

Water Framework Directive Groundwater Monitoring Programme

Site Information

Abbeyleix 1 PUB - Maxwell



Abbeyleix 1 PUB feeds the north side of the town and comprises a spring at Aughfeerish and Maxwell. The total abstraction rate for both is 1200m³/d from sands and gravels. The ZOCs for both springs are different - Aughfeerish is a separate site folder.



Laois

August 2011

SITE INFORMATION					
Site Name:	Abbeyleix 1 PUB - Maxwell		County:	Laois	
RBD:	SERBD		EU Reporting Code:	---	
Easting:	246378		GWB Name:	Freshford	
Northing:	184552		GWB Code:	IE_SE_G_066	
Site Use:	Drinking Water (PWS)		Drinking Water Code:	1600PUB1056 Maxwell	
Hydrometric Area:	15		Water Level Monitoring Network:	Level	Flow
Townland:	Ballyglishen			N	N
Ownership:	Laois CoCo				
Water Quality Monitoring Network:	Surveillance		Operational (Point)		Operational (Diffuse)
	N		N		N
Site Comments:	---				
SITE DIRECTIONS					
Location and Access Information:	Take R430 approximately 2.5km east out of Abbeyleix, site is adjacent to left hand side of road.				
Additional Comments:	EPS are contacts for Ballypickas GWS				
WELL INFORMATION					
Monitoring Point Type:	Spring/Dug Well	Abstraction Rate (m³/d):	600	Ground Elevation (m OD):	---
Borehole Log Available:	---	Total Drilled Depth (m bgl):	---	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:	50 years old		
Specific Capacity (m³/d/m):	---				
Static Water Level (m bgl):	---				
Scheme Name:	Abbeyleix 1 PUB	Number of Abstraction Points in the Scheme:	2	Source Report Available	N
Source Report Info:	---				
Scheme Summary:	Abbeyleix 1 feeds the north side of the town and consists of Maxwell and Aughfeerish (separate site folder). At Maxwell site, Ballypickas GWS abstracts in adjacent pumphouse alongside Co Co source. A separate Co Co scheme, Abbeyleix 2 - Five Wells, feeds the south side of Abbeyleix (also separate site folder).				

HYDROGEOLOGY									
GEOLOGY	Soil:	Shallow well drained mineral (BminSW)					Subsoil Permeability:	High	
	Subsoil:	Glaciofluvial sands and gravels (GLs)							
	Bedrock:	Namurian Shales							
HYDROGEOLOGY	Aquifer Category:	Lg	Vulnerability at Monitoring site:	Extreme - high water table		Flow Regime:	Intergranular		
ZONE OF CONTRIBUTION	Estimated ZOC Size (km²):	0.3	ZOC Delineated By:	Tobin		Recharge Estimate (mm/yr):	470		
	ZOC Delineation Comments:	The spring / dug well is located at the bottom of a slope and overflow extends to Ballymaddock stream. The ZOC is based on the topographic relief and is insufficient to provide the area for the abstraction. There may be a bedrock contribution. It is assumed that the Ballymaddock Stream is the main discharge zone in the area and the springs are overflow springs. The ZOC delineated for Maxwell Co Co source includes abstraction from Ballypicaks GWS.							
Groundwater Vulnerability within ZOC (% area):	Extreme (X)	Extreme (E)	High	Moderate	Low	High to Low	Unclassified		
	0	0	55.52	44.48	0	0	0		
HYDROCHEMISTRY									
Hydrochemical Signature:	Ca-HCO3		Additional Water Chemistry Information:	Hard, with high Nitrate concentrations. Cannot distinguish Aughfeerish from Maxwell. However both are springs in the same gravel unit.					
Alkalinity (mg/l HCO3):	Average:	Range:							
	---	---							
Hardness (mg/l CaCO3):	Average:	Range:							
	---	---							
Conductivity (uS/cm):	Average:	Range:							
	---	---							
Monitoring Record Period:	From:	To:							
	---	---							
RISK ASSESSMENT									
Pressure (e.g., Nitrates, Phosphates, Abstractions):	Phosphates		Typical Contaminants:	---					
Risk Category:	At risk, high confidence		GWB Status:	Good					
Impact Potential within ZOC (% area):	Extreme:	High:	Moderate:	Low:	Negligible:				
	0.00	53.61	44.85	1.54	0.00				
OTHER INFORMATION									



Site Overview



Site Entrance

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).

