

Water Framework Directive Groundwater Monitoring Programme

Site Information

Ballinlough



Ballinlough PWS is supplied through a spring with an abstraction of 4500 m³/day. The GSI have published a source protection report for the site.



Roscommon

August 2011

SITE INFORMATION					
Site Name:	Ballinlough		County:	Roscommon	
RBD:	Shannon IRBD		EU Reporting Code:	IE_SH_G_225_20_004	
Easting:	157368		GWB Name:	Suck South	
Northing:	274312		GWB Code:	IE_SH_G_225	
Site Use:	Drinking Water (PWS)		Drinking Water Code:	2600PUB1014	
Hydrometric Area:	26		Water Level Monitoring Network:	Level	Flow
Townland:	BALLYBANE (Reynolds)			N	Y
Ownership:	Roscommon County Council				
Water Quality Monitoring Network:	Surveillance		Operational (Point)		Operational (Diffuse)
	N		N		Y
Site Comments:	---				
SITE DIRECTIONS					
Location and Access Information:	Take N60 west out of Castlerea to Ballinlough. Take a left in the village after the post office. At a Y junction take the right hand fork and then take first left after about 2.5km. Drive along a narrow road for about 500m and take a right at a left hand bend along a dirt track. Follow this for 200m to pumphouse.				
Additional Comments:	---				
WELL INFORMATION					
Monitoring Point Type:	Spring	Abstraction Rate (m³/d):	4500	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):	300	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:	---		
Specific Capacity (m³/d/m):	---				
Static Water Level (m bgl):	---				
Scheme Name:	Ballinlough	Number of Abstraction Points in the Scheme:	1	Source Report Available	Y
Source Report Info:	Source report prepared by GSI (2003).				
Scheme Summary:	<p>Ballybane Springs supply both the Ballinlough urban area and the surrounding rural area. The site comprises a pump-house with the main spring sump. The sump is situated over the main spring, with the remaining four smaller springs feeding into the sump. There are also two pumping wells and a trial well in the site area. Any overflow discharges from the sump via a shallow channel, which has a rectangular weir fitted. The overflow join a tributary of the Island River.</p> <p>The site area is separated from the surrounding field by a fence and a closed gate.</p>				

HYDROGEOLOGY							
GEOLOGY	Soil:	Shallow well drained mineral (BminSW)				Subsoil Permeability:	High
	Subsoil:	Esker sands and gravels (BasEsk)					
	Bedrock:	Dinantian Pure Bedded Limestones					
HYDROGEOLOGY	Aquifer Category:	Rkc	Vulnerability at Monitoring site:	High	Flow Regime:	Karstified	
ZONE OF CONTRIBUTION	Estimated ZOC Size (km²):	2.47	ZOC Delineated By:	GSI	Recharge Estimate (mm/yr):	539	
	ZOC Delineation Comments:	ZOC delineated by the GSI for spring and borehole based on topography and hydrogeological mapping. See GSI Ballinlough Groundwater Source Protection Zones. Available from the groundwater section at GSI					
Groundwater Vulnerability within ZOC (% area):	Extreme (X)	Extreme (E)	High	Moderate	Low	High to Low	Unclassified
	1.18	31.67	60.52	6.63	0	0	0
HYDROCHEMISTRY							
Hydrochemical Signature:	Ca-HCO3		Additional Water Chemistry Information:	During the monitoring period: The average nitrate concentration was 13 mg/l NO3 and the maximum nitrate concentration was 20 mg/l NO3. The average ammonium concentration was 0.02 mg/l N and the maximum ammonium concentration was 0.1 mg/l N. The average molybdate reductive phosphorus (MRP) concentration was 0.032 mg/l P and the maximum MRP concentration was 0.11 mg/l P. The average chloride concentration was 16.3 mg/l Cl and the maximum chloride concentration was 21 mg/l Cl.			
Alkalinity (mg/l HCO3):	Average:	Range:					
	342	164-438					
Hardness (mg/l CaCO3):	Average:	Range:					
	348	93-444					
Conductivity (uS/cm):	Average:	Range:					
	666	342-747					
Monitoring Record Period:	From:	To:					
	1995	2010					
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	26.43	7.55	48.19	17.84		
OTHER INFORMATION							



Well Head



Site

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).

