

Water Framework Directive Groundwater Monitoring Programme

Site Information

Clarinbridge Kilcolgan RWSS



The Clarinbridge-Kilcolgan spring originally supplied the Clarinbridge public water scheme but is no longer in use. The average abstraction did fluctuates considerably with demand, but did exceed 1,500 m³/d at times.



Galway

August 2011

SITE INFORMATION					
Site Name:	Clarinbridge Kilcolgan RWSS		County:	Galway	
RBD:	WRBD		EU Reporting Code:	IE_WE_G_0008_07_006	
Easting:	142600		GWB Name:	Clarinbridge	
Northing:	219399		GWB Code:	IE_WE_G_0008	
Site Use:	Monitoring Only		Drinking Water Code:	---	
Hydrometric Area:	30		Water Level Monitoring Network:	Level	Flow
Townland:	KILCORNAN (DUNKELLIN BY)			Y	Y
Ownership:	Galway Co. Co. (Regional Water Supply Scheme)				
Water Quality Monitoring Network:	Surveillance		Operational (Point)		Operational (Diffuse)
	Y		N		Y
Site Comments:	The spring is located at the edge of a forest.				
SITE DIRECTIONS					
Location and Access Information:	Drive south from Clarinbridge centre on the N18. After approximately 1.5 km, take a small road to the left (east). If you drive across bridge over the Kilcolgan River, you have gone too far. The small road is located approximately 400 m to the N of the bridge. From the small road, drive a further 1 km, and the entrance to the spring and water scheme is visible on left.				
Additional Comments:	---				
WELL INFORMATION					
Monitoring Point Type:	Spring	Abstraction Rate (m³/d)	>1,000 but no longer in	Ground Elevation (m OD):	10
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:	Part of a significant regional and karstic groundwater flow system. Very large potential ZOC. Rapid throughflow, tracer tests have demonstrated velocities >100 m/d. traces from as far away as Craughwell have been detected at the spring.		
Specific Capacity (m³/d/m):	---				
Static Water Level (m bgl):	---				
Scheme Name:	Clarinbridge Kilcolgan RWSS	Number of Abstraction Points in the Scheme:	1	Source Report Available	N
Source Report Info:	---				
Scheme Summary:	Single spring that originally served a regional public water scheme but is no longer in use.				

HYDROGEOLOGY								
GEOLOGY	Soil:	Deep well drained mineral (BminDW)					Subsoil Permeability:	n/a
	Subsoil:	Tills (diamictos) (TLs)						
	Bedrock:	Dinantian Pure Bedded Limestones						
HYDROGEOLOGY	Aquifer Category:	Rkc	Vulnerability at Monitoring site:	Extreme			Flow Regime:	Karstified
ZONE OF CONTRIBUTION	Estimated ZOC Size (km²):	486.87	ZOC Delineated By:	Tobin (CK)			Recharge Estimate (mm/yr):	247
	ZOC Delineation Comments:	ZOC is largely unknown and could cover any part of the surface water catchment to the spring. Water tracing and karstified flow regime indicate that the spring can get contr butions possibly from entire surface catchment.						
Groundwater Vulnerability within ZOC (% area):	Extreme (X)	Extreme (E)	High	Moderate	Low	High to Low	Unclassified	
	9.72	21.41	33.1	11.28	23.83	0	0.66	
HYDROCHEMISTRY								
Hydrochemical Signature:	Ca-HCO3		Additional Water Chemistry Information:	During the monitoring period: The average nitrate concentration was 8 mg/l NO3 and the maximum nitrate concentration was 16 mg/l NO3. The average ammonium concentration was 0.025 mg/l N and the maximum ammonium concentration was 0.082 mg/l N. The average molybdate reductive phosphorus (MRP) concentration was 0.03 mg/l P and the maximum MRP concentration was 0.079 mg/l P. The average chloride concentration was 21.8 mg/l Cl and the maximum chloride concentration was 32 mg/l Cl.				
Alkalinity (mg/l HCO3):	Average:	Range:						
	300	134-370						
Hardness (mg/l CaCO3):	Average:	Range:						
	337	190-675						
Conductivity (uS/cm):	Average:	Range:						
	618	486-712						
Monitoring Record Period:	From:	To:						
	2000	2010						
RISK ASSESSMENT								
Pressure (e.g., Nitrates, Phosphates, Abstractions):	Diffuse		Typical Contaminants:		Phosphate			
Risk Category:	At risk, high confidence		GWB Status:		Poor			
Impact Potential within ZOC (% area):	Extreme:	High:	Moderate:		Low:	Negligible:		
	0.00	26.28	27.87		22.21	23.63		
OTHER INFORMATION								
The sample is taken directly from the spring source. The spring overflows to the Kilcolgan River. Mean discharge may be >100,000 m3/d. Spring flows rise and fall quickly in response to rainfall events.								



