

## Water Framework Directive Groundwater Monitoring Programme

### Site Information

### Bellmount (Crookstown WSS)



Bellmount is part of the Crookstown Water Supply which comprises two boreholes. The average abstraction rate is 75 m<sup>3</sup>/day.



Cork

August 2011

SITE INFORMATION					
Site Name:	Bellmount (Crookstown WSS)		County:	Cork	
RBD:	SWRBD		EU Reporting Code:	IE_SW_G_002_04_029	
Easting:	142383		GWB Name:	Ballinhassig_1	
Northing:	65413		GWB Code:	IE_SW_G_004	
Site Use:	Drinking Water (PWS)		Drinking Water Code:	0500PUB3102	
Hydrometric Area:	19		Water Level Monitoring Network:	Level	Flow
Townland:	BEMOUNT			N	N
Ownership:	Cork County Council				
Water Quality Monitoring Network:	Surveillance		Operational (Point)		Operational (Diffuse)
	N		N		N
Site Comments:	The borehole is situated in sand and gravels overlying Dinantian Mudstones and Sandstones.				

SITE DIRECTIONS					
Location and Access Information:	Located approximately 500 metres south-west of Crookstown village, in Bellmount Lower area, beside the R585. The well is located in a field adjacent to the public road at an elevation approximately 2 meters below the road				
Additional Comments:	---				

WELL INFORMATION					
Monitoring Point Type:	BH	Abstraction Rate (m³/d):	75	Ground Elevation (m OD):	68
Borehole Log Available:	---	Total Drilled Depth (m bgl):	14	Depth to Bedrock (m bgl):	---
Top of Casing (m agl):	---	Upper Casing Diameter (mm):	380	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:	Assumed not to be grouted.		
Specific Capacity (m³/d/m):	34				
Static Water Level (m bgl):	1.1				
Scheme Name:	Crookstown	Number of Abstraction Points in the Scheme:	2	Source Report Available	Y
Source Report Info:	Report prepared by OCM/TOBIN/CDM 2010				
Scheme Summary:	The Crookstown Water Supply comprises two boreholes, Pounds Cross to the north of Crookstown and Bellmount to the southeast. Both are in use full time.				

HYDROGEOLOGY								
GEOLOGY	Soil:	Deep well drained mineral (AminDW)					Subsoil Permeability:	n/a
	Subsoil:	Tills (diamictos) (TDSs)						
	Bedrock:	Sand and Gravel						
HYDROGEOLOGY	Aquifer Category:	LI / Lg	Vulnerability at Monitoring site:	Extreme		Flow Regime:	Intergranular	
ZONE OF CONTRIBUTION	Estimated ZOC Size (km <sup>2</sup> ):	0.1	ZOC Delineated By:	OCM		Recharge Estimate (mm/yr):	278	
	ZOC Delineation Comments:	O'Callaghan Moran and Associates (OCM) delineated a ZOC based mainly on abstraction (100%), recharge, topography and the extent of gravels for the 2009 Source Protection report. See the source report for details. An abstraction rate greater than current rate is probably unsustainable.						
Groundwater Vulnerability within ZOC (% area):	Extreme (X)	Extreme (E)	High	Moderate	Low	High to Low	Unclassified	
	57.2	31.11	11.69	0	0	0	0	
HYDROCHEMISTRY								
Hydrochemical Signature:	Ca-HCO <sub>3</sub>		Additional Water Chemistry Information:	---				
Alkalinity (mg/l HCO <sub>3</sub> ):	Average:	Range:		---				
	---	---						
Hardness (mg/l CaCO <sub>3</sub> ):	Average:	Range:		---				
	---	---						
Conductivity (uS/cm):	Average:	Range:		---				
	---	---						
Monitoring Record Period:	From:	To:	---					
	---	---						
RISK ASSESSMENT								
Pressure (e.g., Nitrates, Phosphates, Abstractions):	---		Typical Contaminants:	---				
Risk Category:	At risk, high confidence		GWB Status:	Good				
Impact Potential within ZOC (% area):	Extreme:	High:	Moderate:	Low:	Negligible:			
	0.00	18.26	0.00	0.00	81.74			
OTHER INFORMATION								
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Well Head

