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Report on Archaeological Testing of Luas Line A1 Belgard to Saggart, Co.Dublin.

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SUMMARY

Advance Archaeological testing was undertaken in specified areas of the Luas Line A1, Belgard to Saggart, Co.Dublin (figure 2) in accordance with conditions of Archaeological Testing Licence 08E0792, between September 22nd and September 26th. A total of 3400 linear metres of test trenches were excavated along the length of the route. No material of an archaeological origin was recovered and no further recommendations are proposed for the areas tested.

Testing could not be carried out between chainage points 1670-1883, 1867-1880,1925-1948,2100-2120, 1815-1832 and 1745-1654 in Testing area 2 due to power lines, an ESB substation, dyke, ditch with associated underground services and a construction compound. Testing could not be carried out between chainage points 2922-2875 in Testing Area 3 due to disturbed ground. Testing could not be carried out between chainage points 2972-3005 in Testing Area 4 due to an open concrete built drain. Testing could not be carried out between chainage points 3793-3812 and 4000-4042 in Testing Area 5 due to underground gas mains and overhead power lines(figures 7,8,9). (see section 4.6)

1. INTRODUCTION

This report presents the results of an advance archaeological test trenching programme along the route of the proposed Luas Line A1. The development begins at Saggart village and runs in a general east/west direction to join with the existing Luas Red Line at Cookstown. Stops are located at Fortunestown, Citywest Campus, Cheeverstown, Fettercairn and Belgard. The area of development extends for 4.2 kilometres and will be predominantly on waste ground and greenfield sites, (See figure 2).

The route has been divided into five separate areas, for ease of recognition and description.
These Testing Areas are :

Testing Area 1: Total area of 4830m². Located between CH 780 to CH 960 and represents the footprint for the Fettercairn stop, (figure 3).

Testing Area 2: Total area of 38861m². Located between CH 1670 to CH 2550 and represents the footprint for the Cheeverstown stop, (figure 4).

Testing Area 3: Total area of 10074m². Located between CH 2550 to CH 2890 and represents the footprint for the City West Campus stop, (figure 5).

Testing Area 4: Total area of 4291m². Located between CH 2920 to CH 3100, (figure 5).

Testing Area 5: Total area of 4763m². Located between CH 3790 to CH 4050 and represents the footprint for the Saggart stop, (figure 6).

2. BACKGROUND

Headland Archaeology Ltd was contracted by the Railway Procurement Agency (RPA) to undertake an archaeological testing programme in advance of development works in the area. This is necessary to evaluate and quantify the archaeological deposits or features that may be affected by groundworks for Luas Line A1.

Luas Line A1 is one of a series of large scale infrastructural RPA projects which will link existing Luas lines and other public transport systems to a proposed Metro system which will run from Dublin Airport to St. Stephens Green in Dublin City Centre. For the purpose of the proposed testing, Luas Line A1 has been subdivided into five Testing Areas. These are referenced as Testing Area's 1-5, (see figure 2).
A number of Recorded Monuments (RMP'S) lie in the vicinity of the proposed Luas Line A1, however none are impacted directly by it.

These RMP sites include an archaeological complex at Cheeverstown comprising a castle site (DU021-024001), a possible Holy Well (DU021-024002) and a possible bawn site (DU021-024003) located c.500m to the north of the route. A second castle site (DU021-035) is located at Cheeverstown Road c.700m south of the route.
The terminal of Luas Line A1 at Saggart Village, is located within the constraint area for Saggart Village (DU021-034) and c.20m from the Tower House (DU021-03411). Previous testing of this area carried out by Margaret Gowen & Co. Ltd (see figure 2) as part of the Luas Line A1 EIS under licence 06E572 found no features or deposits of archaeological significance (Luas line A1, Belgard to Saggart Environmental Impact Statement, p.92).

3.METHODS

A programme of advance test trenching with off-set trenches placed perpendicular to the centre trench was originally envisioned for the route of the Luas Line A1, however, due to the narrow confines of a number of test areas (8-12 metres maximum), off-set trenches were considered an unviable approach, therefore the centreline trench was excavated at double the normal width (1.9m), giving the centre trench an average width of 3.8m where possible (see table 1). This effectively doubled the linear metreage of the testing programme at certain locations and increased the actual area of ground tested.

The land being utilised for the Luas Line A1 is predominantly waste ground with a large degree of previous disturbance from buildings and developments in the surrounding areas. Testing Area 5 (figure 6) was built up with imported soil to a depth of 0.60m, and large portions of Testing Area 2 have been excavated previously for drainage, during Garda Siochanna searches and by the City West Security team to discourage temporary occupation of the area.

The area surrounding the City West Electrical sub-station was not tested due to the convergence of major utilities, including the National Grid, at the station.

4. RESULTS

The results of the testing programme are as follows:

4.1 Testing Area 1

The total area of Testing Area 1 is 4830m², located between CH 780 to CH 960 and represents the footprint for the Fettercairn stop, (figure 3).

Trench 1(TA1/T1) was 196 m long, 3.8m wide, with a minimum depth of 0.10m and a maximum depth of 0.90m. The overlying topsoil (001) was a brown sandy silt with very frequent inclusions of modern domestic debris throughout, including electrical appliances and automobile parts, plastic and construction waste, 0.70m deep (max). The subsoil (002) was compact yellow brown silty clay with frequent small and medium sized stones. This area traverses the former location of the townland boundary between Whitehall and Cheeverstown, however no traces of features relating to this were revealed. No features of archaeological significance were found and the trench was reinstated.

