Appendix 4a Noise and Vibration Report by AWN Consulting

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N11/N25 OILGATE TO BALLYGERRY ROAD SCHEME

CONSTRAINTS STUDY

Technical Report Prepared For

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Technical Report Prepared By

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Our Reference

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EXECUTIVE SUMMARY

This document presents the constraints study into the proposed road scheme to realign the N11 at Oilgate, Co. Wexford and the N25 at Ballygerry, Rosslare, Co. Wexford. A detailed inspection of OS mapping and aerial photography of the study area has identified noise-sensitive receptors in the vicinity of existing major and minor roads and several clusters around small villages within the study area.

The noise impact of a particular route choice on any of these noise-sensitive locations will depend on several factors. These include the traffic flow, speed and composition on the new route, the distance between the route and the noise-sensitive locations and the ground topography of the area.

No significant constraints were identified in respect to noise other than clusters of dwellings located in towns, villages and townlands within the study area. Routes passing through areas with the least number of properties, particularly within 50m of the road will have the least noise impact. Identification of the areas with the most number of noise sensitive receptors have been indentified in this report.

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1.0 INTRODUCTION

It is proposed to construct a new road in order to realign the existing N11 at Oilgate, and the N25 at Ballygerry, Rosslare in Co. Wexford. The purpose of this constraints study is to identify significant noise-sensitive receptors that have the potential to constrain the location of any proposed routes for the new road scheme. The following items are the principle focus of the study:

- identification of existing noise-sensitive receptors;
- identification of any existing noise sources in the area;
- a qualitative description of the existing noise climate, and
- discussion of opportunities for mitigation.

This report has been prepared in accordance with the NRA document *Guidelines for the Treatment of Noise and Vibration in National Road Schemes, Revision 1, 25 October 2004*. The process of identifying noise sensitive receptors is based on visual inspection and there is the possibility that individual receptors, for example schools or churches, may not have been identified. New developments not yet incorporated in existing OS maps will not have been identified.

The study area stretches from *c.* 3km north of Oilgate; to *c.* 1km east of Taghmon; to the outskirts of Wexford Town; to Rosslare.

2.0 EXISTING ENVIRONMENT

Aerial photography and OS Mapping supplied by Mott MacDonald Pettit have been used to identify noise-sensitive receptors in the area. The prevailing noise environment characterisation is based on site inspections and detailed inspection of aerial photography and OS Mapping.

2.1 Noise-Sensitive Receptors within the Area

The majority of the noise-sensitive receptors in the study area are one and two-storey private dwellings. The majority of theses dwellings are concentrated in clusters along roads in the vicinity of the towns and villages of Oilgate, Ballyhoge, Cornwall, Glynn, Crossabeg, Barntown, Murntown, Piercetown, Cleristown, KIllinick, Tagoat and Kilrane. There are also concentrations of houses along the local roads in the surrounding townlands. This is particularly the case in the area between Murntown and Barntown. This area would be considered the hinterland of Wexford Town and the dwellings are spread relatively densely over a large area, and not clustered around towns.

There are graveyards and churches located in or near Oilgate, Ballyhoge, Crossabeg, Killurin, Glynn, Barntown, Murntown, Ballyshelin, Piercetown, Redmonstown, Cleristown, KIllinick, Tagoat and Kilrane. There are numerous other historical churches or graveyards within they study area that are not considered noise sensitive.

There are schools located in or near Oilgate, Ballyhoge, Crossabeg, Glynn, Barntown, Murntown, Piercetown, Tagoat and Kilrane.

Figures 1(a) to 1(p) at the rear of this document highlight the main towns within the study area and identified churches and schools. Figure 2 illustrates the approximate locations of the Figures 1 in relation to the overall constraints area.

2.2 Prevailing Noise Environment

In general the dominant contributor to the prevailing noise environment in the study area is road traffic noise from the existing national and regional roads (N11, N25, R736, R740, R739, R733, R738, R730). However, many of the noise-sensitive receptors are located some distance from these roads where the noise climate would be considered typical of a rural environment with noise sources such as birdsong, leaf rustle, occasional local vehicles movements and occasional use of agricultural machinery being the main noise contributors.

Within the vicinity of the various towns and villages the noise environment would be expected to be typical of an urban or semi-urban environment with road traffic noise and some contribution from commercial premises.

Also located with the study area is the Rosslare to Dublin and Rosslare to Cork railway lines. These lines would contribute to the prevailing noise environment for noise-sensitive locations in their vicinity.

3.0 POTENTIAL IMPACT OF THE SCHEME

Levels of noise generated by the proposed scheme will largely depend on the volume of traffic flow and the speed at which the traffic travels. The degree of impact on each receptor will be affected by the distance from the road and the 'aspect' onto the road from each location, i.e. how much of the road can be 'seen'. Requirements for mitigation will be assessed using the criteria as set down in the NRA document *"Guidelines for the Treatment of Noise and Vibration in National Road Schemes (2004)".*

Mitigation in respect of noise will be required when the scheme passes close to noise-sensitive receptors. However, the elevation of the road with respect to the receptor must also be considered as noise from elevated sections of the scheme will propagate further than noise from those sections located in a cutting.

Mitigation measures will typically consist of one or a combination of the following measures:

- consider locating the route away from sensitive receptors in order to avoid the need for further mitigation measures.
- contain the road in a cutting, where practicable, to provide acoustic and visual screening.
- where acoustic screening is required consideration should be given to the use of natural materials such as earth mounds/berms with appropriate levels of planting.
- where mounds/berms and not possible consideration should be given to the use of proprietary noise barriers. In certain circumstances it may be required to upgrade the barrier to an absorptive noise barrier.
- the use of low-noise pavements should also be considered where appropriate as a viable mitigation option.

Further details regarding these mitigation options are discussed in the following sections.

3.1 Embankments and Bunds

Earth mounds and bunds are often used to screen infrastructural developments from noise sensitive locations. In appropriate locations earth mounds have a number of advantages over noise barriers. These include:

- natural appearance;
- lower cost if excess material is available from construction;
- may be less costly to maintain;
- usually have an unlimited lifespan.

Earth mounds do, however, require much greater space than a vertical barrier (e.g. timber).

3.2 Noise Barriers

Several different barrier types are supplied to the market. These range from timber barriers, typically the most frequently used barriers along roadsides in Ireland, to sheet metal, concrete/brick, plastic (PVC) and bio-barriers.

In terms of assessment it is envisaged that timber barriers will be specified. The extent and height of noise barriers will be defined as detailed alignments of the proposed scheme are assessed.

It should be noted that timber barriers can be used in combination with mounds/berms in order to develop an overall barrier of a required height (e.g. a 1.5m berm with a 1m timber barrier to give a mitigation measure with a 2.5m height).

3.3 Low Noise Surfaces

There is a wide range of products available on the market that are viable alternatives to hot rolled asphalt surfaces. A commonly used alternative in recent years has been porous asphalt. Other alternatives are available such as Stone Mastic Asphalt (SMA) and Very Thin Surface Layers (VTSL). A reduction of traffic noise levels of the order of 3-4 dB are readily available by the application of such surfaces to a development.

4.0 CONCLUSION

There are numerous noise-sensitive receptors that could constrain the route selection in terms of noise. The majority of these receptors are located in the vicinity of the existing national and regional roads and in the vicinity of towns and villages.

By selecting a route for the scheme in a more rural area that is set back from the existing routes and towns in the area, the majority of the noise-sensitive receptors can be avoided. Whilst the existing noise environment in these set back areas will be quieter, thus increasing the impact from any new road scheme, the number of sensitive receptors is greatly reduced and hence the extent of any mitigation required is likely to be lower.