## 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.

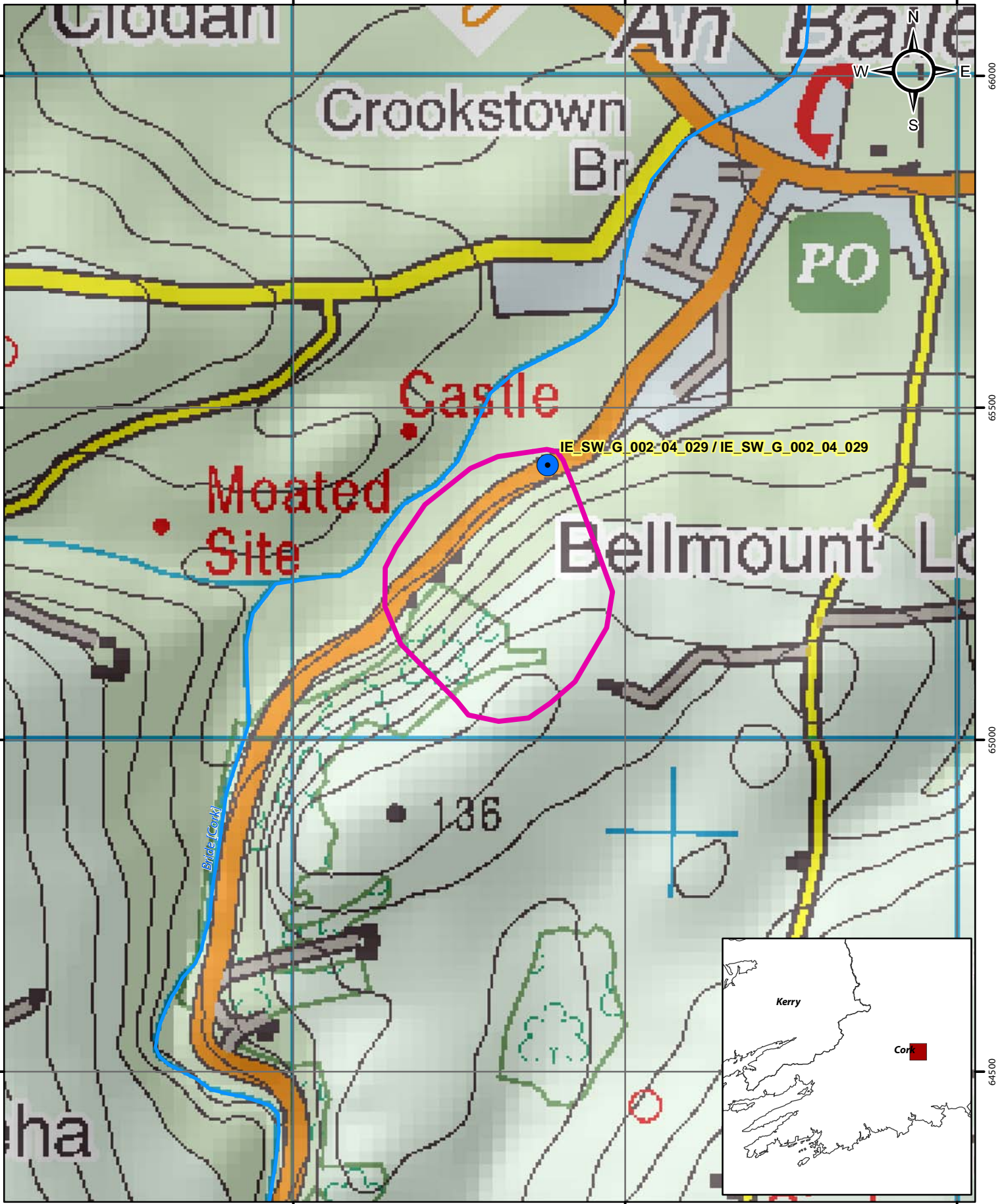
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Version 1:	Prepared by	OCM (DC)	Date:	Feb 2011
Version 2:	Prepared by		Date:	
Version 3:	Prepared by		Date:	
Version 4:	Prepared by		Date:	






