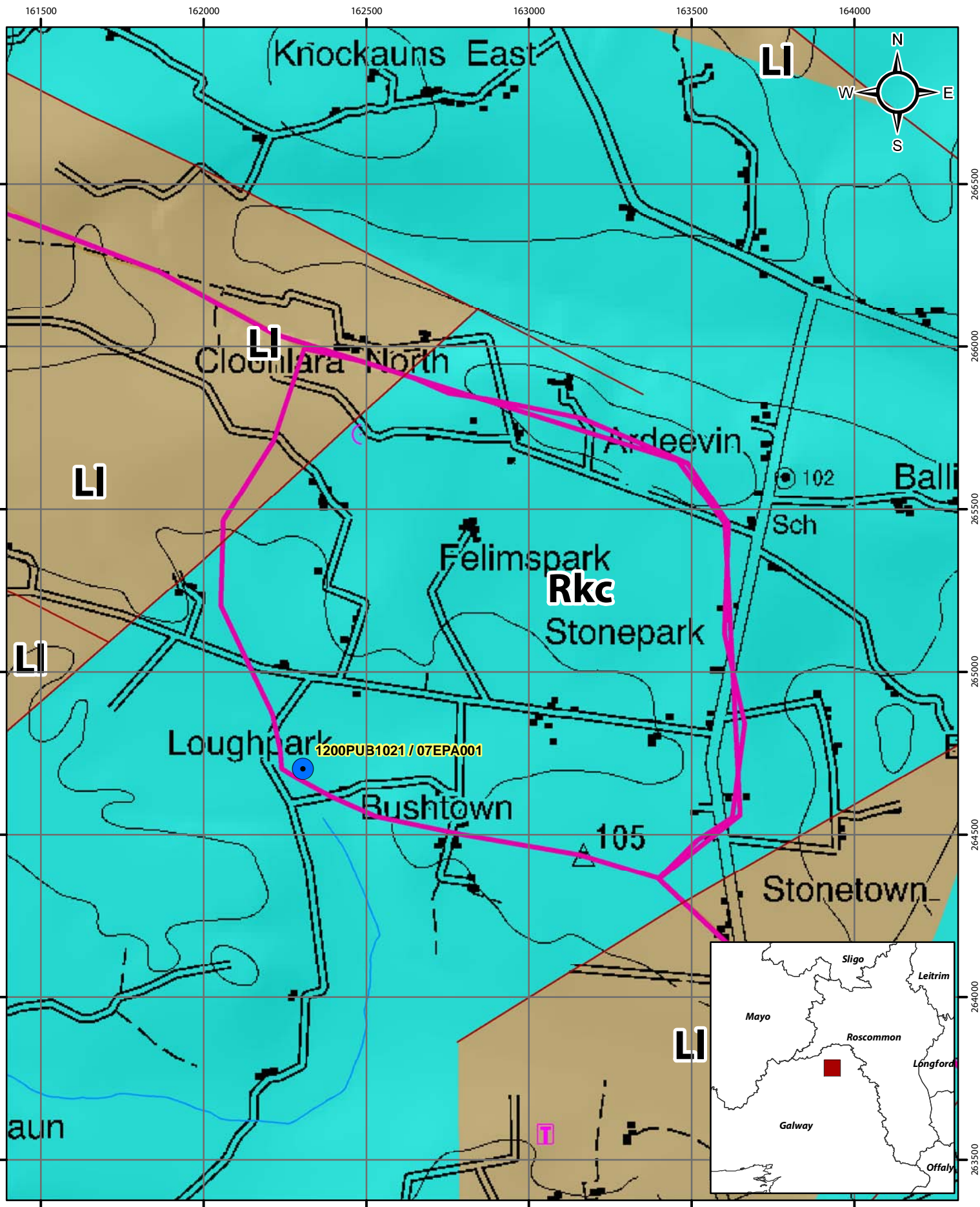


Location Map for Glenamaddy

-  Abstractions
-  River
-  Zone of Contribution

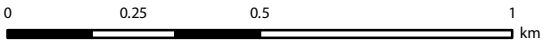
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