Site



Spring



Spring

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 μ S/cm) / Drinking Water Test (1,875 μ S/cm)

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

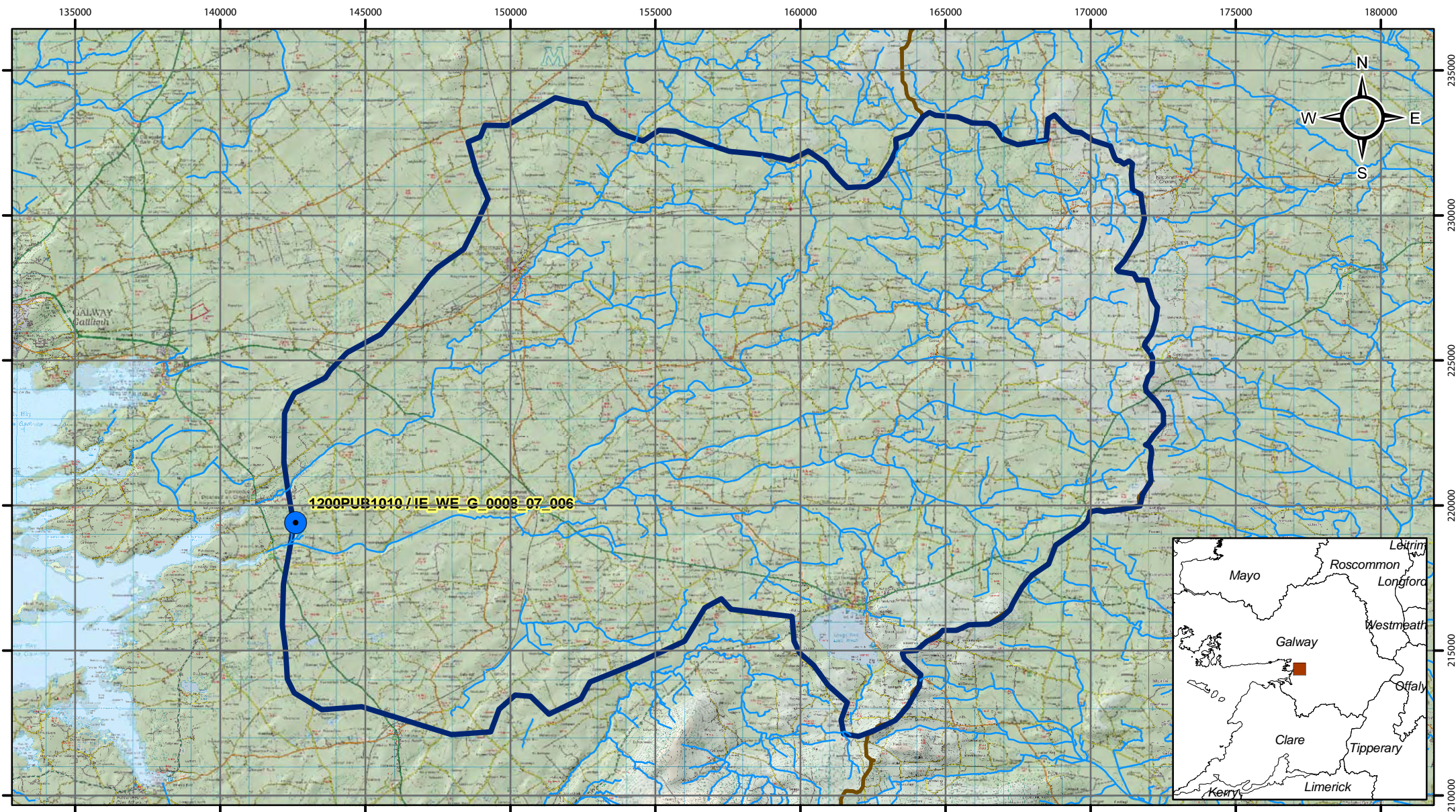
General Downgradient Distances

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	CDM (HM)	Date:	Feb 2011
Version 2:	Prepared by		Date:	
Version 3:	Prepared by		Date:	
Version 4:	Prepared by		Date:	