142000

142500

143000



## Location Map for Bellmount

-  Abstractions
-  River
-  Zone of Contribution

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0

0.25

0.5

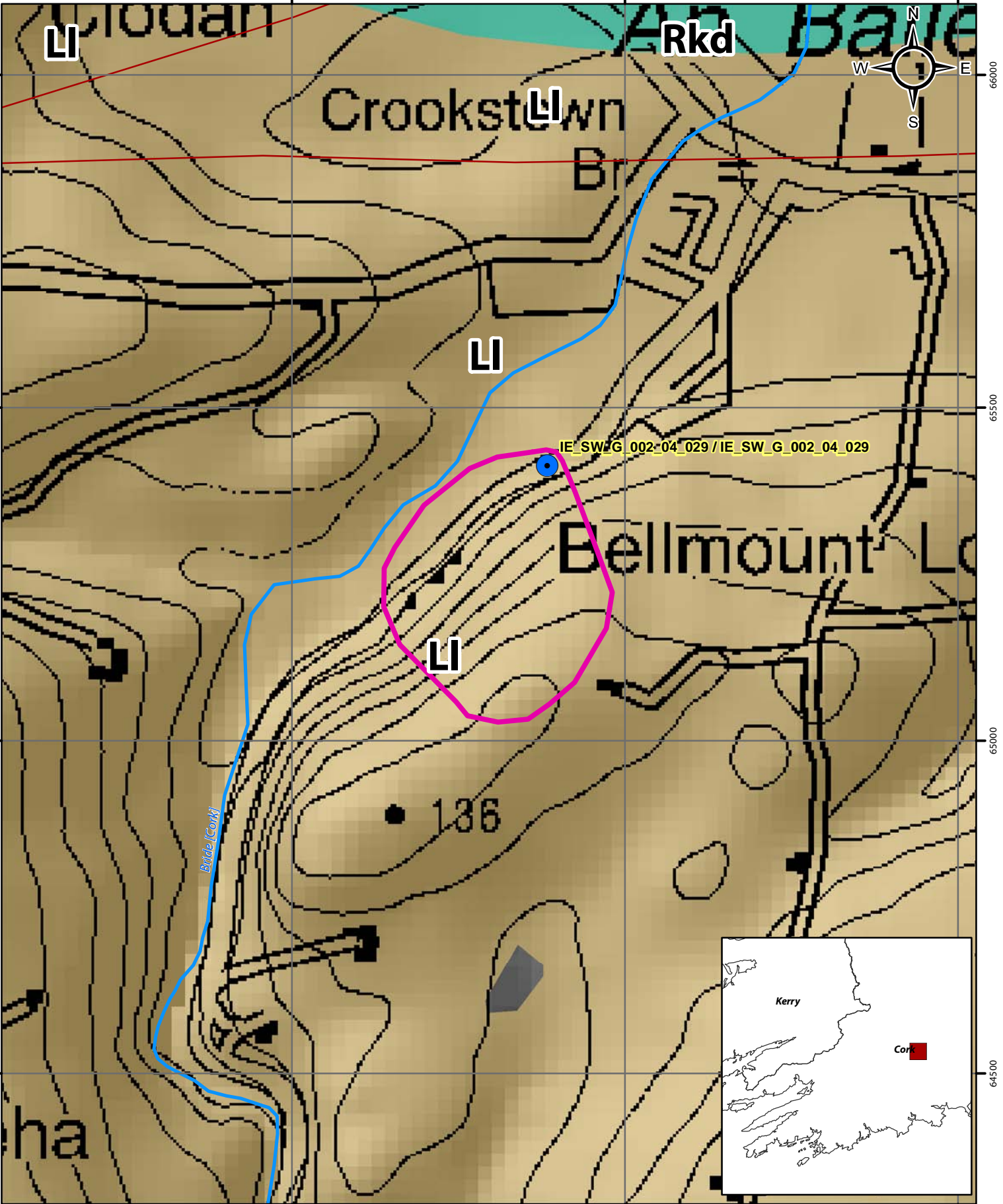
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km

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# Aquifer Category Map for Bellmount

