

Water Framework Directive Groundwater Monitoring Programme

Site Information

Fethard RWS (Coalbrook BH)



Fethard RWS (Coalbrook BH) is a borehole used as a public water supply. The abstraction rate is 600m³/day.

SITE INFORMATION					
Site Name:	Fethard RWS (Coalbrook BH)		County:	Tipperary South	
RBD:	SERBD		EU Reporting Code:	IE_SE_G_126_23_003	
Easting:	227292		GWB Name:	Slieveardagh Hills	
Northing:	151163		GWB Code:	IE_SE_G_126	
Site Use:	Drinking Water (PWS)		Drinking Water Code:	2900PUB1020	
Hydrometric Area:	15		Water Level Monitoring Network:	Level	Flow
Townland:	CURRAHEENDUFF			Y	N
Ownership:	Tipperary South Council				
Water Quality Monitoring Network:	Surveillance		Operational (Point)		Operational (Diffuse)
	N		N		Y
Site Comments:	Fethard RWS (Coalbrook BH) is a 182m deep borehole situated in Westphalian Sandstones and is used as a public water supply. The borehole is included in the operational chemical network and it has been monitored by the EPA since 1993.				
SITE DIRECTIONS					
Location and Access Information:	---				
Additional Comments:	---				
WELL INFORMATION					
Monitoring Point Type:	BH	Abstraction Rate (m³/d):	897	Ground Elevation (m OD):	215
Borehole Log Available:	---	Total Drilled Depth (m bgl):	182	Depth to Bedrock (m bgl):	---
Top of Casing (m agl):	---	Upper Casing Diameter (mm):	100	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:	---		
Specific Capacity (m³/d/m):	---				
Static Water Level (m bgl):	---				
Scheme Name:	Fethard	Number of Abstraction Points in the Scheme:	7	Source Report Available	N
Source Report Info:	---				
Scheme Summary:	The Fethard scheme consists of seven abstraction location at three sites, 5 boreholes at Coalbrook, a spring at Mullenbawn and one borehole at Laffansbridge. The Laffansbridge scheme is not in use. All three sites are in the EPA GW Monitoring Network.				

HYDROGEOLOGY								
GEOLOGY	Soil:	Shallow well drained mineral (AminSW)					Subsoil Permeability:	n/a
	Subsoil:	Bedrock at or close to surface (Rck)						
	Bedrock:	Westphalian Sandstones						
HYDROGEOLOGY	Aquifer Category:	Lm	Vulnerability at Monitoring site:	X-Extreme	Flow Regime:	Productive fissured bedrock		
ZONE OF CONTRIBUTION	Estimated ZOC Size (km²):	0.65	ZOC Delineated By:	OCM (DC)	Recharge Estimate (mm/yr):	402		
	ZOC Delineation Comments:	The ZOC area was delineated based on topography, abstraction rate and recharge. With an abstraction of 987 m³/day and using topography, the ZOC tool calculates an area of 0.65 m2 with a predicted abstraction rate percentage of 80. The ZOC is located within the Westphalian Sandstones. There is a fault located just to the south of the ZOC which may supply water to the borehole at depth. The down gradient boundary of the ZOC is defined by the location of the borehole and the location of the stream to the east. This is considered to form a hydraulic barrier in the discharge zone. The eastern and northern boundaries are defined by watersheds running towards the topographic high point. The eastern boundary is marked by the topographic high point.						
Groundwater Vulnerability within ZOC (% area):	Extreme (X)	Extreme (E)	High	Moderate	Low	High to Low	Unclassified	
	44.87	55.13	0	0	0	0	0	
HYDROCHEMISTRY								
Hydrochemical Signature:	Ca-HCO3		Additional Water Chemistry Information:	During the monitoring period: The average nitrate concentration was 1 mg/l NO3 and the maximum nitrate concentration was 10 mg/l NO3. The average ammonium concentration was 0.098 mg/l N and the maximum ammonium concentration was 0.305 mg/l N. The average molybdate reductive phosphorus (MRP) concentration was 0.008 mg/l P and the maximum MRP concentration was 0.059 mg/l P. The average chloride concentration was 12.7 mg/l Cl and the maximum chloride concentration was 18 mg/l Cl.				
Alkalinity (mg/l HCO3):	Average:	Range:						
	188	100-280						
Hardness (mg/l CaCO3):	Average:	Range:						
	213	152-652						
Conductivity (uS/cm):	Average:	Range:						
	403	335-513						
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	100.00	0.00	0.00	0.00			
OTHER INFORMATION								



