

Water Framework Directive Groundwater Monitoring Programme

Site Information

Bouladuff/Borrisoleigh PWS (BH1)



Bouladuff/Borrisoleigh PWS (BH1) is a one of two boreholes used as a public water supply. The abstraction rate is 600m³/day. The GSI completed a source report for the scheme.

SITE INFORMATION					
Site Name:	Bouladuff/Borrisoleigh PWS (BH1)		County:	Tipperary North	
RBD:	SERBD		EU Reporting Code:	IE_SE_G_131_22_002	
Easting:	205105		GWB Name:	Templemore B	
Northing:	165407		GWB Code:	IE_SE_G_131	
Site Use:	Drinking Water (PWS)		Drinking Water Code:	2800PUB1016	
Hydrometric Area:	16		Water Level Monitoring Network:	Level	Flow
Townland:	FISHMOYNE			Y	N
Ownership:	North Tipperary County Council				
Water Quality Monitoring Network:	Surveillance	Operational (Point)		Operational (Diffuse)	
	N	N		Y	
Site Comments:	---				

SITE DIRECTIONS					
Location and Access Information:	The site is situated approximately 2.5 km southeast of Borrisoleigh and 370 m southeast of Rathmoy Bridge, in the townland of Fishmoyne off the R498				
Additional Comments:	---				

WELL INFORMATION					
Monitoring Point Type:	BH	Abstraction Rate (m³/d):	600	Ground Elevation (m OD):	89
Borehole Log Available:	---	Total Drilled Depth (m bgl):	33	Depth to Bedrock (m bgl):	---
Top of Casing (m agl):	---	Upper Casing Diameter (mm):	380	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:	Borrisoleigh	Number of Abstraction Points in the Scheme:	2	Source Report Available	Y
Source Report Info:	Source report prepared by GSI.				
Scheme Summary:	The site is situated approximately 2.5 km southeast of Borrisoleigh and 370 m southeast of Rathmoy Bridge, in the townland of Fishmoyne. There are two production boreholes, five metres apart, which used to be pumped on alternate days but are now pumped together. One borehole supplies Bouladuff while the other supplies Borrisloeigh.				

HYDROGEOLOGY								
GEOLOGY	Soil:	Deep well drained mineral (BminDW)					Subsoil Permeability:	Moderate to Low
	Subsoil:	Tills (diamictos) (TLs)						
	Bedrock:	Dinantian Lower Impure Limestones						
HYDROGEOLOGY	Aquifer Category:	LI	Vulnerability at Monitoring site:	High to Low			Flow Regime:	Poorly productive
ZONE OF CONTRIBUTION	Estimated ZOC Size (km²):	1.17	ZOC Delineated By:	GSI			Recharge Estimate (mm/yr):	139
	ZOC Delineation Comments:	The GSI delineated a ZOC based on abstraction, rate, recharge and topography. See the source report for details.						
Groundwater Vulnerability within ZOC (% area):	Extreme (X)	Extreme (E)	High	Moderate	Low	High to Low	Unclassified	
	1.53	15.15	0	0	0	83.32	0	
HYDROCHEMISTRY								
Hydrochemical Signature:	Ca-HCO3		Additional Water Chemistry Information:	During the monitoring period: The average nitrate concentration was 12 mg/l NO3 and the maximum nitrate concentration was 22 mg/l NO3. The average ammonium concentration was 0.023 mg/l N and the maximum ammonium concentration was 0.088 mg/l N. The average molybdate reductive phosphorus (MRP) concentration was 0.009 mg/l P and the maximum MRP concentration was 0.045 mg/l P. The average chloride concentration was 16.8 mg/l Cl and the maximum chloride concentration was 22 mg/l Cl.				
Alkalinity (mg/l HCO3):	Average:	Range:						
	322	247-373						
Hardness (mg/l CaCO3):	Average:	Range:						
	365	308-489						
Conductivity (uS/cm):	Average:	Range:						
	633	306-753						
Monitoring Record Period:	From:	To:						
	1993	2010						
RISK ASSESSMENT								
Pressure (e.g., Nitrates, Phosphates, Abstractions):	---			Typical Contaminants:	---			
Risk Category:	At risk, low confidence			GWB Status:	Good			
Impact Potential within ZOC (% area):	Extreme:	High:	Moderate:	Low:	Negligible:			
	0.00	43.20	19.37	0.00	37.43			
OTHER INFORMATION								



Pump House



Borehole



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).

