

Water Framework Directive Groundwater Monitoring Programme

Site Information **Ballyheigue**



This monitoring point is a spring that is the Ballyheigue PWS. The abstraction from the spring is abstraction of 2662m³/day.



Kerry

August 2011

SITE INFORMATION					
Site Name:	Ballyheigue		County:	Kerry	
RBD:	Shannon IRBD		EU Reporting Code:	IE_SH_G_008_08_001	
Easting:	76766		GWB Name:	Ardfert	
Northing:	126492		GWB Code:	IE_SH_G_008	
Site Use:	Drinking Water (PWS)		Drinking Water Code:	1300PUB1001	
Hydrometric Area:	23		Water Level Monitoring Network:	Level	Flow
Townland:	KNOCKROE(ED BANNA)			N	Y
Ownership:	Kerry County Council				
Water Quality Monitoring Network:	Surveillance		Operational (Point)		Operational (Diffuse)
	N		N		Y
Site Comments:	---				

SITE DIRECTIONS					
Location and Access Information:	Take R551 out of Tralee for Ardfert and Ballyheigue. Just over 6km outside Ardfert before reaching Ballyheigue there is a right hand turn to Knockroe (NGR 76191 125897). Follow this road to a farm, stay right for another 500m. Site on Left hand side of sharp left.				
Additional Comments:	---				

WELL INFORMATION					
Monitoring Point Type:	Spring	Abstraction Rate (m³/d):	2662	Ground Elevation (m OD):	5
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:	---		
Specific Capacity (m³/d/m):	---				
Static Water Level (m bgl):	---				
Scheme Name:	Ballyheigue PWS	Number of Abstraction Points in the Scheme:	1	Source Report Available	N
Source Report Info:	---				
Scheme Summary:	Spring/Developed into well is gravity fed until summer when it is pumped. It feeds 2 reservoirs and about 1800 people in Ballyheigue and Lerrigh.				

HYDROGEOLOGY								
GEOLOGY	Soil:	Cutaway/cutover peat (Cut)					Subsoil Permeability:	Low
	Subsoil:	Peat (Cut)						
	Bedrock:	Dinantian Pure Unbedded Limestones						
HYDROGEOLOGY	Aquifer Category:	Rkd	Vulnerability at Monitoring site:	High to Low		Flow Regime:	Karstified	
ZONE OF CONTRIBUTION	Estimated ZOC Size (km ²):	6.51	ZOC Delineated By:	TOBIN (CK)		Recharge Estimate (mm/yr):	168	
	ZOC Delineation Comments:	It is assumed the karst aquifer provides all the water to spring and the catchment is difficult to delineate with flattish topography and flat groundwater gradients. There are indications from the six inch sheets of small spring discharges outside the eastern and south-eastern boundaries. Thus these boundaries and the western boundary is based on topography.						
Groundwater Vulnerability within ZOC (% area):	Extreme (X)	Extreme (E)	High	Moderate	Low	High to Low	Unclassified	
	0.01	6.46	0	0	0	93.52	0	
HYDROCHEMISTRY								
Hydrochemical Signature:	Ca-HCO3		Additional Water Chemistry Information:	During the monitoring period: The average nitrate concentration was 35 mg/l NO3 and the maximum nitrate concentration was 47 mg/l NO3. The average ammonium concentration was 0.018 mg/l N and the maximum ammonium concentration was 0.14 mg/l N. The average molybdate reductive phosphorus (MRP) concentration was 0.007 mg/l P and the maximum MRP concentration was 0.015 mg/l P. The average chloride concentration was 91.2 mg/l Cl and the maximum chloride concentration was 115 mg/l Cl.				
Alkalinity (mg/l HCO3):	Average:	Range:						
	344	184-390						
Hardness (mg/l CaCO3):	Average:	Range:						
	413	190-508						
Conductivity (uS/cm):	Average:	Range:						
	982	696-1238						
Monitoring Record Period:	From:	To:						
	1995	2010						
RISK ASSESSMENT								
Pressure (e.g., Nitrates, Phosphates, Abstractions):	Diffuse		Typical Contaminants:	Nitrate				
Risk Category:	At risk, high confidence		GWB Status:	Poor				
Impact Potential within ZOC (% area):	Extreme:	High:	Moderate:	Low:	Negligible:			
	1.71	57.16	5.34	0.00	35.79			
OTHER INFORMATION								



Pump House



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 NO₃)

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).