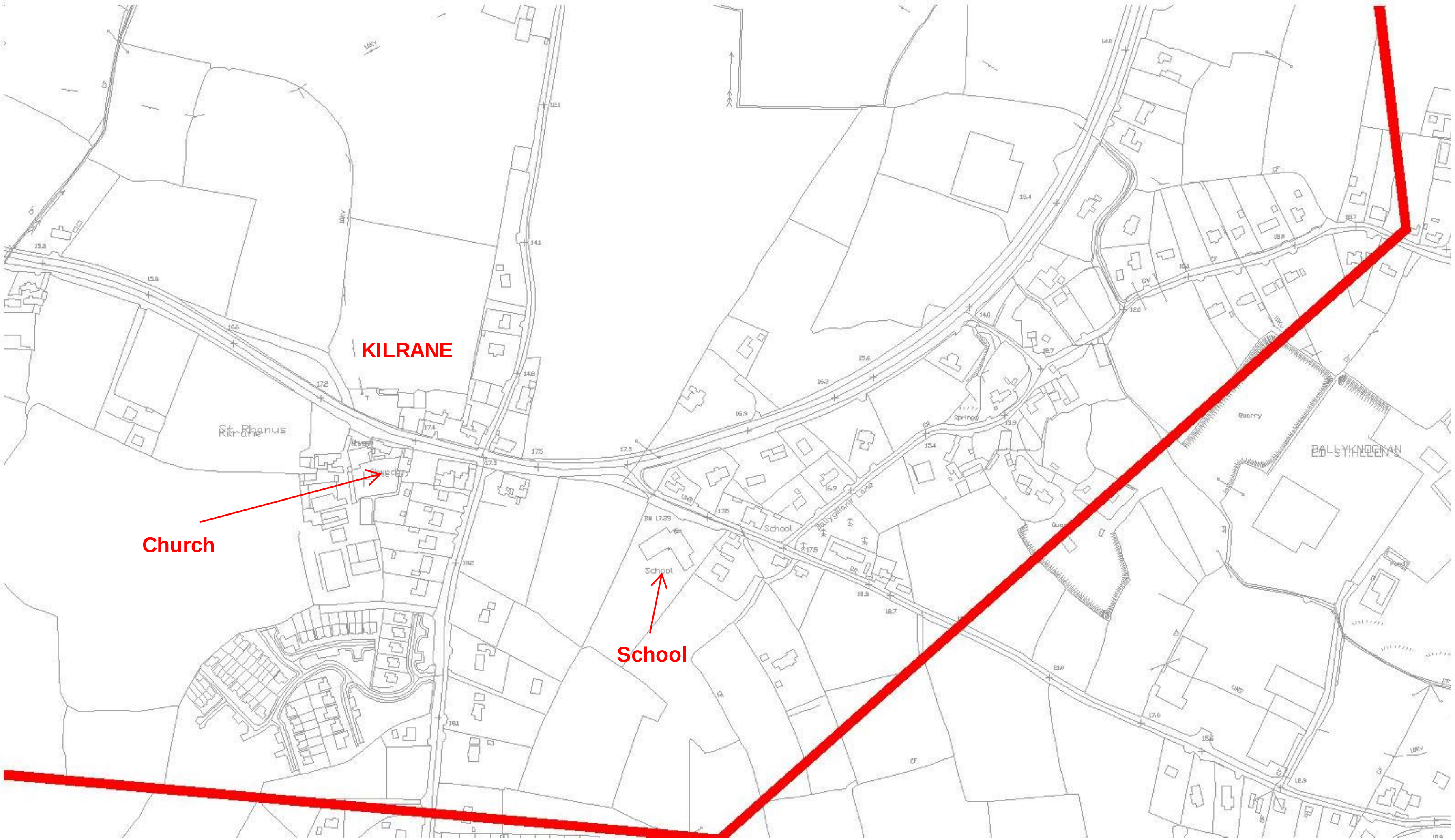

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Figure 1(a)

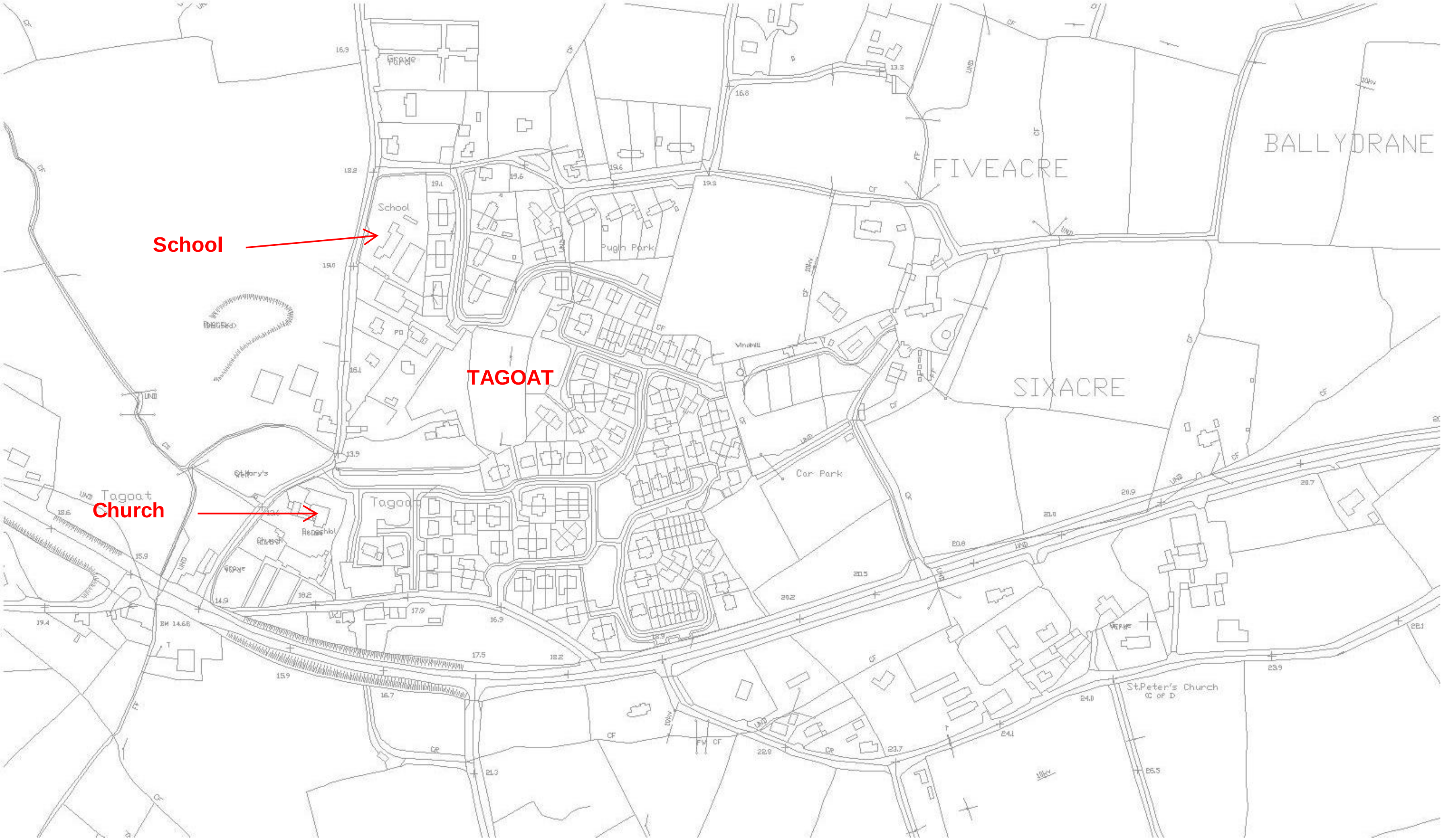

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Figure 1(b)