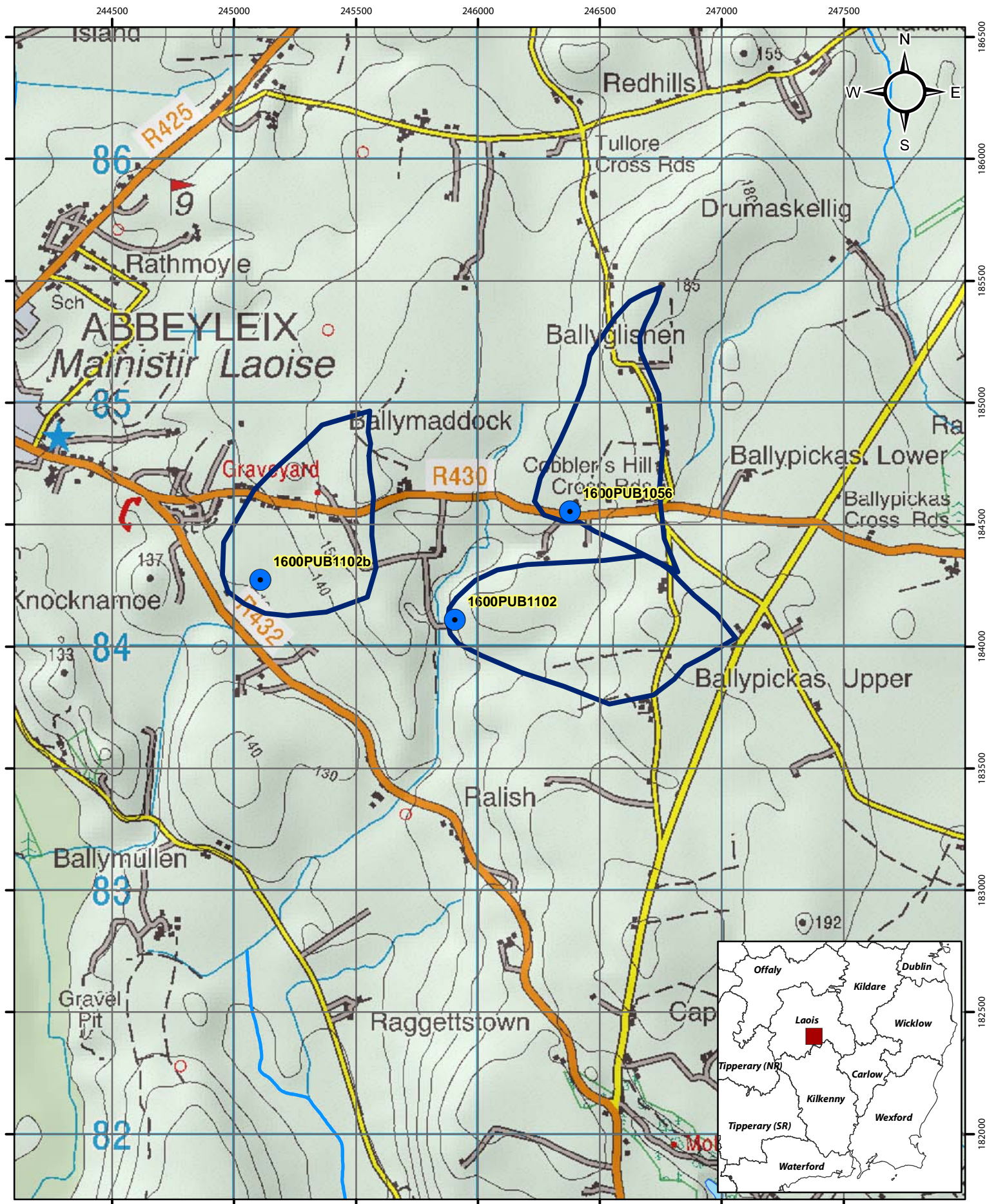
General Downgradient Distances

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:	