Borehole



Site Entrance



Pump 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 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 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).

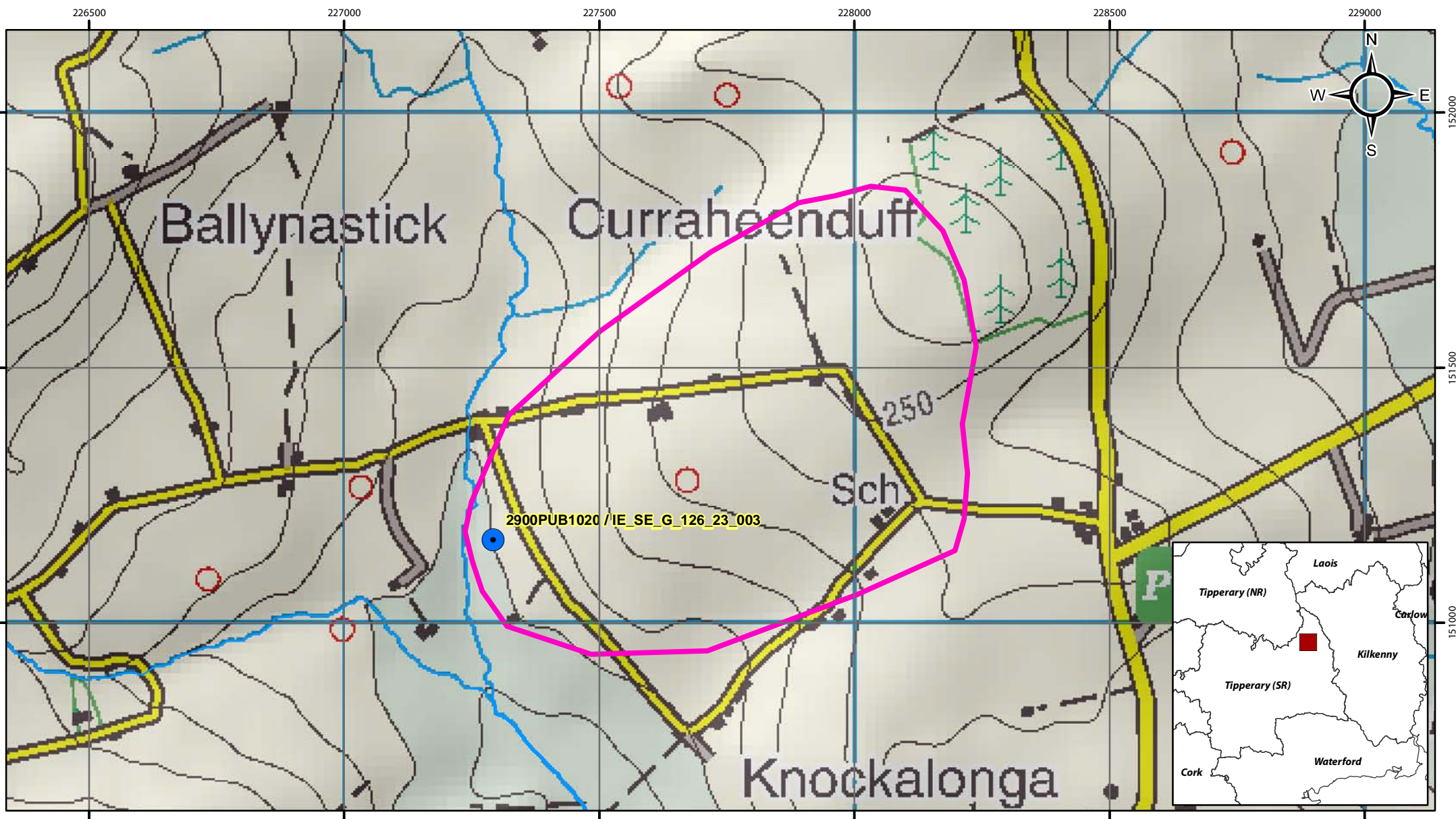
General Downgradient Distances

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

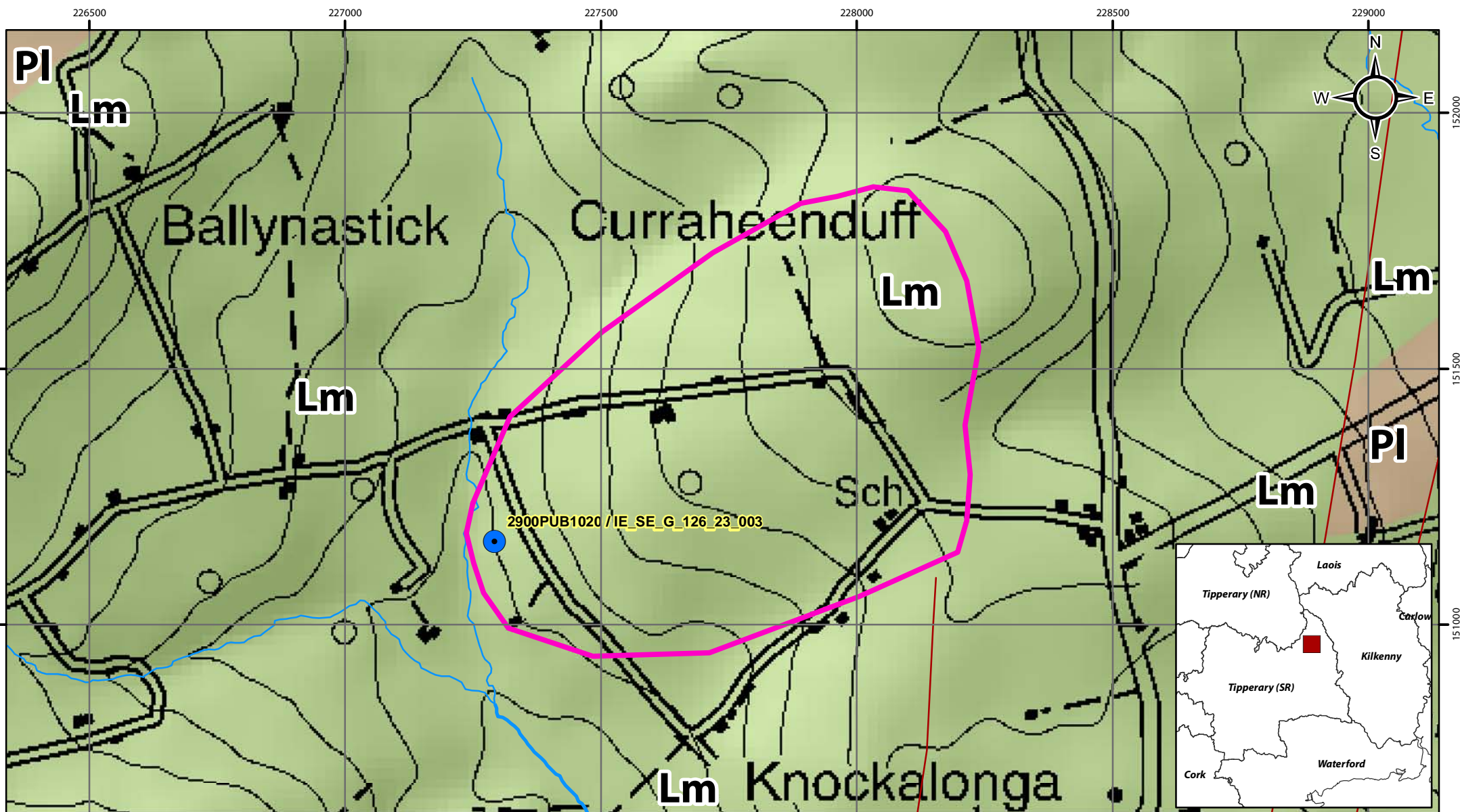
It is assumed that groundwater downgradient of a spring cannot flow back up to the spring, however a precautionary 30m buffer is generally applied which allows for instances where pumping under dry weather periods may induce a drawdown or where the ground may be sloping toward the spring from the downgradient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

