

Water Framework Directive Groundwater Monitoring Programme

Site Information **Ballylanders**



Ballylanders PWS is a 35m deep borehole situated in Silurian Metasediments and Volcanics and is used as a public water supply. The abstraction rate is 160 m³/day.

SITE INFORMATION					
Site Name:	Ballylanders		County:	Limerick	
RBD:	Shannon IRBD		EU Reporting Code:	---	
Easting:	123686		GWB Name:	Knockaskallen	
Northing:	177758		GWB Code:	IE_SE_G_087	
Site Use:	Drinking Water (PWS)		Drinking Water Code:	1900PUB1010	
Hydrometric Area:	16		Water Level Monitoring Network:	Level	Flow
Townland:	Curraghturk			N	N
Ownership:	Limerick County Council				
Water Quality Monitoring Network:	Surveillance		Operational (Point)		Operational (Diffuse)
	N		N		N
Site Comments:	---				

SITE DIRECTIONS					
Location and Access Information:	Ballylander is located 1.5 km SE of Ballylanders. The PWS is accessed via a laneway from the R513 Ballylanders to Mitchelstown road. The source is securely fenced.				
Additional Comments:	---				

WELL INFORMATION					
Monitoring Point Type:	BH	Abstraction Rate (m³/d):	165	Ground Elevation (m OD):	170
Borehole Log Available:	---	Total Drilled Depth (m bgl):	35	Depth to Bedrock (m bgl):	---
Top of Casing (m agl):	Below G.L.	Upper Casing Diameter (mm):	250	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):	steel	Screen Slot Size (mm):	---
Grout Type (cement,bentonite):	none	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):	4				
Scheme Name:	Ballylanders	Number of Abstraction Points in the Scheme:	1	Source Report Available	N
Source Report Info:	---				
Scheme Summary:	Ballylanders PWS comprises a borehole which supplies 160 m³/day to Ballylanders Village.				

HYDROGEOLOGY								
GEOLOGY	Soil:	Deep poorly drained mineral (AminPD)					Subsoil Permeability:	Low
	Subsoil:	Tills (diamictons) (TLPSSs)						
	Bedrock:	Silurian Metasediments and Volcanics						
HYDROGEOLOGY	Aquifer Category:	LI	Vulnerability at Monitoring site:	Moderate	Flow Regime:	Poorly productive		
ZONE OF CONTRIBUTION	Estimated ZOC Size (km²):	0.30	ZOC Delineated By:	TOBIN (CK)	Recharge Estimate (mm/yr):	400		
	ZOC Delineation Comments:	The ZOC was delineated based on the area required by the abstraction rate (150%) and topography. Downgradient distance is 30 m south of the borehole. BH is located on a thrust fault. ZOC is surface / topographic most likely area contributing water.						
Groundwater Vulnerability within ZOC (% area):	Extreme (X)	Extreme (E)	High	Moderate	Low	High to Low	Unclassified	
	58.39	9.42	0	0	0	32.18	0	
HYDROCHEMISTRY								
Hydrochemical Signature:	Ca-HCO3		Additional Water Chemistry Information:	Nitrates relatively low, average 7.5mg/l. Chlorides 13-25mg/l, average 18mg/l. Calcium concentrations variable. Located on a thrust fault, may be different mineralised components contributing.				
Alkalinity (mg/l HCO3):	Average:	Range:						
	---	---						
Hardness (mg/l CaCO3):	Average:	Range:						
	190	190						
Conductivity (uS/cm):	Average:	Range:						
	365	360-383						
Monitoring Record Period:	From:	To:						
	---	---						
RISK ASSESSMENT								
Pressure (e.g., Nitrates, Phosphates, Abstractions):	---		Typical Contaminants:	---				
Risk Category:	Not at risk, low confidence		GWB Status:	Good				
Impact Potential within ZOC (% area):	Extreme:	High:	Moderate:	Low:	Negligible:			
	0.00	67.77	32.23	0.00	0.00			
OTHER INFORMATION								



Well Head



Borehole Housing



Water Treatment House

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).

