

## Water Framework Directive Groundwater Monitoring Programme

### Site Information **Ahascragh PS**



Ahascragh is a single spring that serves the Ahascragh PWS. The average abstraction rate was nearly 900 m<sup>3</sup>/d in 2010. Given its location, the source may receive water from three potential sources of water (river, bedrock, shallow sediments).



Galway

**August 2011**

SITE INFORMATION					
Site Name:	Ahascragh PS		County:	Galway	
RBD:	Shannon IRBD		EU Reporting Code:	---	
Easting:	178036		GWB Name:	Suck South	
Northing:	238078		GWB Code:	IE_SH_G_225	
Site Use:	Drinking Water (PWS)		Drinking Water Code:	1200PUB1001	
Hydrometric Area:	26		Water Level Monitoring Network:	Level	Flow
Townland:	Ahascragh West			N	N
Ownership:	Galway Co. Co.				
Water Quality Monitoring Network:	Surveillance		Operational (Point)		Operational (Diffuse)
	N		N		N
Site Comments:	Immediately adjacent to the Ahascragh River surrounded by agricultural land.				

SITE DIRECTIONS	
Location and Access Information:	From Ahascragh village, drive SE on Chapel Street (Rt 358) direction Ballinasloe. After approximately 400 m, take dirt road on right, opposite a cemetery. There is a welcome to Ahascragh sign by dirt road. Follow dirt road towards river. After 200 m, there are two cattle gates. Go through gate on the right (when facing river). Follow dirt road to site, which is by the river.
Additional Comments:	---

WELL INFORMATION					
Monitoring Point Type:	Spring	Abstraction Rate (m³/d):	874	Ground Elevation (m OD):	48
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:	Entry gate to the site is kept locked. The spring chamber is less than 3 m deep (depth to rock).		
Specific Capacity (m³/d/m):	---				
Static Water Level (m bgl):	---				
Scheme Name:	Ahascragh PWS	Number of Abstraction Points in the Scheme:	1	Source Report Available	N
Source Report Info:	---				
Scheme Summary:	Spring inside large concrete chamber which is pumped to an onsite concrete reservoir where it is treated and pumped to distribution network.				

HYDROGEOLOGY								
GEOLOGY	Soil:	Cutaway/cutover peat (Cut)					Subsoil Permeability:	Low
	Subsoil:	Peat (Cut)						
	Bedrock:	Dinantian Pure Bedded Limestones						
HYDROGEOLOGY	Aquifer Category:	Rkc	Vulnerability at Monitoring site:	Low	Flow Regime:	Karstified		
ZONE OF CONTRIBUTION	Estimated ZOC Size (km <sup>2</sup> ):	1.14	ZOC Delineated By:	CDM (HM)	Recharge Estimate (mm/yr):	300		
	ZOC Delineation Comments:	The ZOC is delineated from professional judgement. Given its location, the spring represents water from three potential sources of water: shallow sediments along the river (visible in multiple disused pits/excavations in area); bedrock; and the Ahascragh River (if the spring is in hydraulic communication with the river, possibly via shallow sediments). Relative contributions from each source are not known.						
Groundwater Vulnerability within ZOC (% area):	Extreme (X)	Extreme (E)	High	Moderate	Low	High to Low	Unclassified	
	0	62.74	17.15	11.49	8.62	0	0	
HYDROCHEMISTRY								
Hydrochemical Signature:	---		Additional Water Chemistry Information:	The average concentration of MRP (0.053 mg/L P) during 2009 exceeds the WFD threshold value of 0.035 mg/L-P.				
Alkalinity (mg/l HCO <sub>3</sub> ):	Average:	Range:						
	386.6	372-396						
Hardness (mg/l CaCO <sub>3</sub> ):	Average:	Range:						
	418.6	400-436						
Conductivity (uS/cm):	Average:	Range:						
	803	786-812						
Monitoring Record Period:	From:	To:						
	2009	2009						
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	59.97	11.99	16.92	11.13			
OTHER INFORMATION								
<p>OPW hydrometric gauging station has been installed immediately adjacent to source. Access to station is along river next to the entry gate to the Ahascragh site. General site maintenance works were carried out in 2010.</p>								



Site Entrance



River



Spring Chamber

## 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 NO<sub>3</sub>)

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.