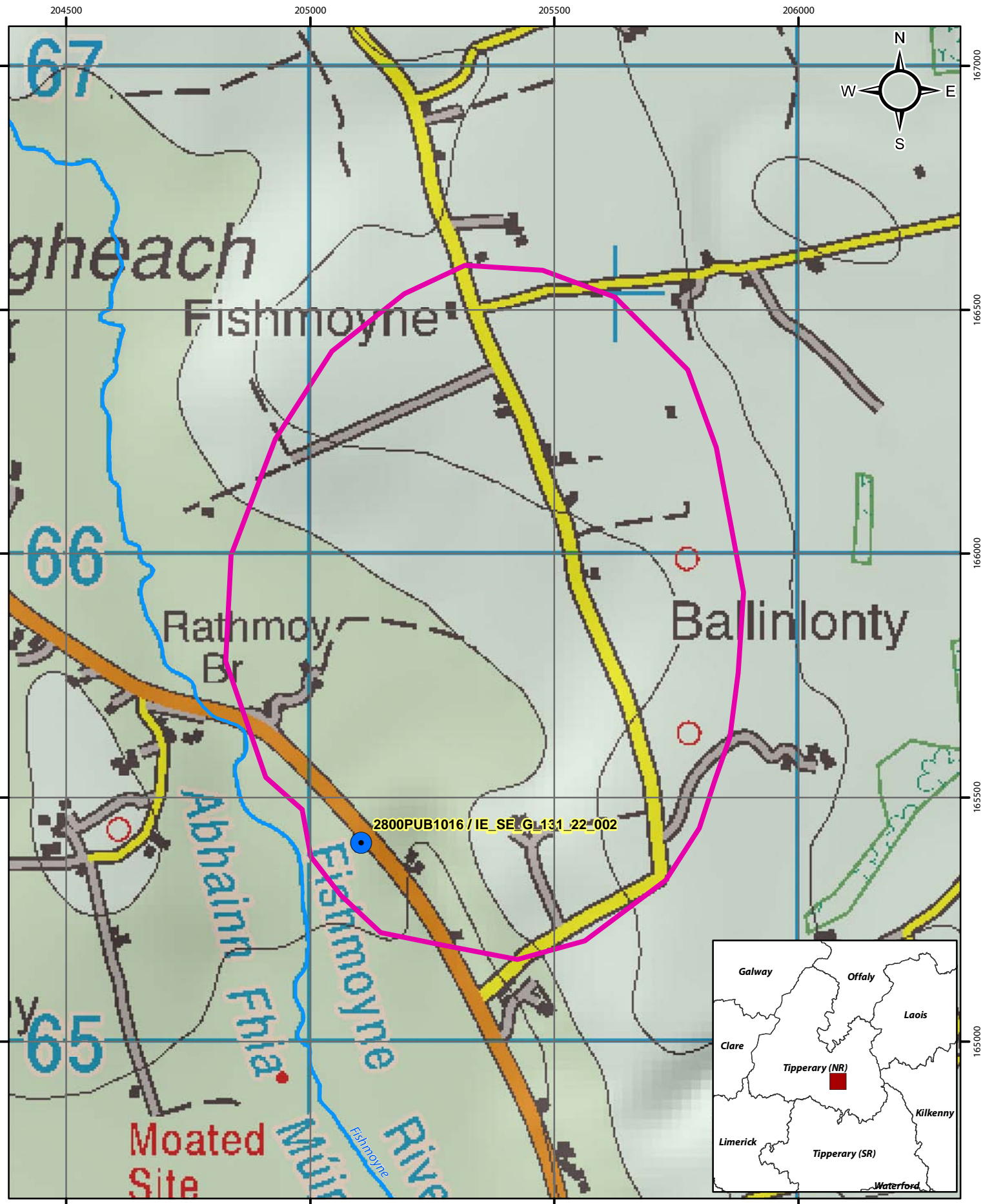
General Downgradient Distances

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.