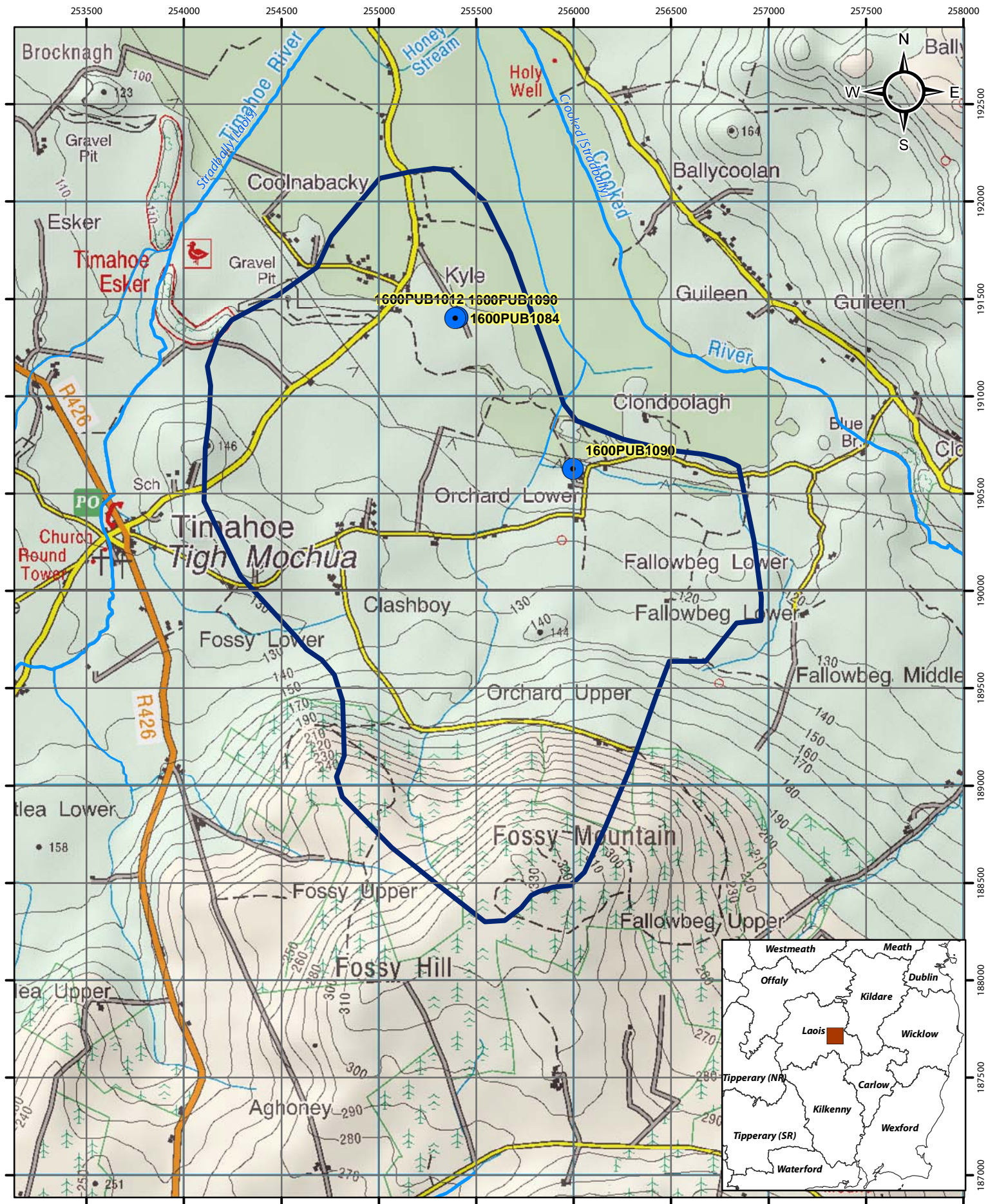
General Downgradient Distances

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

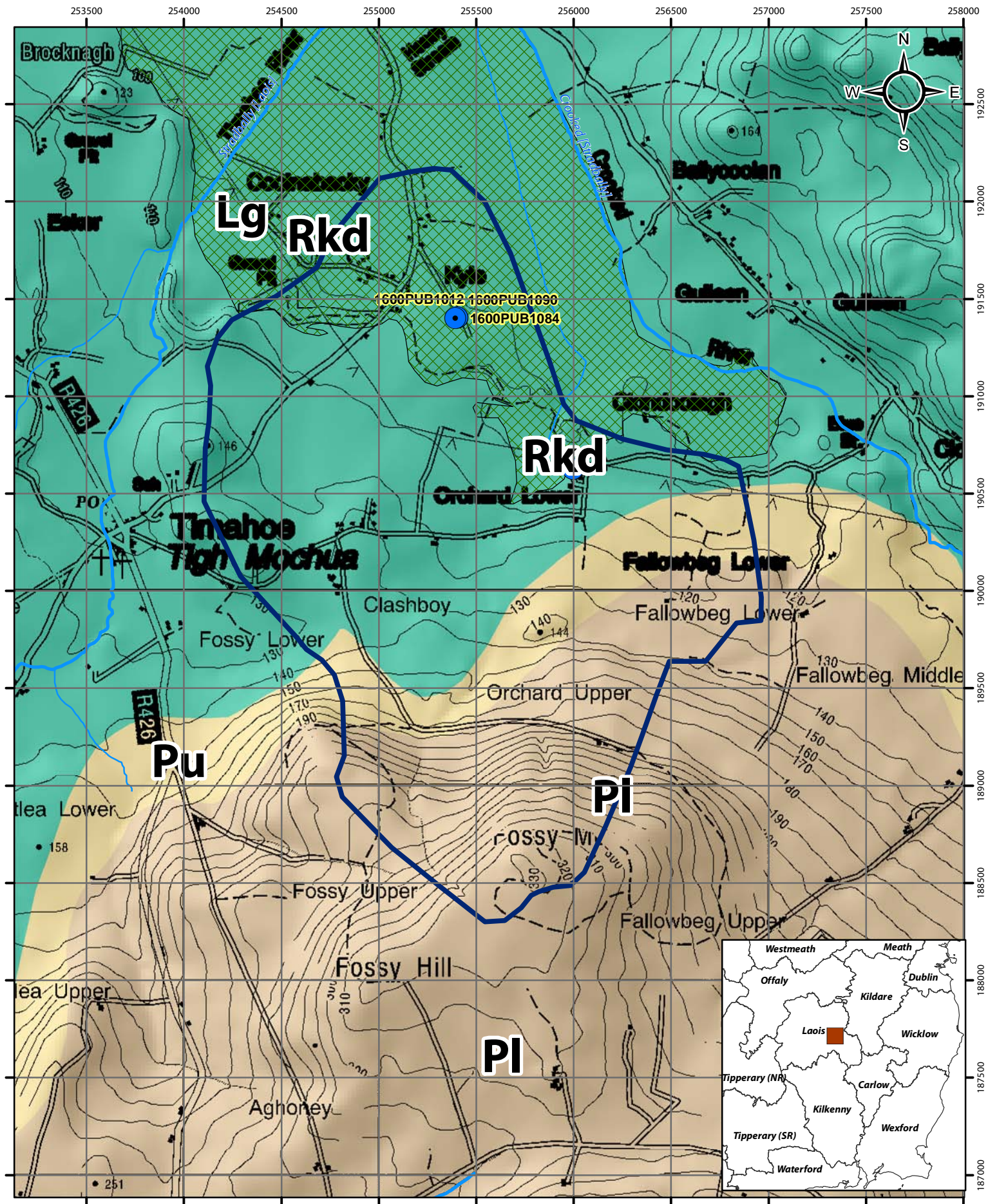
It is assumed that groundwater downgradient of a spring cannot flow back up to the spring, however a precautionary 30m buffer is generally applied which allows for instances where pumping under dry weather periods may induce a drawdown or where the ground may be sloping toward the spring from the downgradient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