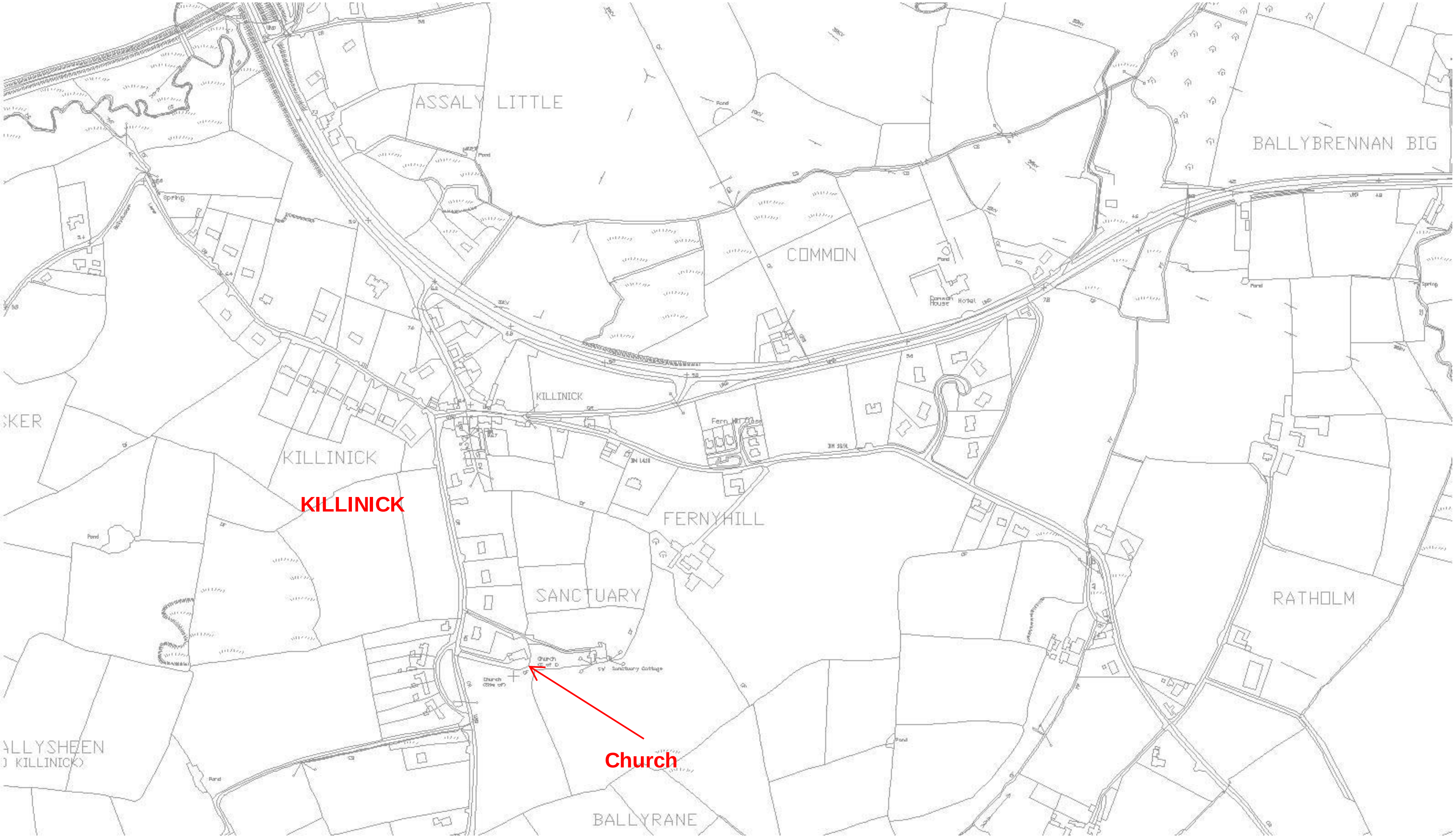

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Figure 1(c)

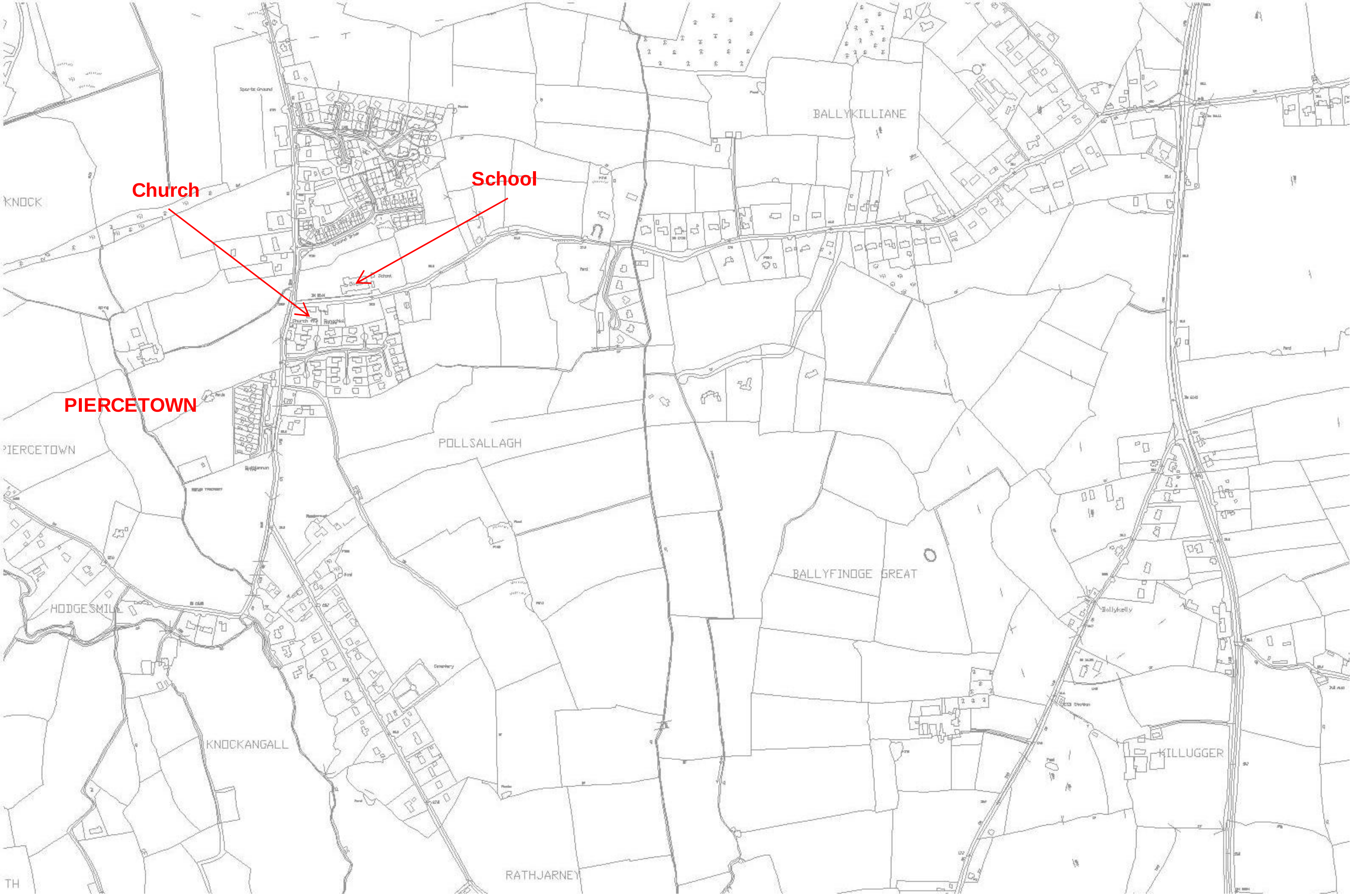

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Figure 1(d)

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Figure 1(e)