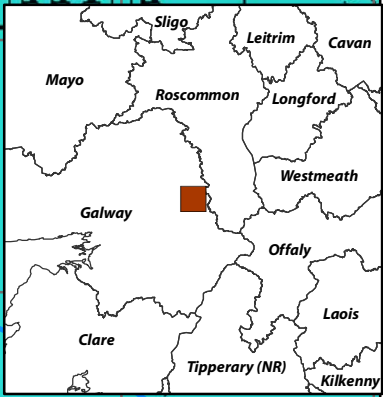
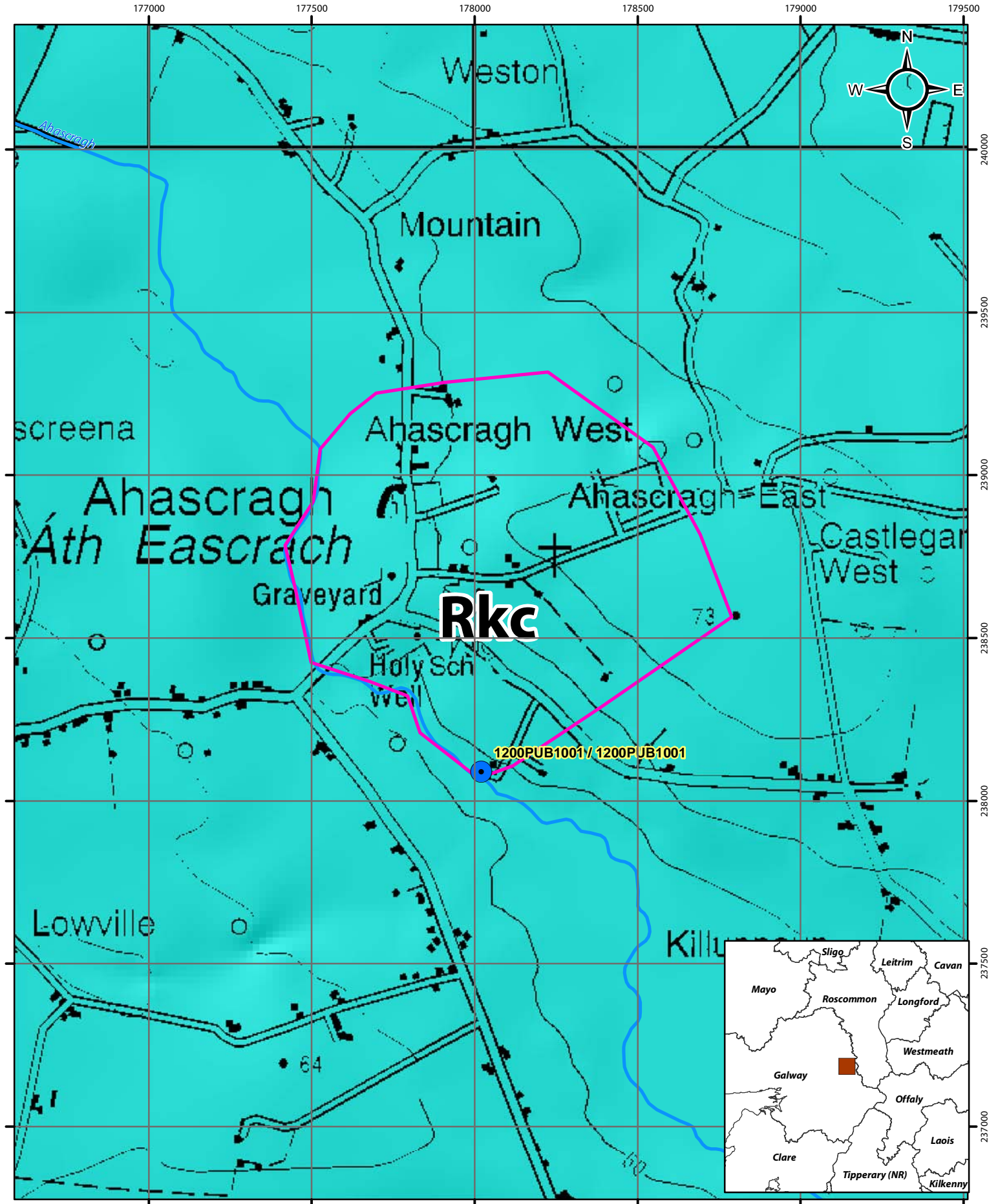
Version 0:	Prepared by		Date:	
Version 1:	Prepared by	CDM (HM)	Date:	Feb 2011
Version 2:	Prepared by		Date:	
Version 3:	Prepared by		Date:	
Version 4:	Prepared by		Date:	









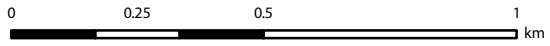
## Location Map for Ahascragh P.S.