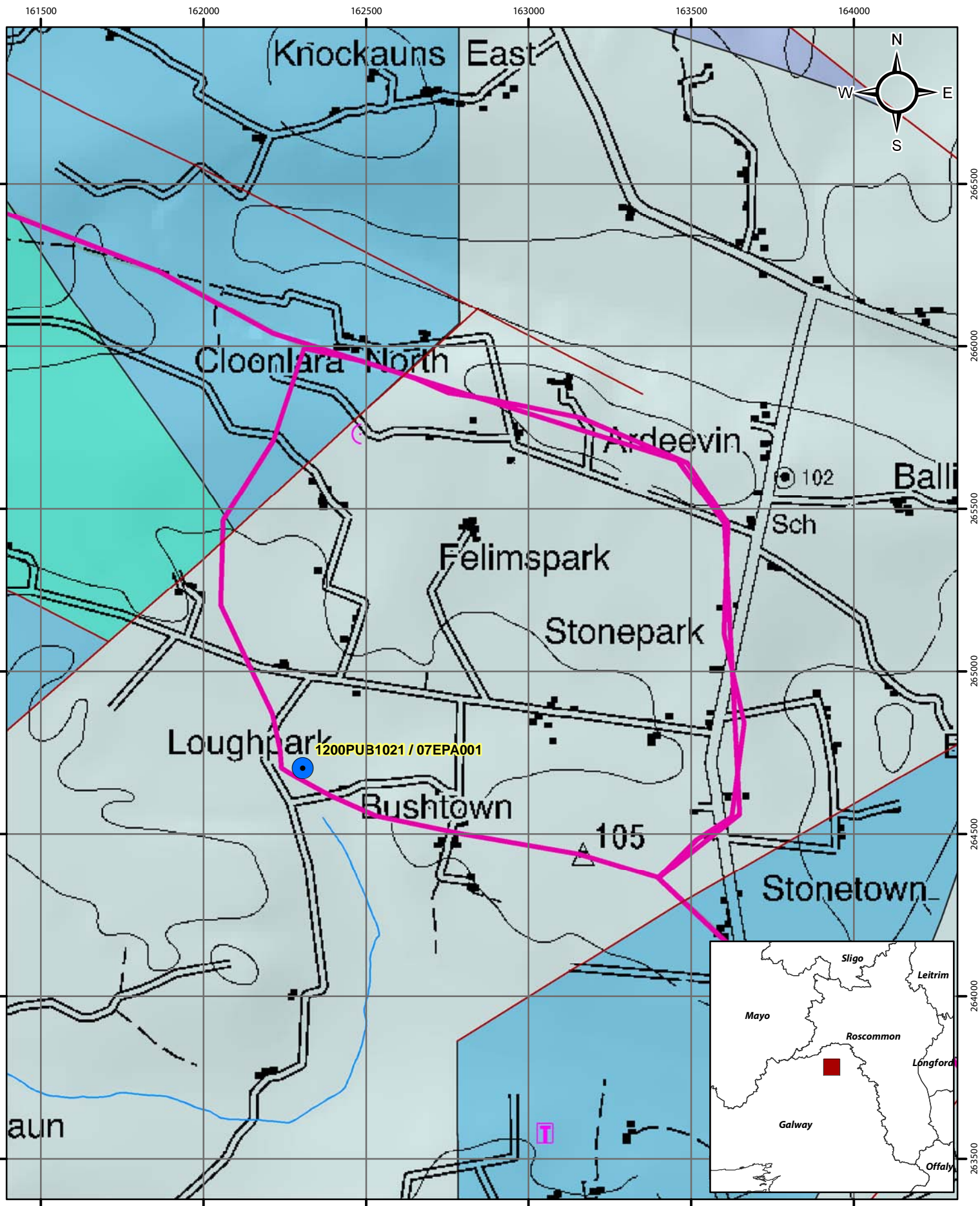
0 0.25 0.5 1 km



Aquifer Category Map for Glenamaddy

- Abstractions
- River
- Zone of Contribution
- Fault
- Swallow Hole
- Turlough
- LI
- Rkc