- Abstractions
- Zone of Contribution
- River

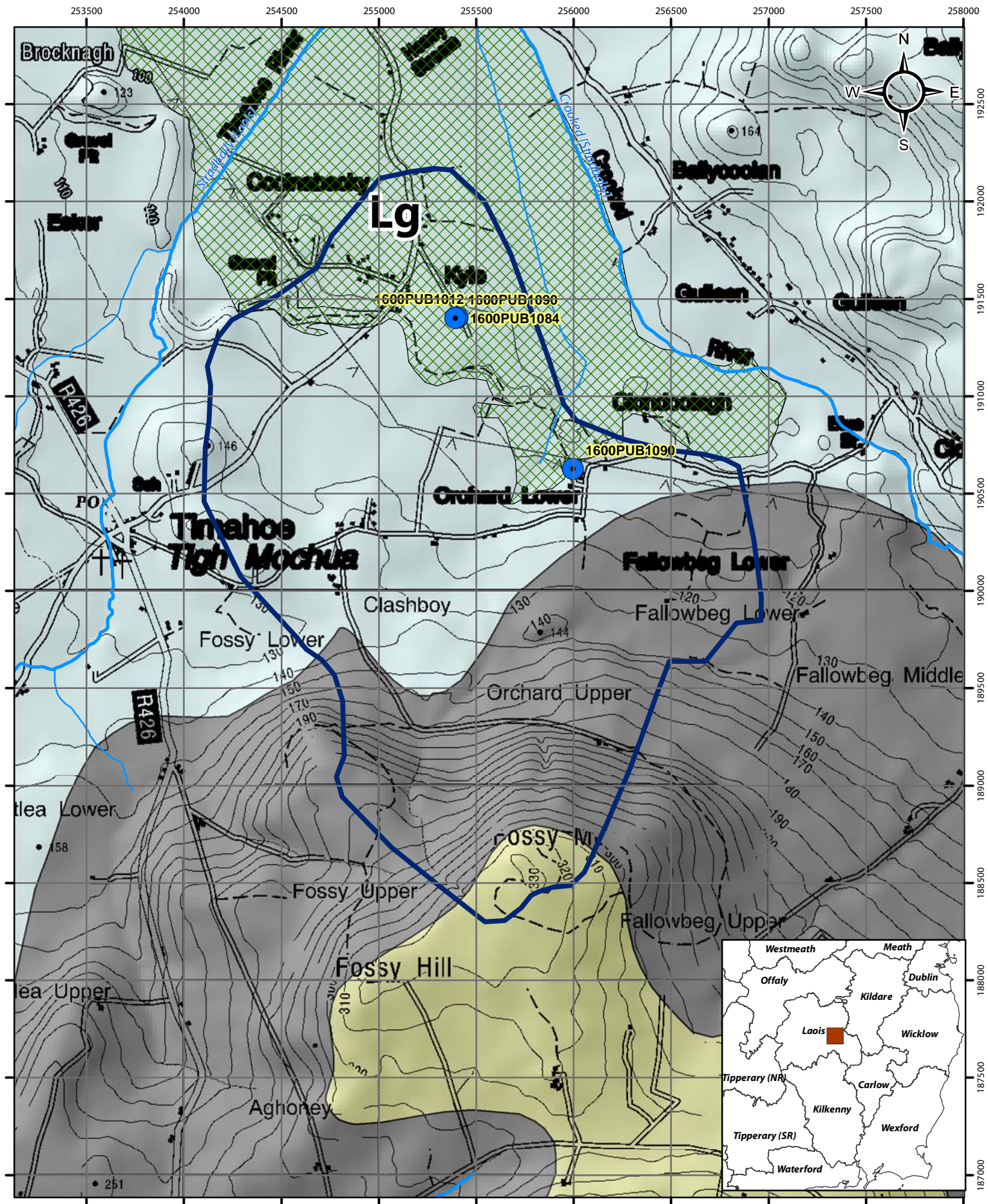


Aquifer Category Map for Ballylynan PWS

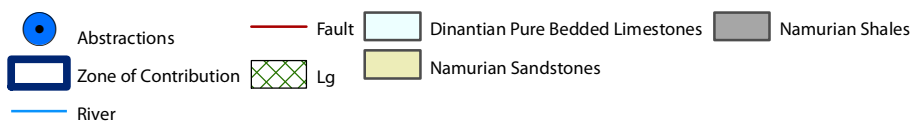
- Abstractions
- Zone of Contribution
- River
- Fault
- Lg
- Rkd
- Pu
- PI