- Abstractions
- Zone of Contribution
- River

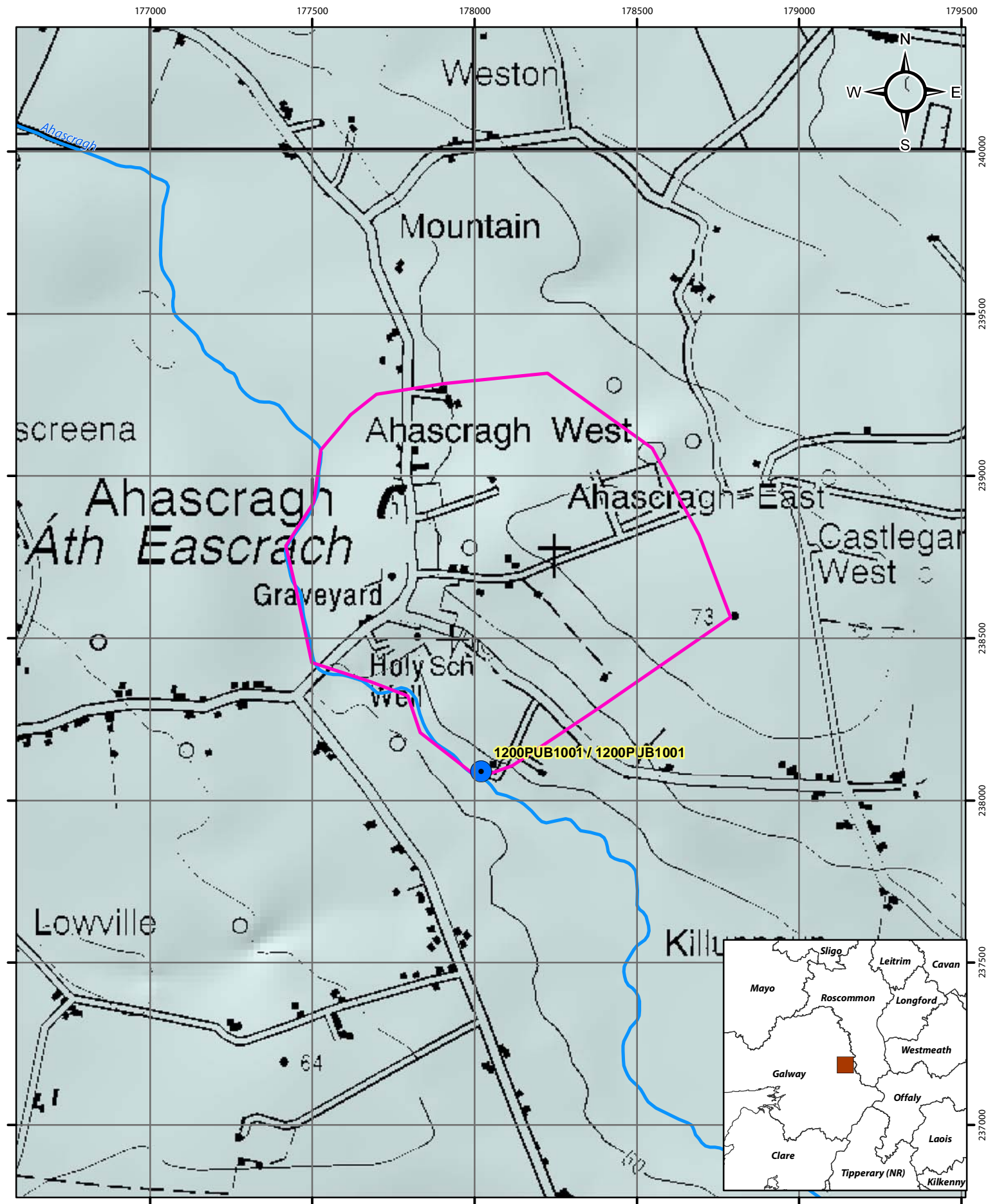


# Aquifer Category Map for Ahascragh P.S.

-  Abstractions