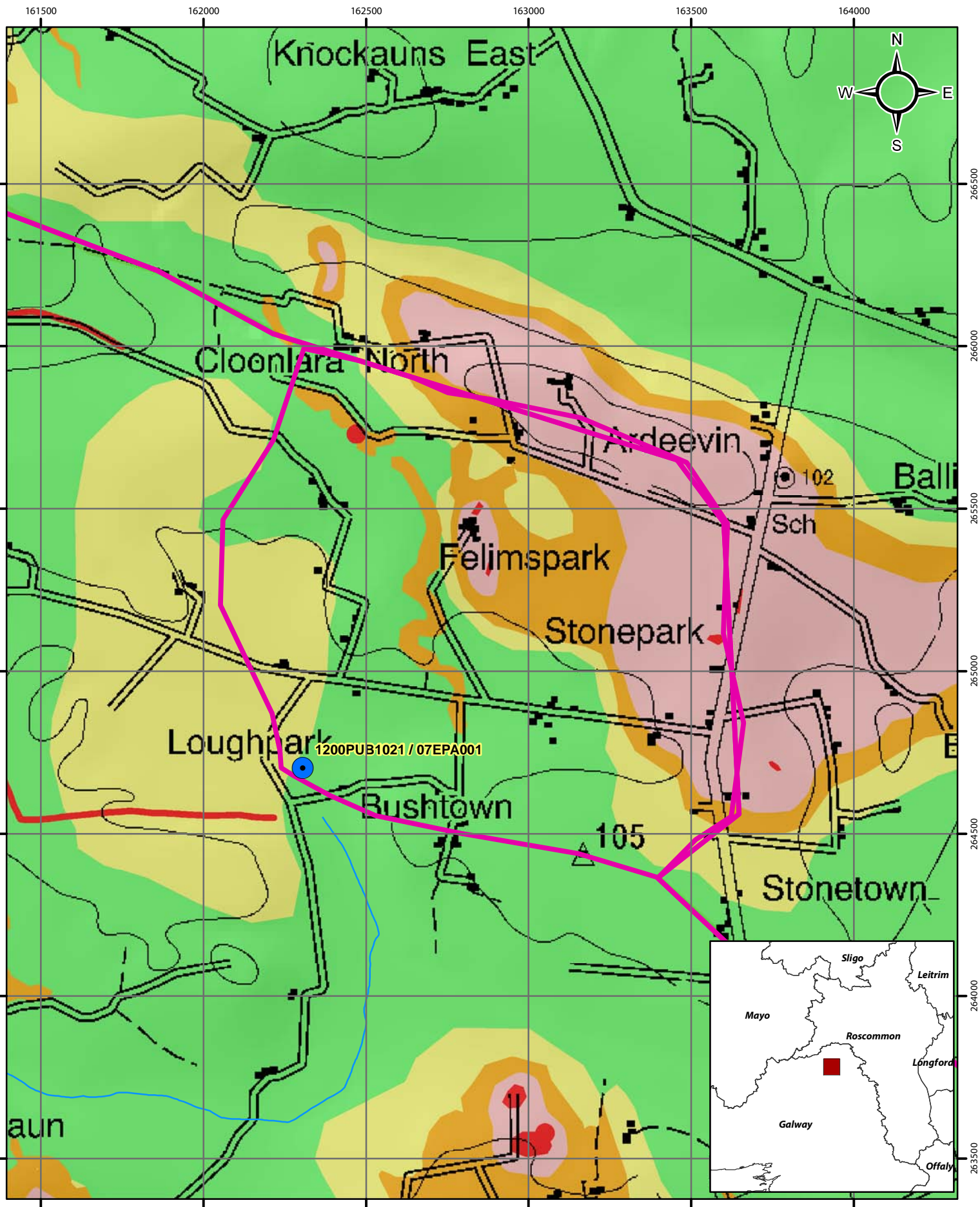


Bedrock Map for Glenamaddy

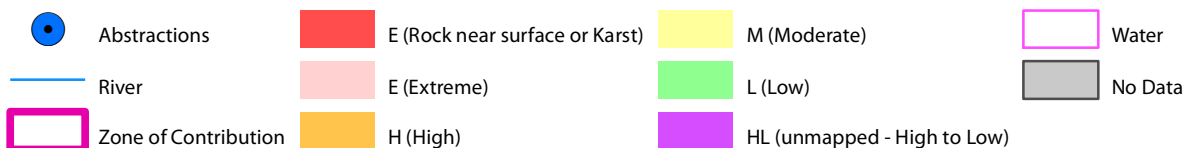
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|--|----------------------|--|--------------|--|---|--|------------------------------------|
| | Abstractions | | Fault | | Dinantian Lower Impure Limestones | | Dinantian Pure Bedded Limestones |
| | River | | Swallow Hole | | Dinantian Mixed Sandstones, Shales and Limestones | | Dinantian Pure Unbedded Limestones |
| | Zone of Contribution | | Turlough | | | | |