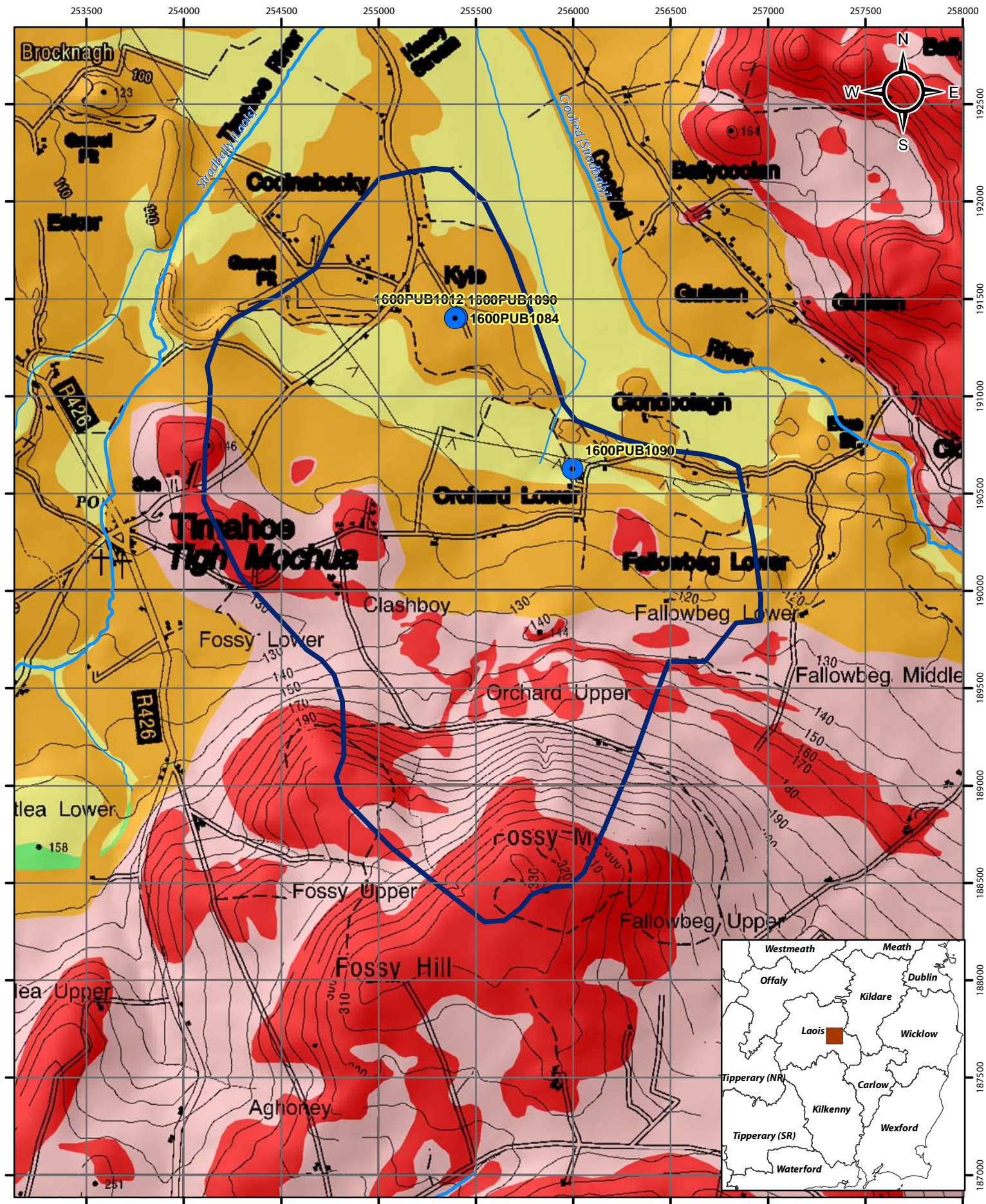
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0 0.25 0.5 1 km