4.2 Testing Area 2

The total area of Testing Area 2 is 38861m², located between CH 1670 to CH 2550 and represents the footprint for the Cheeverstown stop, (figure 4).

Nine trenches were excavated in this Testing Area (TA2/T1-9, figure 4) at the normal bucket width of 1.9m. No testing was implemented in the central section of the proposed park and ride area between chainage points 2430-2550, due to the risk to personal safety and possibility of disruption of services at the City West electrical sub station, as described in Section 4.6 (Untested Areas) of this report (figure 4). The overlying topsoil (001) in this area was brown sandy clay with moderate inclusions of modern debris and construction waste, 0.25m deep. The subsoil (002) was yellow brown silty clay with frequent small to medium sized stones throughout. No features of archaeological significance were found and the trenches were reinstated.

Trench 1(TA2/T1) was 132.6m long, 1.9m wide, with a maximum depth of 0.50m and a minimum depth of 0.30m. Two linear features were found in this trench (003, 005, figure 4) both measuring 2.4m

wide. Both of these features ran towards above ground water mains access and were also found in trench B, which ran parallel to trench A. Both of these features and their fills (004, 006) were considered modern, due to the amount of modern debris, and of no archaeological significance.

Trench 2 (TA2/T2) was 301.5m long, 1.9m wide, with a maximum depth of 0.50m and a minimum depth of 0.20m. The linear features (003, 005, 007,009) described in trench 1 were also found in this trench and received the same number.

Trench 3 (TA2/T3) was 157.3m long, 1.9m wide, with a maximum depth of 0.60m and a minimum depth of 0.25m. Two linear features were found in this trench (007, 009, figure 4) both measuring 2.4m wide. Both of these features ran towards above ground water mains access points and were also found in trench 2, which ran parallel to trench 3 and trench 1. Both of these features and their fills (008, 010) were considered modern, due to the amount of modern debris, and of no archaeological significance.

Trench 4 (TA2/T4) was 82.1m long, 1.9m wide, with a maximum depth of 0.60m and a minimum depth of 0.30m. No features of archaeological significance were uncovered.

Trench 5 (TA2/T5) was 49.2m long, 1.9m wide, with a maximum depth of 0.40m and a minimum depth of 0.35m. One possible feature was found in this trench, (011) an irregular sub oval shaped pit with gradually sloping sides and an irregular base, 1.5m long, 0.70m wide, 0.25m deep, which, when sectioned, proved to be a natural feature with decomposed brown and black organic matter and no inclusions (012). Modern agricultural furrows (C.015) and a stone filled drainage feature (C.013) ran in a general north/south orientation through this trench and trenches 6, 8 and 9. No features of archaeological significance were uncovered.

Trench 6(TA2/T6) was 71.9m long, 1.9m wide, with a maximum depth of 0.60m and a minimum depth of 0.25m. As described in trench 5, modern agricultural furrows (C.015) and a stone filled drainage feature (C.013) ran in a general north/south orientation through this trench. No features of archaeological significance were uncovered.

Trench 7(TA2/T7) was 104.4m long, 1.9m wide, with a maximum depth of 0.40m and a minimum depth of 0.25m. No features of archaeological significance were uncovered.

Trench 8(TA2/T8) was 17.0m long, 1.9m wide, with a maximum depth of 0.30m and a minimum depth of 0.20m. As described in trench 5, modern agricultural furrows (C.015) and a stone filled drainage feature (C.013) ran in a general north/south orientation through this trench. No features of archaeological significance were uncovered.

Trench 9(TA2/T9) was 18.2m long, 1.9m wide, with a maximum depth of 0.30m and a minimum depth of 0.20m. As described in trench 5, modern agricultural furrows and stone filled drainage features ran in a general north/south orientation through this trench. No features of archaeological significance were uncovered.
All trenches were re-instated.

4.3 Testing Area 3

The total area of Testing Area 3 was 10074m², located between CH 2550 to CH 2890 and represents the footprint for the City West Campus stop, (figure 5).

Trench 1(TA3/T1) was 290.8 m long, 145m was 1.9m wide and c.145m was 3.8m wide (figure 5) with a maximum depth of 0.60m and a minimum depth of 0.30m.

This Testing Area and the surrounding land has been extensively excavated with “tank traps”, 4 to 5 metre long trenches, allowed to remain open to trap the front wheels of cars being driven into the area

and abandoned or burnt. Two such features were noted in TA3/T1 (figure 5). The overlying topsoil (001) was mid brown sandy silt with small to medium sized stones and roots, 0.35m deep. The subsoil (002) was yellow brown silty clay with frequent small stones. No features of archaeological significance were found and the trench was reinstated.

4.4 Testing Area 4

The total area of Testing Area 4 was 4291m², located between CH 2920 to CH 3100, (figure 5).
A burnt mound was identified along a nearby watercourse in the townland of Brownsbarn (DU021:023), which increased the possibility of related or associated features in this Testing Area. No such features were revealed during the testing of this area. The overlying topsoil (001) was mid brown sandy clay with frequent small stones and roots, 0.50m deep (max). The subsoil was yellow brown silty clay with frequent small stones throughout.

