

ATTACHMENT I4 – ASSESSMENT OF GROUND / GROUNDWATER IMPACT

The bedrocks underlying the application site at Calary Quarry generally have very low permeability and are categorised as Poor Aquifers (PI) by the Geological Survey of Ireland. These are bedrocks which are generally unproductive except in local (fractured) zones. Maps published by the EPA indicate that the site is located in an area with high to extreme groundwater vulnerability status. This reflects the potential for rapid groundwater movement through thin (or non-existent) soil cover into the underlying (poor) bedrock aquifer.

Previous sampling and testing of groundwater from monitoring wells at Calary Quarry indicates that groundwater quality at the application site is generally good and that former quarry operations had no significant impact on local groundwater quality.

There will be no emissions to public (Local Authority) sewers associated with the operation of the proposed waste recovery facility. There is an existing sewage / wastewater system (septic tank) and associated effluent treatment facility at the application site, located to the south-east of the proposed site offices. This system was authorised by a previous (2006) planning application and treated wastewater from staff welfare facilities when the site was operated as a quarry.

As part of the proposed development, it is envisaged that the existing wastewater treatment system will be brought back into service for the duration of the proposed soil waste recovery activities and that all sinks and toilets at the facility will be plumbed and connected directly to the septic tank and associated effluent treatment facility.

Potential impacts of backfilling and restoring the former quarry using inert materials have been assessed and it is considered that in the absence of mitigation measures, the development could have the potential to negatively impact ground and/or groundwater quality, particularly if contaminated soils were placed at the site or fuel or chemical spillages occurred.

It is therefore proposed that, as part of the proposed development, a number of mitigation measures will be incorporated into the proposed restoration and backfilling scheme to protect groundwater quality, including site management protocols in respect of plant refuelling and maintenance activities and soil waste acceptance and handling procedures.

The proposed backfilling of the quarry void is unlikely to have any adverse long term impact on the local groundwater flow regime; it will not create any barrier to groundwater flow, nor will it reduce groundwater recharge nor lead to a reduction in groundwater levels at off-site supply wells.

Details of the existing (baseline) groundwater environment and the impact of the proposed waste recovery facility and associated emissions thereon are provided in Chapter 6 of the Environmental Impact Statement which accompanies this waste licence application.

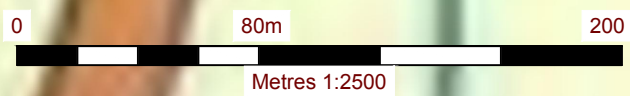
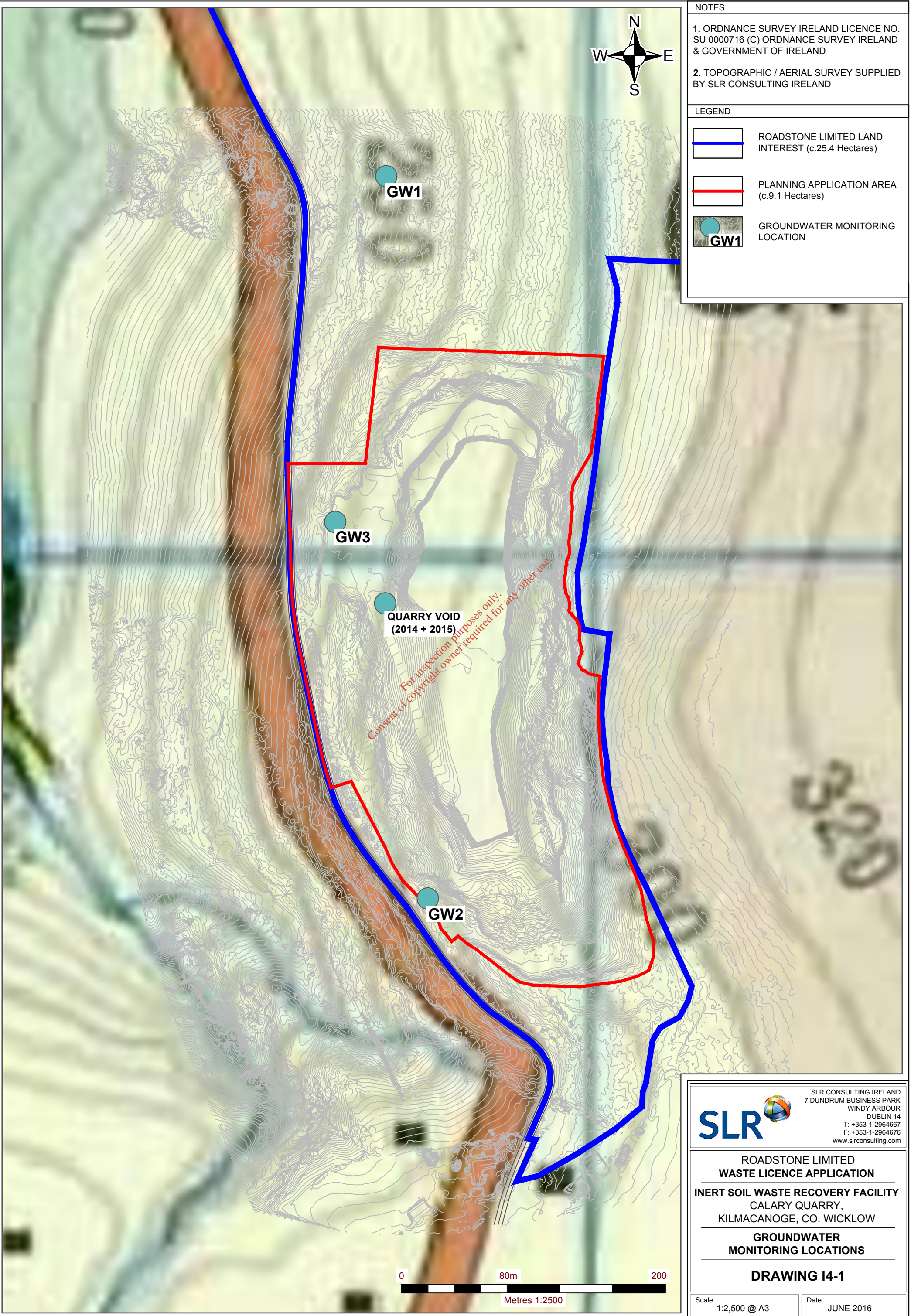