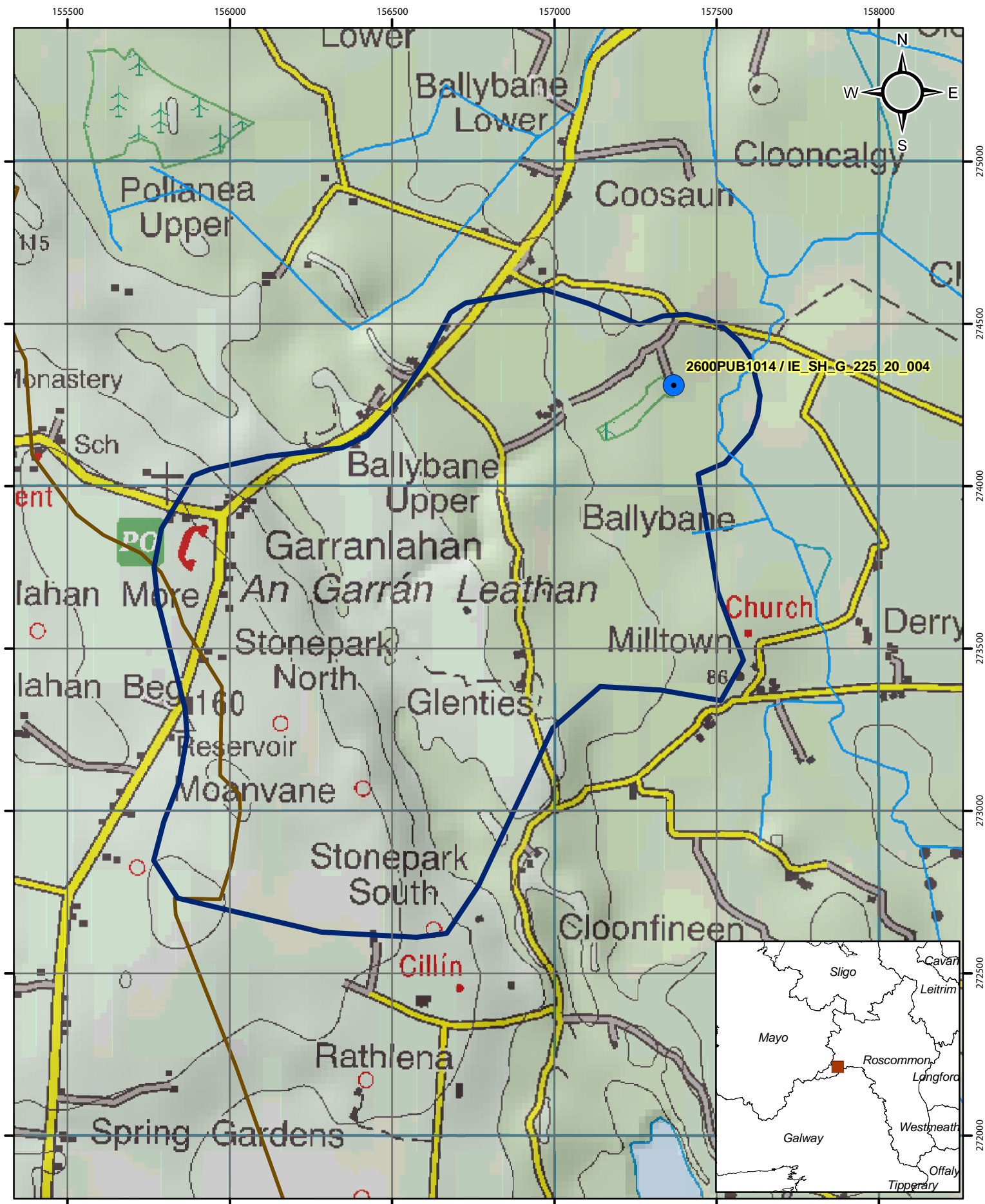
General Downgradient Distances

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	GSI	Date:	01/04/2003
Version 1:	Prepared by	Tobin (CK)	Date:	Feb 2011
Version 2:	Prepared by		Date:	
Version 3:	Prepared by		Date:	
Version 4:	Prepared by		Date:	