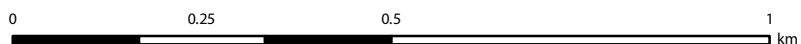
Version 0:	Prepared by	GSI	Date:	
Version 1:	Prepared by	OCM (DC)	Date:	Feb 2011
Version 2:	Prepared by		Date:	
Version 3:	Prepared by		Date:	
Version 4:	Prepared by		Date:	

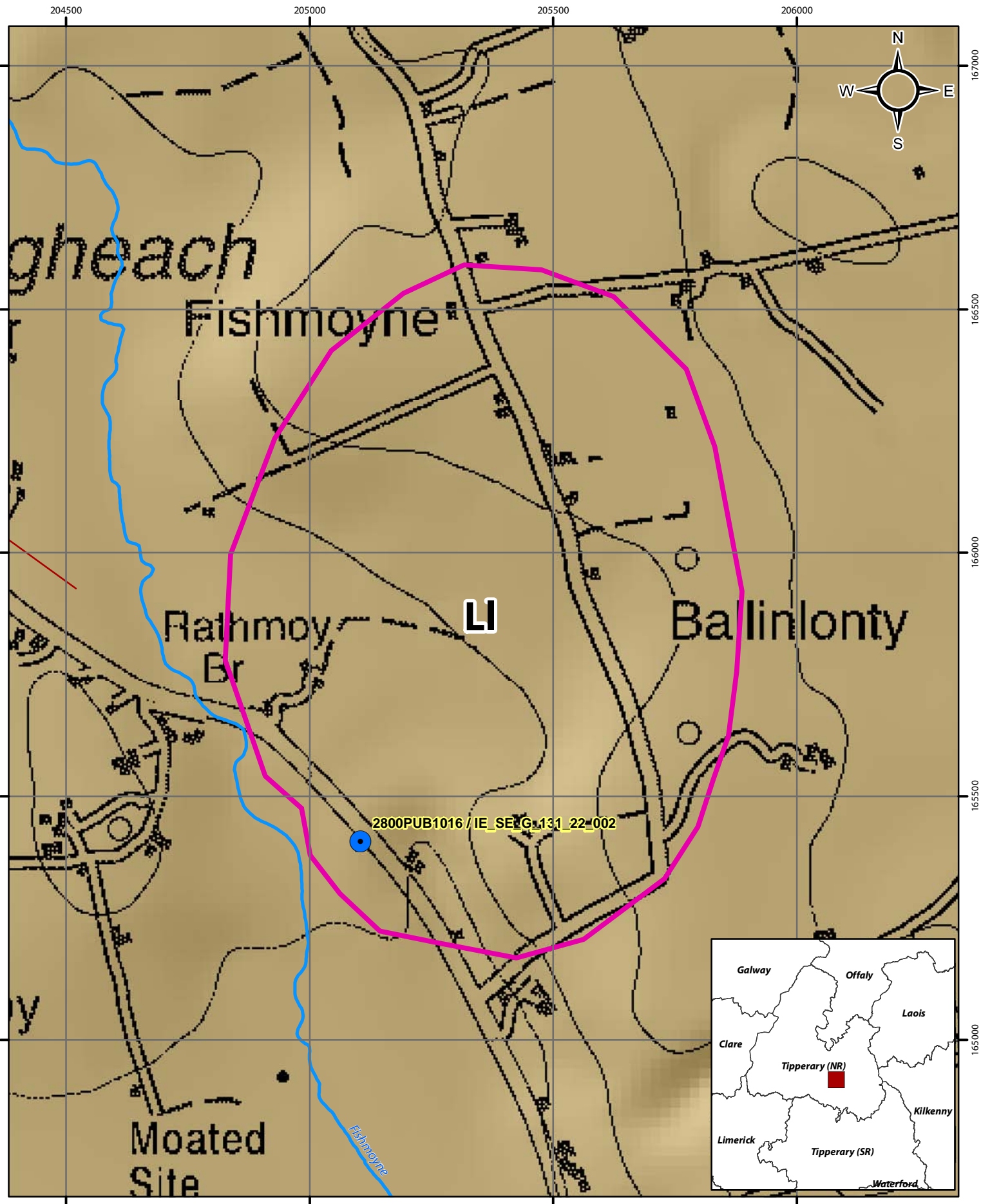


Location Map for Bouladuff/Borrisoleigh PWS

- Abstractions
- River
- Zone of Contribution

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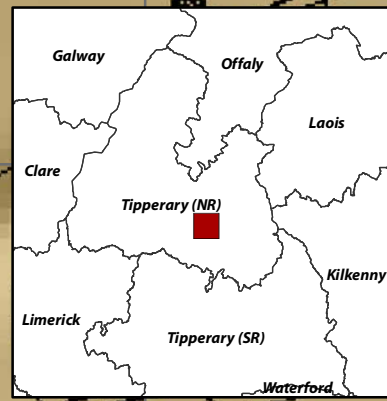
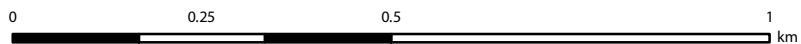