NOTES

- 1. ORDNANCE SURVEY IRELAND LICENCE NO. SU 000716 (C) ORDNANCE SURVEY IRELAND & GOVERNMENT OF IRELAND
- 2. TOPOGRAPHIC / AERIAL SURVEY SUPPLIED BY SLR CONSULTING IRELAND

LEGEND

- ROADSTONE LIMITED LAND INTEREST (c.25.4 Hectares)
- PLANNING APPLICATION AREA (c.9.1 Hectares)
- GROUNDWATER MONITORING LOCATION



00180.00109.0.14-1.GW Monitoring Locations - Copy.dwg



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**ROADSTONE LIMITED
 WASTE LICENCE APPLICATION**

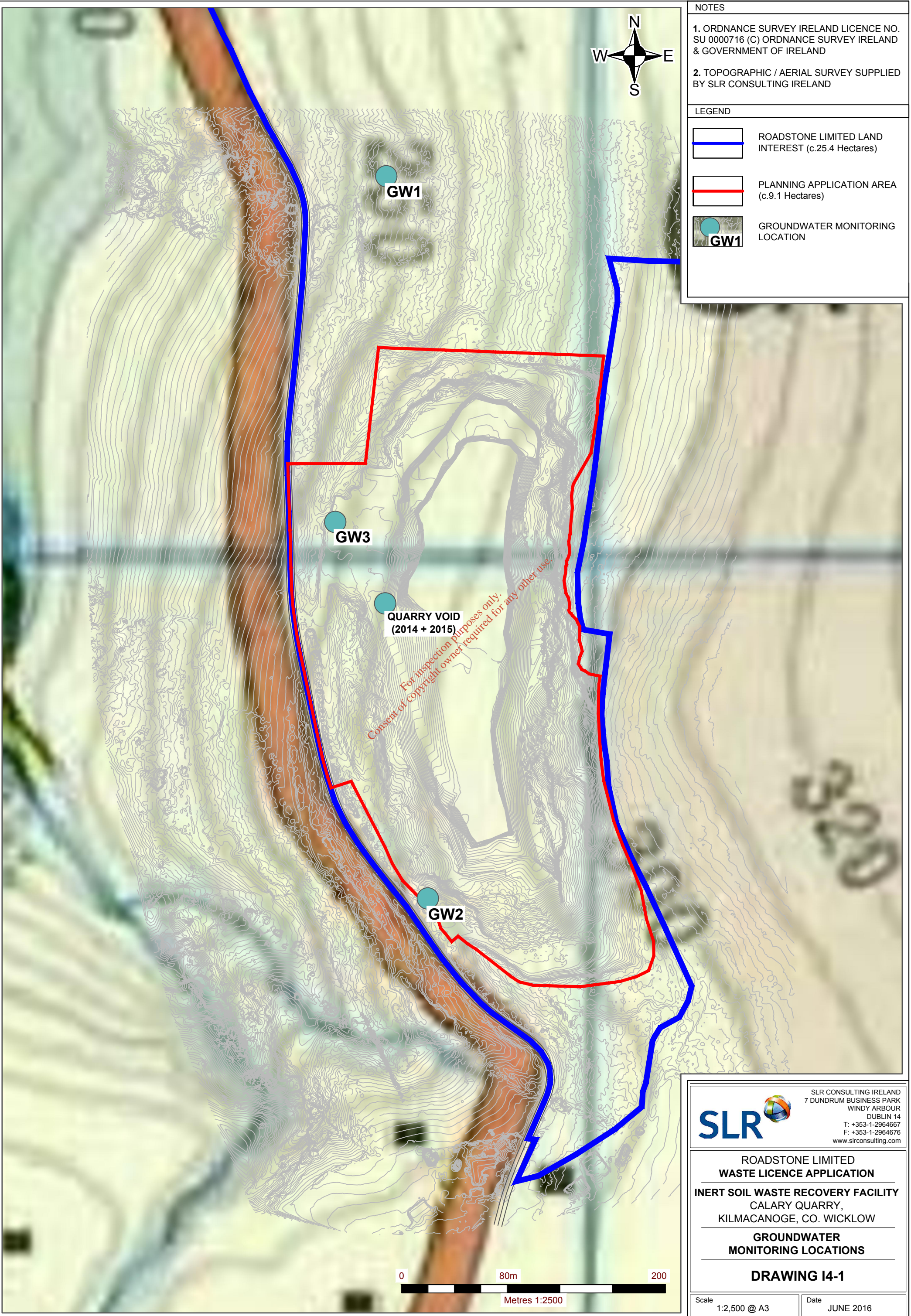
**INERT SOIL WASTE RECOVERY FACILITY
 CALARY QUARRY,
 KILMACANOGE, CO. WICKLOW**

**GROUNDWATER
 MONITORING LOCATIONS**

DRAWING I4-1

Scale 1:2,500 @ A3

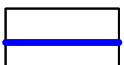


Date JUNE 2016



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	ROADSTONE LIMITED WASTE LICENCE APPLICATION
INERT SOIL WASTE RECOVERY FACILITY CALARY QUARRY, KILMACANOGE, CO. WICKLOW	
GROUNDWATER MONITORING LOCATIONS	