Trench 1 (TA4/T1) was 81.3m long, 3.8m wide, with a maximum depth of 0.80m and a minimum depth of 0.20m. Two test pits from the geotechnical investigations conducted by AGL Consulting (2006) were found in TA4/T1 (figure 5). No features of archaeological significance were uncovered and the trench was reinstated.

Trench 2 (TA4/T2): 12.3m long, 3.8m wide, with a maximum depth of 0.40m and a minimum depth of 0.35m. No features of archaeological significance were uncovered and the trench was reinstated.

Trench 3 (TA4/T3): 34.5m long, 3.8m wide, with a maximum depth of 0.80m and a minimum depth of 0.40m. No features of archaeological significance were uncovered and the trench was reinstated.

4.5 Testing Area 5

The total area of Testing Area 5 is 4763m², located between CH 3790 to CH 4050 and represents the footprint for the Saggart stop, (figure 6). Testing could not be carried out between chainage points 3695-4050 due to the proximity of overhead power lines (see section 4.6).

The ground surface (001) in this area has been introduced to an average depth of 0.50m, made up of mottled mid brown silty sand with frequent inclusions of modern construction material and debris. The topsoil layer (002) was mid brown silty clay with frequent small and medium sized stones and roots, 0.30m deep (max). The subsoil (002) was yellow brown silty clay with frequent small stones throughout.

Trench 1 (TA5/T1) was 151.4m long, 3.8m wide, with a maximum depth of 1.00m and a minimum depth of 0.60m. A test pit from the geotechnical investigations conducted by AGL Consulting (2006) was found in TA5/T1 (figure 6). No features of archaeological significance were uncovered and the trench was reinstated.

4.6 Untested Areas (figures 7,8,9)

Between chainage points 2430-2550, in Testing Area 2, no testing was carried out due to the proximity of

- an electricity sub-station.
- 110kv, 38kv and 10 kv power lines directly overhead.
- fibre optic security camera lines for the City West Business Park.
- electrical lines underground, with above ground junction boxes.
- a copper mesh buried in the ground directly under and extending beyond the footprint of the sub-station , used as an earthing agent for the station.

- a large, modern culvert/drain, 4.5 metres wide, 2.5 metres deep, with an associated 3 metre high embankment running parallel and inside the route of the proposed development, effectively destroying any possible archaeological remains in the area.

Where power lines crossed the route of the proposed development, a 6 metre buffer zone on either side of the lines was established, with appropriate safety measures in place prior to machinery entering the site.
The untested areas are detailed as follows:

Untested Area No.	Testing Excavation Area	Chainage	Area (msq.)	Area Total (msq.)	Access Limitatons/ Restrictions
1	2	1670-1883	3535		Power Lines
2	2	1867-1880	193		Power Lines
3	2	1925-1948	669		Power Lines
4	2	2290-2566	8311		ESB Substation /Embankments
5	2	2100-2120	251		Spoil Heap
6	2	1815-1832	166		Ditch/Services
7	2	1745-1654	2555	15680	Compound
8	3	2922-2875	862		Disturbed ground
9	4	2972-3005	263	1125	Open Concrete Drain
10	5	3793-3812	407		Gas Mains
11	5	3965-4050	1547	1954	Power Lines

5. IMPACT

There will be no predicted impact of the proposed rail scheme on archaeological remains in the areas tested, but in untested areas it is recommended that a suitably qualified archaeologist be present during the construction phase with the appropriate machinery enabled to excavate, i.e a toothless bucket.

6. MITIGATION

The results of the testing programme for the Luas Line A1 route have shown that no archaeological features were present in the tested areas. Some of the remaining untested areas will require monitoring by a suitably qualified Archaeologist. No additional monitoring is recommended for untested areas 5, 7, 8, 9 and 10, as the possibility of archaeological evidence remaining in these areas is almost nil, due to previous construction and drainage work. The strategy for implementing monitoring in the other areas should be incorporated into the construction phase of the proposed development.
The land in the environment has been extensively drained and artificially managed due to the expansion of Dublin City, and especially the development of the City West Campus and associated services. A small portion of the testing programme for the Luas Line A1 Centreline testing was deemed unviable due to the volume of services and utilities that were adjacent to or directly within the route of the proposed development. Monitoring of these areas during the construction phase of this development is recommended, when the power lines and services are removed during the construction phase.

6. APPENDICES

(1) Trench recording register

Testing Area	Trench no	Length	Width	Depth (min) (max)	Figure no
1	1	195.8m	3.8m	0.1 m – 0.90m	3
2	1	132.6m	1.9m	0.30m – 0.50m	4
2	2	301.5m	1.9m	0.30m – 0.50m	4
2	3	157.3m	1.9m	0.25m – 0.60m	4
2	4	82.1m	1.9m	0.30m – 0.60m	4
2	5	49.2m	1.9m	0.35m – 0.40m	4
2	6	71.9m	1.9m	0.25m – 0.60m	4
2	7	104.4m	1.9m	0.25m – 0.40m	4
2	8	17.0m	1.9m	0.20m – 0.30m	4
2	9	18.2m	1.9m	0.20m – 0.30m	4
3	1	290.8m	1.9m – 3.8m	0.30m – 0.60m	5
4	1	81.3m	3.8m	0.20m – 0.80m	5
4	2	12.3m	3.8m	0.35m – 0.40m	5
4	3	34.5m	3.8m	0.40m – 0.80m	5
5	1	151.4m	3.8m	0.60m – 1.0m	6

(2) Context register

Testing Area 1

Context no	Trench no.	Description
001	1	Topsoil: brown sandy silt with very frequent inclusions of modern domestic debris throughout, including electrical appliances and automobile parts, plastic and construction waste, 0.70m deep (max).
002	1	Subsoil: compact yellow brown silty clay with frequent small and medium sized stones.