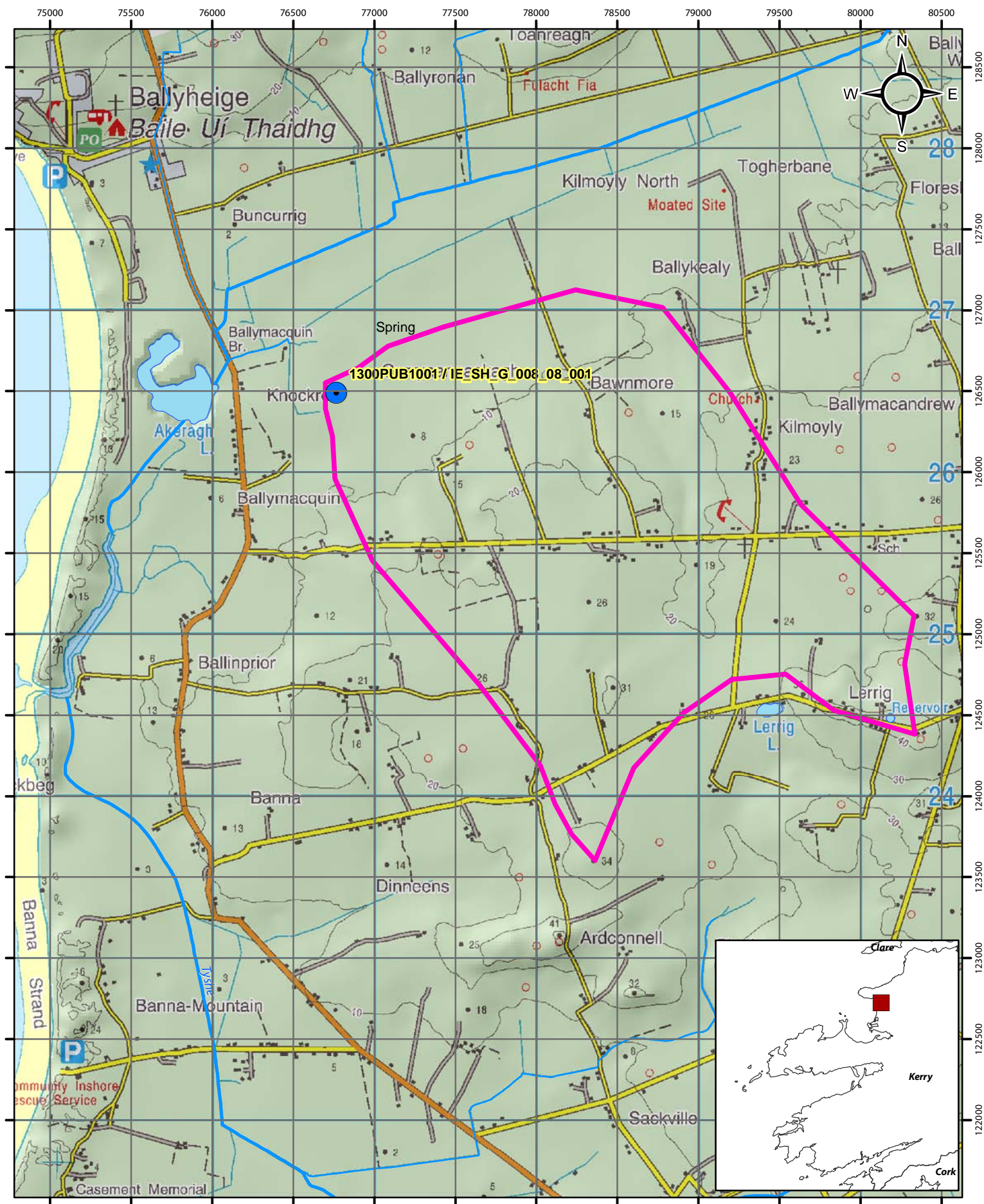
General Downgradient Distances

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
Ll, Pl	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:	Apr 2011
Version 2:	Prepared by		Date:	
Version 3:	Prepared by		Date:	
Version 4:	Prepared by		Date:	

