

Water Framework Directive Groundwater Monitoring Programme

Site Information **Ballykinsella WS**



Ballykinsella WS is a 40m deep borehole situated in Ordovician Volcanics and was used as a public water supply. The abstraction rate was 90m³/day. The borehole is included in the operational chemical network. The

SITE INFORMATION					
Site Name:	Ballykinsella WS		County:	Waterford	
RBD:	SERBD		EU Reporting Code:	IE_SE_G_149_24_003	
Easting:	260205		GWB Name:	Waterford	
Northing:	105098		GWB Code:	IE_SE_G_149	
Site Use:	Drinking Water (PWS)		Drinking Water Code:	3100PUB1012	
Hydrometric Area:	16		Water Level Monitoring Network:	Level	Flow
Townland:	BALLYKINSELLA			N	N
Ownership:	Waterford County Council				
Water Quality Monitoring Network:	Surveillance	Operational (Point)		Operational (Diffuse)	
	N	N		Y	
Site Comments:	---				
SITE DIRECTIONS					
Location and Access Information:	Located 6.8 km south of Waterford City. The site is on a third class road parallel to the R675 just north of Perry's Bridge.				
Additional Comments:	---				
WELL INFORMATION					
Monitoring Point Type:	BH	Abstraction Rate (m³/d):	n/a	Ground Elevation (m OD):	32
Borehole Log Available:	---	Total Drilled Depth (m bgl):	40	Depth to Bedrock (m bgl):	---
Top of Casing (m agl):	---	Upper Casing Diameter (mm):	200	Lower Casing Diameter (mm):	---
Final Borehole Depth (m):	Cased to Rock	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:	Ballykinsella	Number of Abstraction Points in the Scheme:	1	Source Report Available	N
Source Report Info:	---				
Scheme Summary:	The scheme consists of one borehole. It was a grouped scheme that had been taken over by the Waterford County Council. The scheme is presently not in use and will be fully decommissioned in 2011				

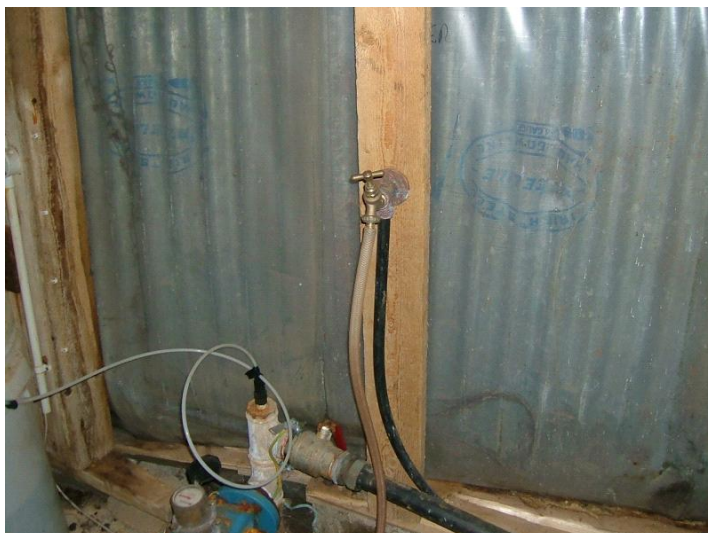
HYDROGEOLOGY								
GEOLOGY	Soil:	Shallow well drained mineral (AminSW)					Subsoil Permeability:	n/a
	Subsoil:	Bedrock at or close to surface (Rck)						
	Bedrock:	Ordovician Volcanics						
HYDROGEOLOGY	Aquifer Category:	Rf	Vulnerability at Monitoring site:	X-Extreme		Flow Regime:	Productive fissured bedrock	
ZONE OF CONTRIBUTION	Estimated ZOC Size (km ²):	0.17	ZOC Delineated By:	OCM (DC)		Recharge Estimate (mm/yr):	290	
	ZOC Delineation Comments:	This site is not in use and will be decommissioned in 2011. The ZOC was delineated based on the last known abstraction rate, topography and recharge.						
Groundwater Vulnerability within ZOC (% area):	Extreme (X)	Extreme (E)	High	Moderate	Low	High to Low	Unclassified	
	10.35	49.34	0	0	0	40.31	0	
HYDROCHEMISTRY								
Hydrochemical Signature:	Ca-HCO ₃		Additional Water Chemistry Information:	During the monitoring period: The average nitrate concentration was 28 mg/l NO ₃ and the maximum nitrate concentration was 45 mg/l NO ₃ . The average ammonium concentration was 0.024 mg/l N and the maximum ammonium concentration was 0.085 mg/l N. The average molybdate reductive phosphorus (MRP) concentration was 0.007 mg/l P and the maximum MRP concentration was 0.047 mg/l P. The average chloride concentration was 31.8 mg/l Cl and the maximum chloride concentration was 39.3 mg/l Cl.				
Alkalinity (mg/l HCO ₃):	Average:	Range:						
	68	42-113						
Hardness (mg/l CaCO ₃):	Average:	Range:						
	116	98-129						
Conductivity (uS/cm):	Average:	Range:						
	313	243-372						
Monitoring Record Period:	From:	To:						
	1993	2009						
RISK ASSESSMENT								
Pressure (e.g., Nitrates, Phosphates, Abstractions):	Diffuse		Typical Contaminants:		Nitrates			
Risk Category:	At risk, high confidence		GWB Status:		Good			
Impact Potential within ZOC (% area):	Extreme:	High:	Moderate:		Low:	Negligible:		
	0.00	80.43	19.57		0.00	0.00		
OTHER INFORMATION								