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

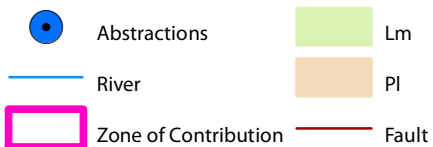


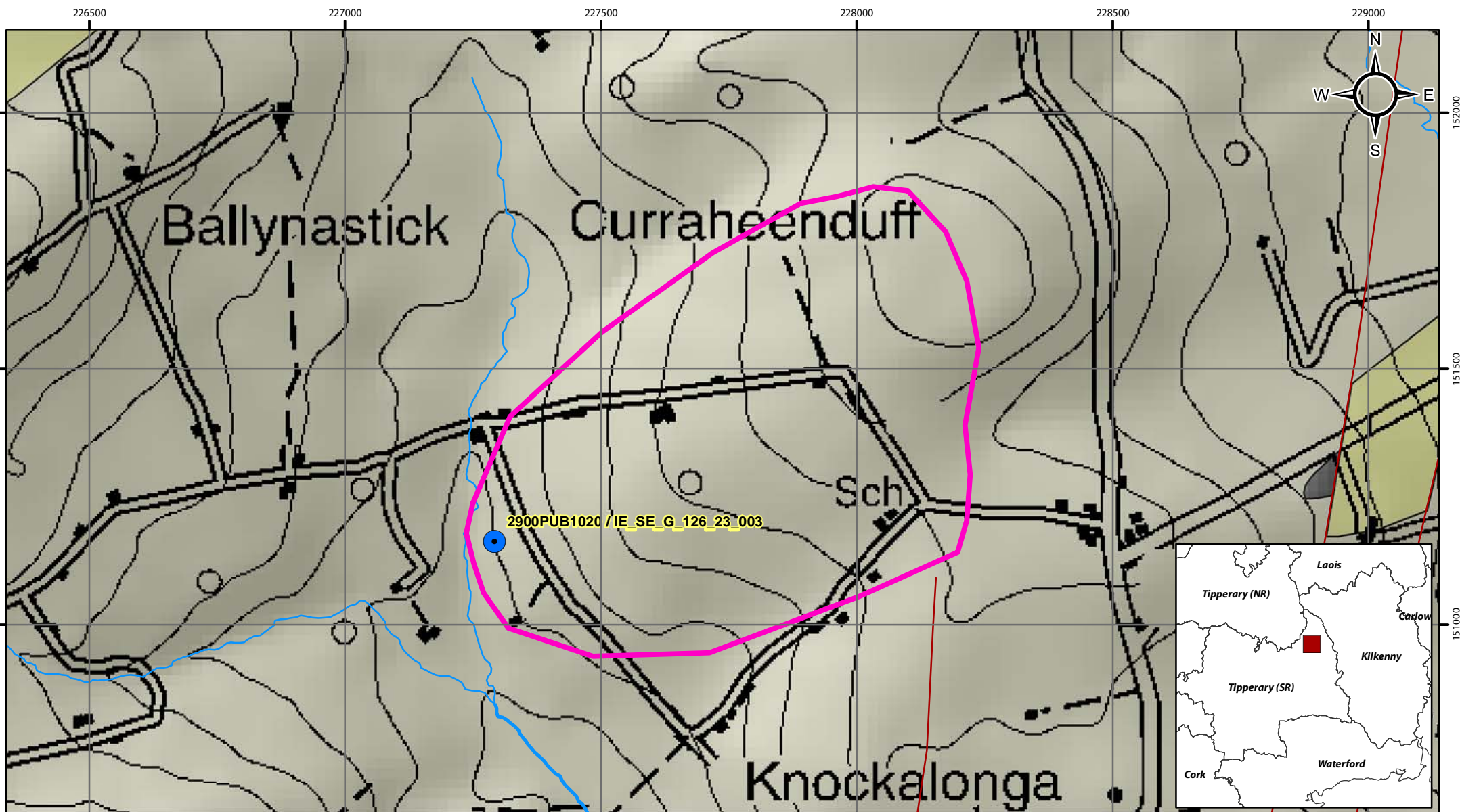
Location Map for Fethard RWS (Coalbrook)