Location Map for Clarinbridge Kilcolgan RWSS

● Abstractions

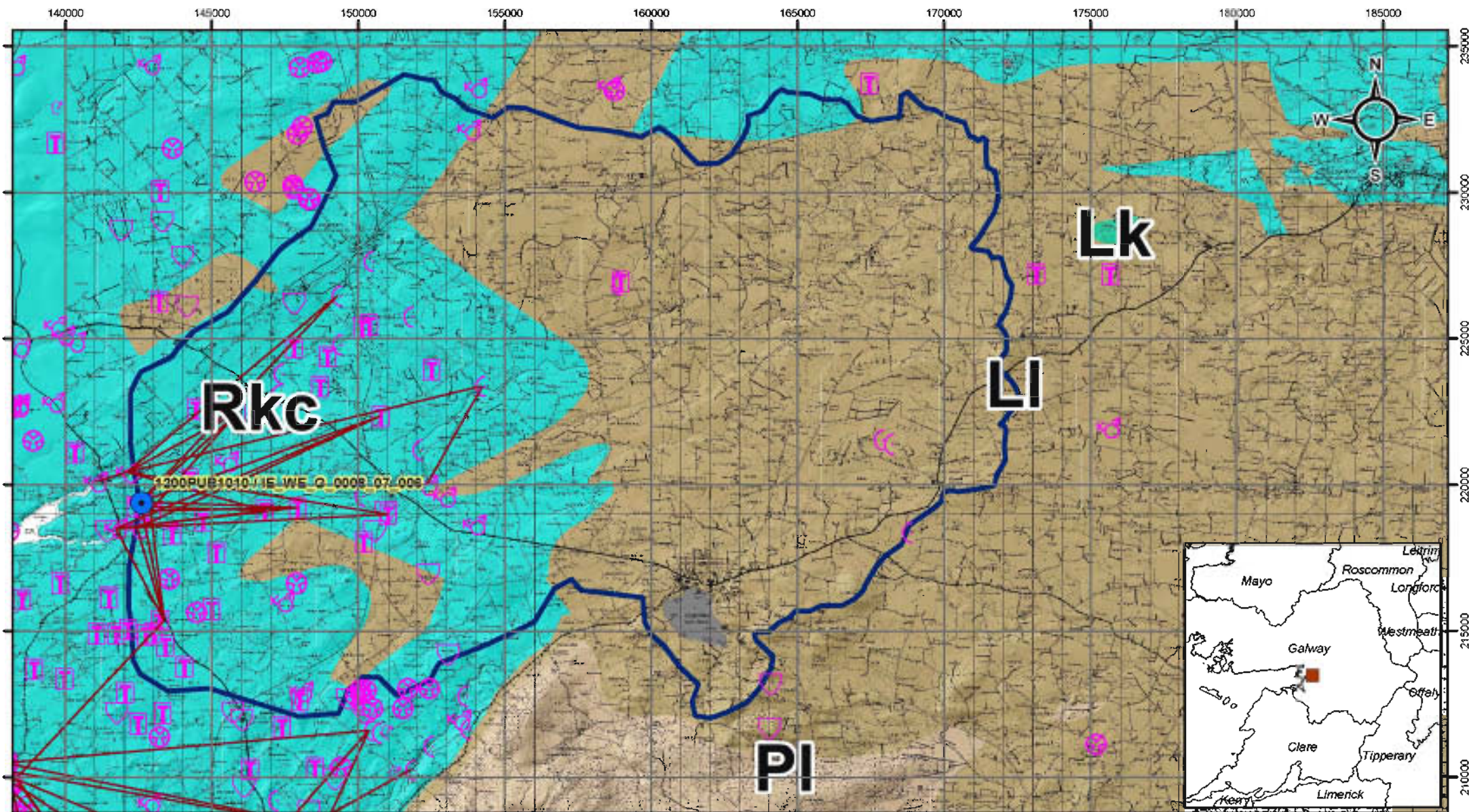
▭ RiverBasinDistrict

— River

