

Water Framework Directive Groundwater Monitoring Programme

Site Information **Caherbarnagh**



Caherbarnagh is a borehole situated in Devonian Old Red Sandstones and is used as a public supply. The abstraction rate is 250 m³/d. The water is chlorinated before being pumped to the reservoir



Cork

August 2011

SITE INFORMATION					
Site Name:	Caherbarnagh		County:	Cork	
RBD:	SWRBD		EU Reporting Code:	---	
Easting:	117610		GWB Name:	Glenville	
Northing:	88629		GWB Code:	IE_SW_G_037	
Site Use:	Drinking Water (PWS)		Drinking Water Code:	0500PUB1402	
Hydrometric Area:	18		Water Level Monitoring Network:	Level	Flow
Townland:	CAHERBARNAGH			N	N
Ownership:	Cork County Council				
Water Quality Monitoring Network:	Surveillance		Operational (Point)		Operational (Diffuse)
	N		N		N
Site Comments:	---				

SITE DIRECTIONS	
Location and Access Information:	Located 9.75 km southwest of Millstreet. 5.5 km from the road westwards at Croohig's Crossroads the site is accessed, from a long laneway to the south of the road. (Quite difficult to find unaided.)
Additional Comments:	---

WELL INFORMATION					
Monitoring Point Type:	BH	Abstraction Rate (m³/d):	250	Ground Elevation (m OD):	270
Borehole Log Available:	---	Total Drilled Depth (m bgl):	85	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:	Caherbarnagh	Number of Abstraction Points in the Scheme:	1	Source Report Available	N
Source Report Info:	---				
Scheme Summary:	The scheme consists of one borehole. The water is pumped to the reservoir beside the borehole before distribution. The water is chlorinated in the pumphouse.				

HYDROGEOLOGY								
GEOLOGY	Soil:	Deep poorly drained mineral (AminPD)					Subsoil Permeability:	n/a
	Subsoil:	Tills (diamictons) (TDSs)						
	Bedrock:	Devonian Old Red Sandstone						
HYDROGEOLOGY	Aquifer Category:	LI	Vulnerability at Monitoring site:	Extreme	Flow Regime:	Poorly productive		
ZONE OF CONTRIBUTION	Estimated ZOC Size (km ²):	0.67	ZOC Delineated By:	OCM (DC)	Recharge Estimate (mm/yr):	200		
	ZOC Delineation Comments:	The ZOC was delineated based on abstraction rate, recharge and topography. It is based on 150% of the abstraction rate to account for increases in demand and uncertainties in the delineation process.						
Groundwater Vulnerability within ZOC (% area):	Extreme (X)	Extreme (E)	High	Moderate	Low	High to Low	Unclassified	
	29.62	66.87	0	0	0	3.51	0	
HYDROCHEMISTRY								
Hydrochemical Signature:	---		Additional Water Chemistry Information:	---				
Alkalinity (mg/l HCO ₃):	Average:	Range:						
	---	---						
Hardness (mg/l CaCO ₃):	Average:	Range:						
	---	---						
Conductivity (uS/cm):	Average:	Range:						
	91	85-105						
Monitoring Record Period:	From:	To:						
	---	---						
RISK ASSESSMENT								
Pressure (e.g., Nitrates, Phosphates, Abstractions):	Diffuse		Typical Contaminants:	Nitrate				
Risk Category:	At risk, high confidence		GWB Status:	Good				
Impact Potential within ZOC (% area):	Extreme:	High:	Moderate:	Low:	Negligible:			
	0.00	0.00	1.12	0.00	98.88			
OTHER INFORMATION								



Reservoir and Pumphouse



Borehole housing



Inside the pumphouse

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).