Pump House



Land Use



Sampling Point

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
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:	

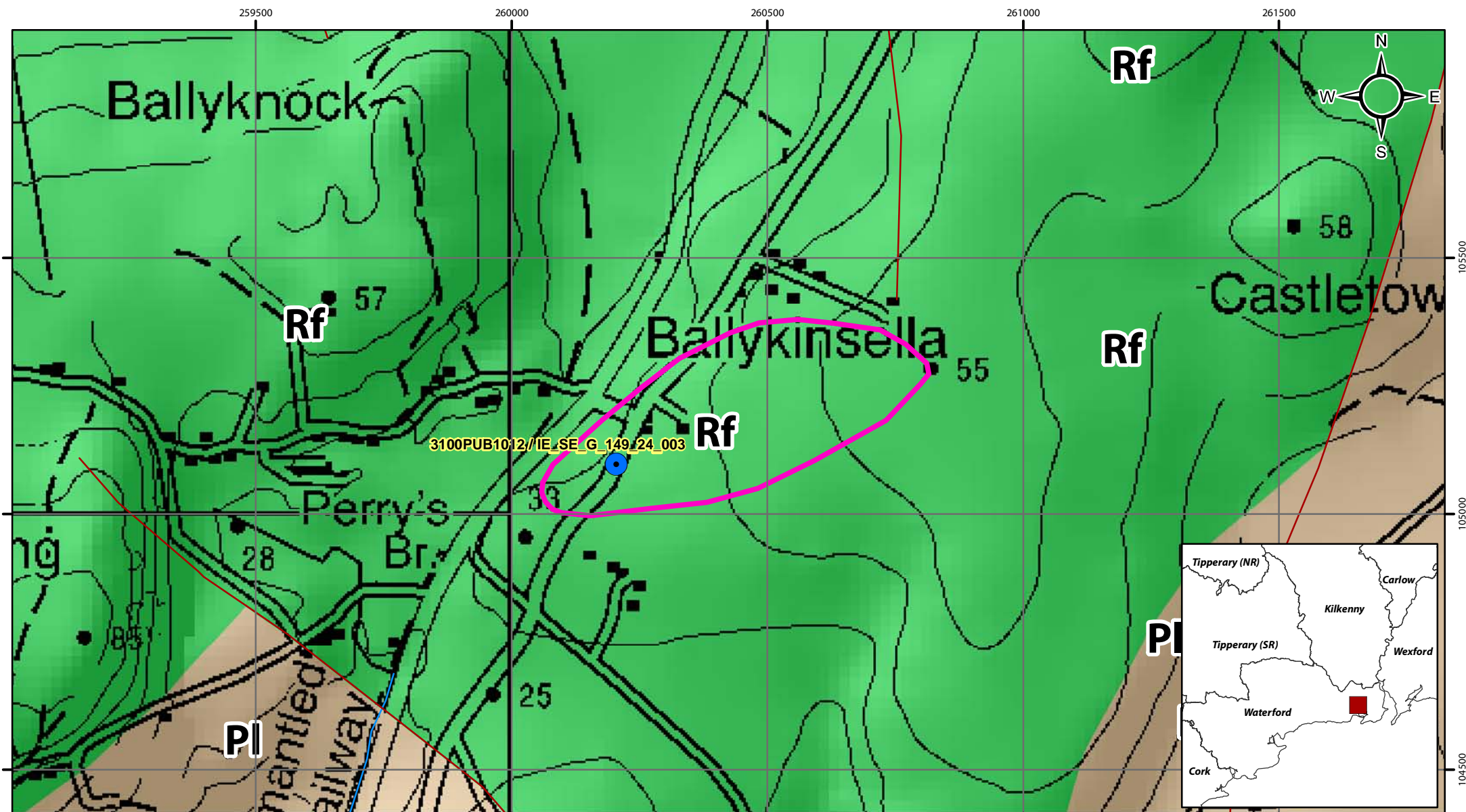