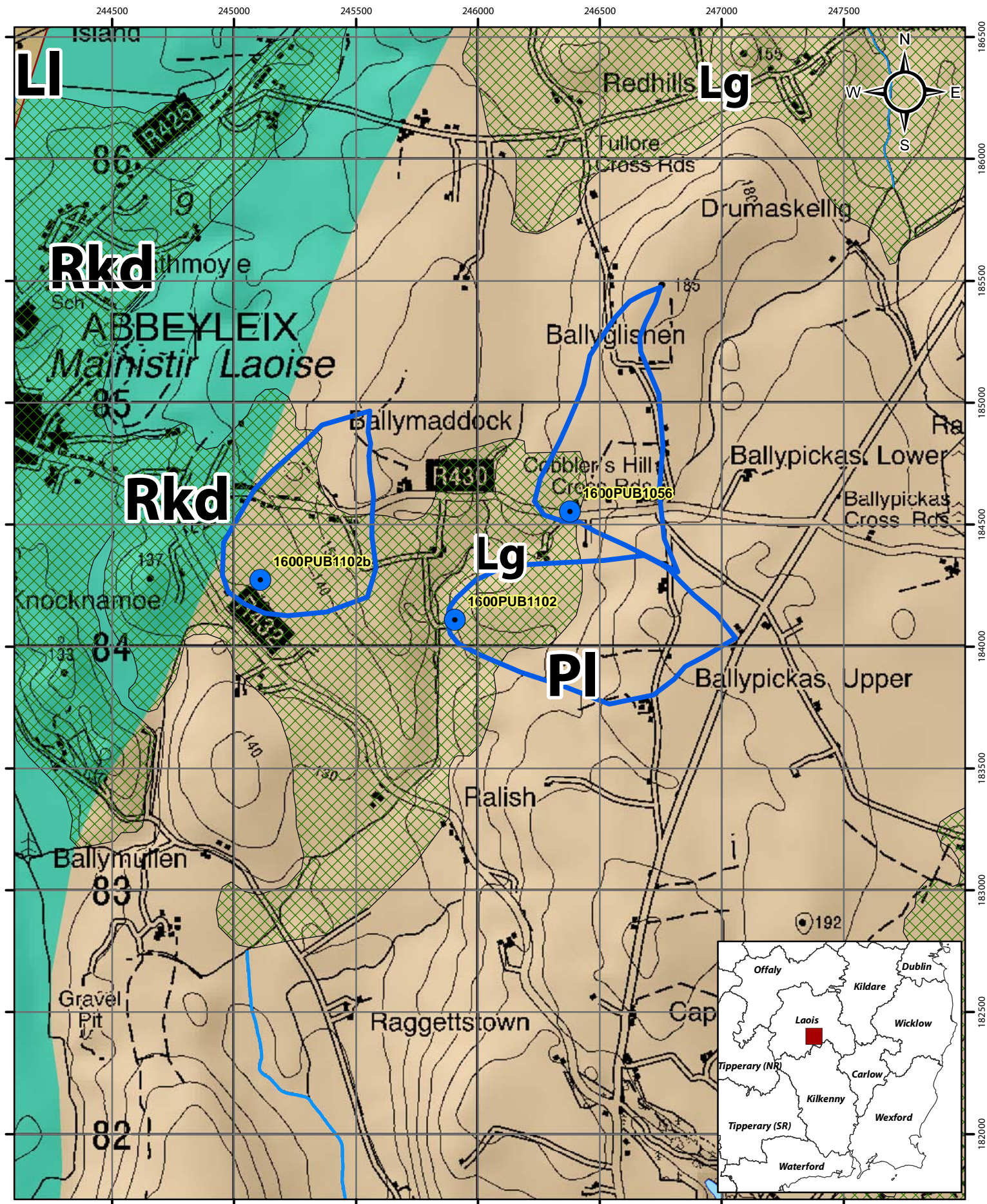


Location Map for Abbeyleix - Aughfeerish and Five Wells

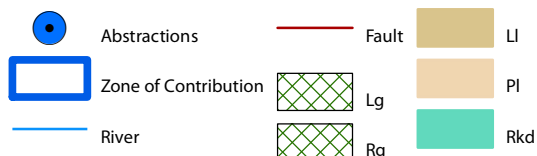
- Abstractions
- Zone of Contribution
- River

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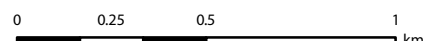
0 0.25 0.5 1 km