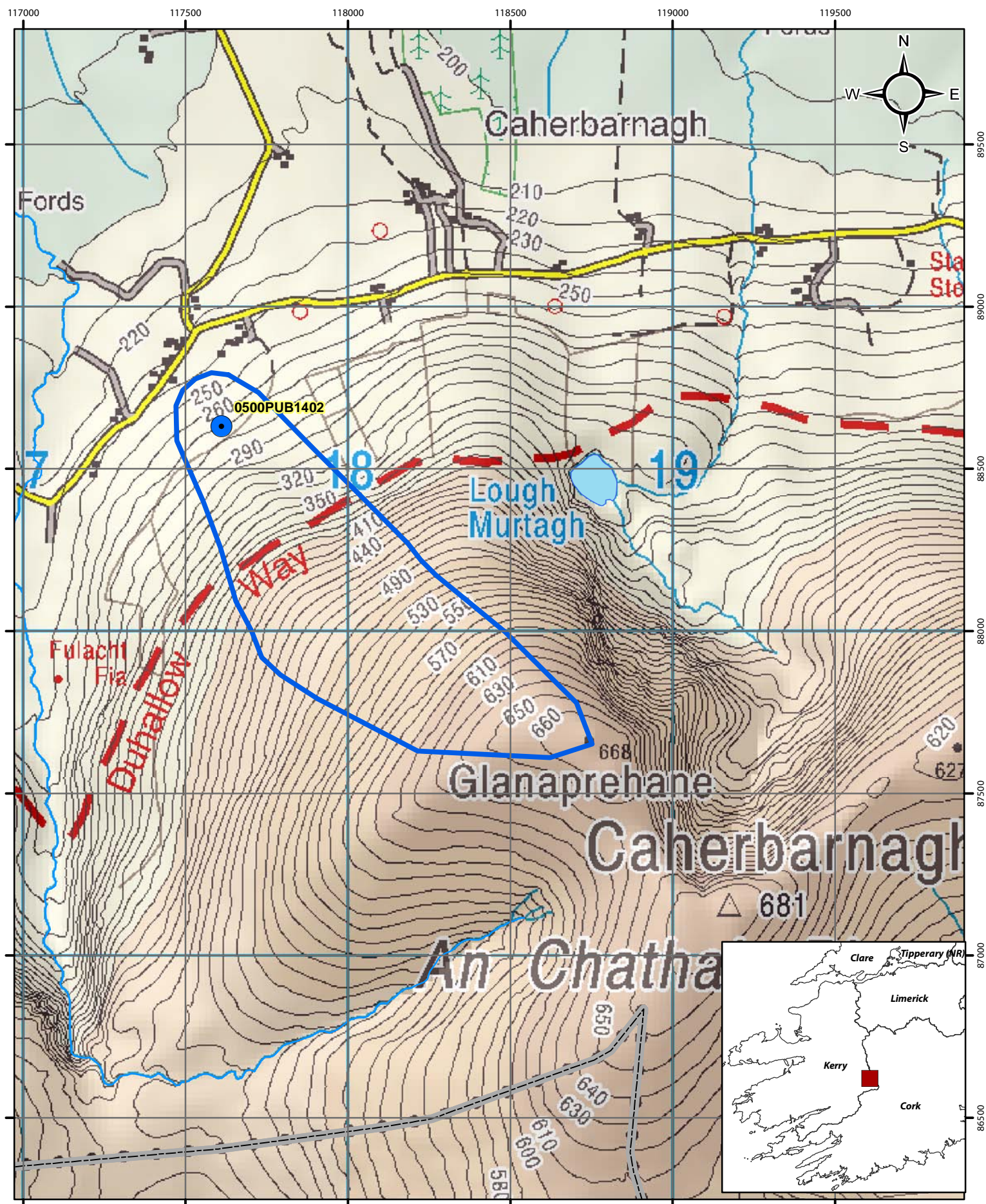
General Downgradient Distances

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

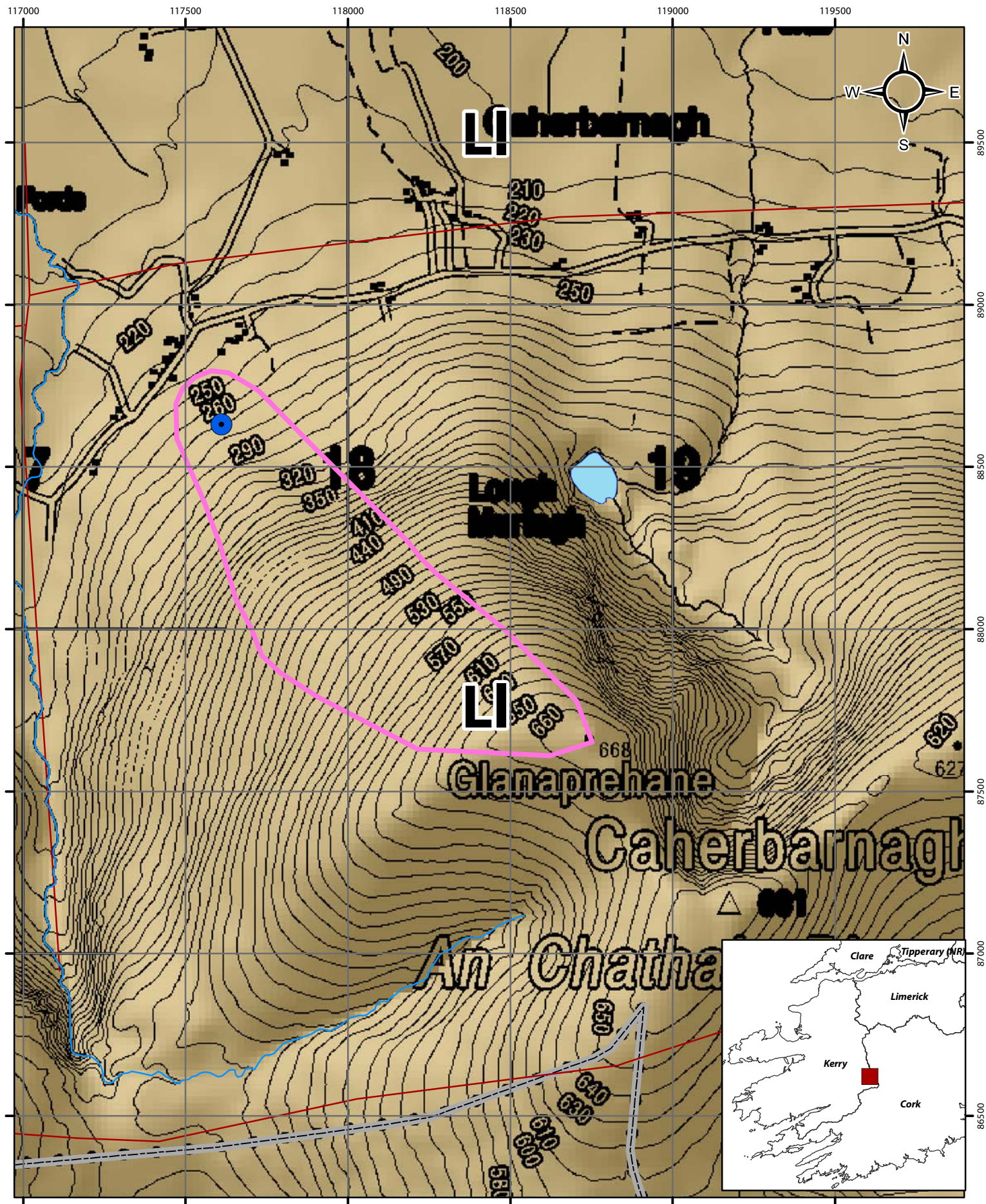
It is assumed that groundwater downgradient of a spring cannot flow back up to the spring, however a precautionary 30m buffer is generally applied which allows for instances where pumping under dry weather periods may induce a drawdown or where the ground may be sloping toward the spring from the downgradient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

Version 0:	Prepared by		Date:	
Version 1:	Prepared by	OCM (DC)	Date:	Feb 2011
Version 2:	Prepared by		Date:	
Version 3:	Prepared by		Date:	
Version 4:	Prepared by		Date:	