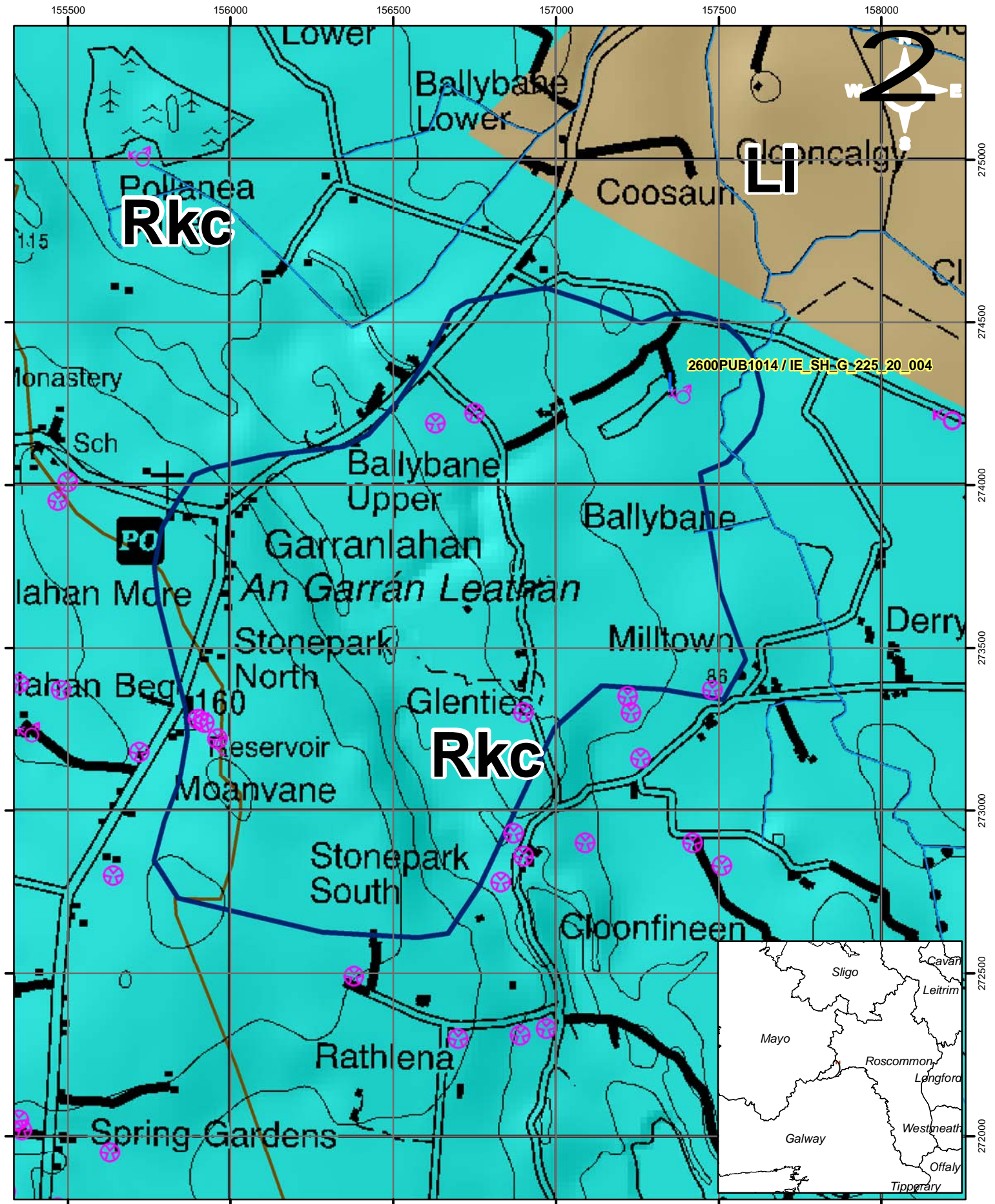


Location Map for Ballinlough

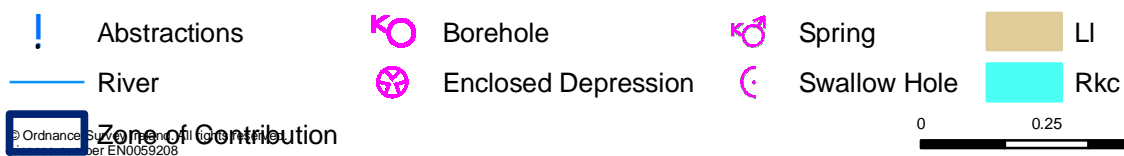
- Abstractions
- River
- Zone of Contribution