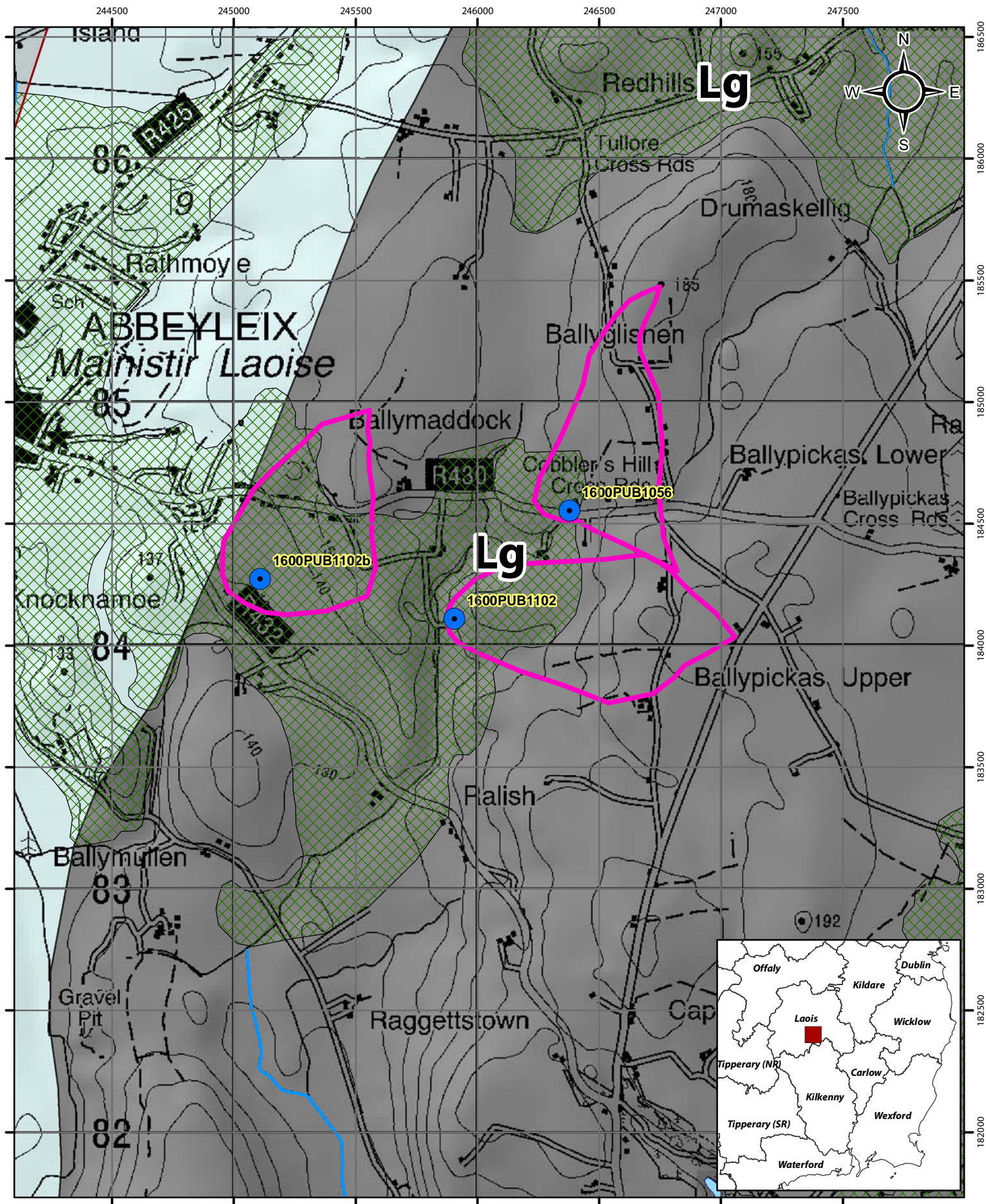


Aquifer Category Map for Abbeyleix - Aughfeerish and Five Wells

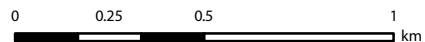
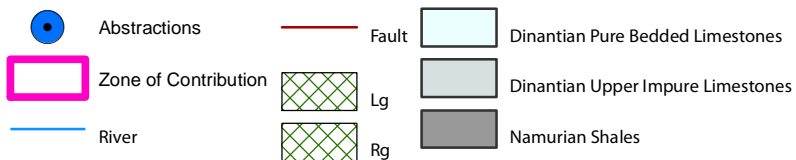