Testing Area 2

Context no	Trench no(s)	Description
001	All	Topsoil: brown sandy clay with moderate inclusions of modern debris and construction waste, 0.25m deep.
002	All	Subsoil: yellow brown silty clay with frequent small to medium sized stones throughout
003	1,2	North/south running linear water mains pipe trench, 2.4m wide. N.A.S
004	1,2	Mottled brown/yellow fill of C.003, with modern debris and plastic.
005	1,2	North/south running linear water mains pipe trench, 2.4m wide. N.A.S

Context no	Trench no(s)	Description
006	1,2	Mottled brown/yellow fill of C.005, with modern debris and plastic.
007	3,2	North/south running linear water mains pipe trench, 2.4m wide. N.A.S
008	3,2	Mottled brown/yellow fill of C.007, with modern debris and plastic.
009	3,2	North/south running linear water mains pipe trench, 2.4m wide. N.A.S
010	3,2	Mottled brown/yellow fill of C.009, with modern debris and plastic. N.A.S
011	4	Irregular sub oval shaped pit with gradually sloping sides and an irregular base, 1.5m long, 0.70m wide, 0.25m deep. N.A.S
012	4	Natural feature with decomposed brown and black organic matter and no inclusions. N.A.S
013	5	Cut of linear drainage feature with steeply sloping sides, running in a north/south orientation, 2.5m wide, available depth 1.0m, length n/a.
014	5	Fill of linear drainage feature, comprising re-deposited subsoil and well sorted blue hardcore.
015	5,6,8,9	Cuts of modern agricultural features, i.e machine made drains and furrows, all in a general north/south orientation.
016	5,6,8,9	Fills of modern agricultural features, re-deposited subsoil.

Testing Area 3

Context no	Trench no	Description
001	1	Topsoil: mid brown sandy silt with small to medium sized stones and roots, 0.35m deep
002	1	Subsoil: yellow brown silty clay with frequent small stones

Testing Area 4

Context no	Trench no (s)	Description
001	1, 2, 3	Topsoil: mid brown sandy clay with frequent small stones and roots, 0.50m deep (max).
002	1, 2, 3	Subsoil: yellow brown silty clay with frequent small stones throughout.

Testing Area 5

Context no	Trench no	Description
001	1	Imported soil: mottled mid brown silty sand with frequent inclusions of modern construction material and debris, 0.50m deep (max)
002	1	Topsoil: mid brown silty clay with frequent small and medium sized stones and roots, 0.30m deep (max)
003	1	Subsoil: yellow brown silty clay with frequent small stones throughout.

(3) Photograph register.

Photo no.	Testing Area	Description
1	1	Testing Area 1, trench 1, mid testing, facing southwest.
2	1	Testing Area 1, trench 1, facing southwest.
3	1	Testing Area 1, trench 1, facing southwest.
4	1	Testing Area 1, trench 1, facing northeast.
5	1	Testing Area 1, trench 1, facing northeast.
6	1	Testing Area 1, trench 1, facing northeast.
7	1	Testing Area 1, trench 1 backfilled, facing northeast.
8	1	Testing Area 1, trench 1 backfilled, facing southwest.
9	2	Testing Area 2, working shot.
10	2	Testing Area 2, scanning ground prior to testing, facing southwest.
11	2	Testing Area 2, trench 2, facing northeast.
12	2	Testing Area 2, trench 2, facing southwest.
13	2	Testing Area 2, trench 2, facing northeast.
14	2	Testing Area 2, trench 2, facing northeast.
15	2	Testing Area 2, trench 2, facing northeast.
16	2	Testing Area 2, chainage 2430-2550, electrical substation, facing northeast.
17	2	Testing Area 2, chainage 2430-2550, power lines, facing southwest.
18	2	Testing Area 2, chainage 2430-2550, power lines, facing southwest.
19	2	Testing Area 2, chainage 2430-2550, culvert/drain, facing southwest.
20	2	Testing Area 2, chainage 2430-2550, embankment, facing southwest.
21	2	Testing Area 2, trench 1, water mains trench.007, facing northwest.
22	2	Testing Area 2, trench 2, water mains trench C.005, facing northeast.
23	2	Testing Area 2, trench 3, water mains trench C.007, facing northwest.
24	2	Testing Area 2, trench 2, water mains trench C.003, facing northeast.
25	2	Testing Area 2, trench 2, facing northeast.
26	2	Testing Area 2, trench 2, facing northeast.
27	2	Testing Area 2, trench 3, water mains trench C.005, facing northeast.
28	2	Testing Area 2, trench 3, water mains trench C.009, facing northwest.
29	2	Testing Area 2, trench 3, water mains trench C.007, facing northwest.
30	2	Testing Area 2, trench 3, water mains trench C.009, facing northwest.
31	2	Testing Area 2, trench 4, facing northeast.
32	2	Testing Area 2, trench 5, facing east.
33	2	Testing Area 2, trench 5, pre ex of oval pit, C.011, facing northeast.
34	2	Testing Area 2, trench 5, pre ex of oval pit, C.011, facing east.
35	2	Testing Area 2, trench 5, modern stone filled drain, C.013, facing east.
36	2	Testing Area 2, trench 5, modern stone filled drain, C.013, facing southeast.
37	2	Testing Area 2, trench 5, modern stone filled drain, C.013, facing east.
38	2	Testing Area 2, trench 5, modern field drain, C.015, facing east.
39	2	Testing Area 2, trench 5, modern field drain, C.013, facing west.