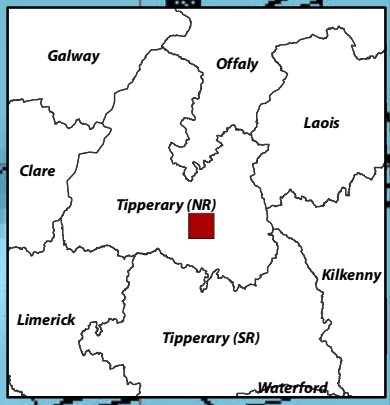
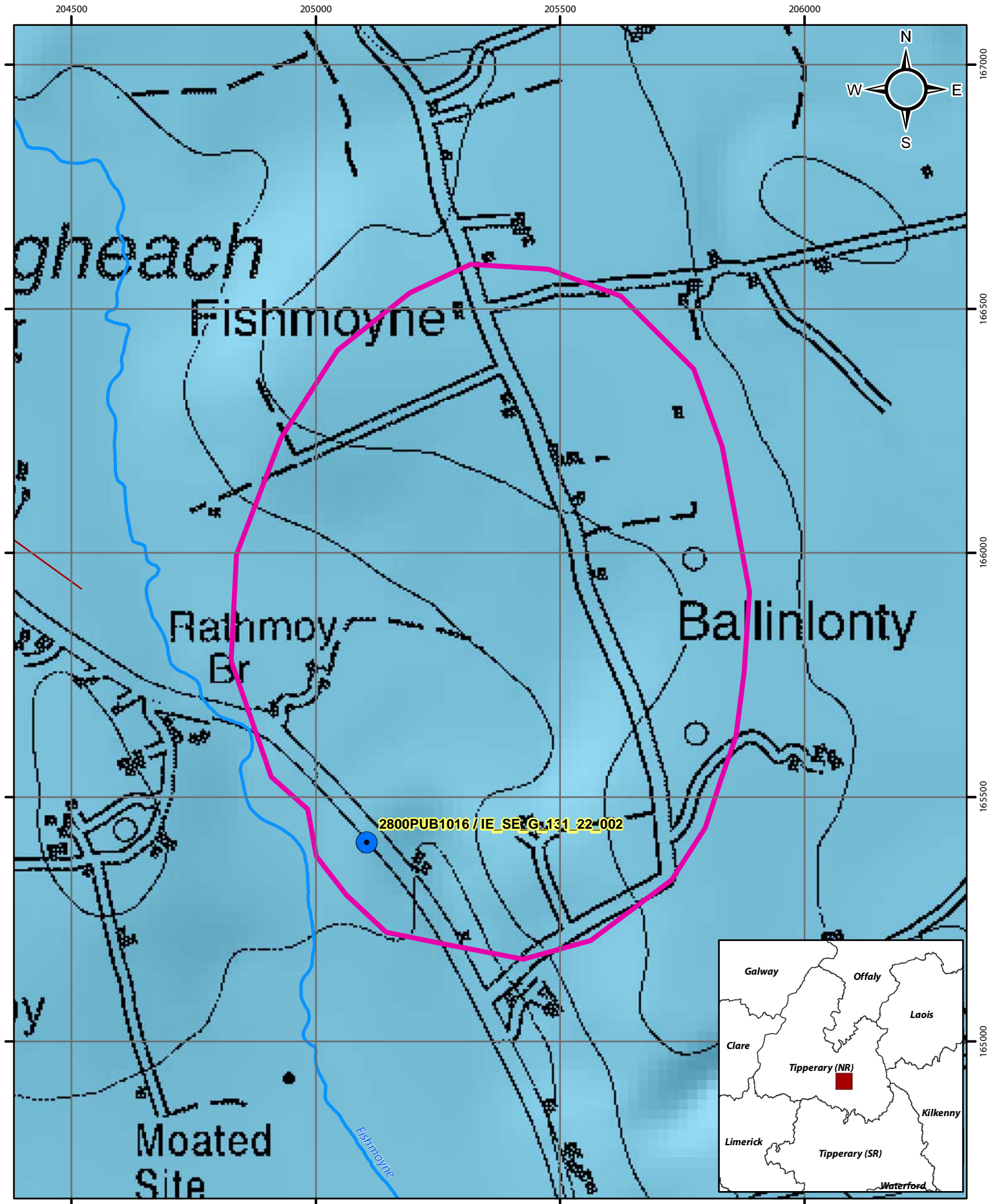