▭ Zone of Contribution

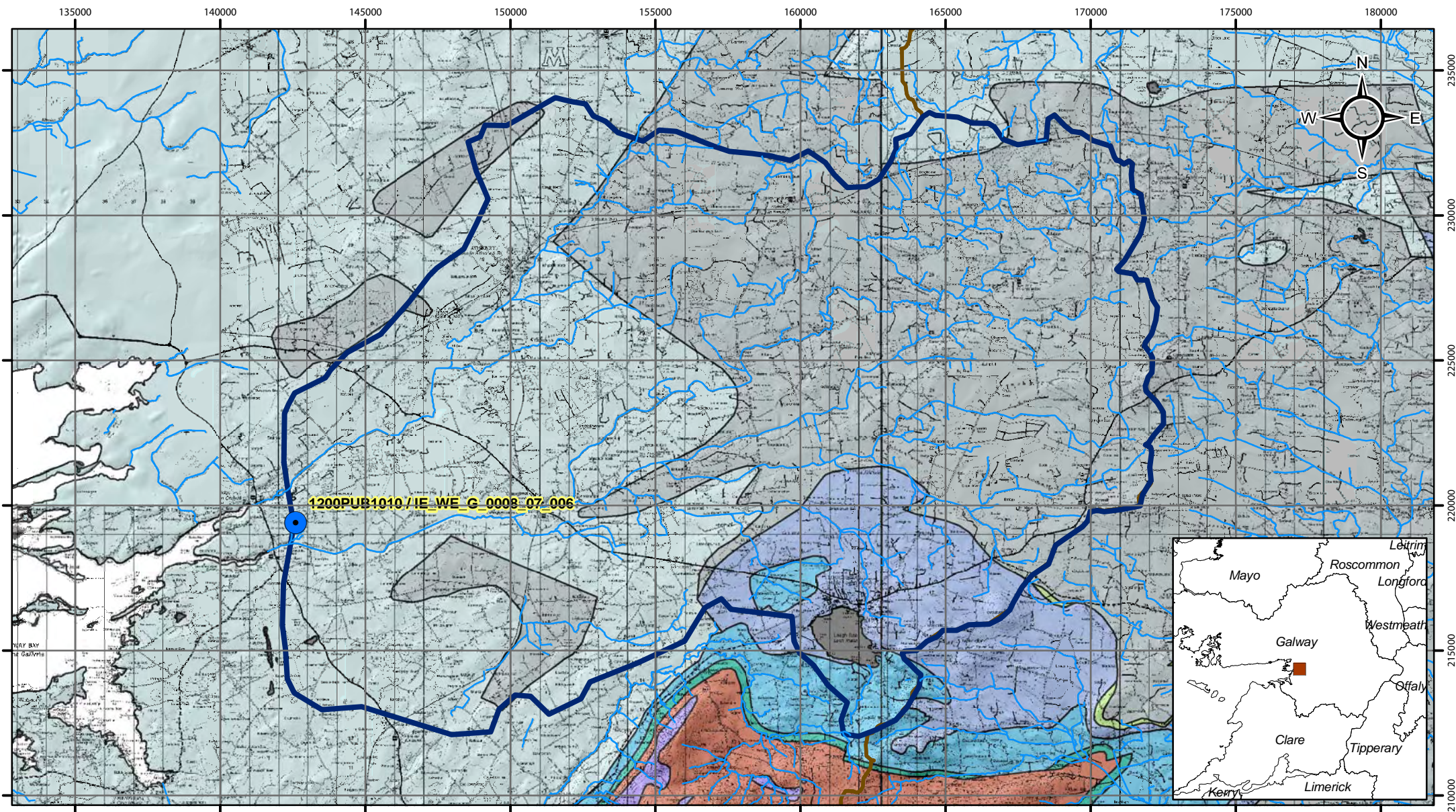
© Ordnance Survey Ireland. All rights reserved.
Licence number EN0059208