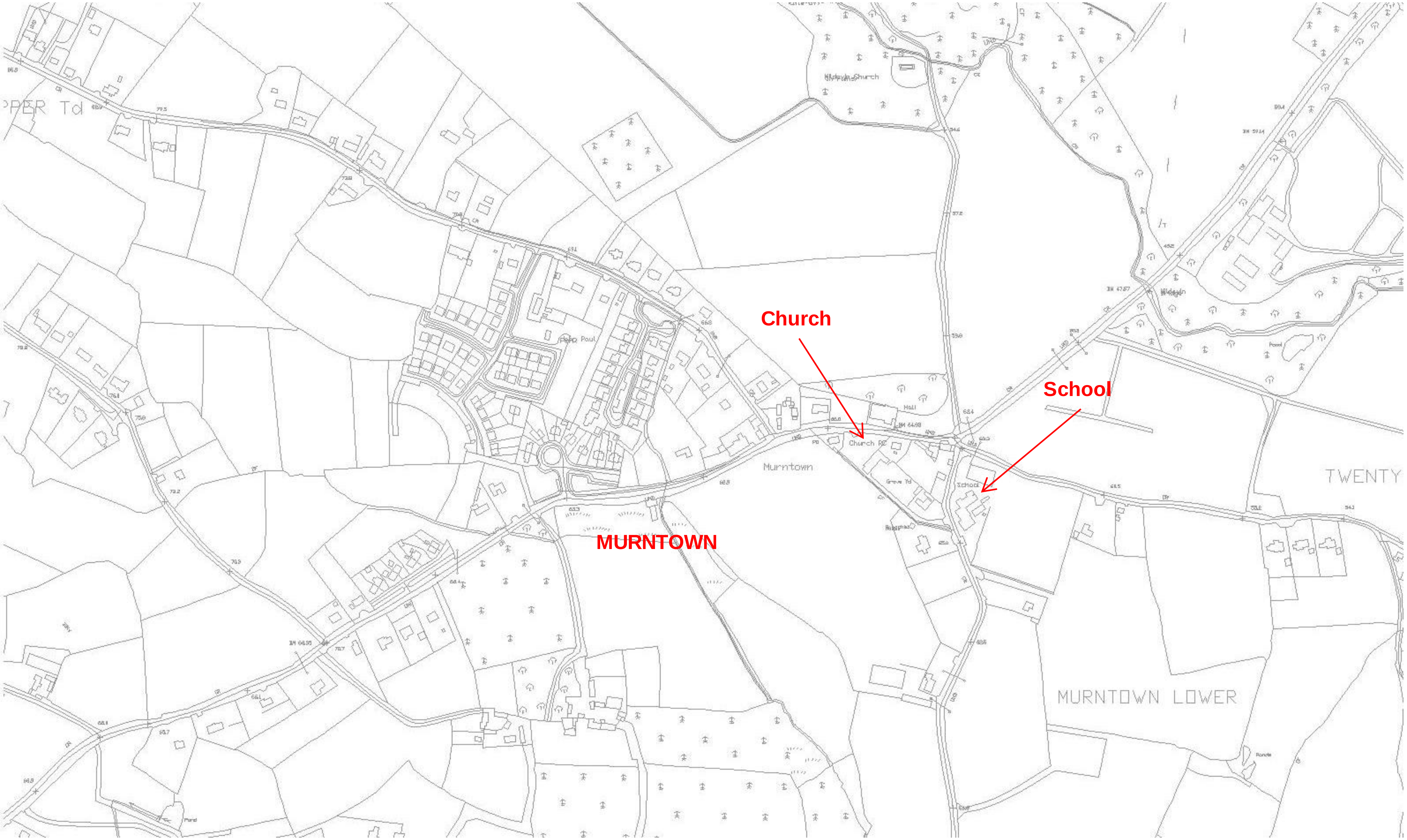

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Figure 1(f)

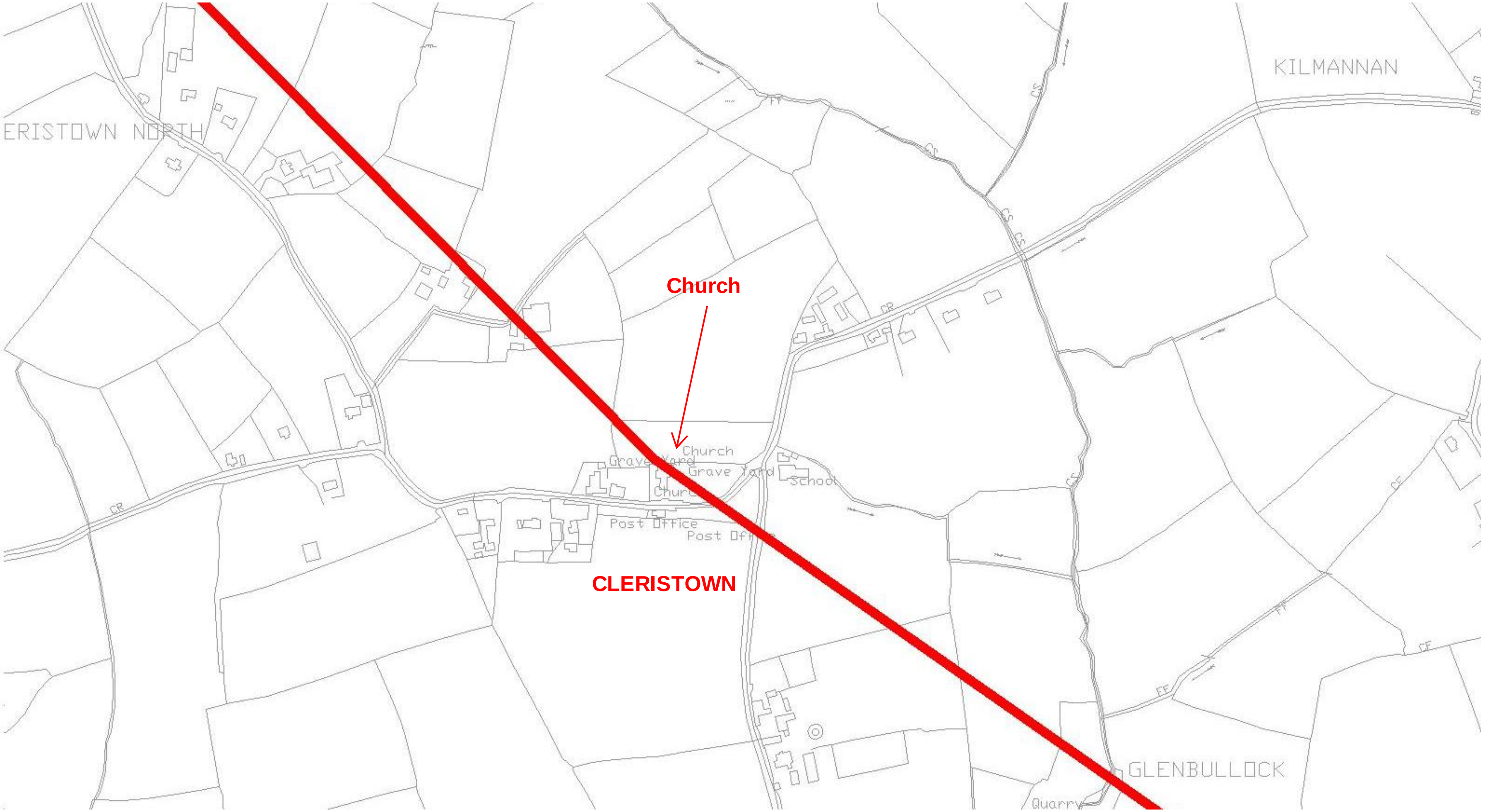

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Figure 1(g)