Location Map for Ballykinsella WS

- Abstractions
- River
- Zone of Contribution

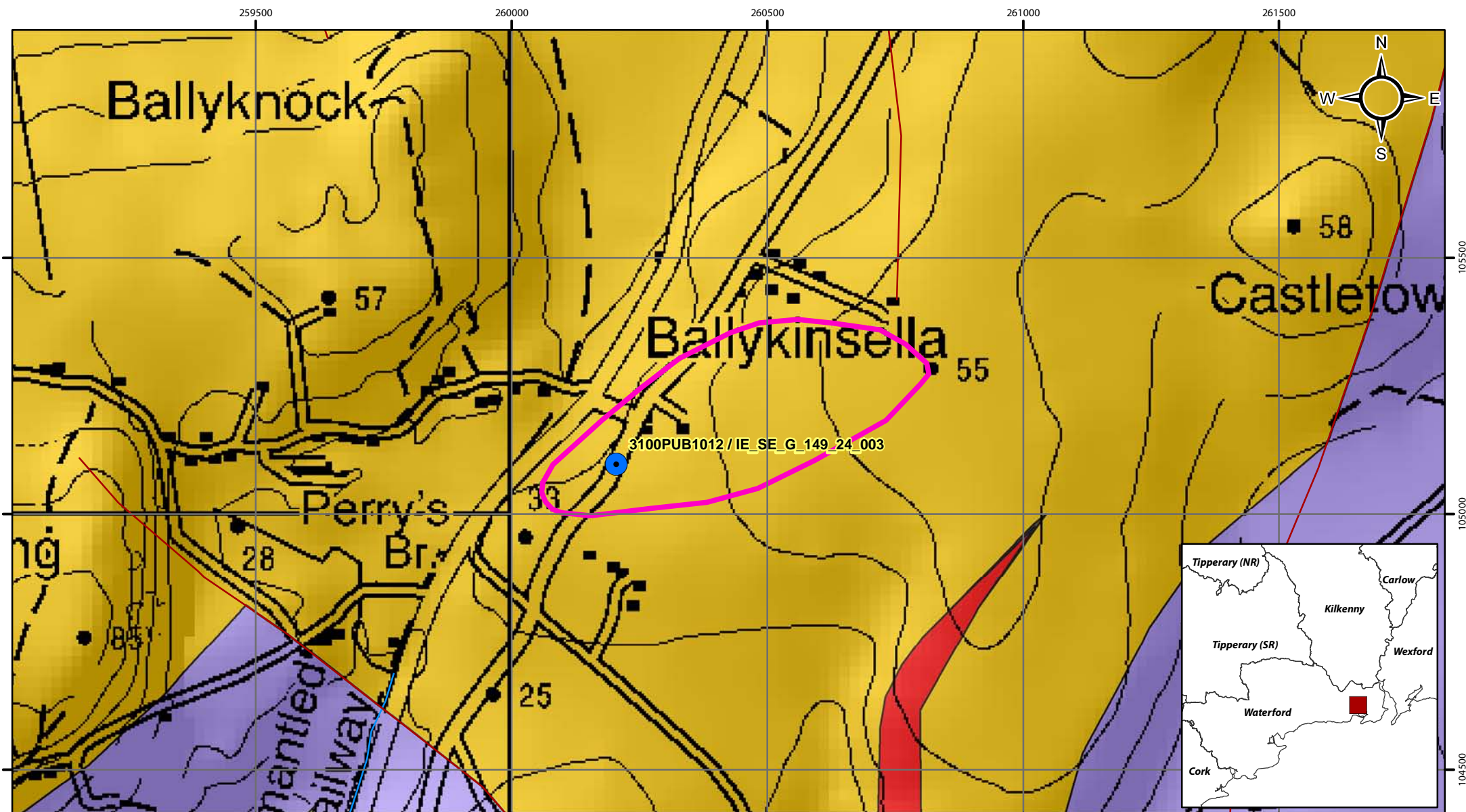
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0 0.25 0.5 1 km