Aquifer Category Map for Bouladuff/Borrisoleigh PWS






- Abstractions
- River
- Zone of Contribution
- Fault
- LI

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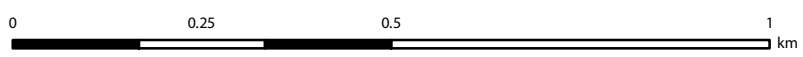


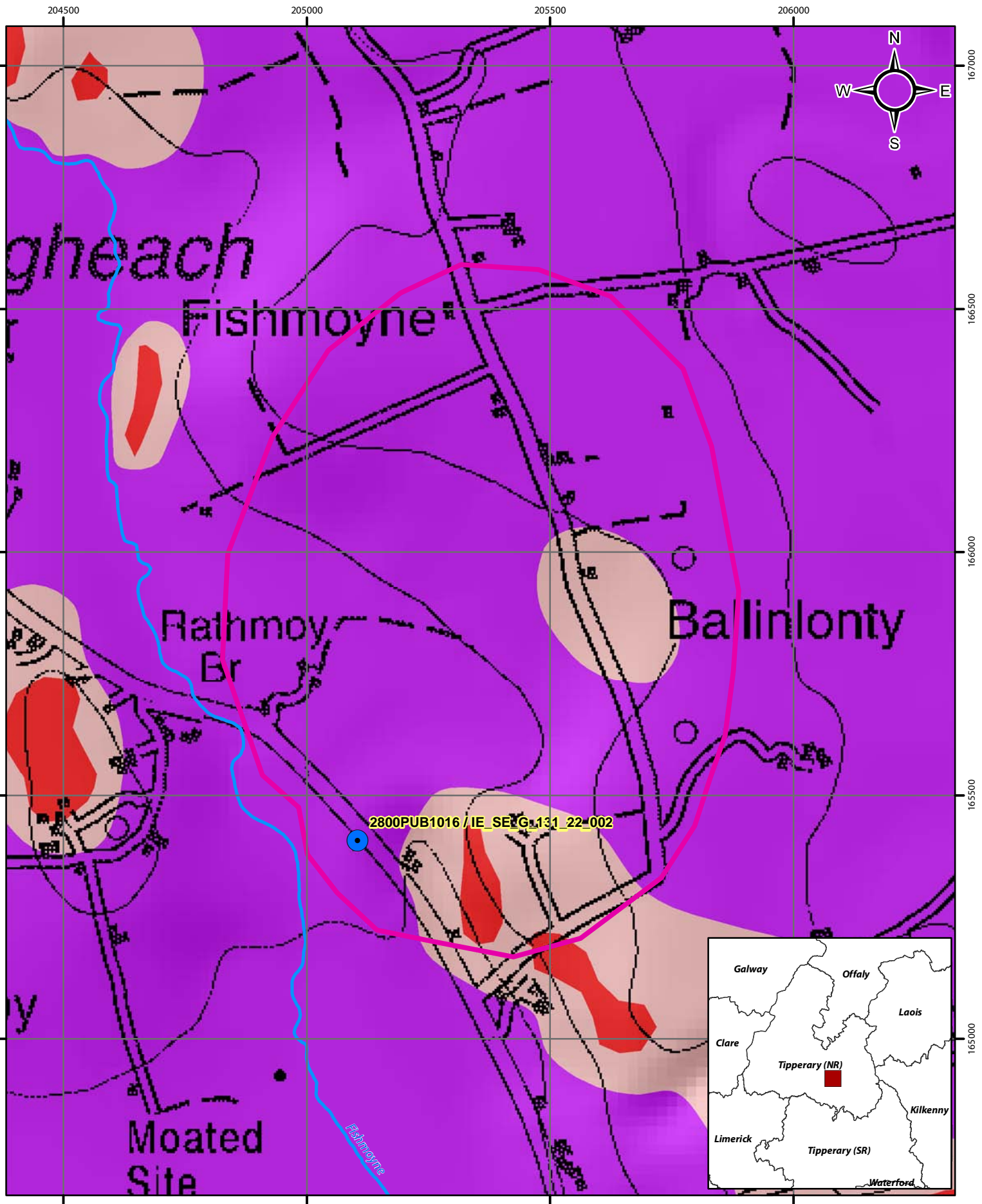


Bedrock Map for Bouladuff/Borrisoleigh PWS

-  Abstractions
-  Fault
-  River
-  Dinantian Lower Impure Limestones
-  Zone of Contribution