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

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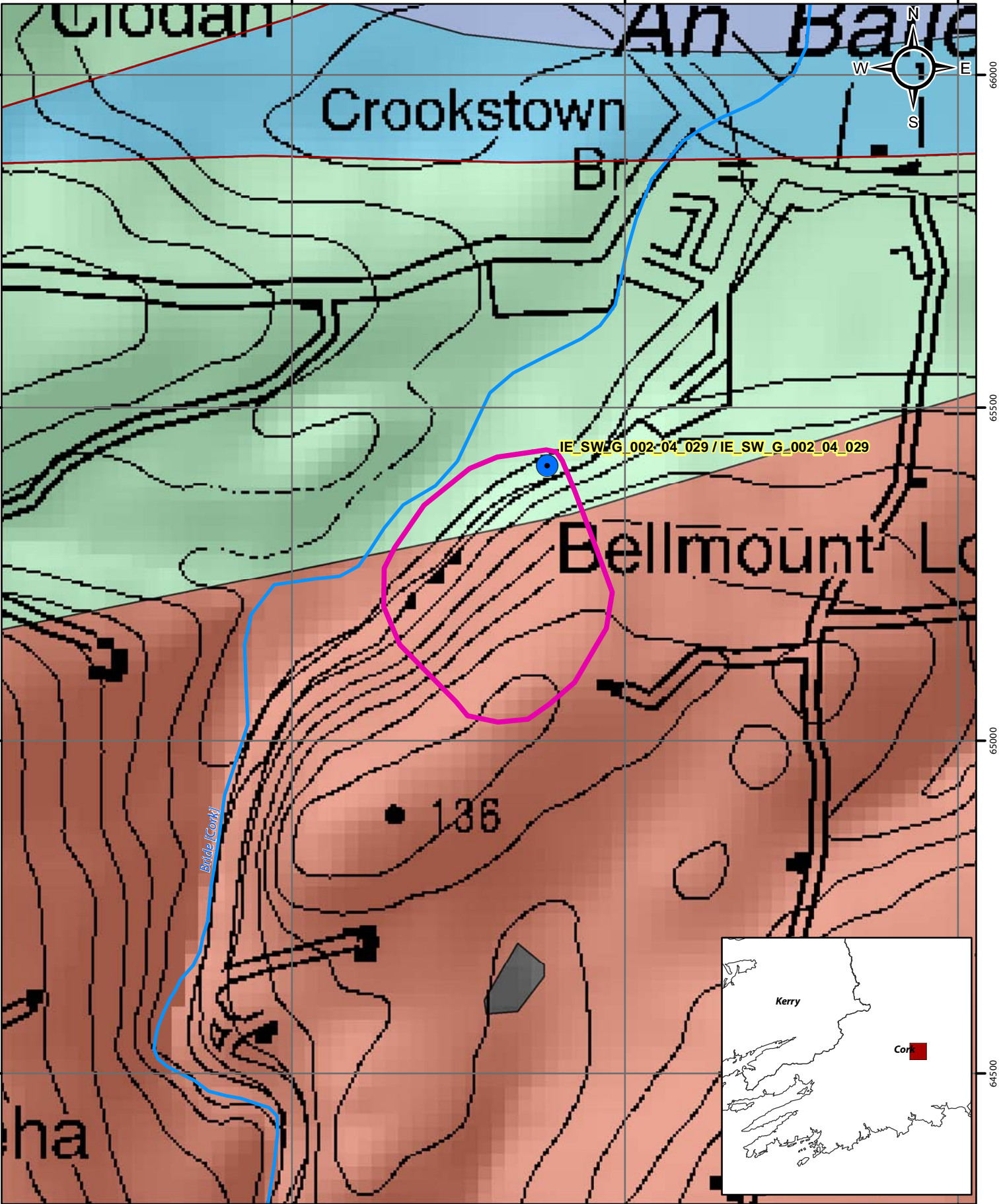
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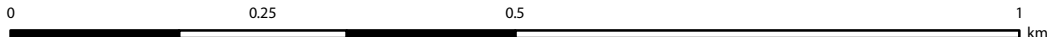
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# Bedrock Map for Bellmount

-  Abstractions
-  Fault
-  Dinantian Mudstones and Sandstones (Cork Group)
-  River
-  Devonian Old Red Sandstones
-  Dinantian Pure Unbedded Limestones
-  Zone of Contribution
-  Dinantian Lower Impure Limestones