Photo no.	Testing Area	Description
40	2	Testing Area 2, trench 5, facing west.
41	2	Testing Area 2, trench 5, facing west.
42	2	Testing Area 2, trench 5, half section of oval pit, C.011 facing north.
43	2	Testing Area 2, trench 5, half section of oval pit, C.011 facing east.
44	2	Testing Area 2, trench 6, modern field drain with blue plastic, C.015, facing east.
45	2	Testing Area 2, trench 6, backfilling, facing east.
46	2	Testing Area 2, trench 6, backfilling, facing east.
47	2	Testing Area 2, trench 7, facing southwest.
48	2	Testing Area 2, trench 7, facing northeast.
49	2	Testing Area 2, trench 4, facing southwest.
50	2	Testing Area 2, trench 8, facing north.
51	2	Testing Area 2, trench 9, facing north.
52	2	Testing Area 2, trench 6 backfilled, facing east.
53	2	Testing Area 2, trench 6 backfilled, facing east.
54	2	Testing Area 2, trench 6 backfilled, trench 8 open, facing north
55	2	Testing Area 2, trench 8 backfilled, facing east.
56	2	Testing Area 2, trench 4 backfilled, facing southwest.
57	2	Testing Area 2, trench 4 backfilled, facing southwest.
58	3	Testing Area 3, trench 1, facing northeast.
59	3	Testing Area 3, trench 1, facing northeast.
60	3	Testing Area 3, trench 1, facing northeast.
61	3	Testing Area 3, trench 1, small stream, facing northeast.
62	3	Testing Area 3, trench 1, facing northeast.
63	3	Testing Area 3, trench 1, facing southwest.
64	3	Testing Area 3, trench 1, facing southwest.
65	3	Testing Area 3, trench 1, facing northeast.
66	3	Testing Area 3, trench 1, facing northeast.
67	3	Testing Area 3, trench 1, small stream, facing northeast.
68	3	Testing Area 3, trench 1, facing southwest.
69	3	Testing Area 3, trench 1, facing southwest.
70	3	Testing Area 3, trench 1, facing southwest.
71	3	Testing Area 3, trench 1, facing northeast.
72	3	Testing Area 3, trench 1 backfilled, facing southwest.
73	3	Testing Area 3, trench 1 backfilled and egress, facing southwest.
74	4	Testing Area 4, pre testing, facing northwest.
75	4	Testing Area 4, access, facing southeast.
76	4	Testing Area 4, access, facing east.
77	4	Testing Area 4, trench 1, facing southeast.
78	4	Testing Area 4, trench 1, facing east.
79	4	Testing Area 4, trench 1, facing northeast.
80	4	Testing Area 4, trench 1, test pit (modern), facing southeast.
81	4	Testing Area 4, trench 1, test pit, close up (modern), facing northeast.
82	4	Testing Area 4, trench 1, test pit (modern), facing southwest.
83	4	Testing Area 4, trench 1, test pit, close up (modern), facing south.
84	4	Testing Area 4, trench 2, facing southeast.
85	4	Testing Area 4, trench 2, facing southeast.
86	4	Testing Area 4, trench 2, facing northwest.
87	4	Testing Area 4, trench 1, facing north.
88	4	Testing Area 4, trench 1, facing north.

Photo no.	Testing Area	Description
89	4	Testing Area 4, access to trench 3, facing east.
90	4	Testing Area 4, access to trench 3, facing east.
91	4	Testing Area 4, trench 3, facing southwest.
92	4	Testing Area 4, trench 3, facing southwest.
93	4	Testing Area 4, trench 3, facing southwest.
94	4	Testing Area 4, trench 3, facing southwest.
95	4	Testing Area 4, trench 3 backfilled, facing northeast.
96	4	Testing Area 4, trench 1, 2 backfilled, facing north.
97	5	Testing Area 5, scanning prior to testing, facing southwest
98	5	Testing Area 5, trench 1, facing west.
99	5	Testing Area 5, trench 1, facing northwest.
100	5	Testing Area 5, trench 1, facing northwest.
101	5	Testing Area 5, trench 1, facing northwest.
102	5	Testing Area 5, trench 1, facing west.
103	5	Testing Area 5, trench 1,C.001 above C.002, original surface, facing northwest.
104	5	Testing Area 5, trench 1,C.001 above C.002, original surface, facing northwest.
105	5	Testing Area 5, trench 1, facing west.
106	5	Testing Area 5, trench 1, facing west.
107	5	Testing Area 5, trench 1, facing west.
108	5	Testing Area 5, trench 1, facing east.
109	5	Testing Area 5, trench 1, facing west.
110	5	Testing Area 5, trench 1, facing west.
111	5	Testing Area 5, trench 1 proximity to power lines, facing west.
112	5	Testing Area 5, trench 1 backfilled, facing west.