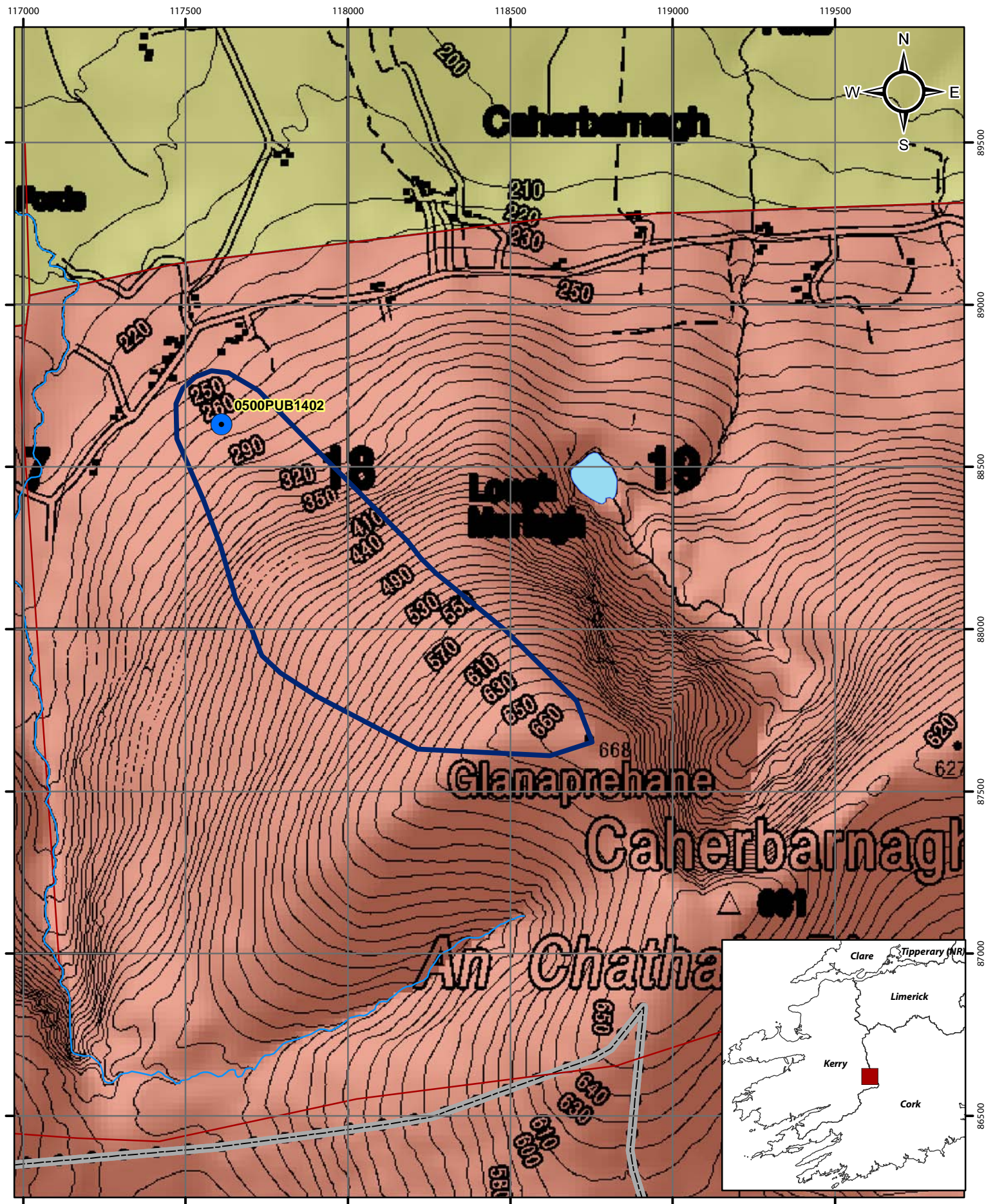
Location Map for Caherbarnagh

- Abstractions
- Zone of Contribution
- River



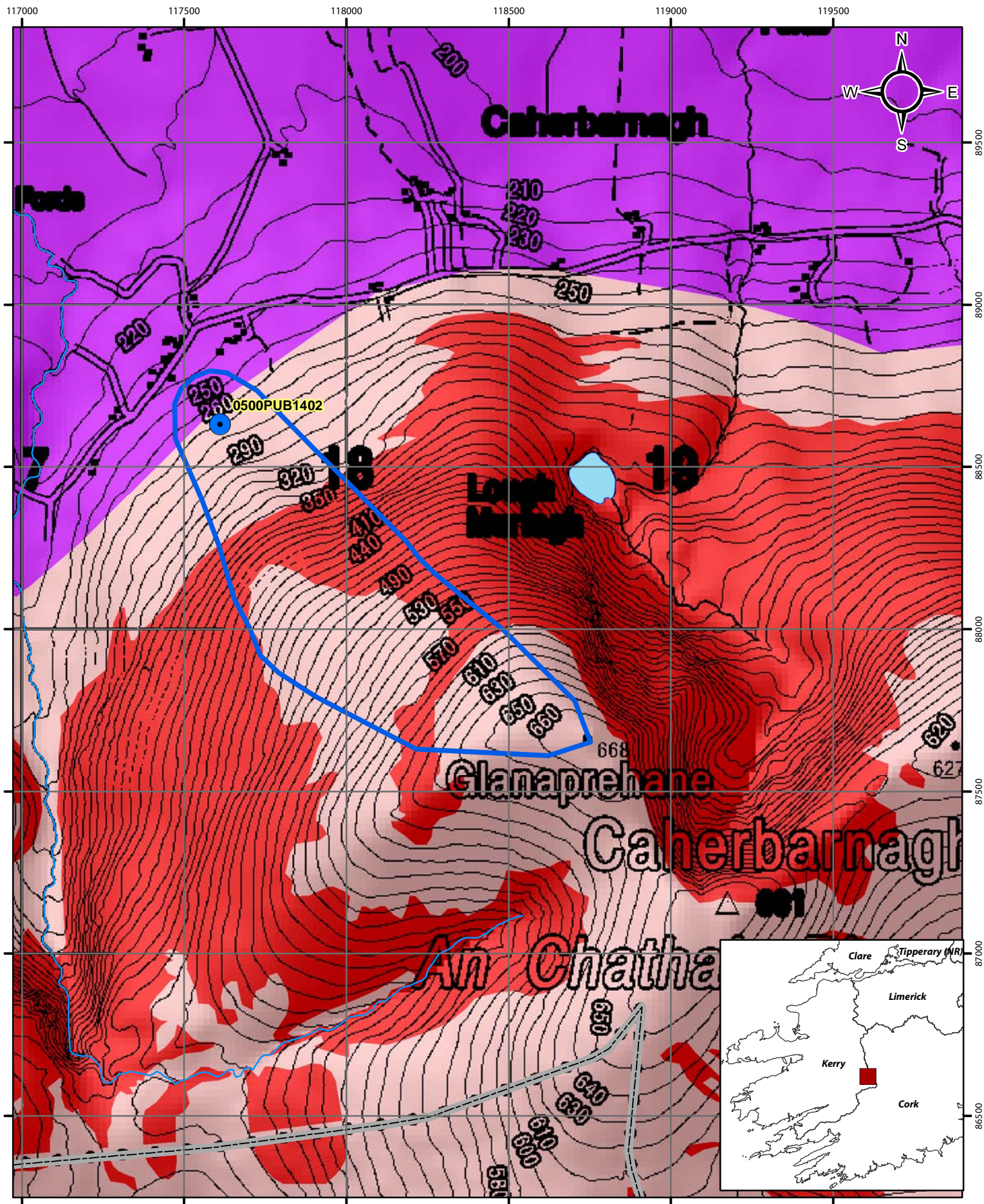
Aquifer Category Map for Caherbarnagh

- Abstractions 2010
- Fault
- Zone of Contribution
- River
- LI