-  Zone of Contribution
-  River
-  Rkc



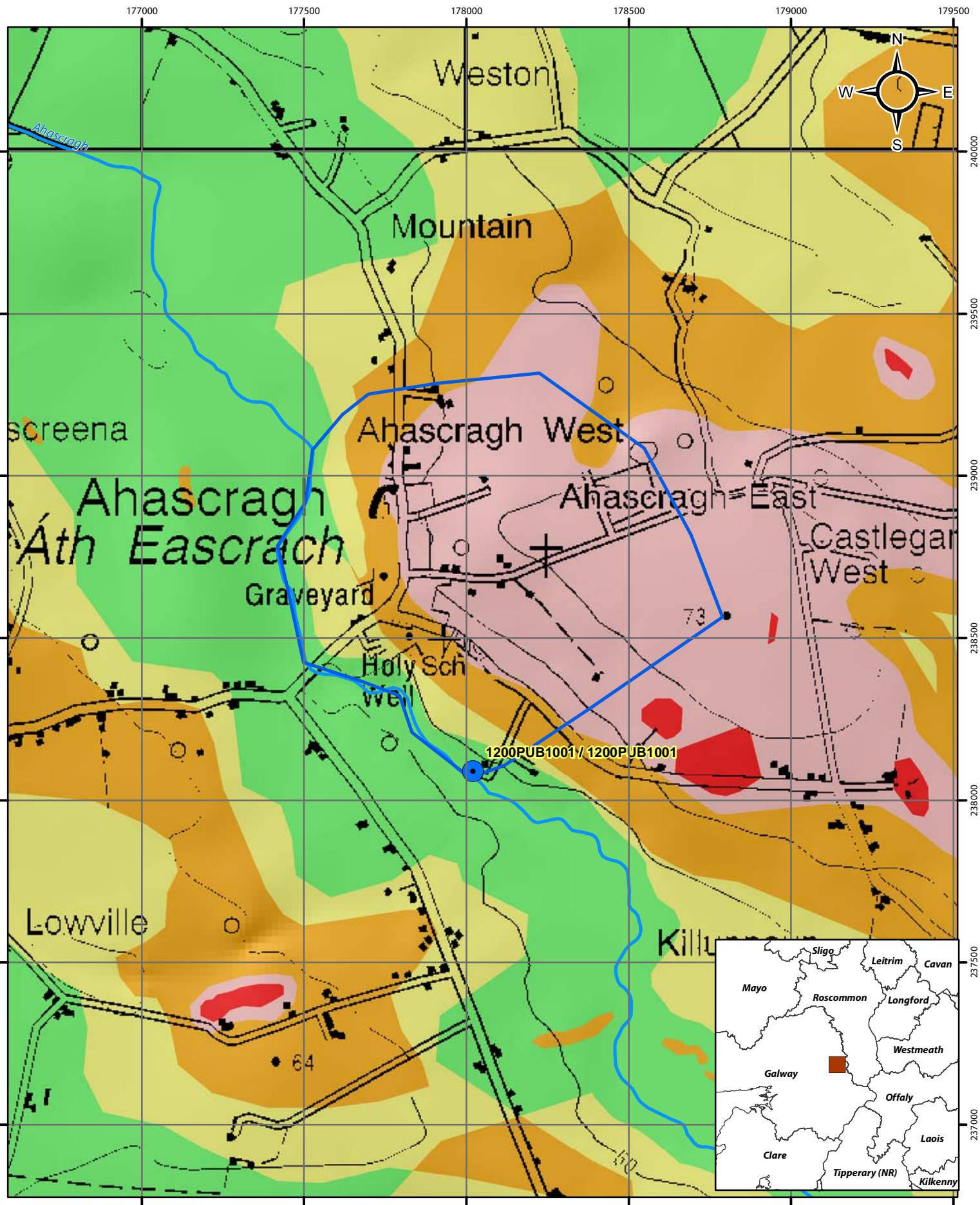




## Bedrock Map for Ahascragh P.S.