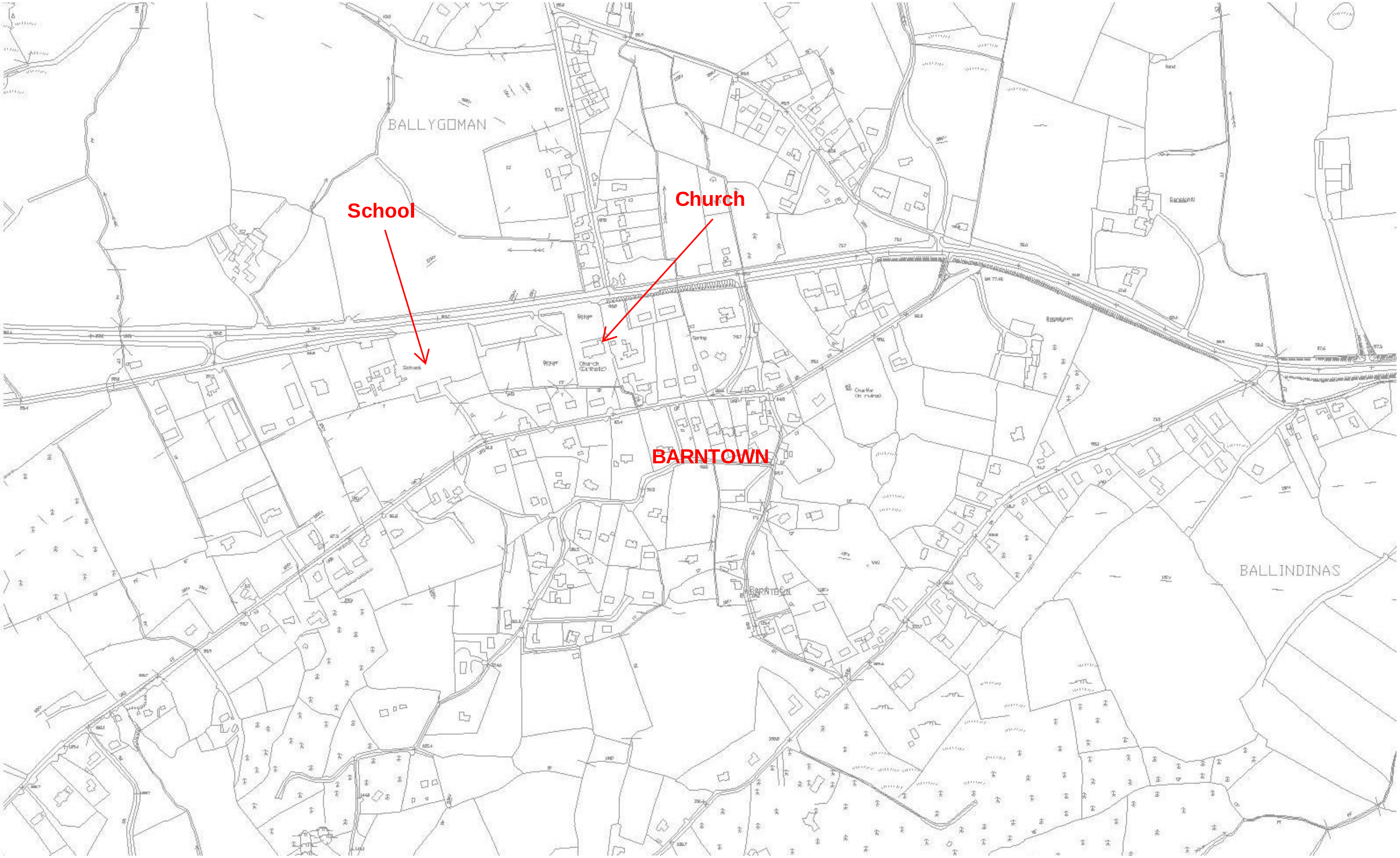

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Figure 1(h)

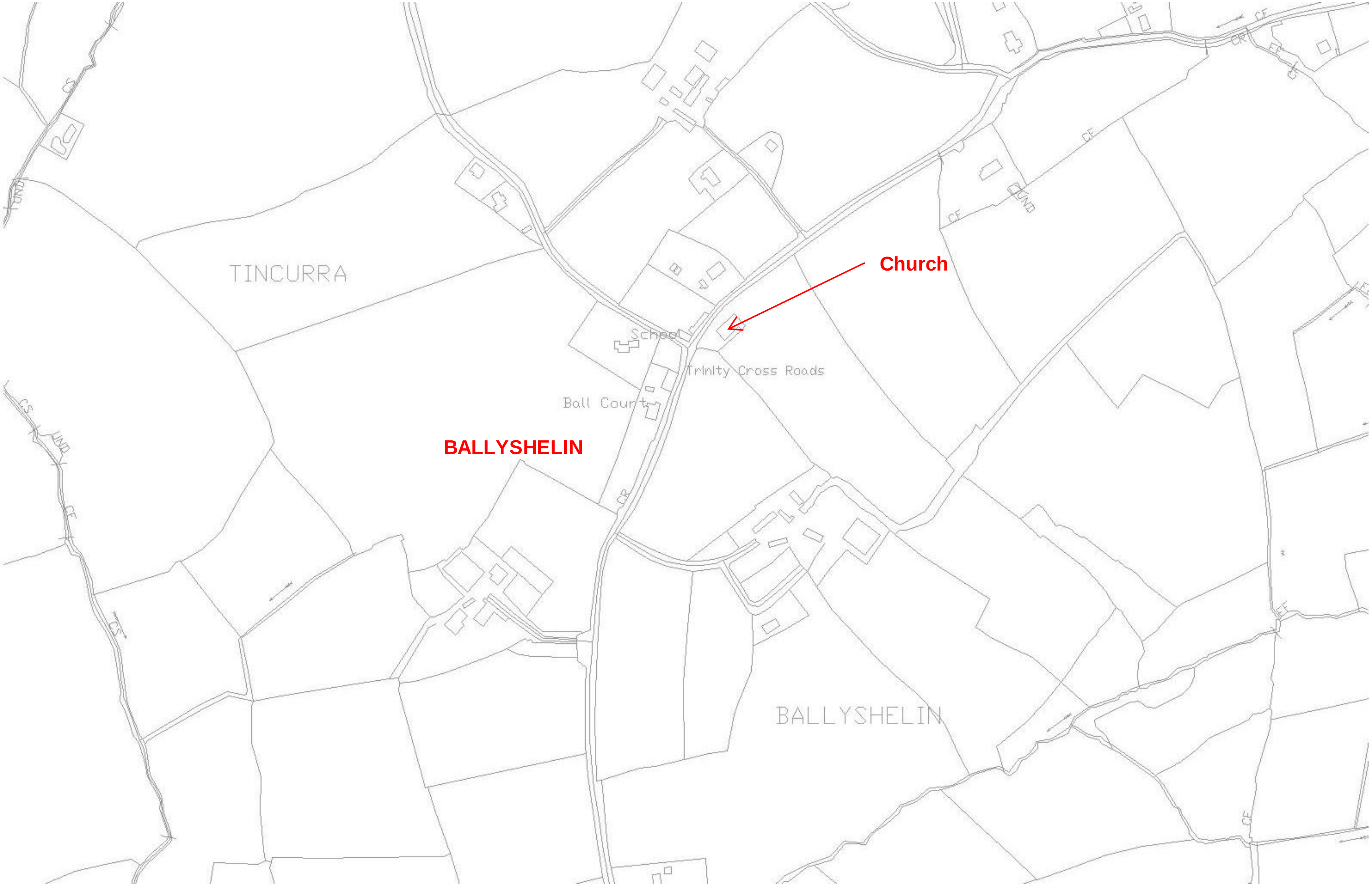

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Figure 1(i)