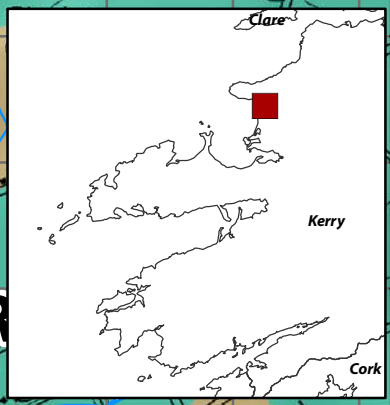
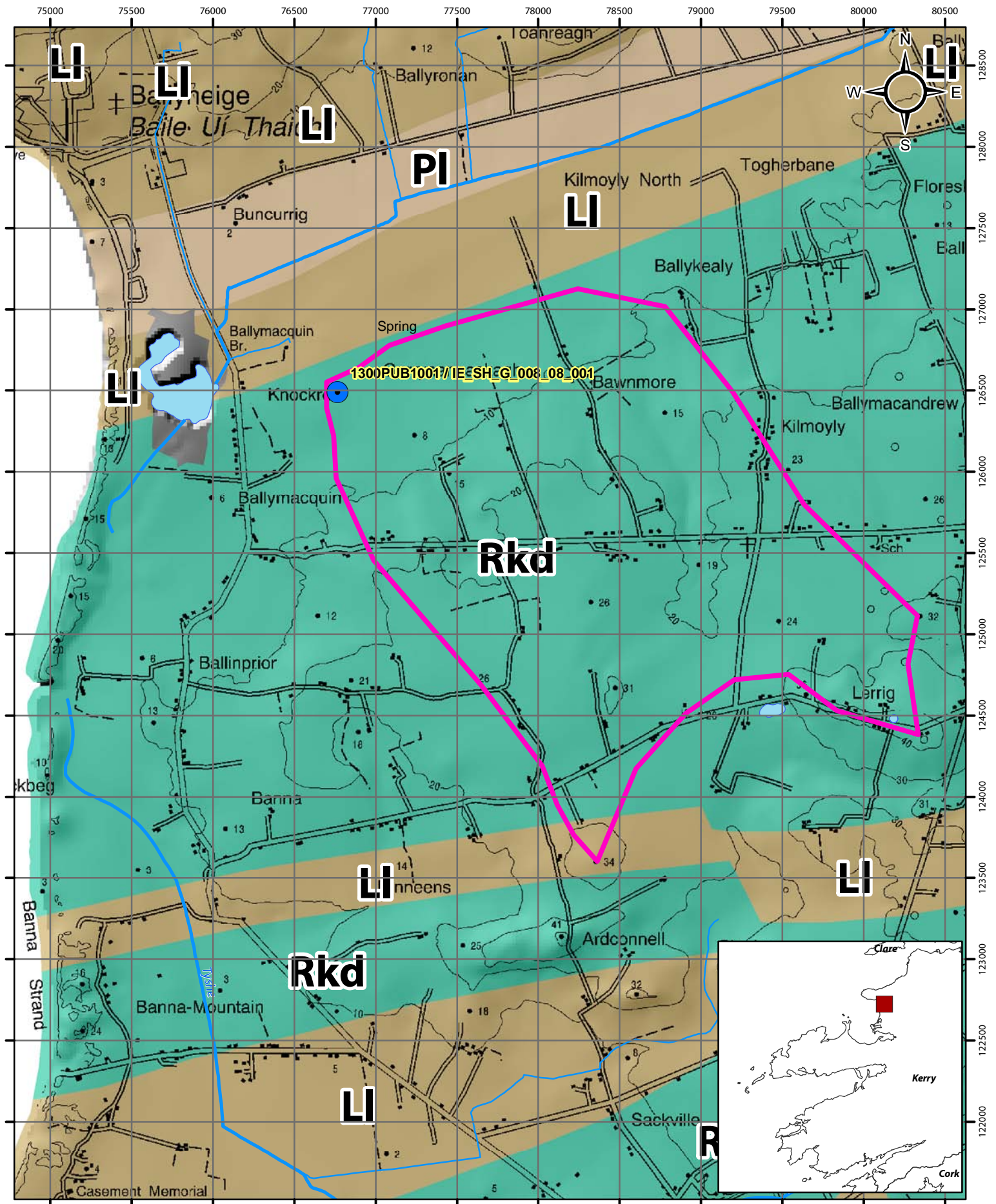


Location Map for Ballyheigue

- Abstractions
- Lake
- River
- Zone of Contribution

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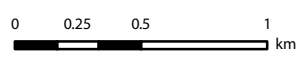
0 0.25 0.5 1
km