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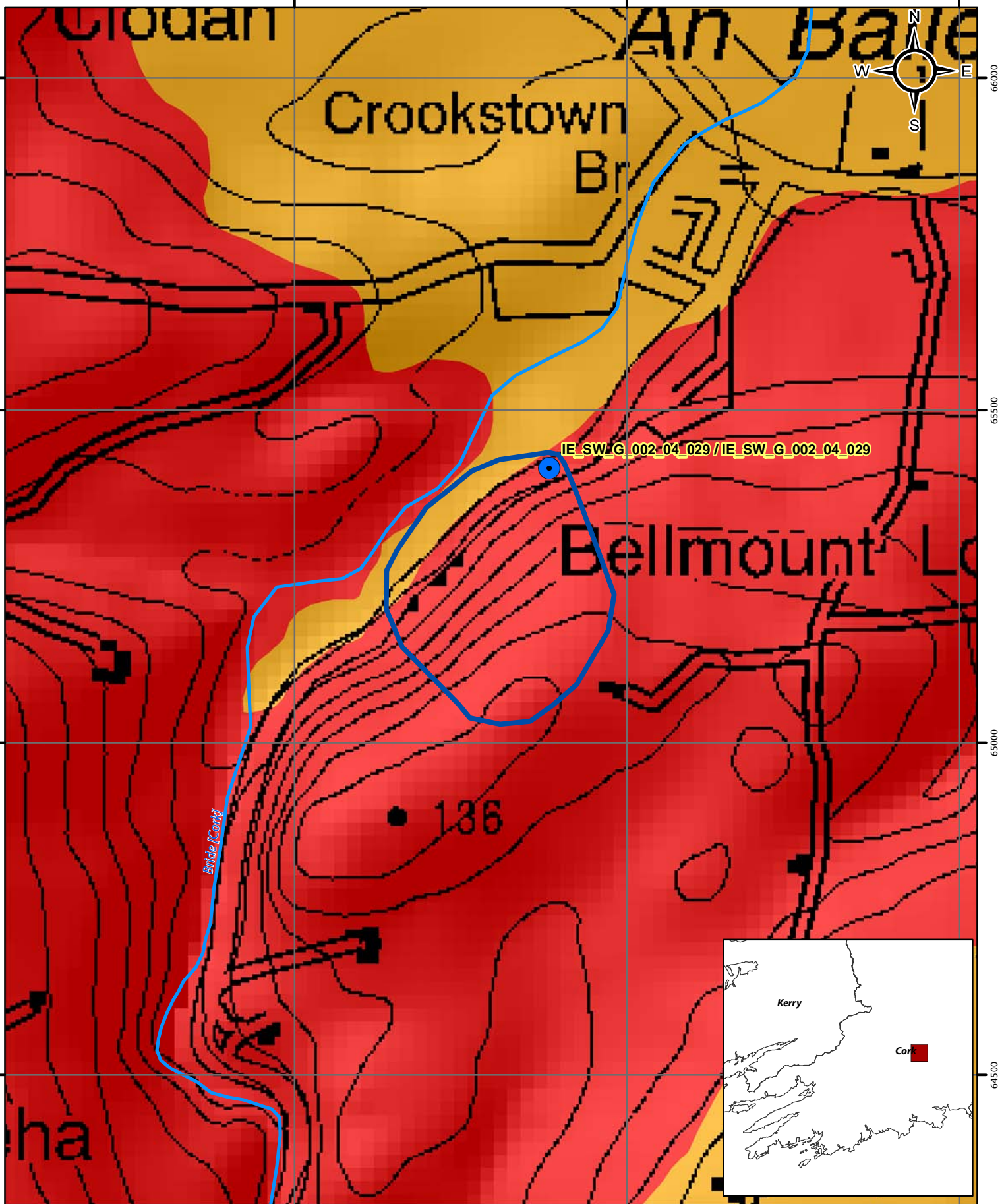




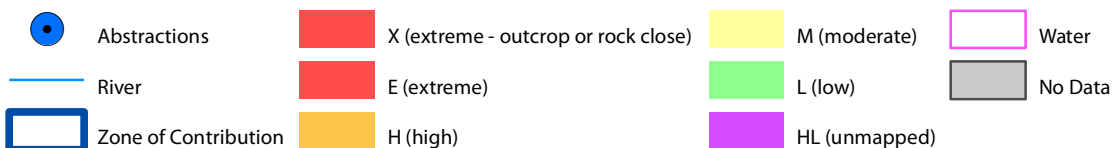
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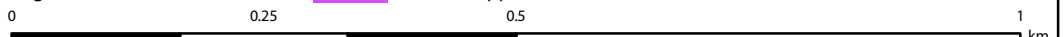
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## Groundwater Vulnerability Map for Bellmount