- Abstractions
- River
- Zone of Contribution









Aquifer Category Map for Fethard RWS (Coalbrook)



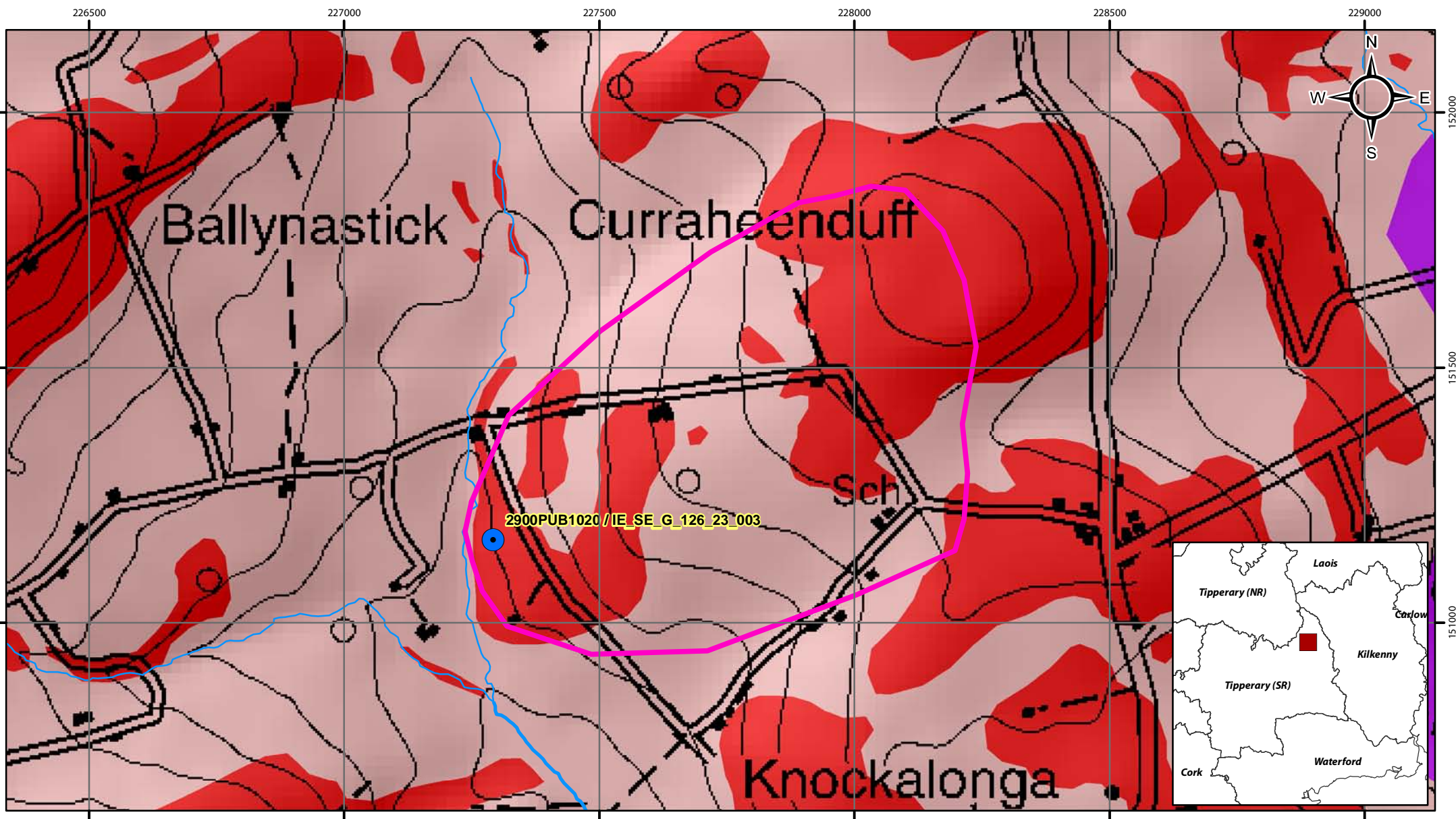


Bedrock Map for Fethard RWS (Coalbrook)

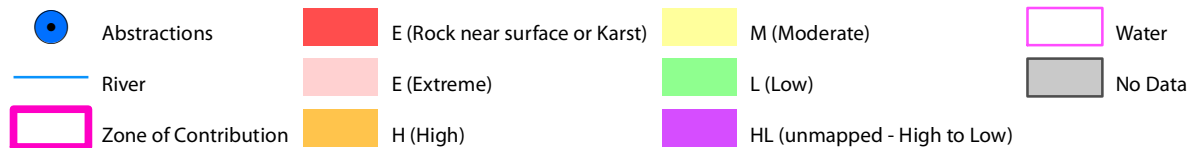
-  Abstractions
-  River
-  Zone of Contribution
-  Namurian Sandstones
-  Westphalian Sandstones
-  Fault

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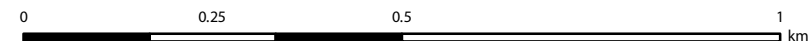
0 0.25 0.5 1 km