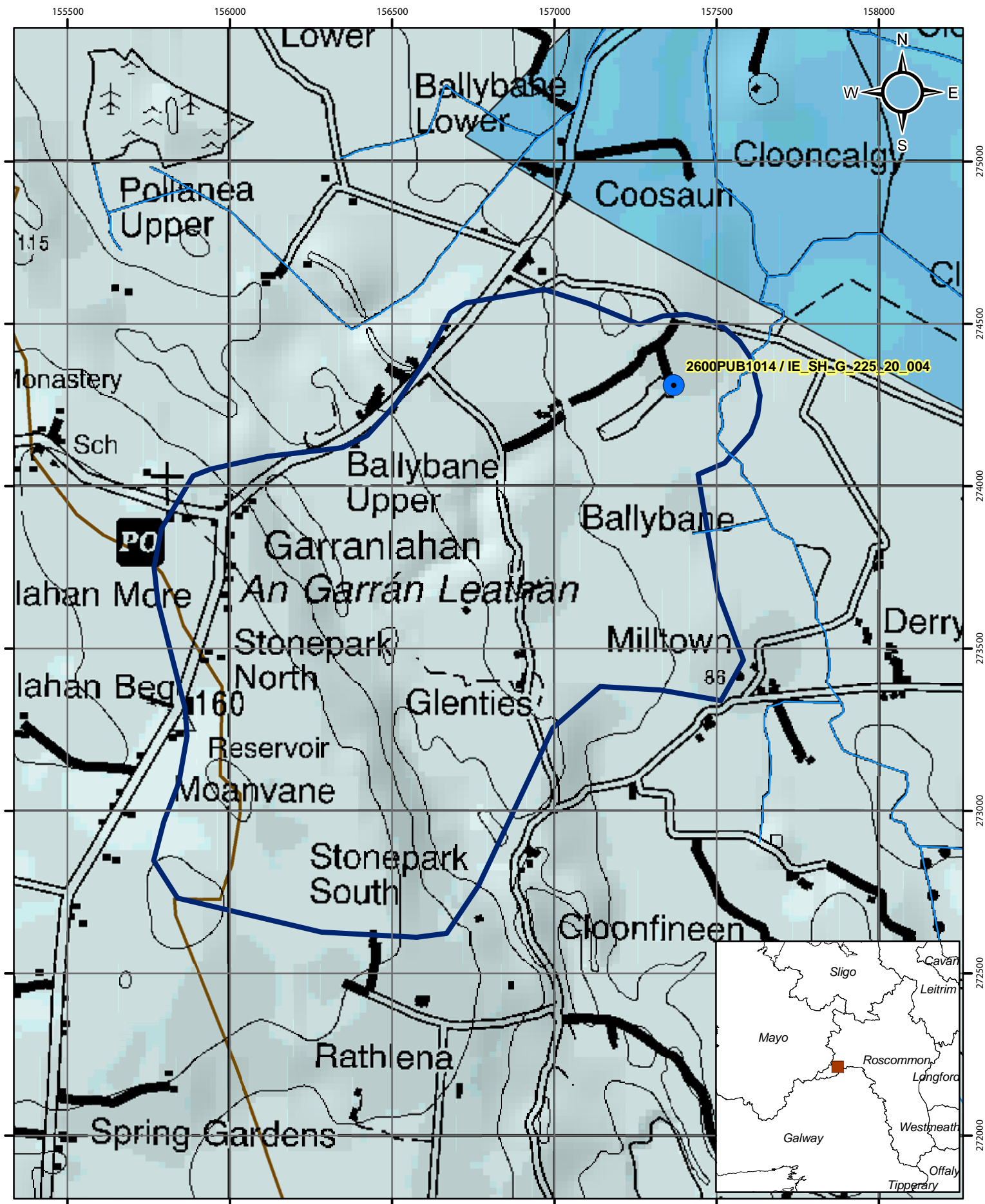
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0 0.25 0.5 1 km