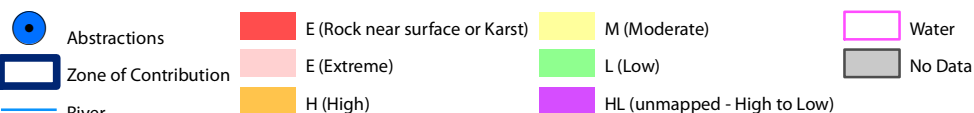


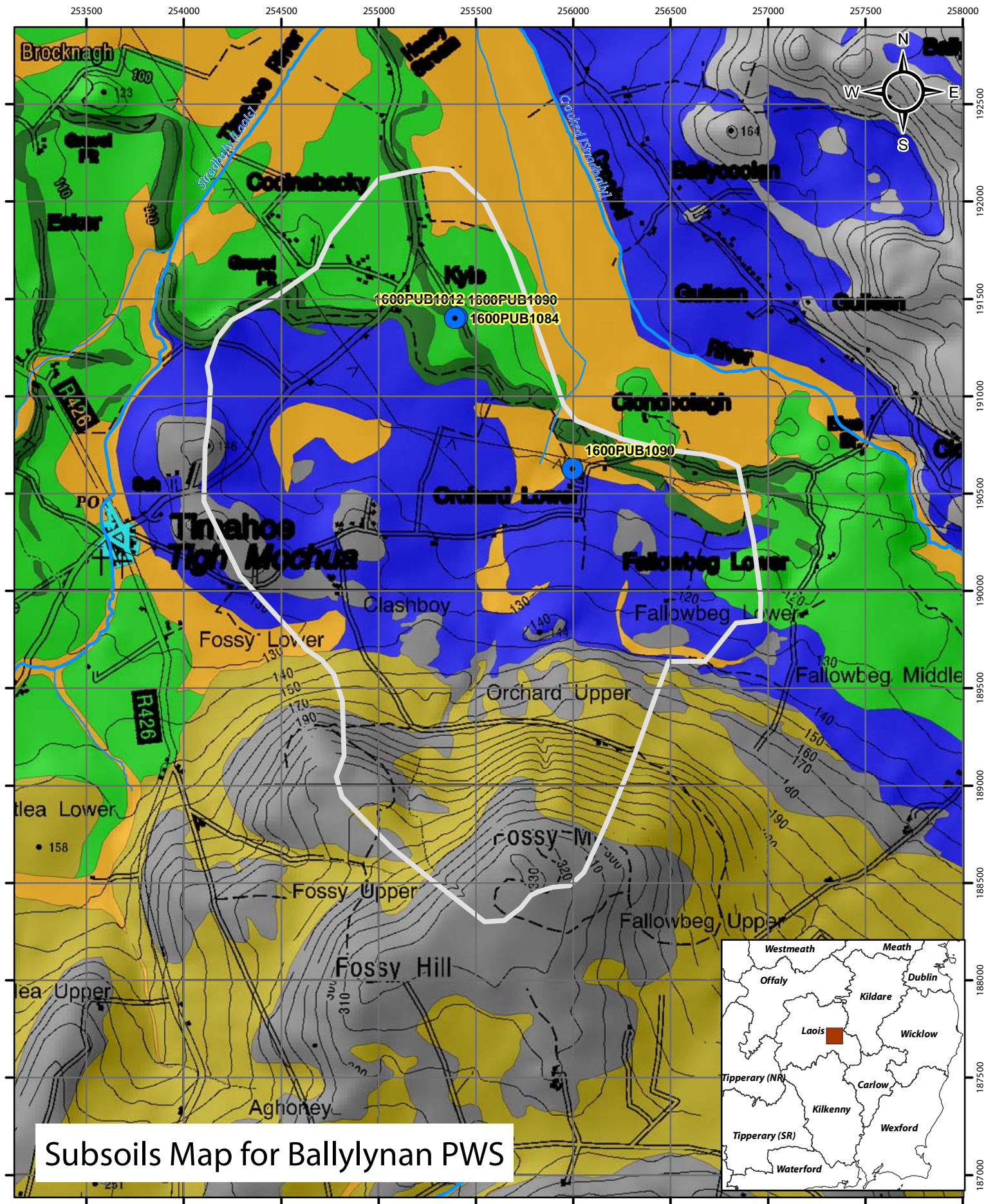
Bedrock Map for Ballylynan PWS



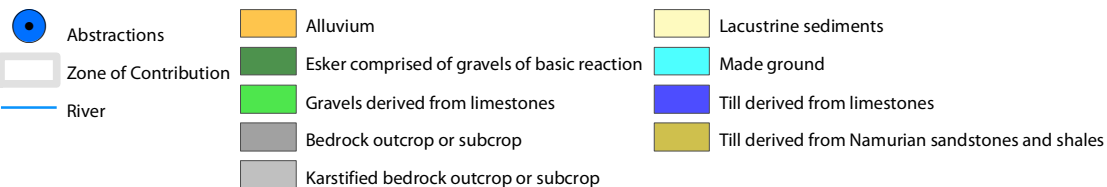


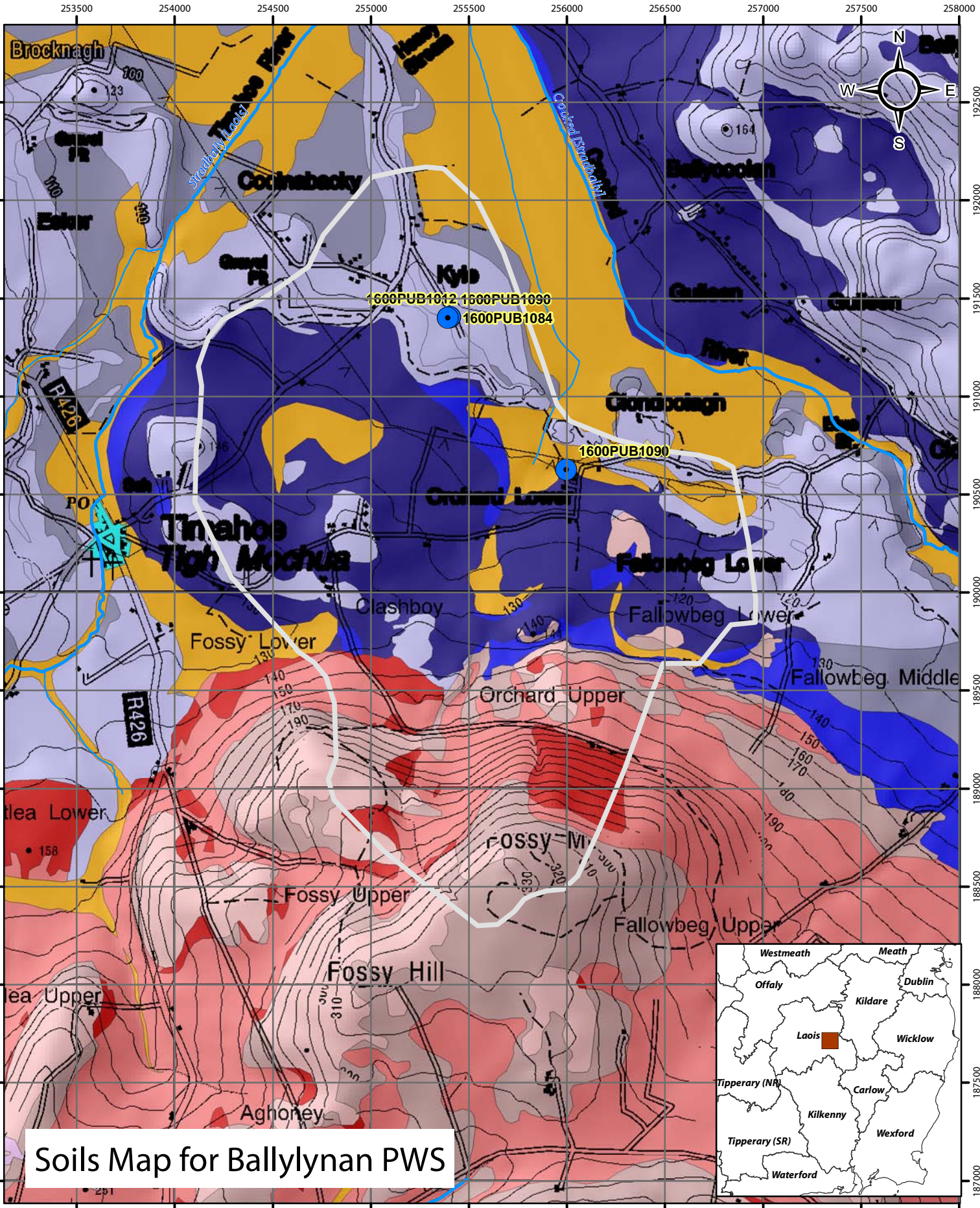
Groundwater Vulnerability Map for Ballylynan PWS





Subsoils Map for Ballylynan PWS





Soils Map for Ballylynan PWS

- | | | | |
|----------------------|-------------------------------------|------------------------------------|--------------------------------------|
| Abstractions | Acid Deep Well Drained Mineral | Acid Shallow/Rocky/Peaty Mineral | Basic Shallow Poorly Drained Mineral |
| Zone of Contribution | Acid Deep Poorly Drained Mineral | Basic Deep Well Drained Mineral | Mineral Alluvium |
| River | Acid Shallow Well Drained Mineral | Basic Deep Poorly Drained Mineral | Lacustrine |
| | Acid Shallow Poorly Drained Mineral | Basic Shallow Well Drained Mineral | Made |