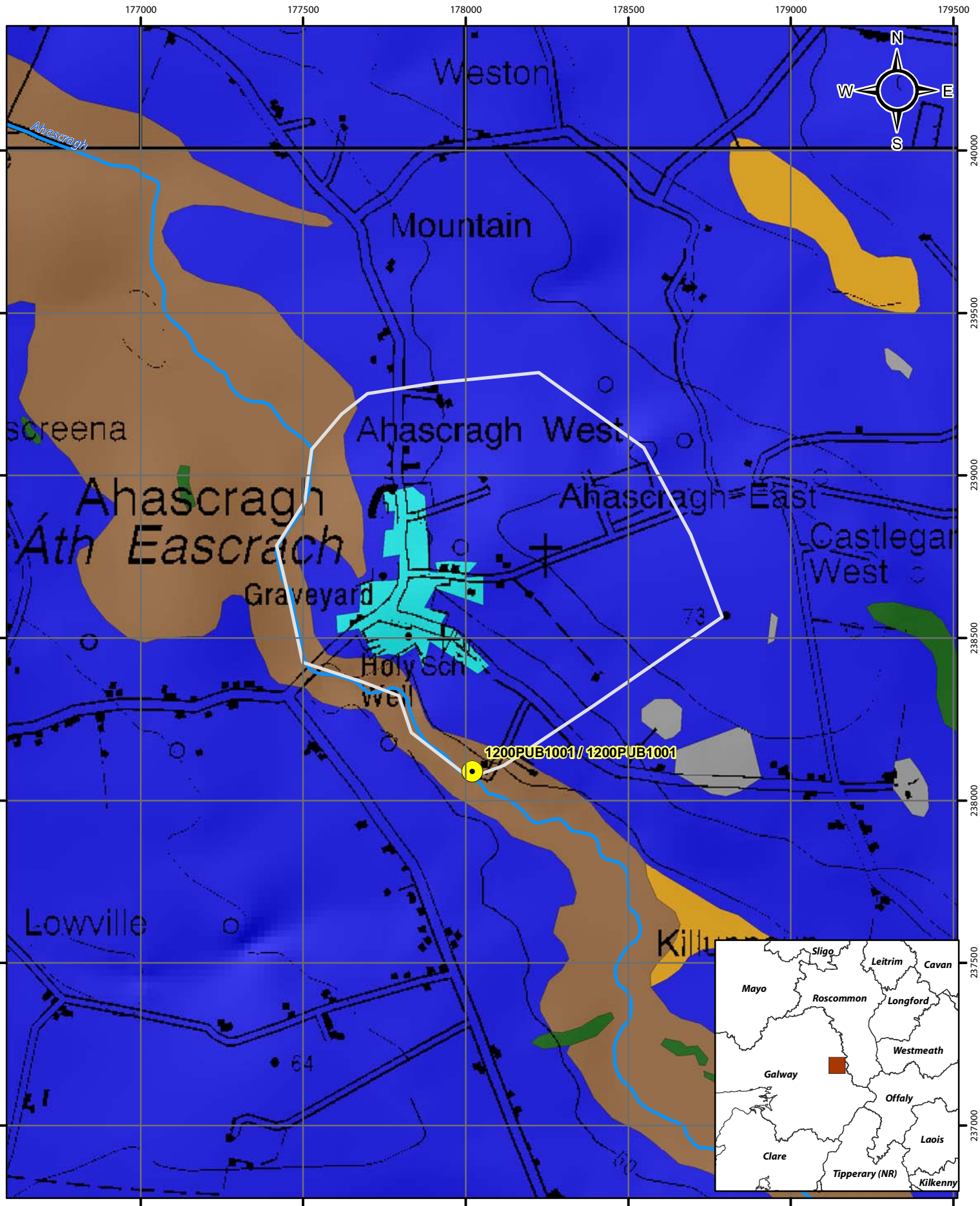
- Abstractions
- Zone of Contribution
- River
- Dinantian Pure Bedded Limestones