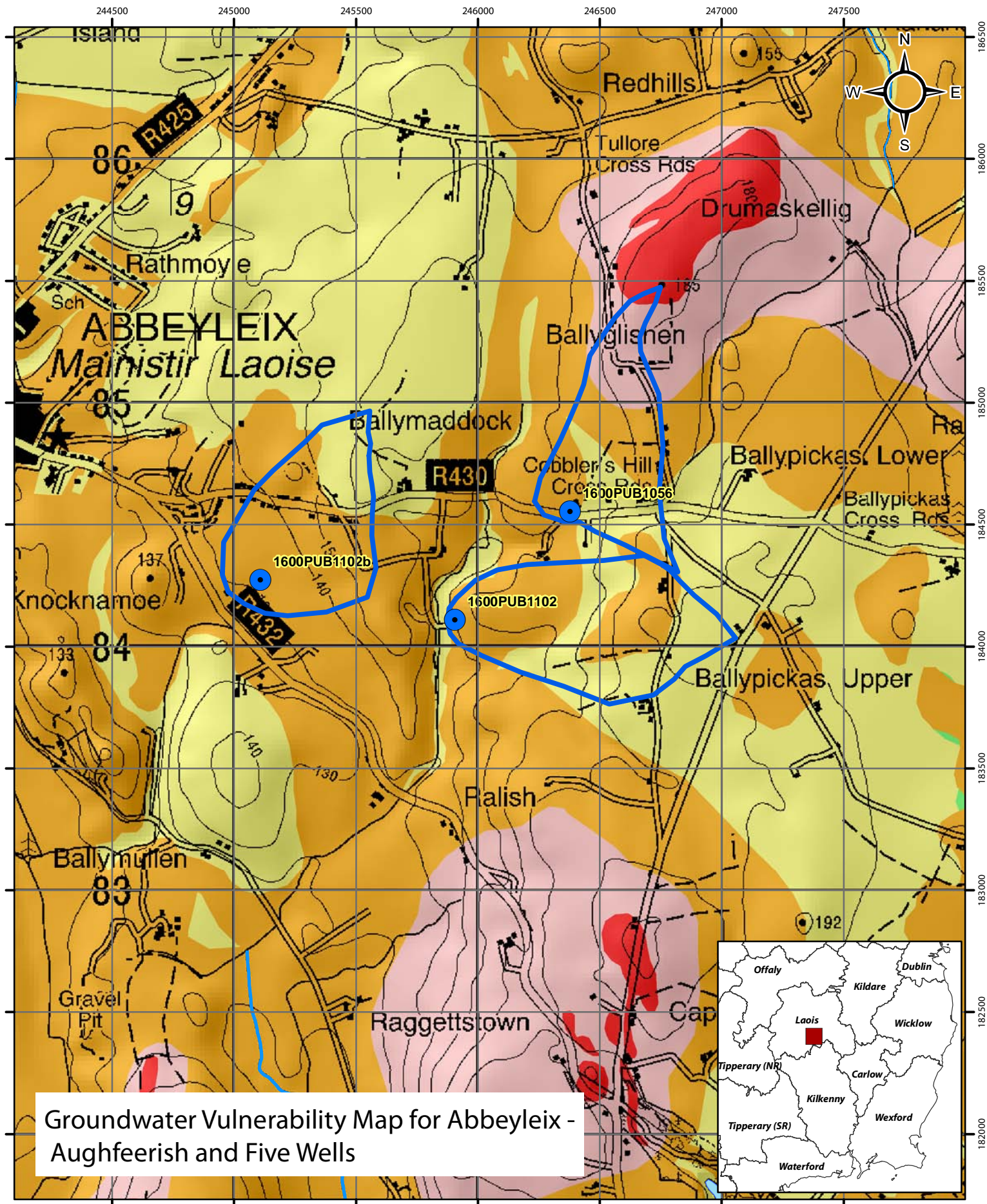
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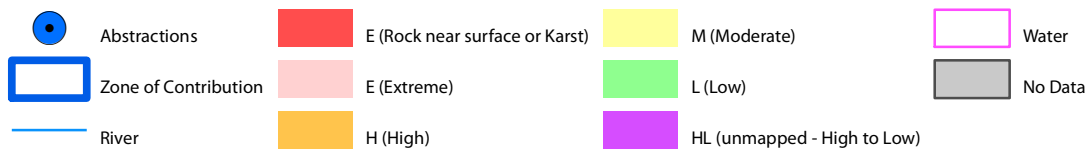