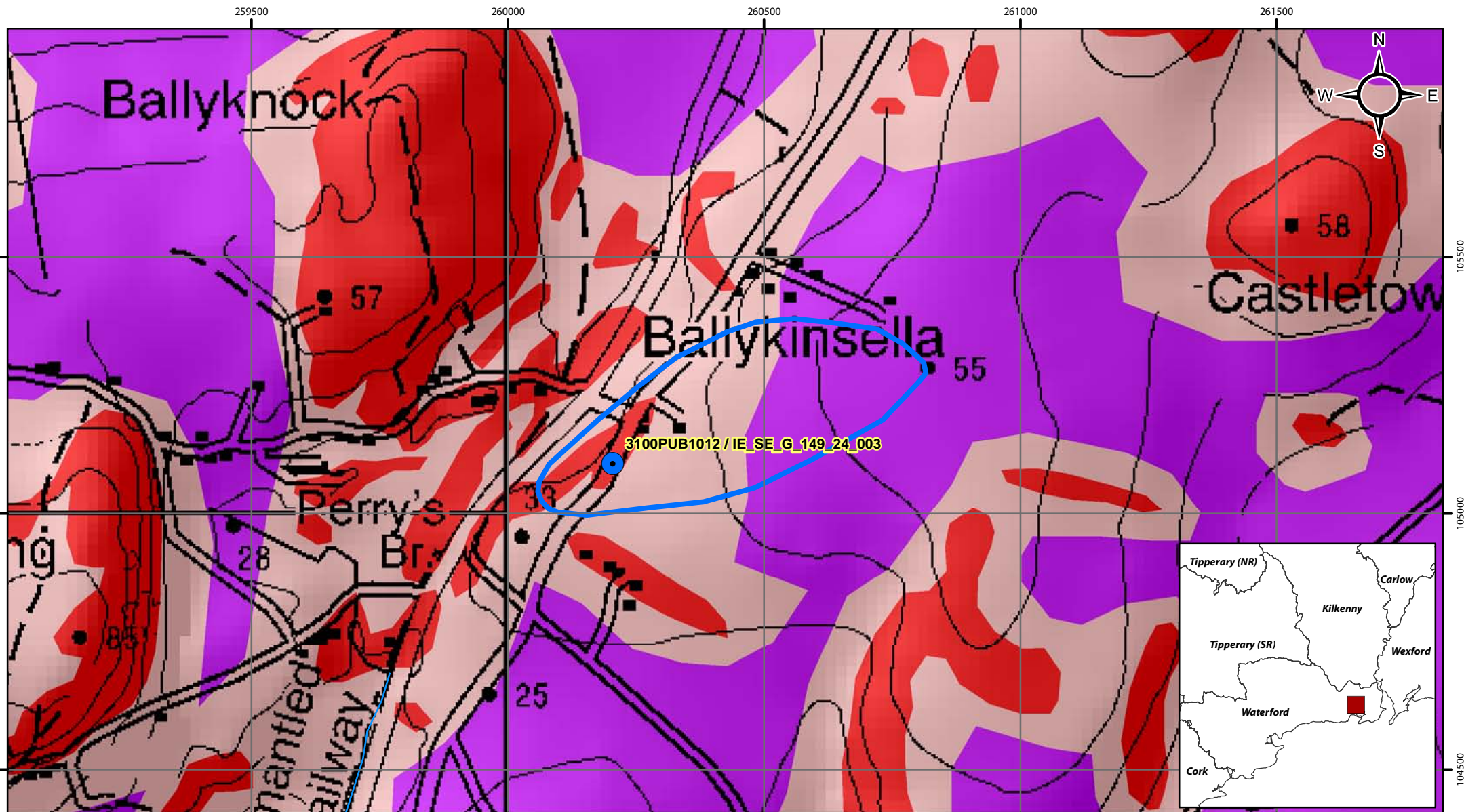
Aquifer Category Map for Ballykinsella WS