## Groundwater Vulnerability Map for Ahascragh P.S.

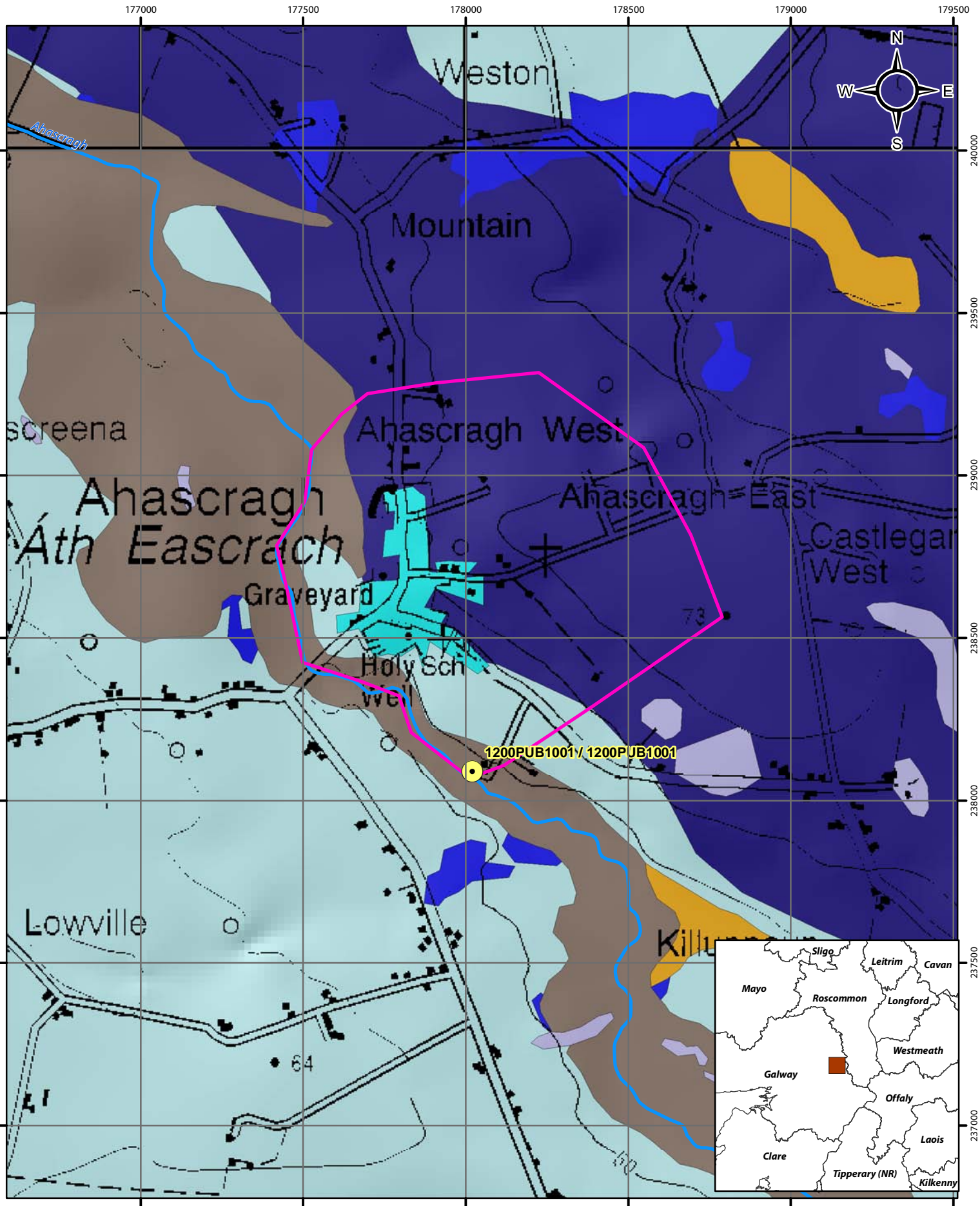
- |                      |                                |                             |         |
|----------------------|--------------------------------|-----------------------------|---------|
| Abstractions         | E (Rock near surface or Karst) | M (Moderate)                | Water   |
| Zone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



## Subsoils Map for Ahascragh P.S.

- |                                                                                                         |                                                                                                                                  |                                                                                                                           |
|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
|  Abstractions         |  Alluvium                                     |  Karstified bedrock outcrop or subcrop |
|  Zone of Contribution |  Cutover raised peat                          |  Made ground                           |
|  River                |  Esker comprised of gravels of basic reaction |  Till derived from limestones          |





## Soils Map for Ahascragh P.S.

- |  |                      |  |                                    |  |                                    |  |      |
|--|----------------------|--|------------------------------------|--|------------------------------------|--|------|
|  | Abstractions         |  | Basic Deep Well Drained Mineral    |  | Basic Shallow Well Drained Mineral |  | Made |
|  | Zone of Contribution |  | Basic Deep Poorly Drained Mineral  |  | Cutover/Cutaway Peat               |  |      |
|  | River                |  | Basic Poorly Drained Peaty Mineral |  | Mineral Alluvium                   |  |      |