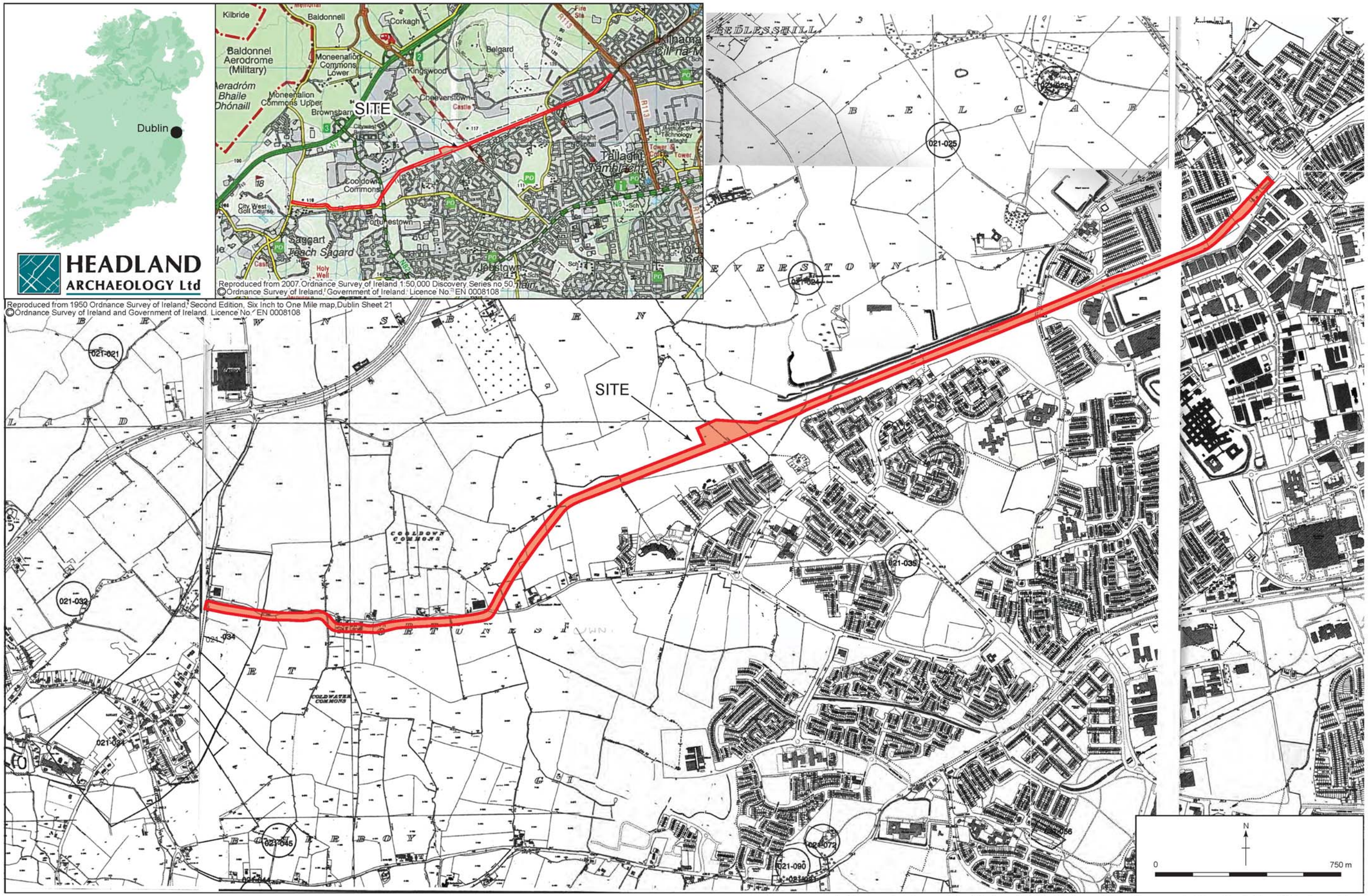

Figure 1 - Luas Red Line (A1): Belgard to Saggart, Co. Dublin: Site location