Bedrock Map for Abbeyleix - Aughfeerish and Five Wells



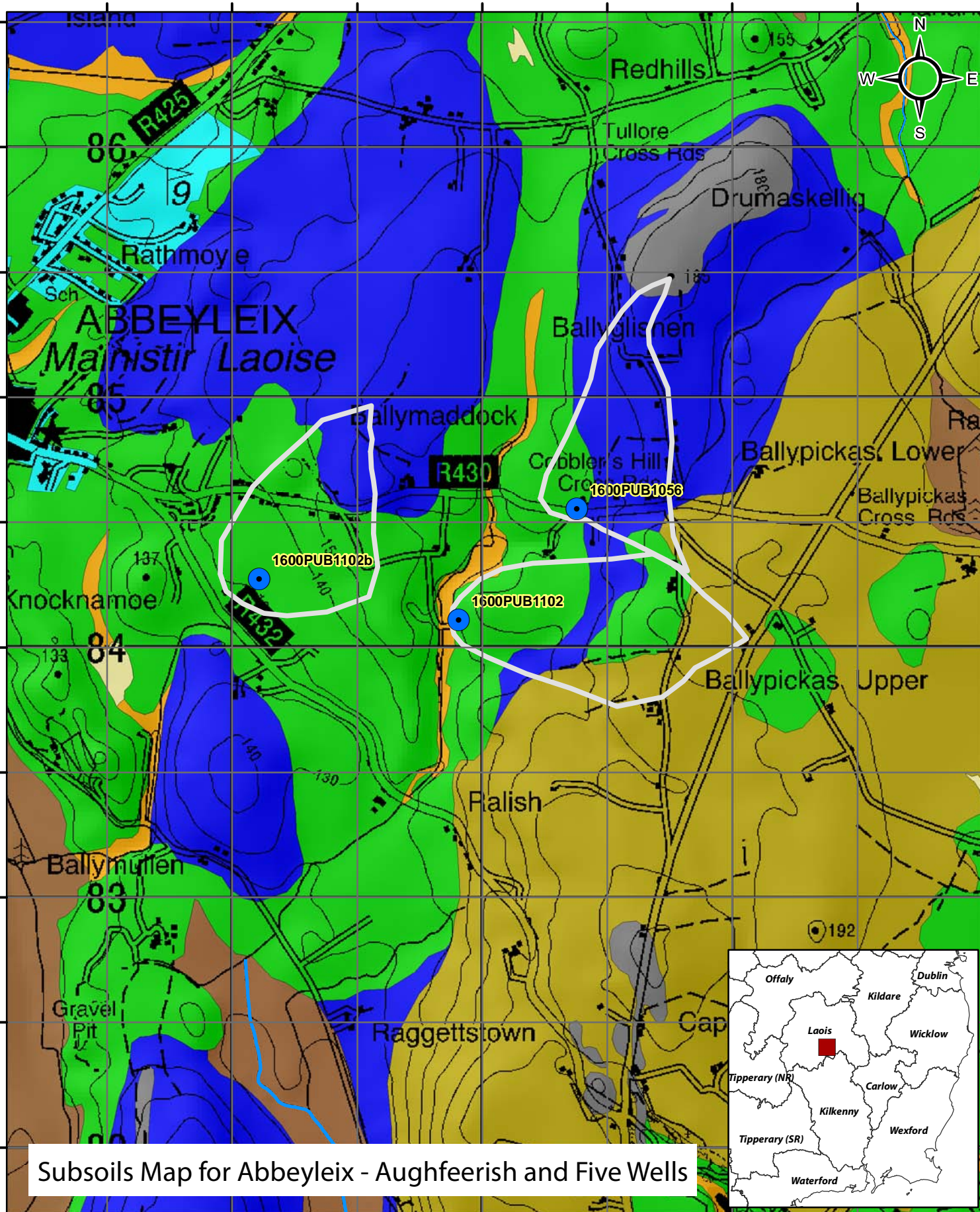


Groundwater Vulnerability Map for Abbeyleix - Aughfeerish and Five Wells

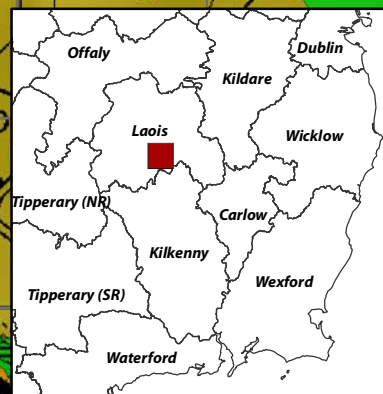


244500 245000 245500 246000 246500 247000 247500