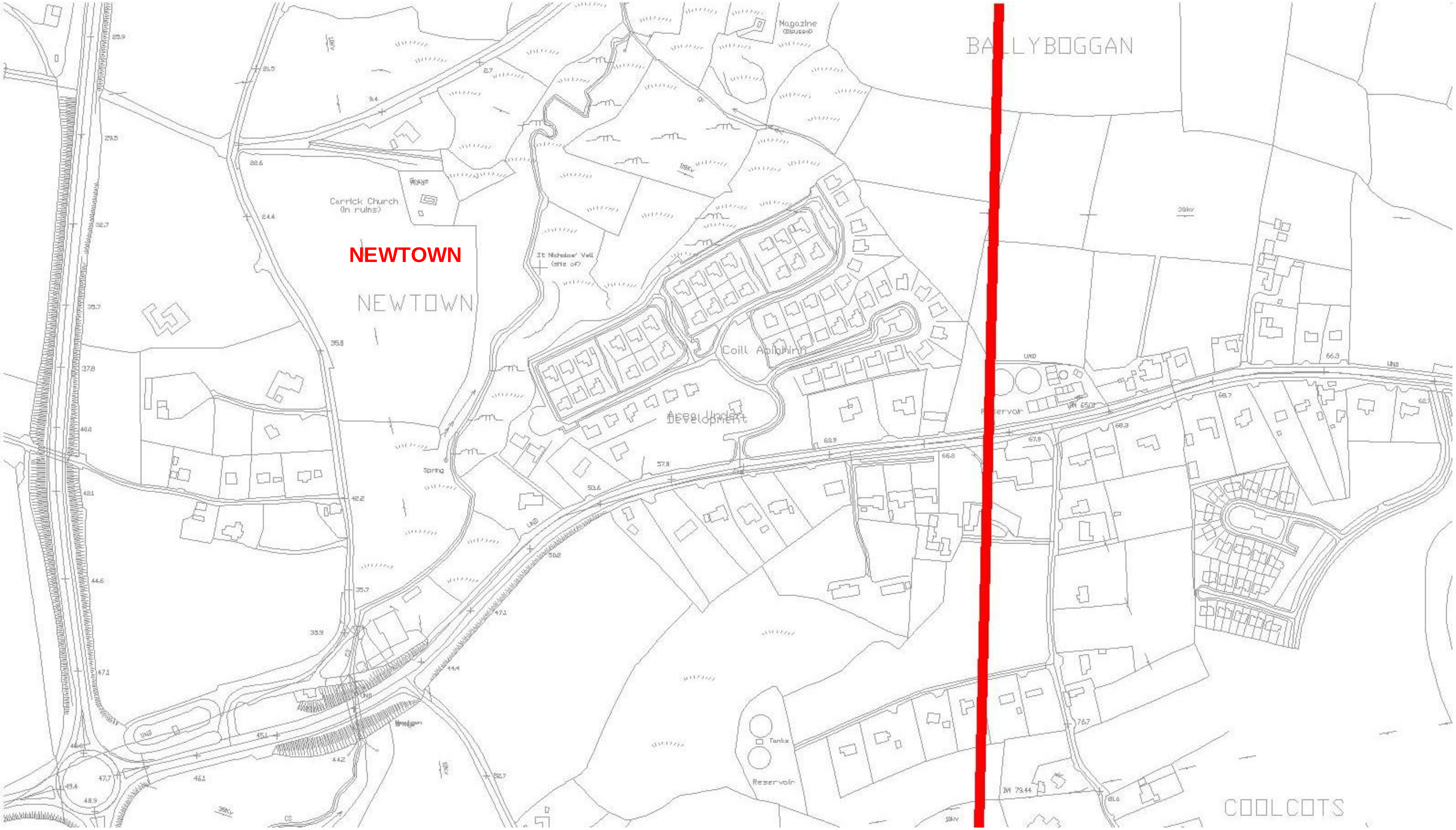

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Figure 1(j)

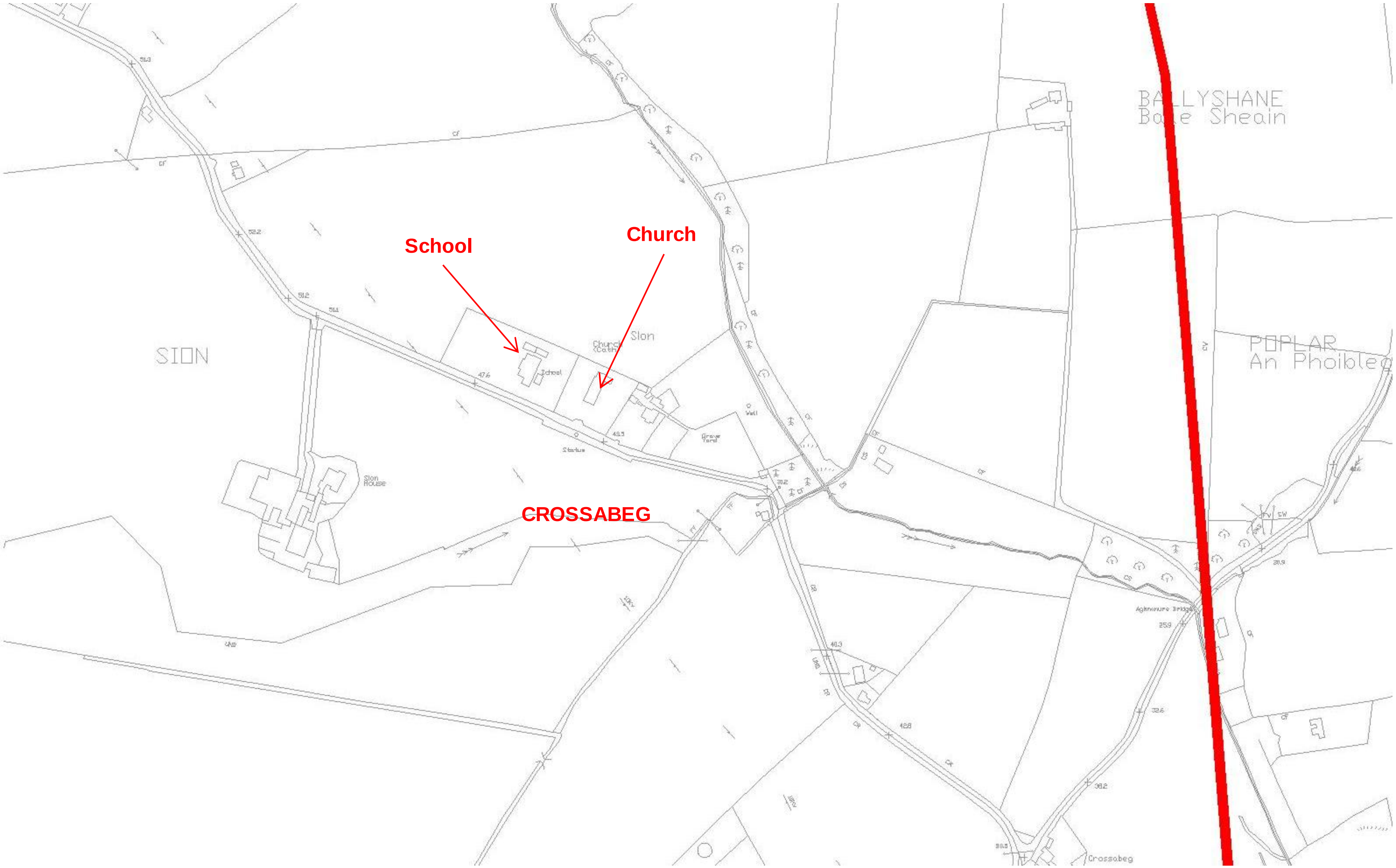
BALLYSHANE
Baile Sheain
POPLAR
An Phoible
SION
School
Church
CROSSABEG
Sion House
Church (Cath)
Sion
Crossabeg
Aghnenure Bridge

Figure 1(k)