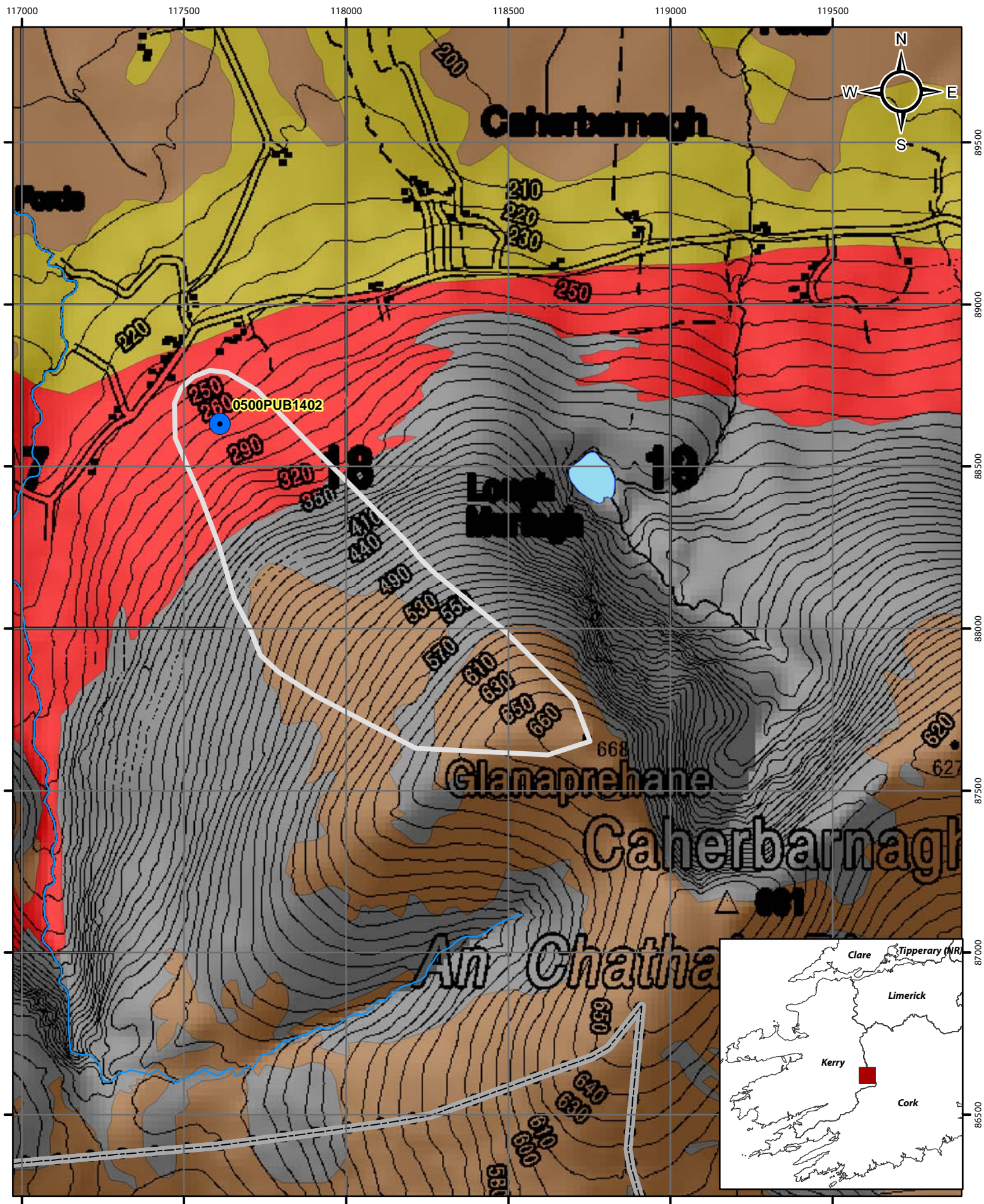
Bedrock Map for Caherbarnagh

- Abstractions
- River
- Zone of Contribution
- Fault
- Devonian Old Red Sandstones
- Namurian Undifferentiated

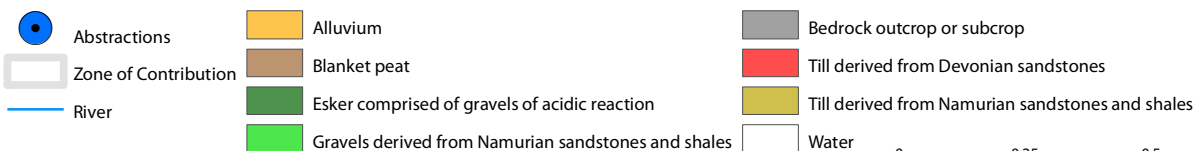


Groundwater Vulnerability Map for Caherbarnagh

- | | | | |
|----------------------|--------------------------------|-----------------------------|---------|
| Abstractions | E (Rock near surface or Karst) | M (Moderate) | Water |
| Zone of Contribution | E (Extreme) | L (Low) | No Data |
| River | H (High) | HL (unmapped - High to Low) | |