- Abstractions
- River
- Zone of Contribution
- PI
- Rf
- Fault

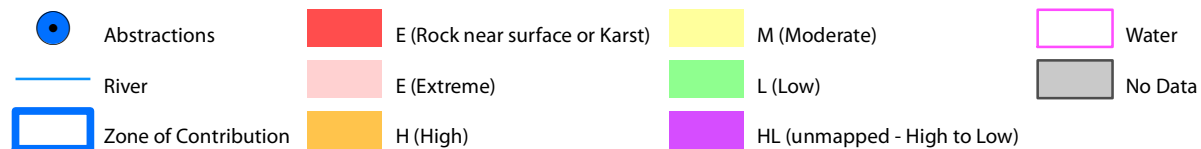


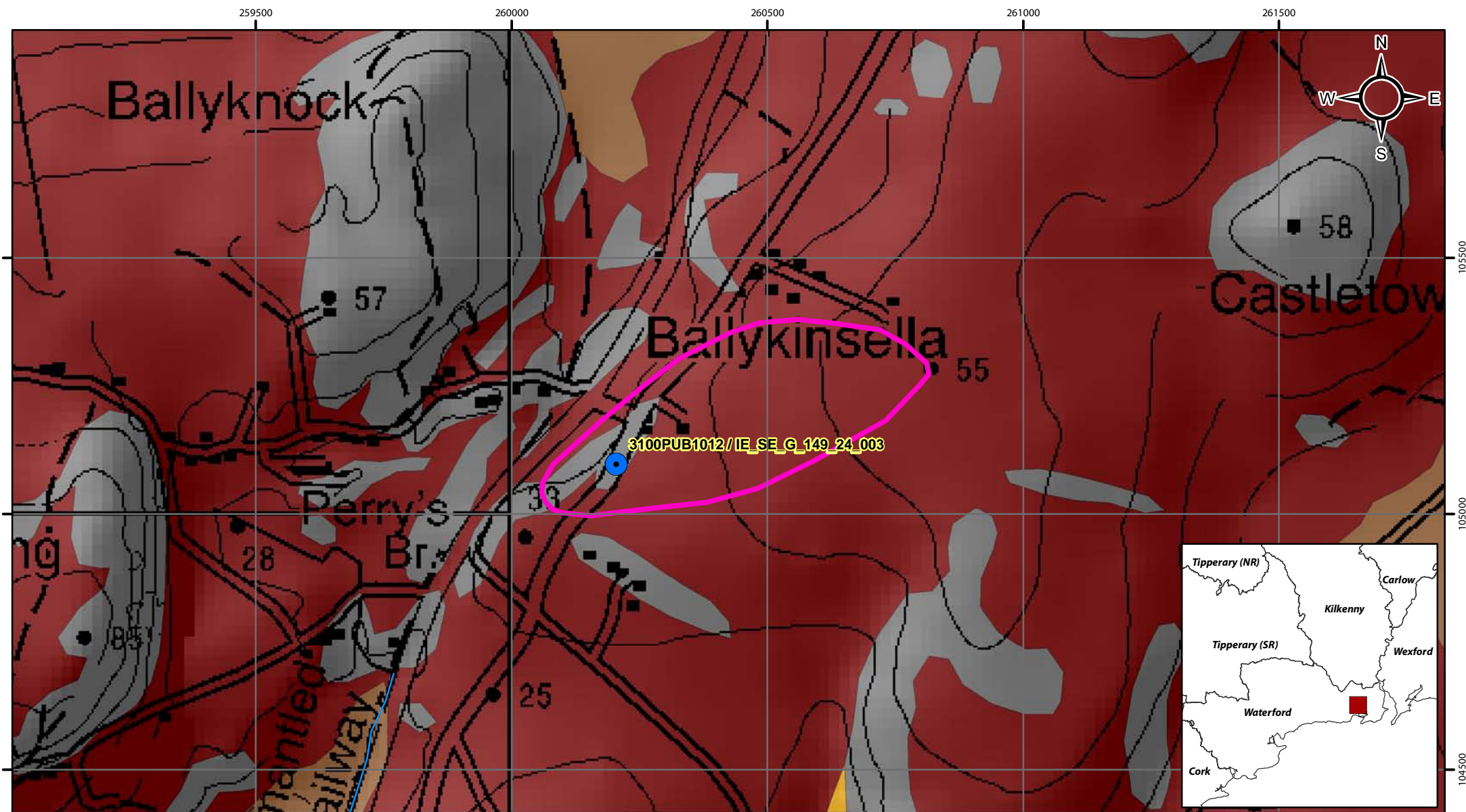
Bedrock Map for Ballykinsella WS