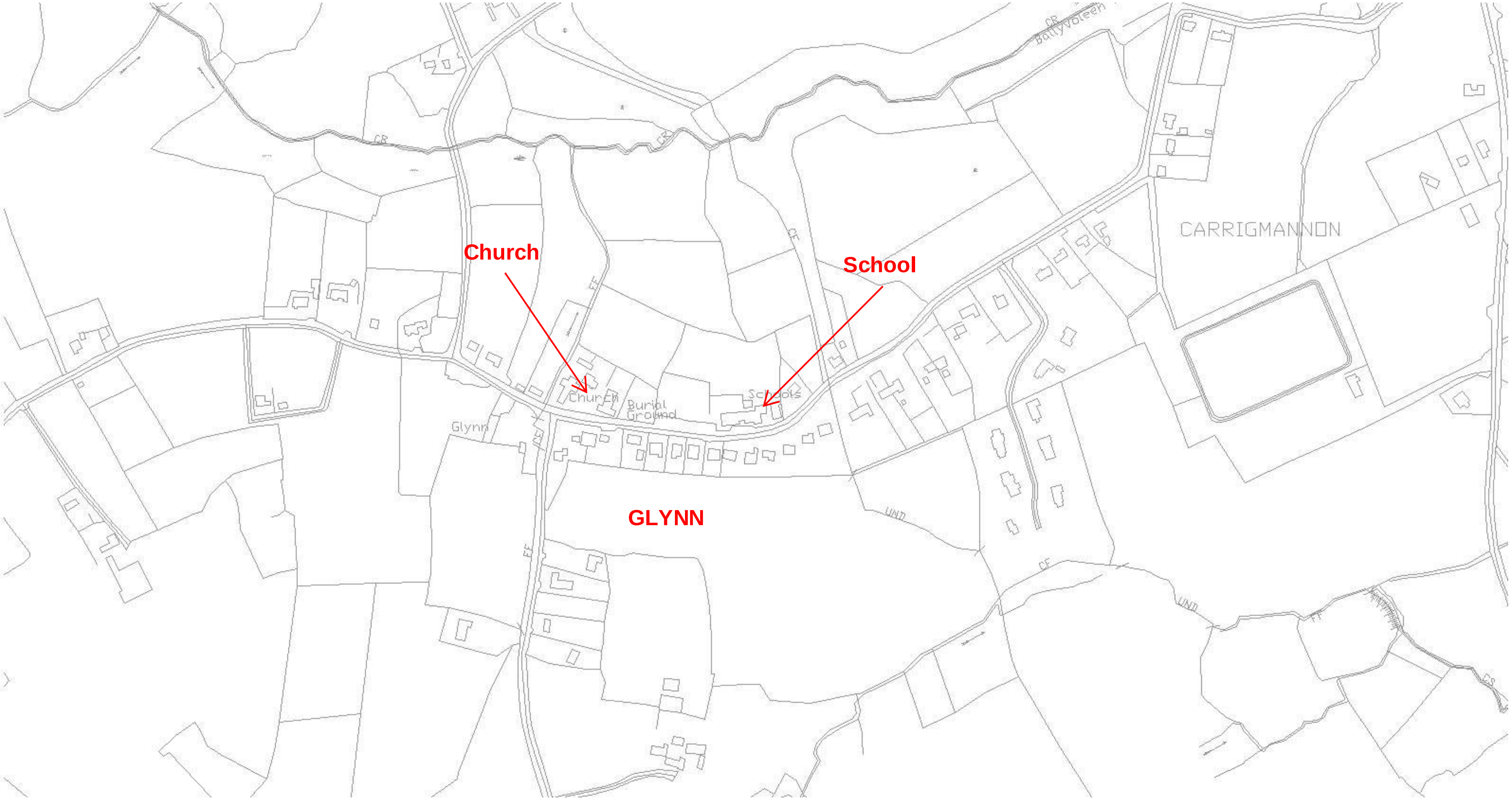

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Figure 1(l)

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Figure 1(m)

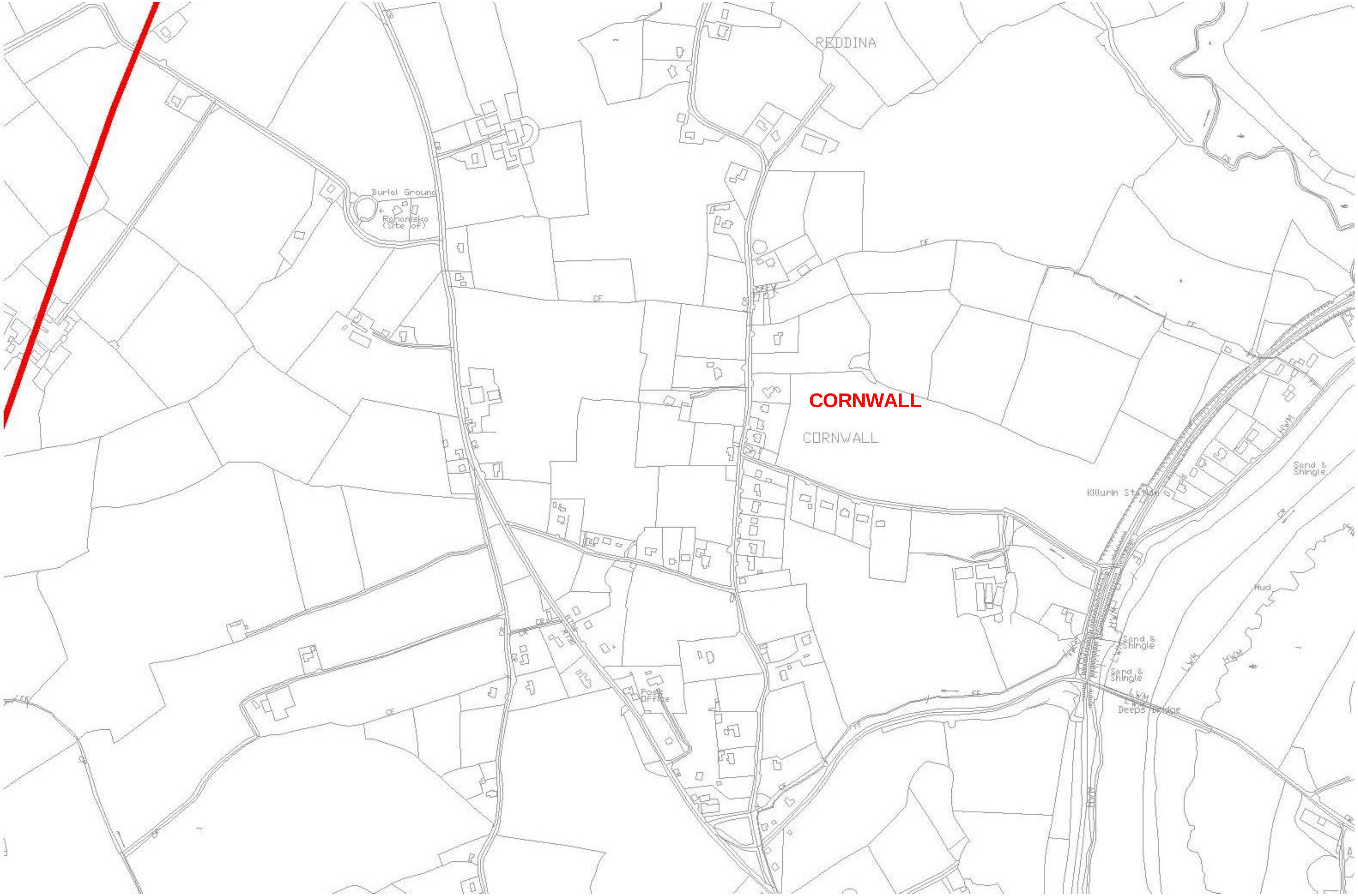

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Figure 1(n)