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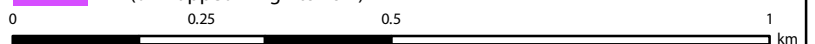


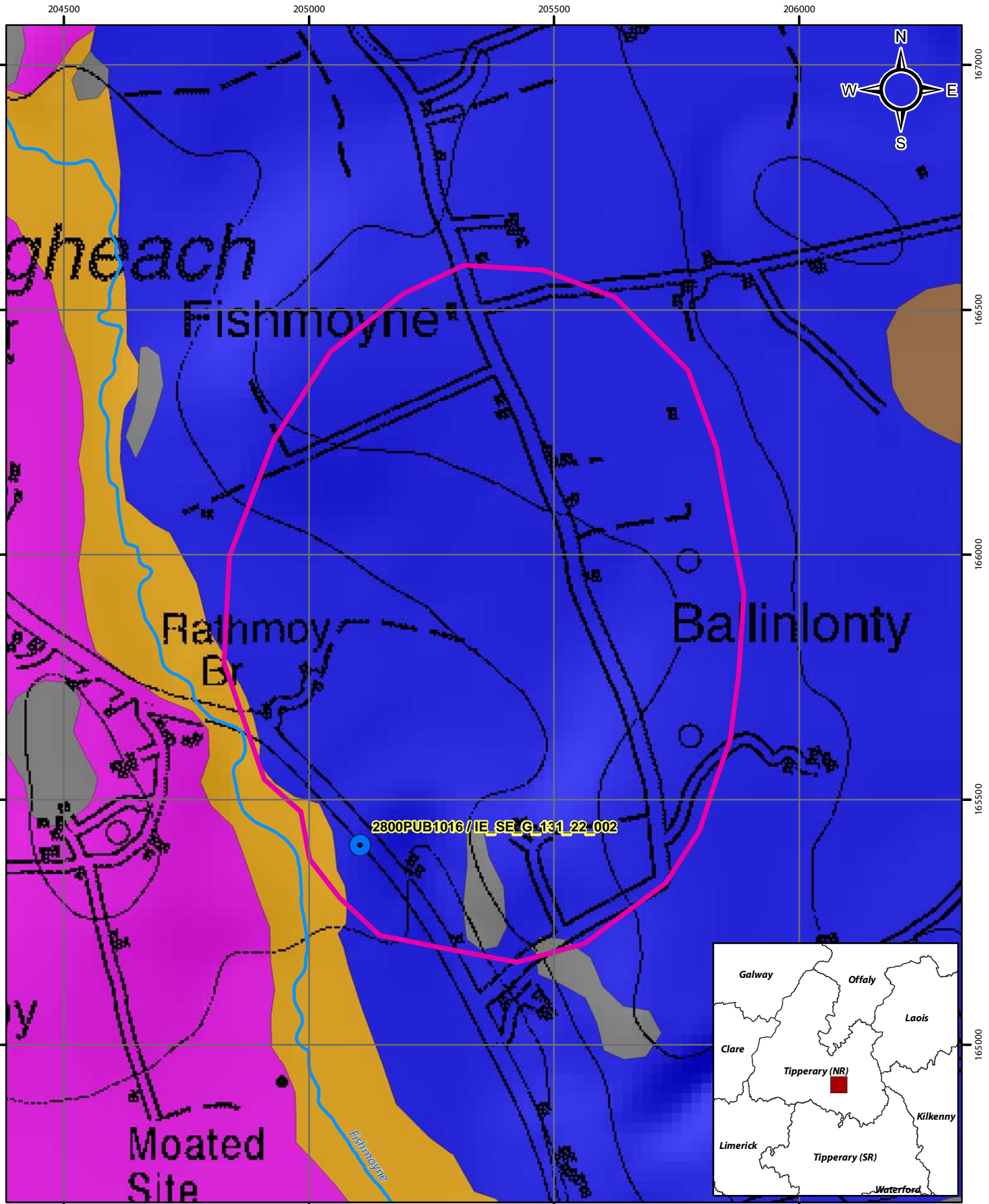


Groundwater Vulnerability Map for Bouladuff/Borrisoleigh PWS









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

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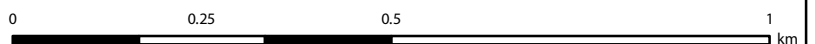