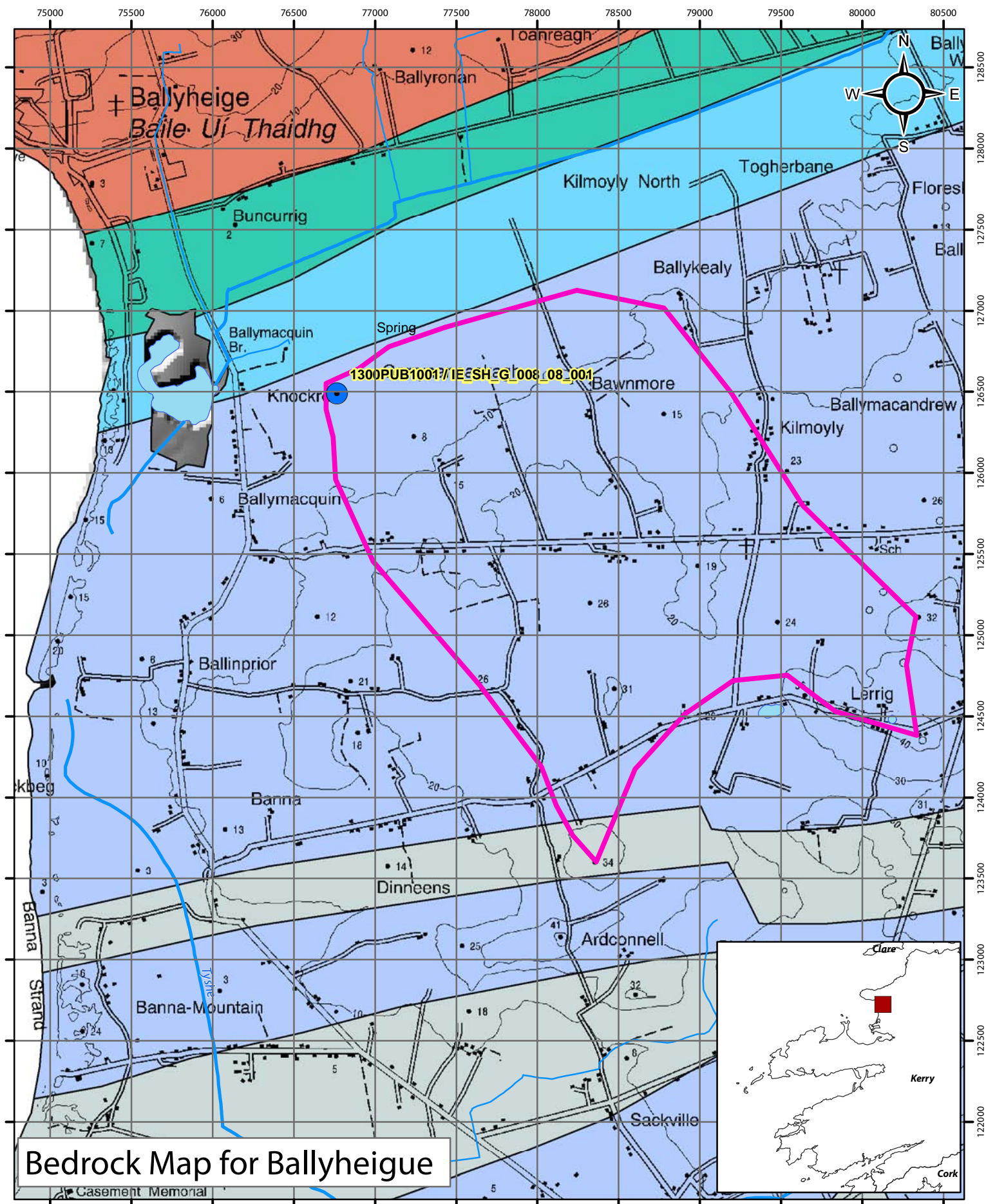


Aquifer Map for Ballyheigue

- Abstractions
- River
- Zone of Contribution
- LI
- PI
- Rkd
- Lake