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Figure 1(o)

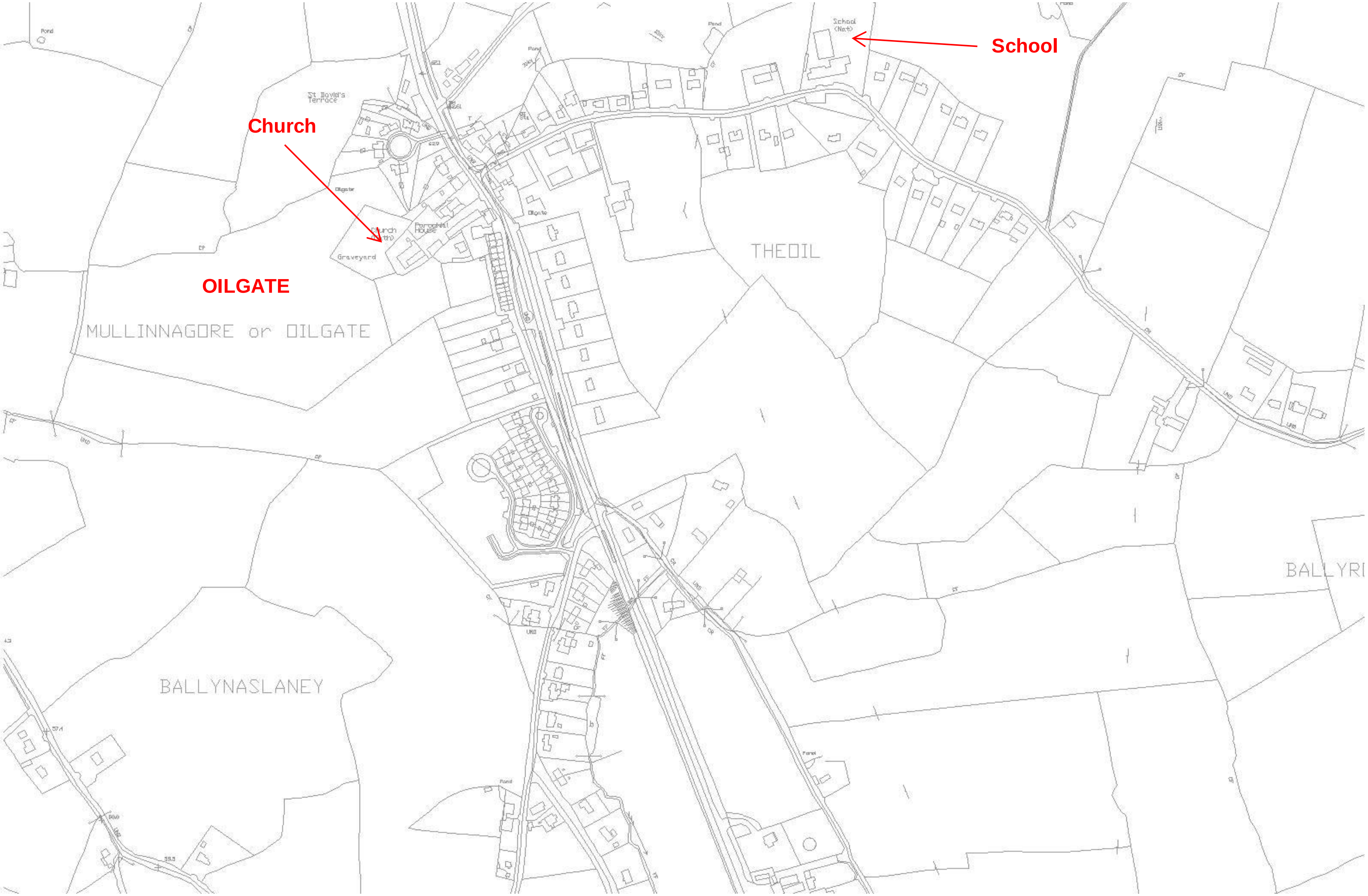

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Figure 1(p)

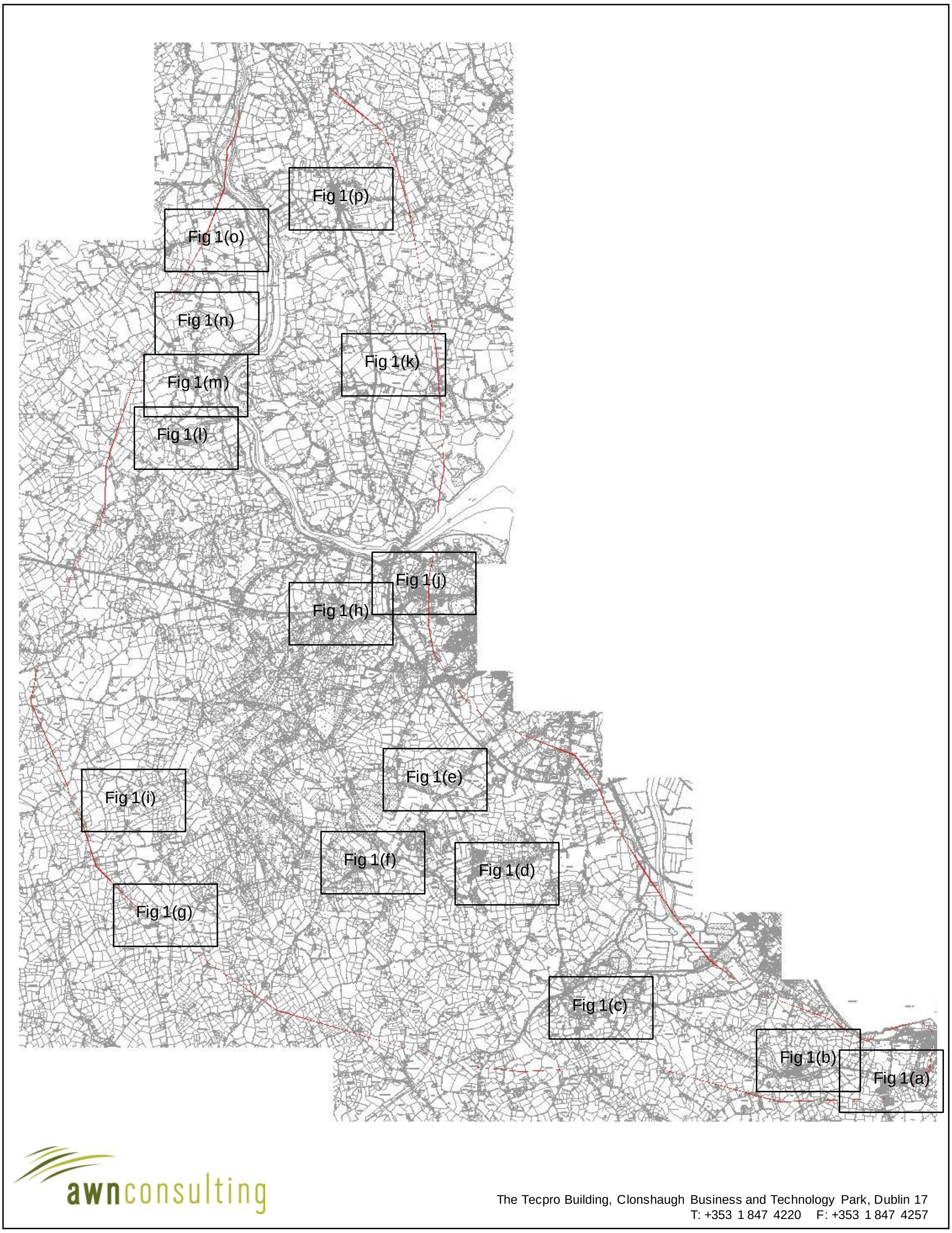

Figure 2 – Approximate location of Figures 1(a) to 1(p)