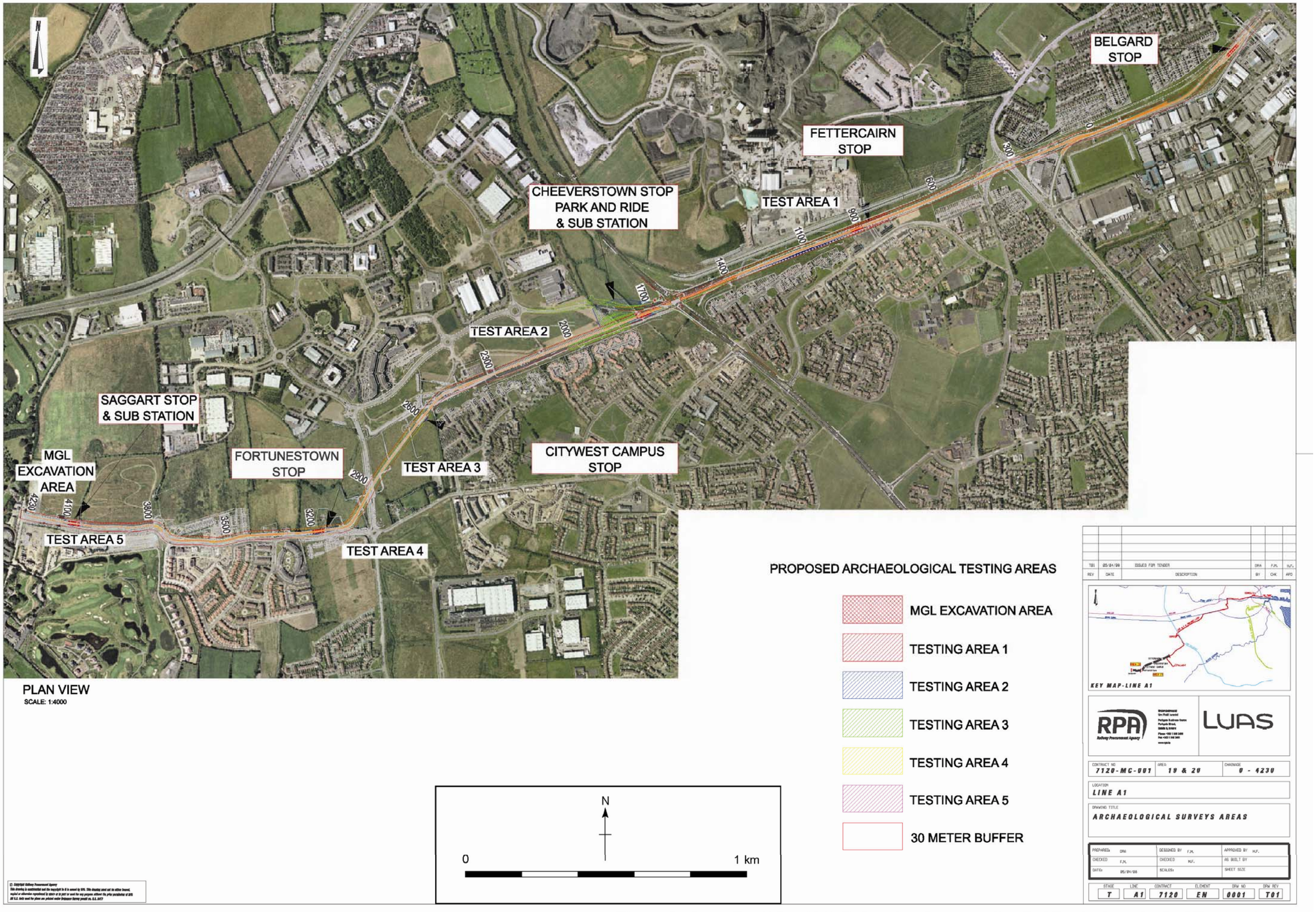

Figure 2 - Luas Red Line (A1):Belgard to Saggart, Co. Dublin: Archaeological Testing Areas