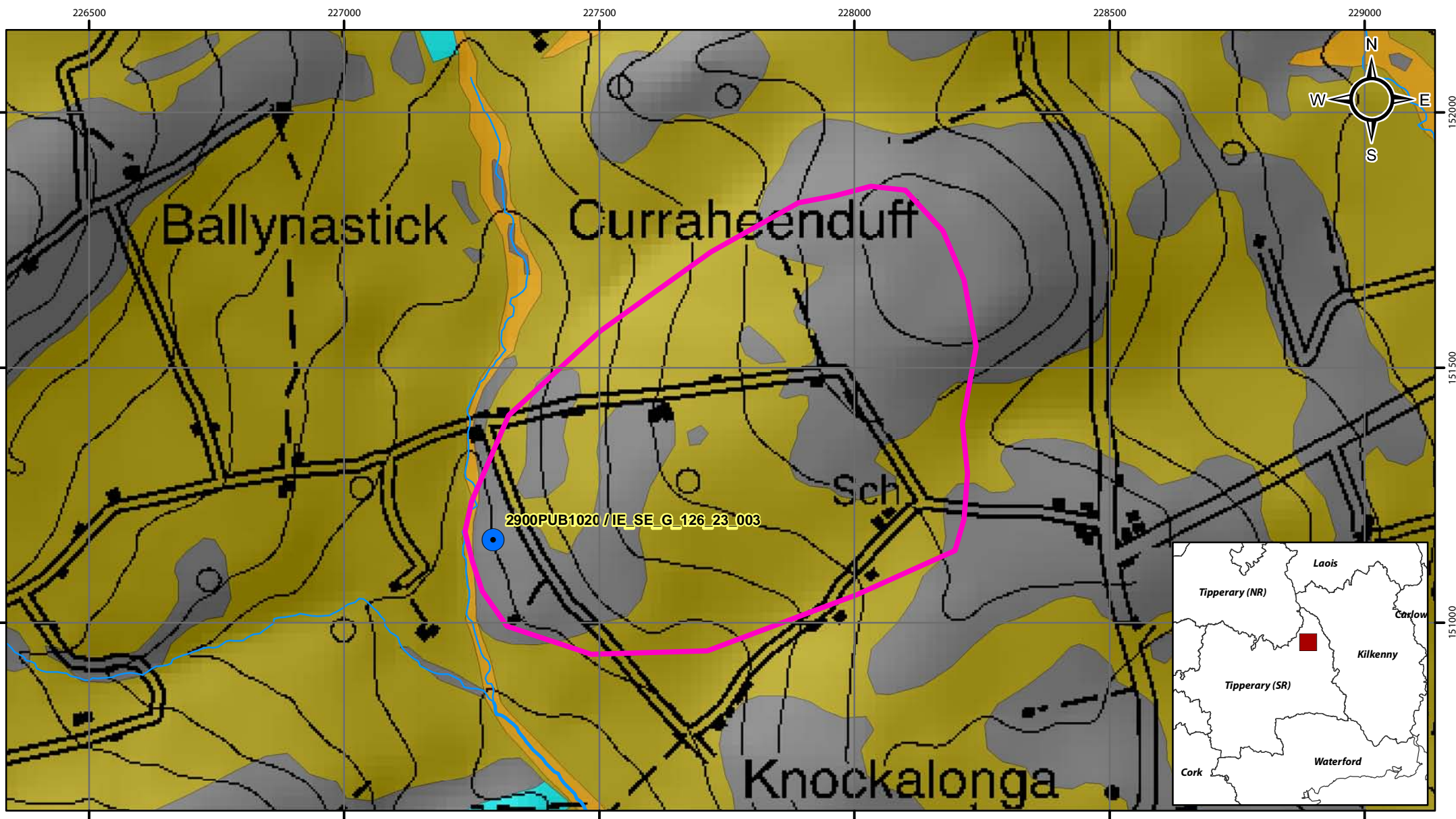


Groundwater vulnerability Map for Fethard RWS (Coalbrook)

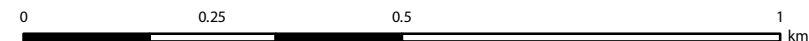
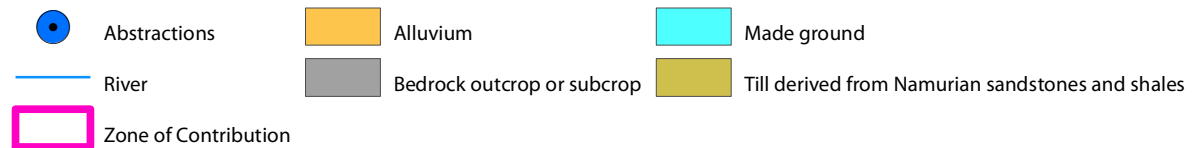