DRAWING I4-1	
Scale 1:2,500 @ A3	Date JUNE 2016

ATTACHMENT I4 : GROUNDWATER QUALITY DATA

The results of historical groundwater sample testing at monitoring wells at Calary Quarry are presented in Table I4-1 below.

**Table I4-1
Historical Groundwater Samples**

Parameter	October 2000		February 2005		Drinking Water Standard (SI 439 of 2000)
	GW1/BH3	GW2	GW2	GW3	
pH	7.20	8.20	8.07	7.98	6.5 – 9.5
Electrical Conductivity (mS/cm)	0.244	0.292	0.352	0.316	2.5
Total Hardness (mg/l)	79	112	162	120	-
Total Alkalinity (mg/l)	120	130	110	100	-
Calcium (mg/l)	15.61	17.31	21.73	20.14	-
Magnesium (mg/l)	7.33	11.29	12.37	10.93	-
Sodium (mg/l)	14.5	18	17	13.5	200
Potassium (mg/l)	0.9	0.8	0.8	1.6	-
Chloride (mg/l)	26	39	36	11	250
Sulphate (mg/l)	8	16	10	14	250
Nitrates – as NO ₃ (mg/l)	17	15.9	22.4	24.3	50
Ammonium as NH ₄ -N (mg/l)	0.9	0.8	<0.2	<0.2	0.3
Manganese (mg/l)	<0.05	<0.05	<0.05	<0.05	0.05
Iron (mg/l)	<0.05	<0.05	<0.05	<0.05	0.2