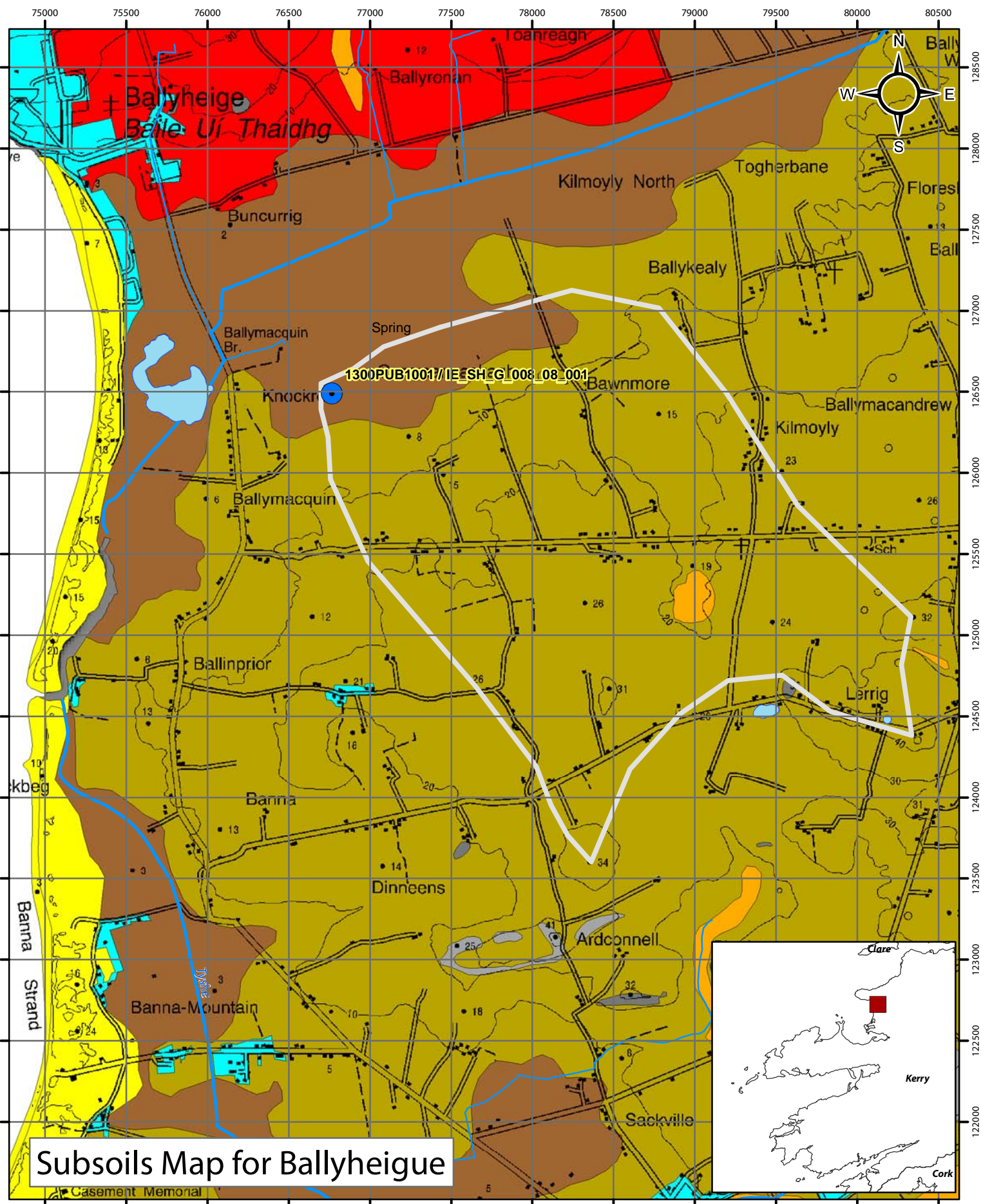
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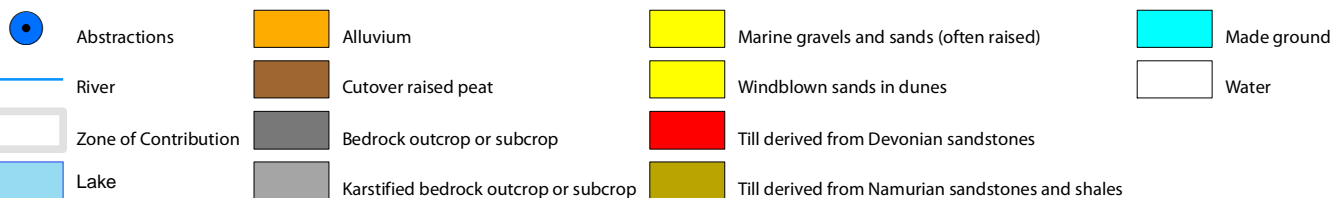