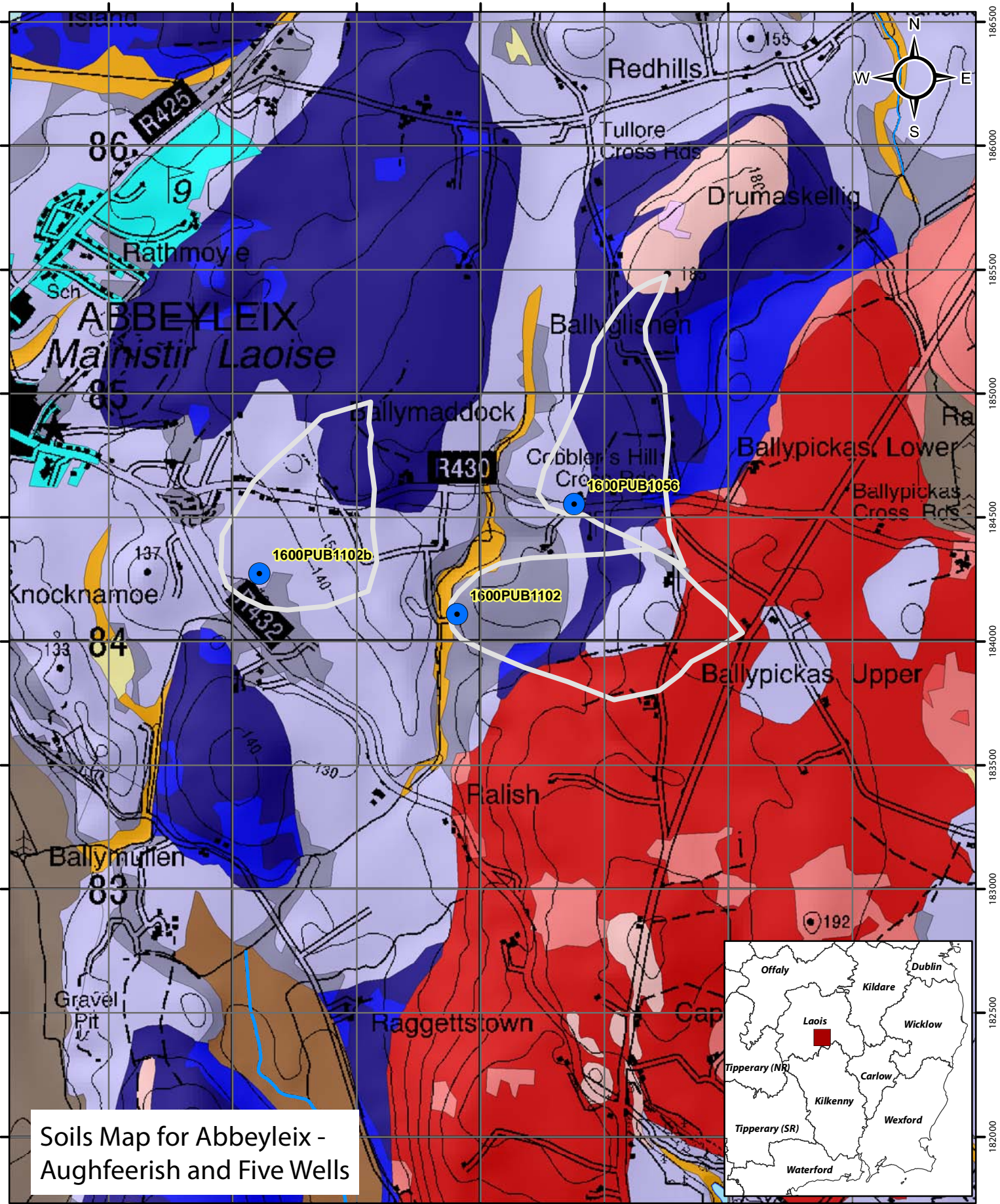
186500
186000
185500
185000
184500
184000
183500
183000
182500
182000



Subsoils Map for Abbeyleix - Aughfeerish and Five Wells



244500 245000 245500 246000 246500 247000 247500



Soils Map for Abbeyleix -
Aughfeerish and Five Wells