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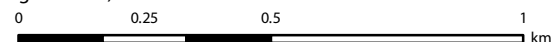
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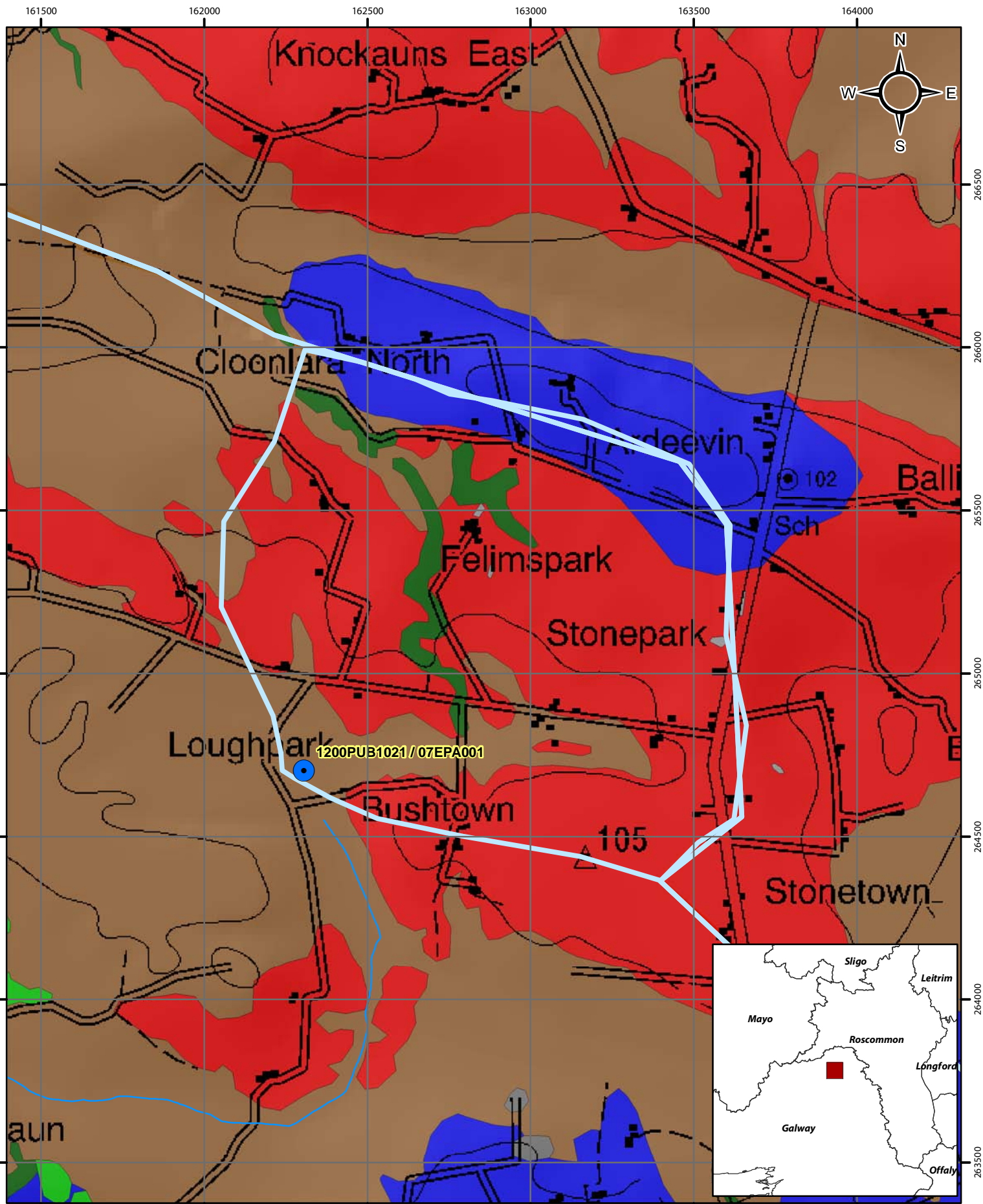


Groundwater Vulnerability Map for Glenamaddy













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Subsoils Map for Glenamaddy

- | | | | |
|---|--|---|--|
|  Abstractions |  Cutover raised peat |  Bedrock outcrop or subcrop |  Till derived from limestones |
|  River |  Esker comprised of gravels of basic reaction |  Karstified bedrock outcrop or subcrop | |
|  Zone of Contribution |  Gravels derived from limestones |  Till derived from Devonian sandstones | |

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0 0.25 0.5 1 km