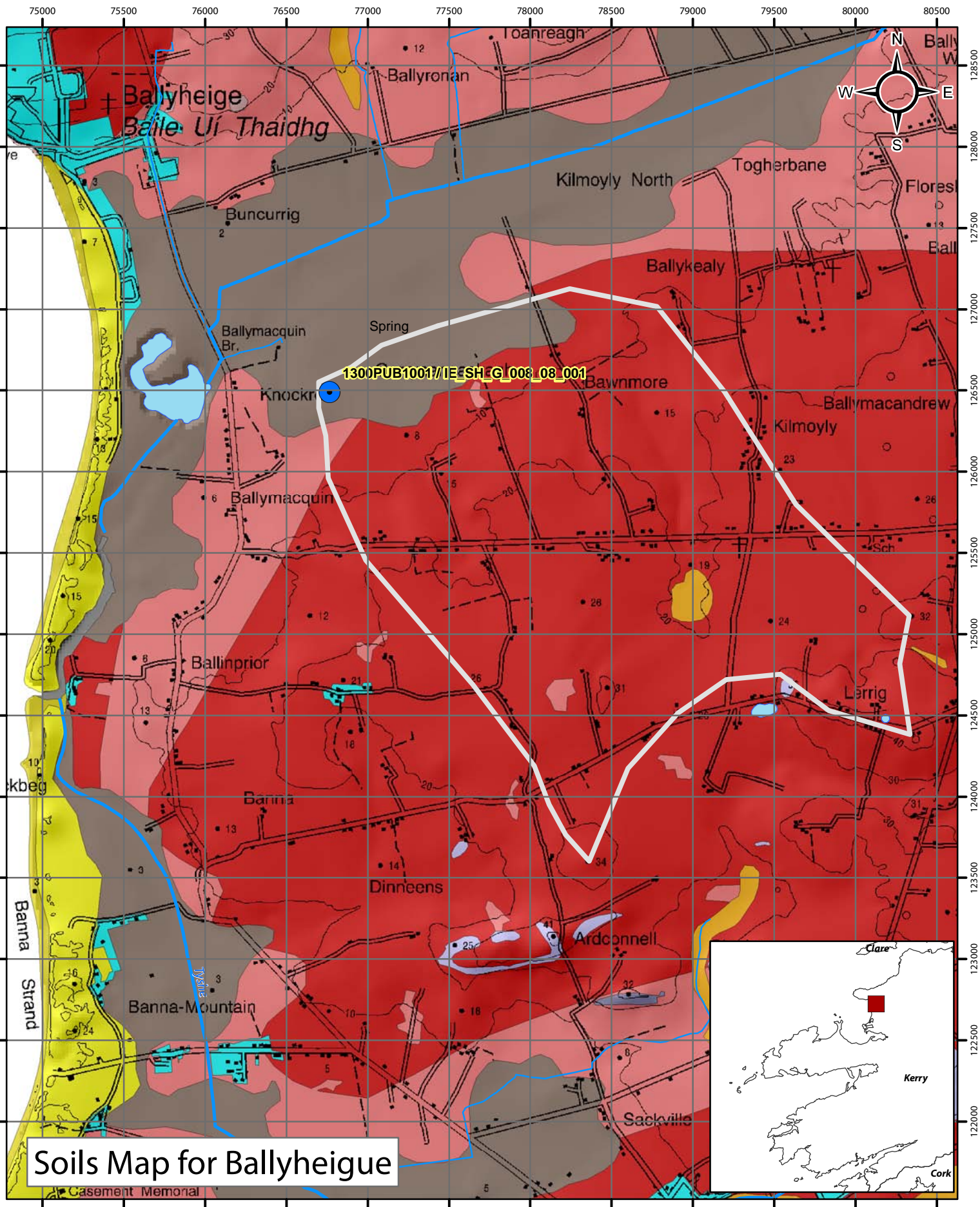
Bedrock Map for Ballyheigue

- | | | |
|----------------------|---|------------------------------------|
| Abstractions | Devonian Old Red Sandstones | Dinantian Pure Unbedded Limestones |
| River | Dinantian (early) Sandstones, Shales and Limestones | Dinantian Upper Impure Limestones |
| Zone of Contribution | Dinantian Lower Impure Limestones | |
| Lake | | |



Subsoils Map for Ballyheigue





Soils Map for Ballyheigue