Aquifer Category for Ballinlough



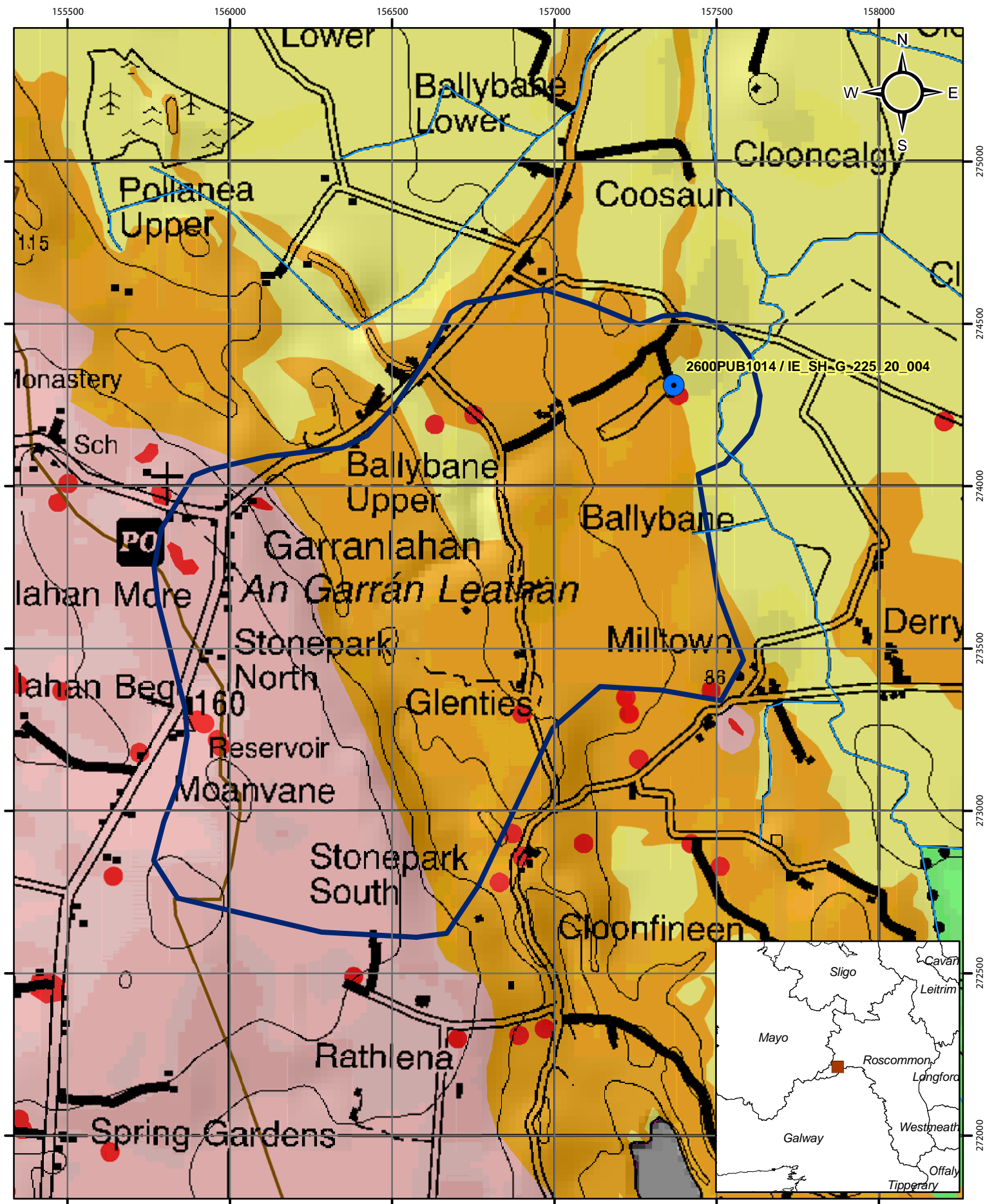


Bedrock Map for Ballinlough

- Abstractions
- River
- Zone of Contribution
- Dinantian Lower Impure Limestones
- Dinantian Pure Bedded Limestones