Groundwater Vulnerability Map for Ballykinsella WS

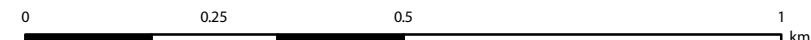


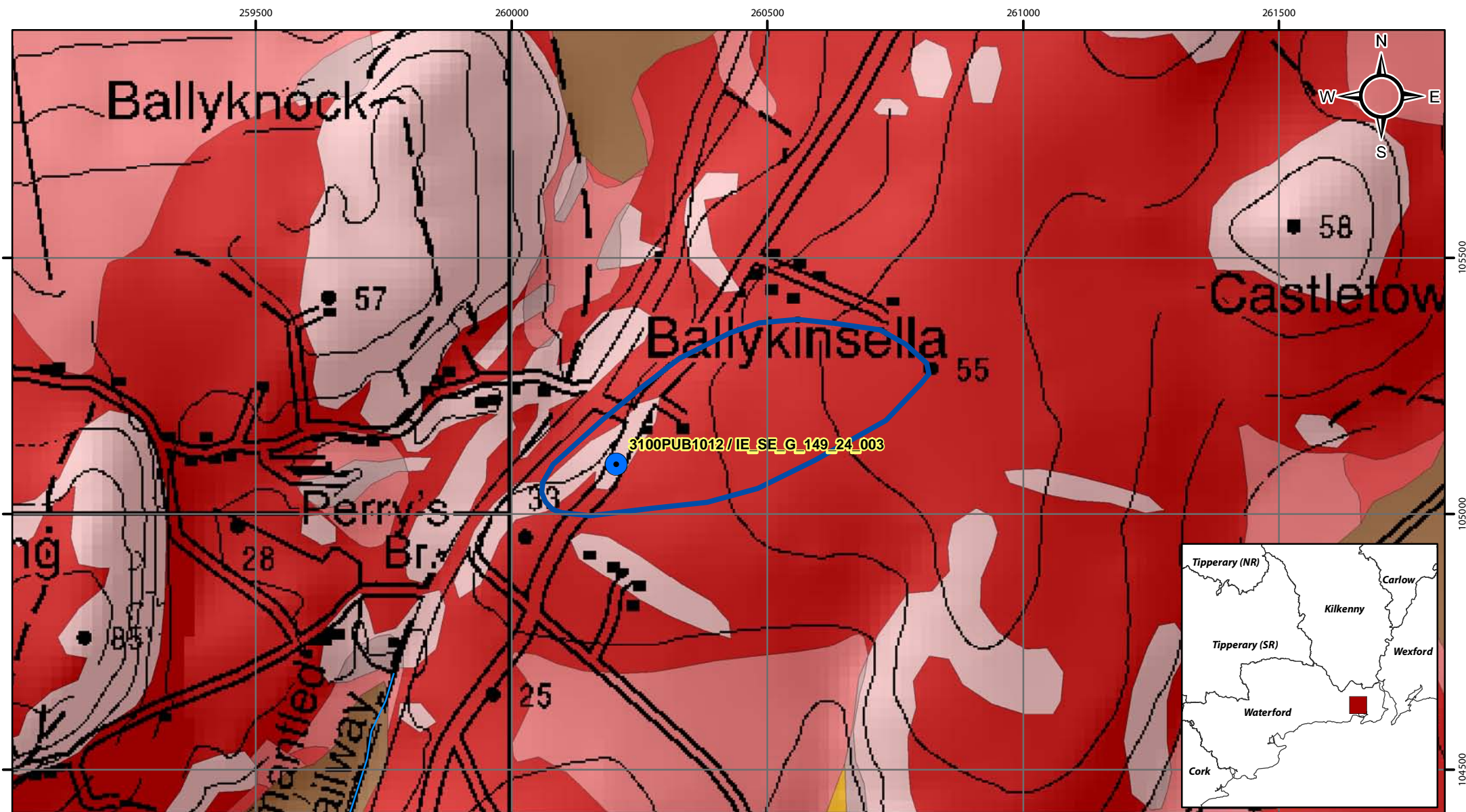


Subsoils Map for Ballykinsella WS

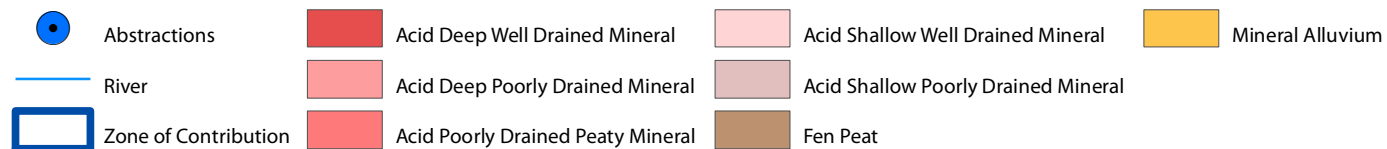


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Soils Map for Ballykinsella WS



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