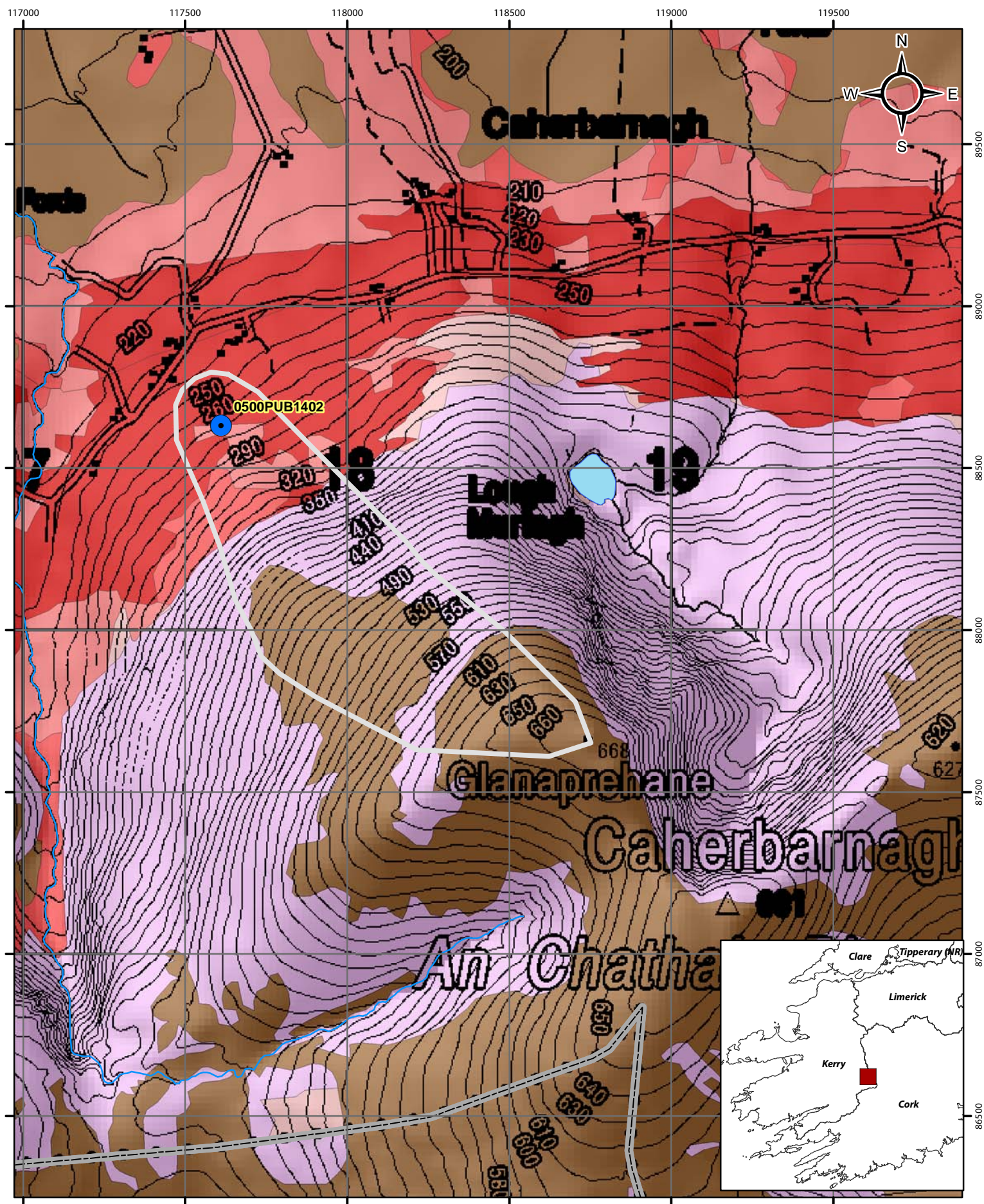


Subsoils Map for Caherbarnagh



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0 0.25 0.5 1 km



Soils Map for Caherbarnagh