0 0.5 1 2 3 4 5
km



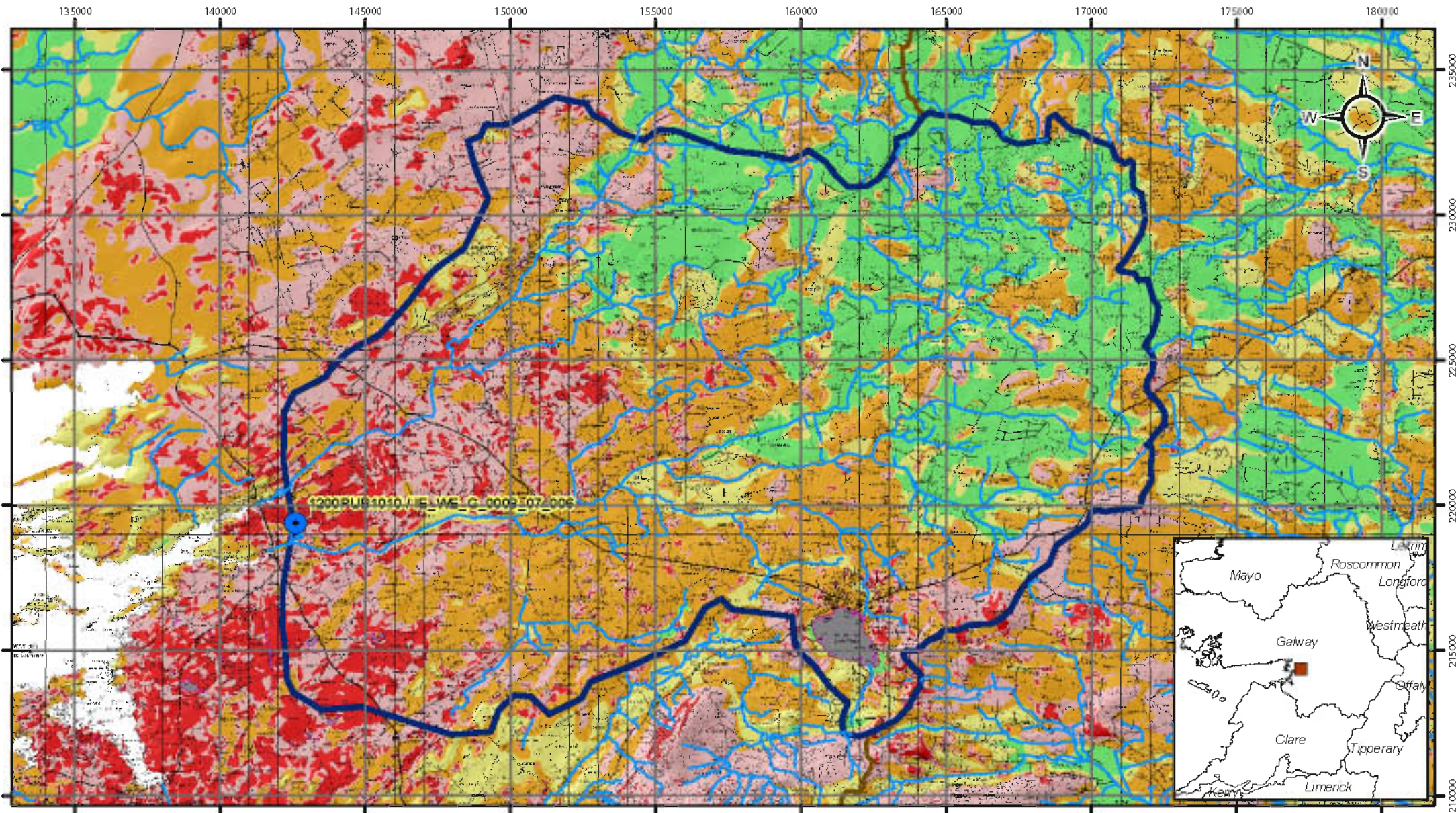
Aquifer Category for Clarinbridge Kilcolgan RWSS