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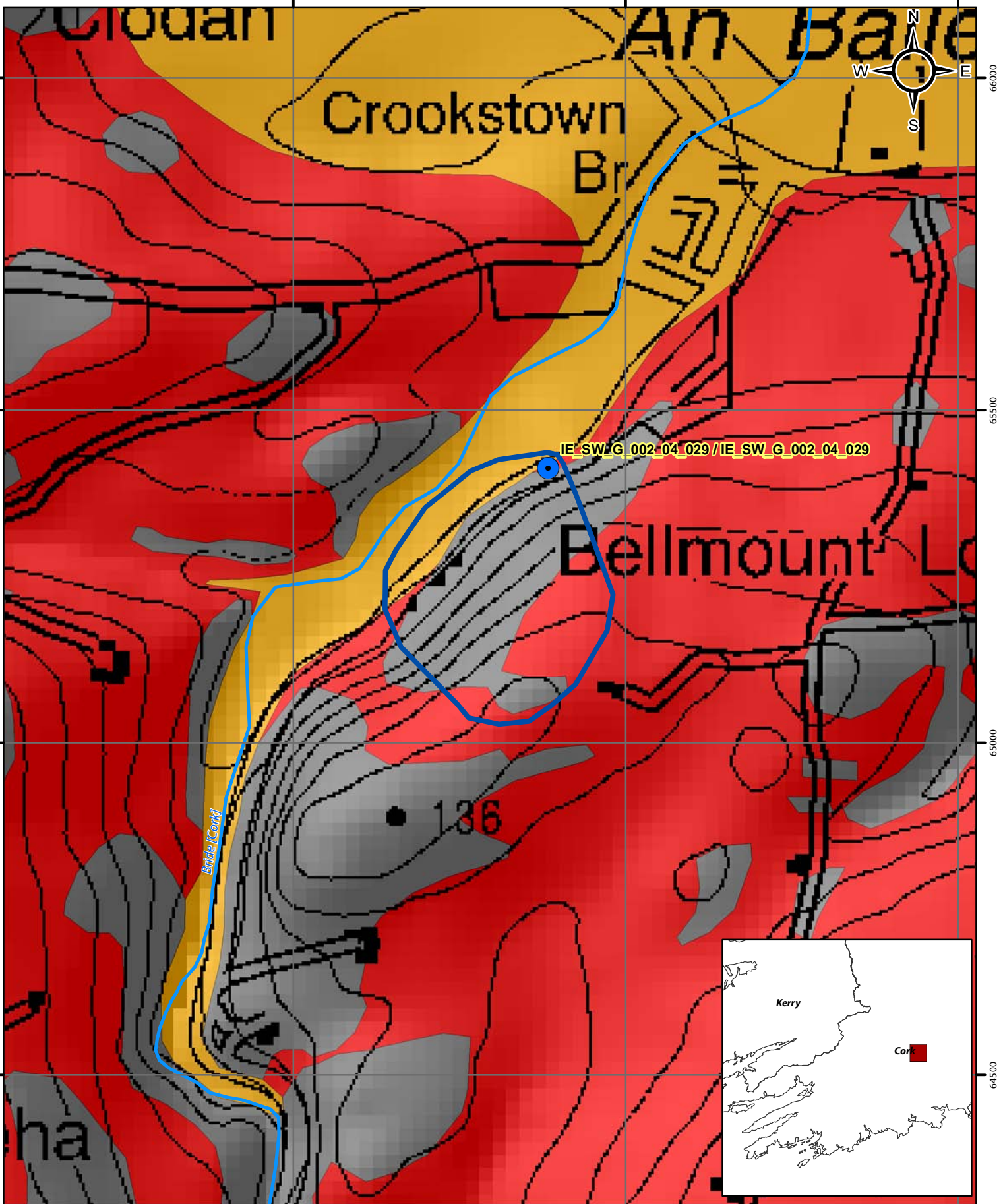




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## Subsoils Map for Bellmount

-  Abstractions
-  Alluvium
-  River
-  Bedrock outcrop or subcrop
-  Zone of Contribution
-  Till derived from Devonian sandstones