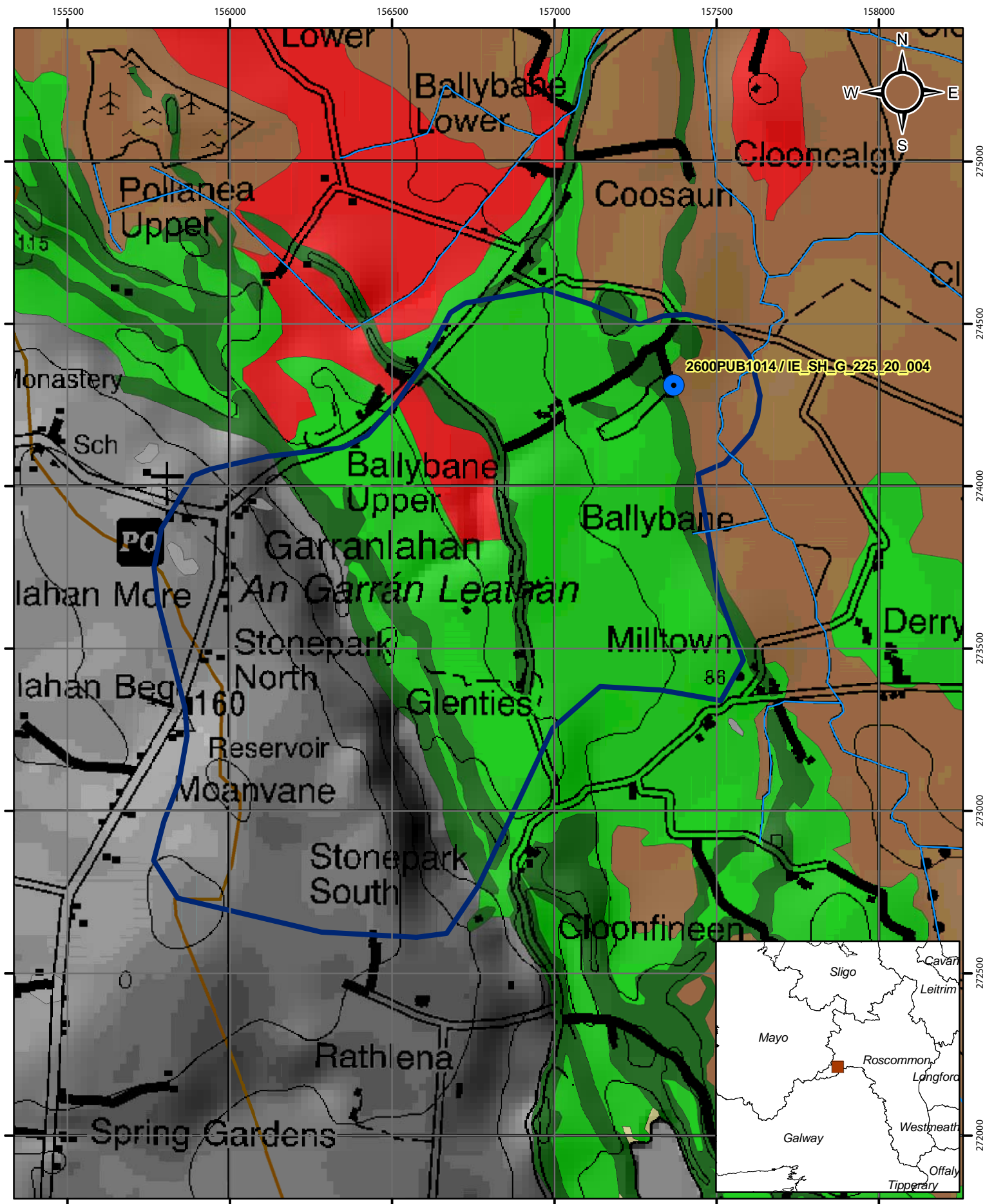
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0 0.25 0.5 1 km