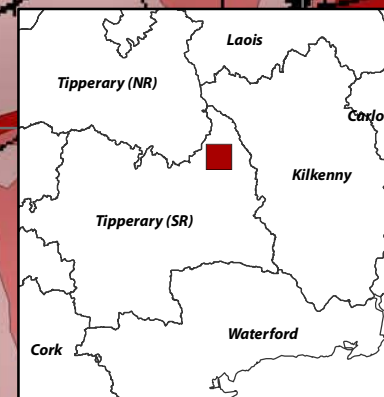
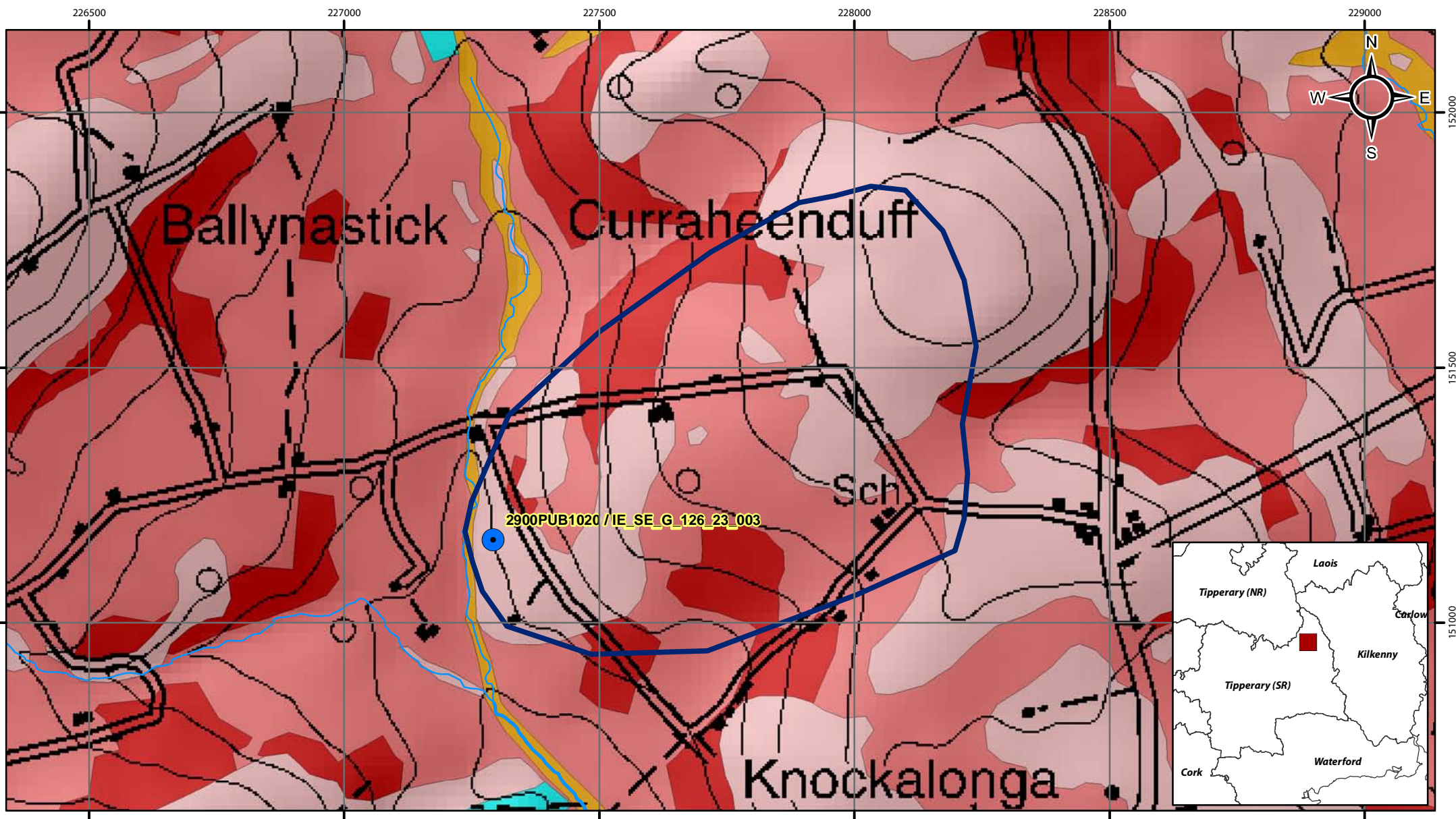
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Subsoils Map for Fethard RWS (Coalbrook)





Soils Map for Fethard RWS (Coalbrook)