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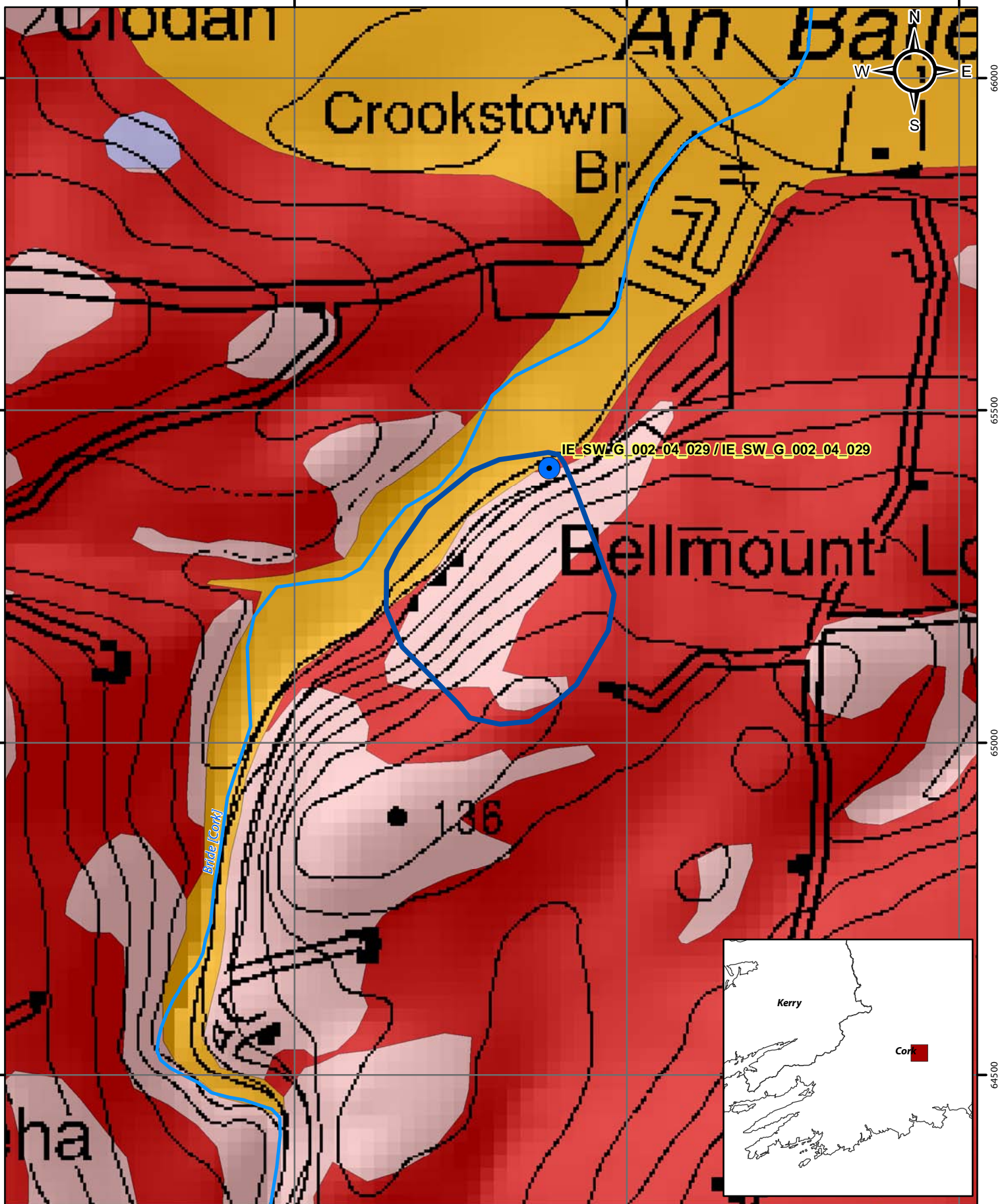
0 0.25 0.5 1 km



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## Soils Map for Bellmount

- Abstractions
- Acid Deep Well Drained Mineral
- Basic Shallow Well Drained Mineral
- Acid Shallow Well Drained Mineral
- Mineral Alluvium
- River
- Zone of Contribution

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0

0.25

0.5

1

km