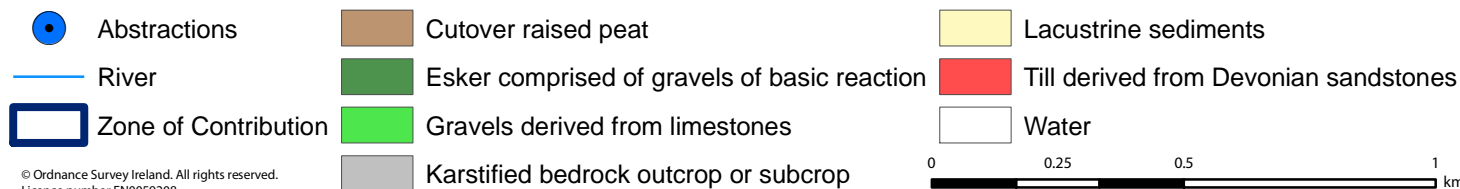


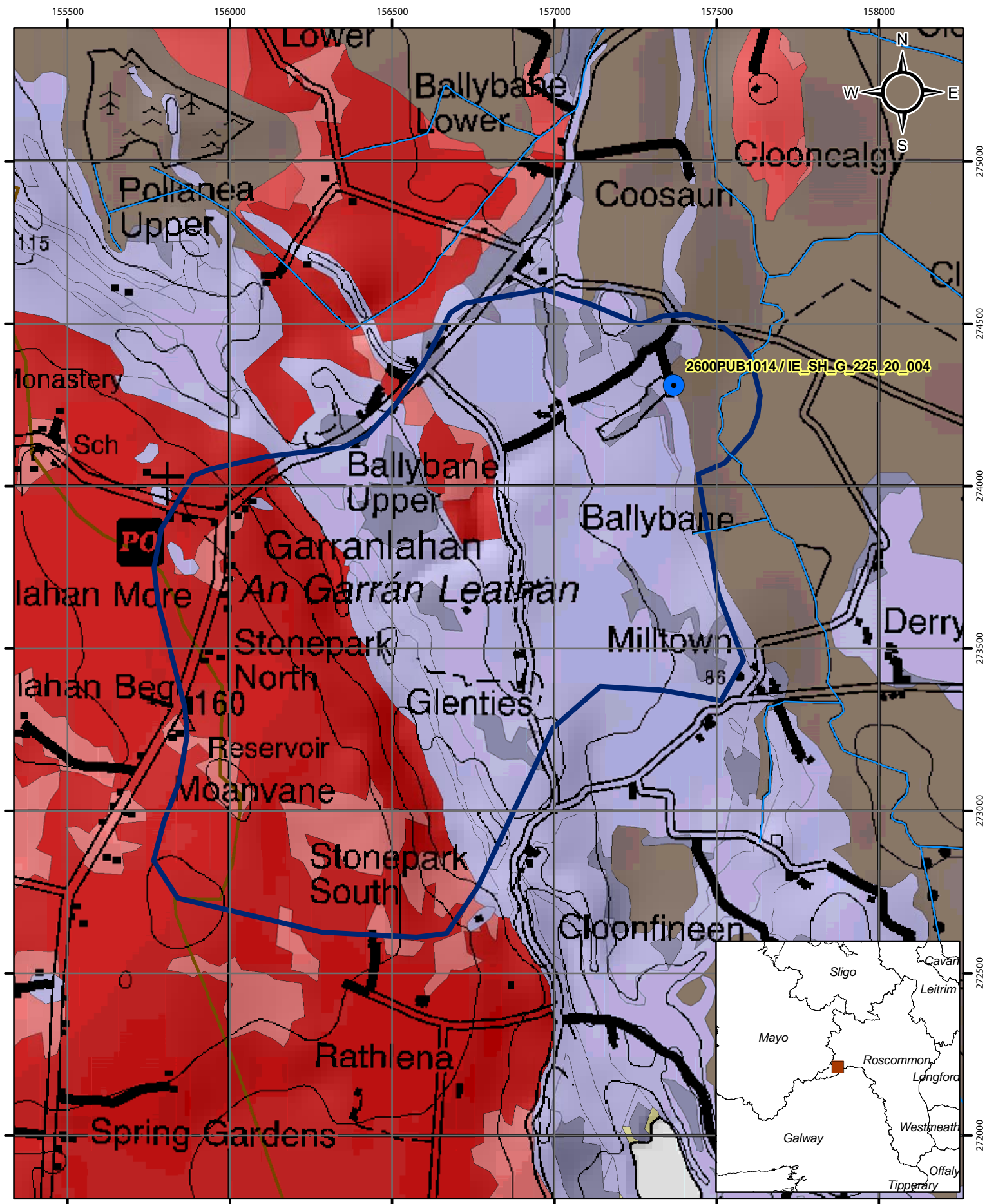
Groundwater Vulnerability for Ballinlough

- Abstractions
- River
- Zone of Contribution
- E (Extreme)
- H (High)
- M (Moderate)
- L (Low)
- Water
- E (Rock near surface or Karst)



Subsoils Map for Ballinlough





Soils Map for Ballinlough