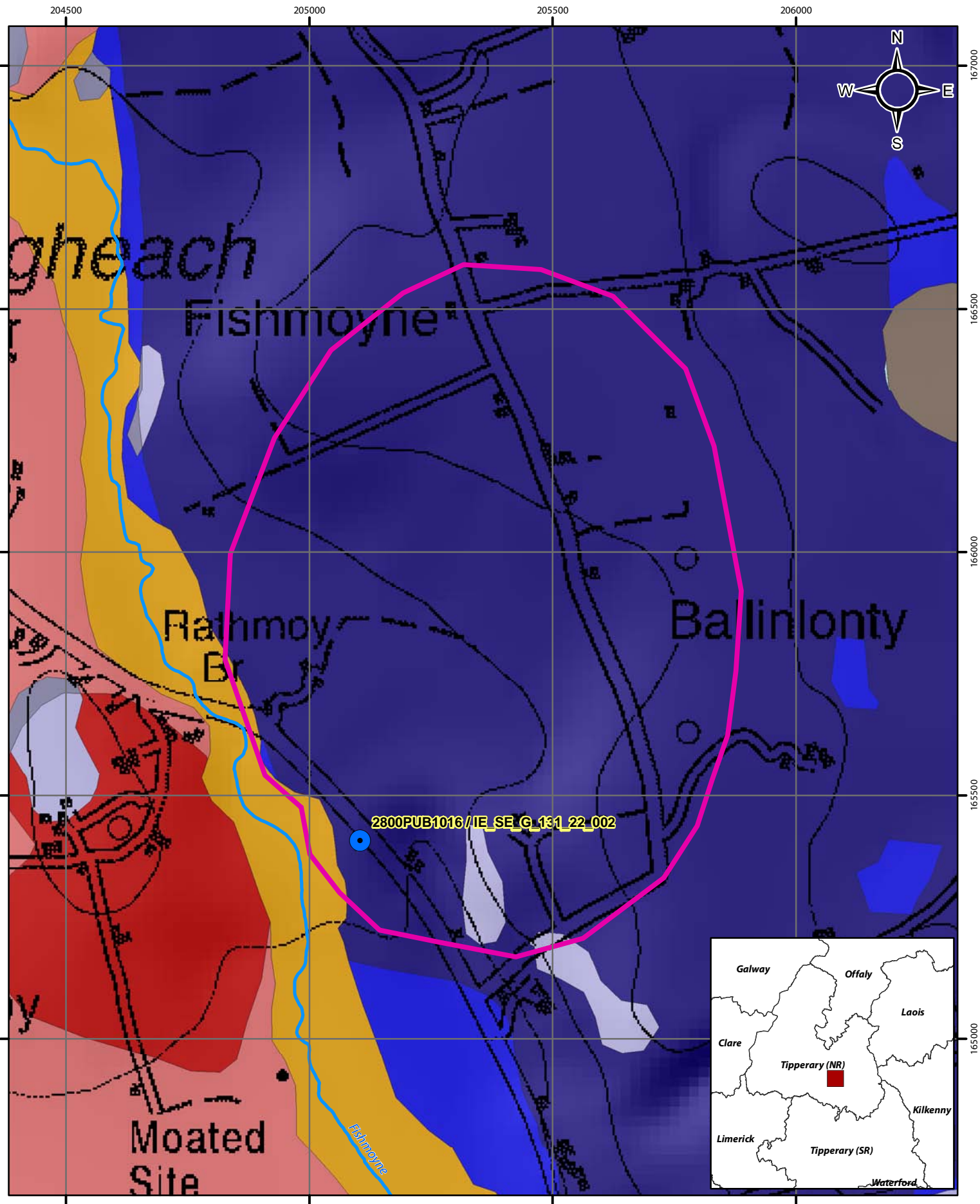


Subsoils Map for Bouladuff/Borrisoleigh PWS

- | | | |
|---|--|--|
|  Abstractions |  Alluvium |  Till derived from Lower Palaeozoic and Devonian sandstones |
|  River |  Cutover raised peat |  Till derived from limestones |
|  Zone of Contribution |  Bedrock outcrop or subcrop | |

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Soils Map for Bouladuff/Borrisoleigh PWS



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