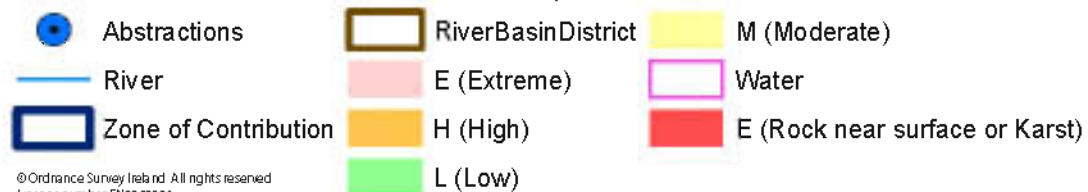


Bedrock Map for Clarinbridge Kilcolgan RWSS



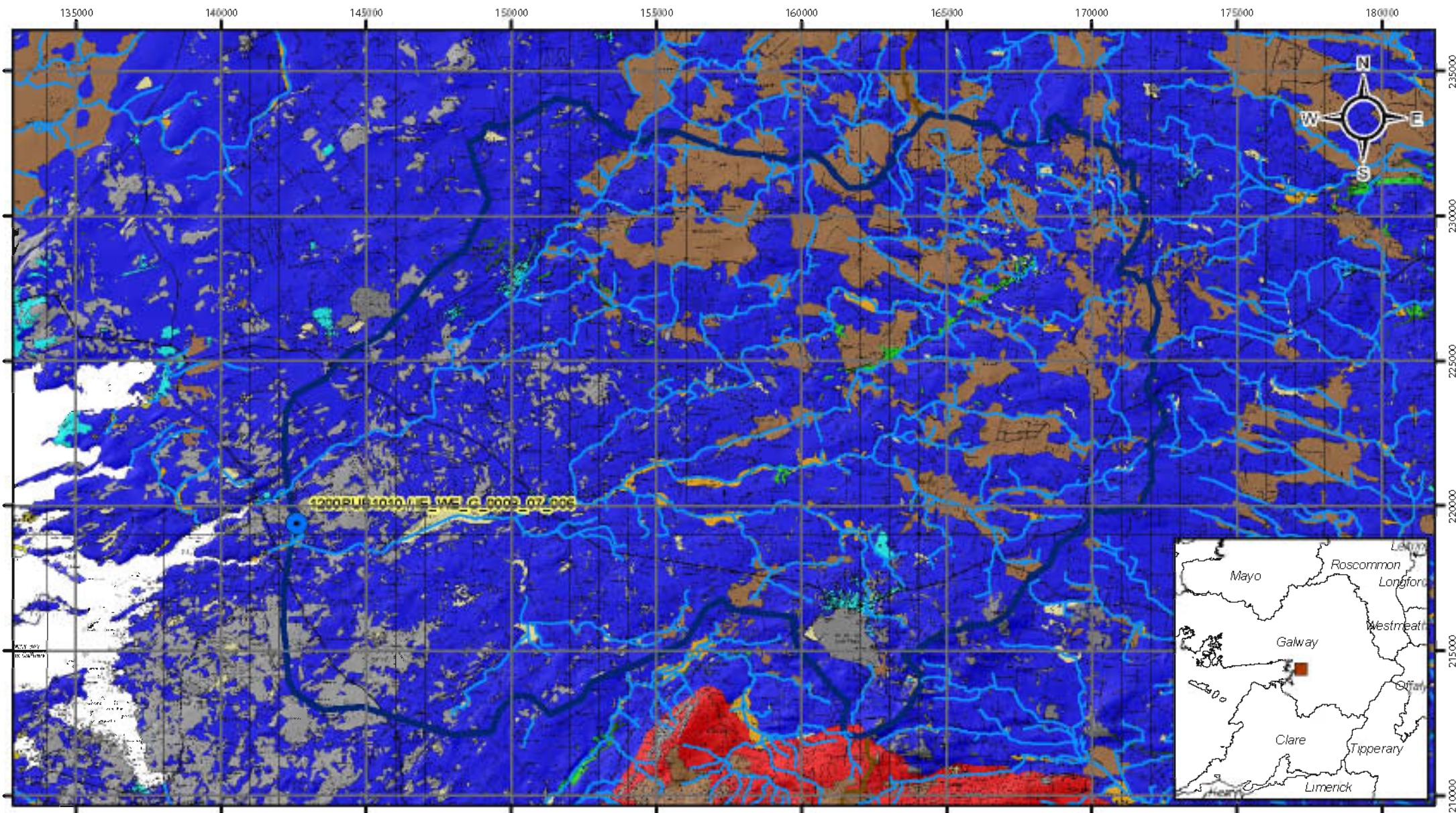


Groundwater Vulnerability for Clarinbridge Kilcolgan RWSS

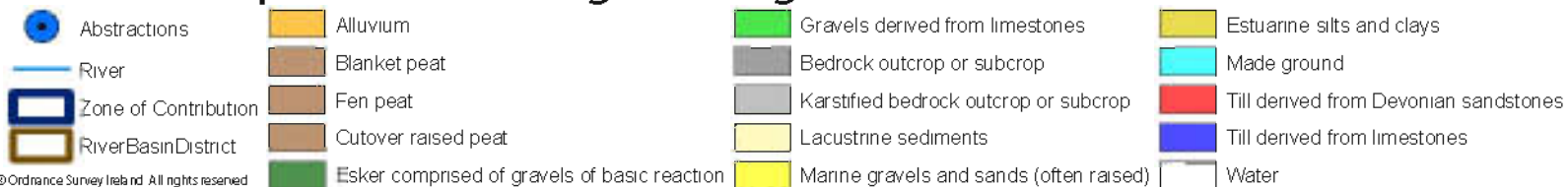


© Ordnance Survey Ireland. All rights reserved.
Licence number EN0059208

0 0.5 1 2 3 4 5 km

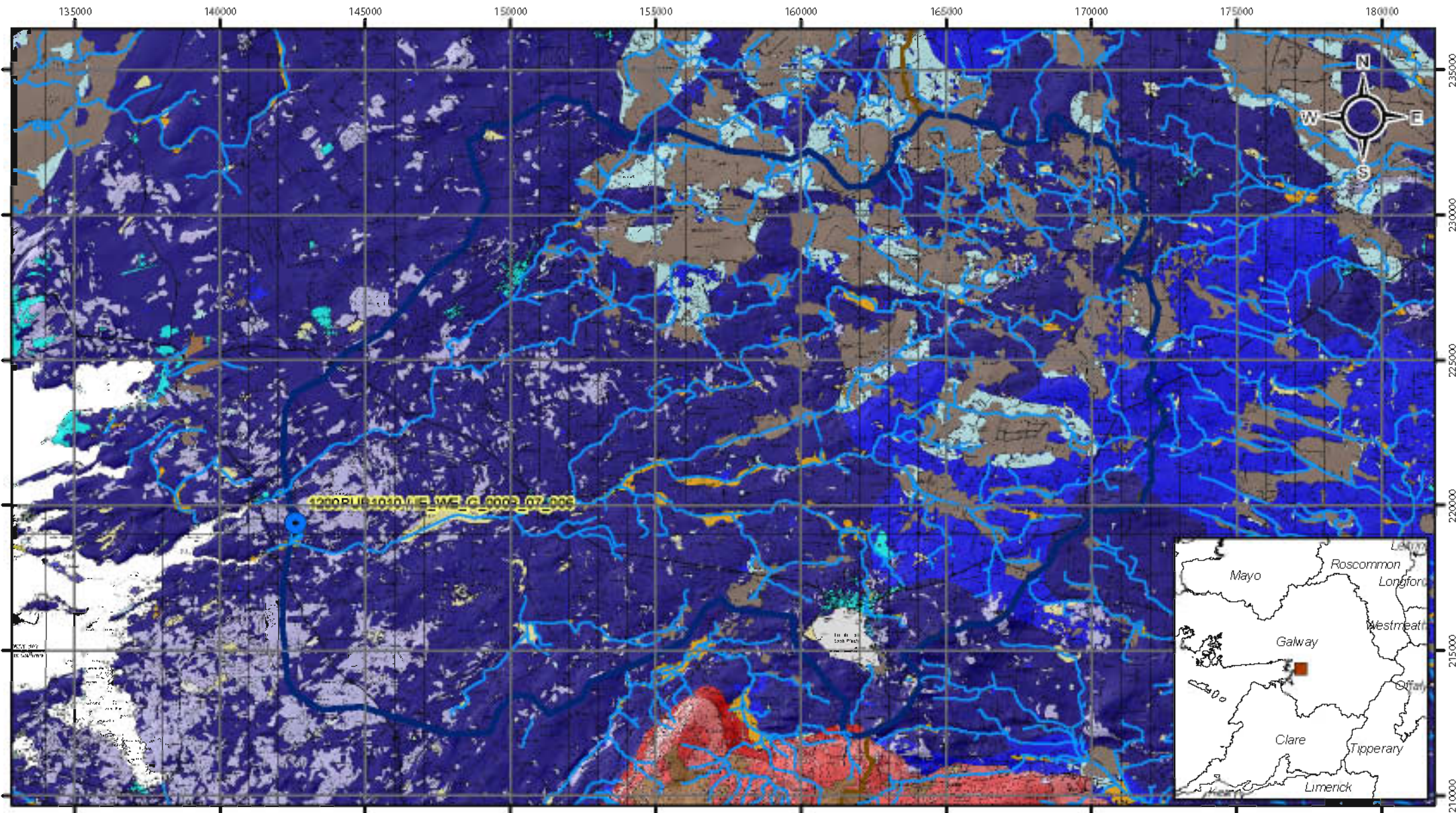


Subsoils Map for Clarinbridge Kilcolgan RWSS



© Ordnance Survey Ireland. All rights reserved.
Licence number EN0059208

0 0.5 1 2 3 4 5
km



Soils Map for Clarinbridge Kilcolgan RWSS

- | | | | | |
|--------------------------------|-----------------------------------|--|-----------------------------------|----------------------------|
| Abstractions | Acid Deep Poorly Drained Mineral | Basic Deep Poorly Drained Mineral | Basic Shallow/Rocky/Peaty Mineral | Lacustrine |
| River | Acid Poorly Drained Peaty Mineral | Basic Poorly Drained Peaty Mineral | Blanket Peat | Marine Sands & Gravels |
| Zone of Contribution | Acid Shallow Well Drained Mineral | Basic Shallow Well Drained Mineral | Fen Peat | Marine/Estuarine Sediments |
| RiverBasinDistrict | Acid Shallow/Rocky/Peaty Mineral | Basic Shallow Poorly Drained Mineral | Cutover/Cutaway Peat | Made |
| Acid Deep Well Drained Mineral | Basic Deep Well Drained Mineral | Basic Shallow Poorly Drained Peaty Mineral | Mineral Alluvium | Water |