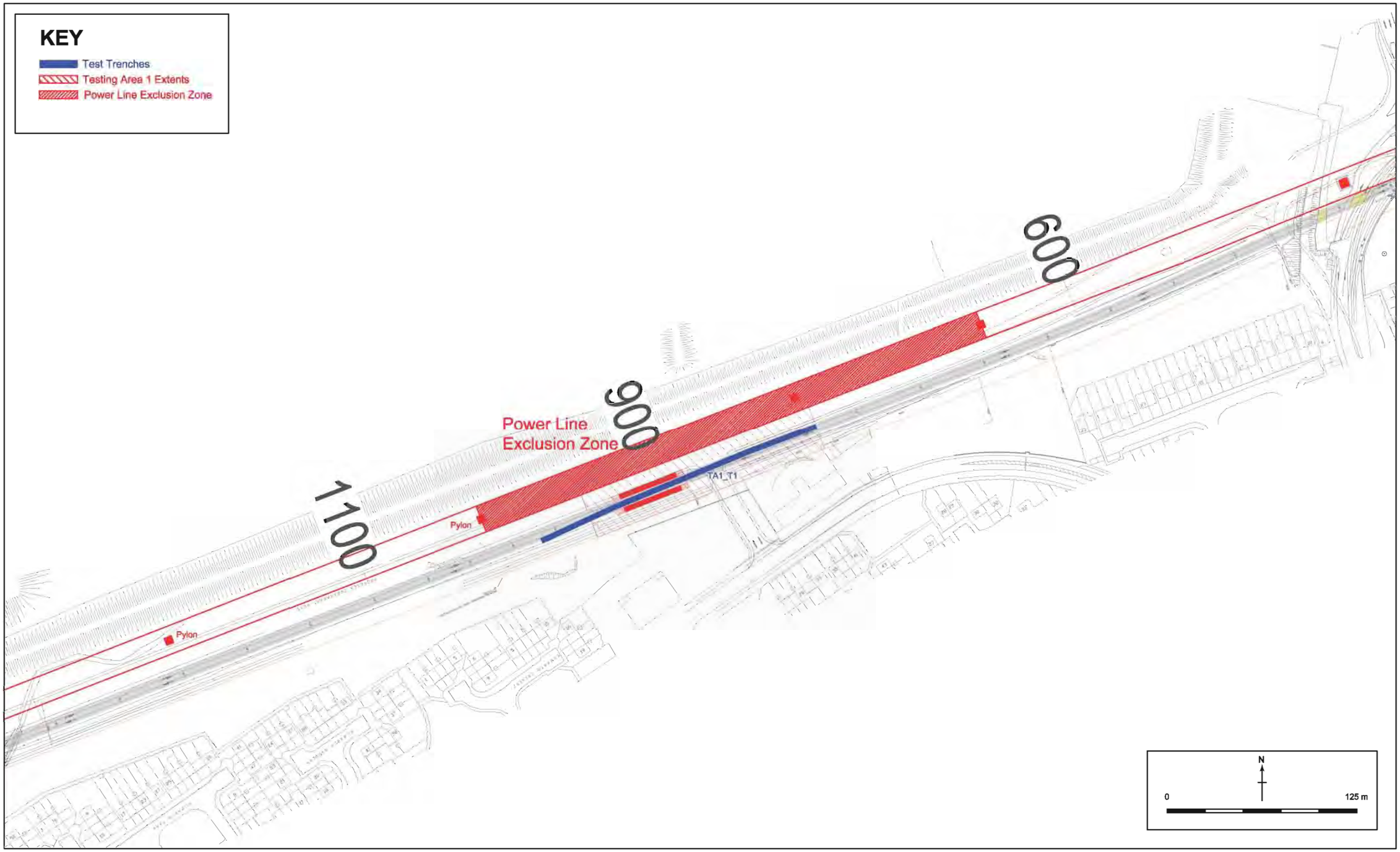

Figure 3 - Luas Line A1 Centreline Testing, Testing Area 1 Trench Layout, Fettercairn Stop.

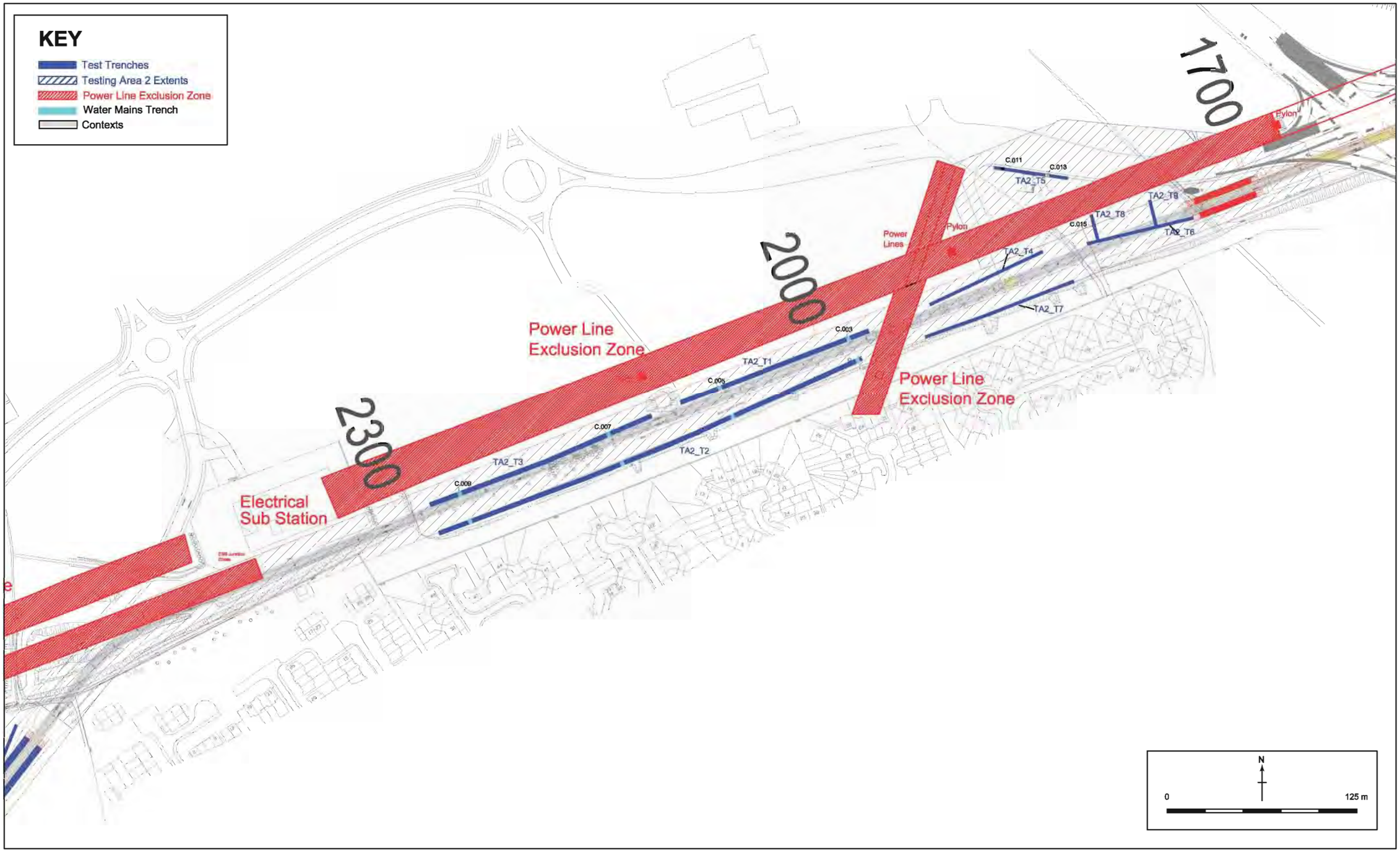

Figure 4 - Luas Line A1 Centreline Testing, Testing Area 2 Trench Layout, Cheverstown Stop.

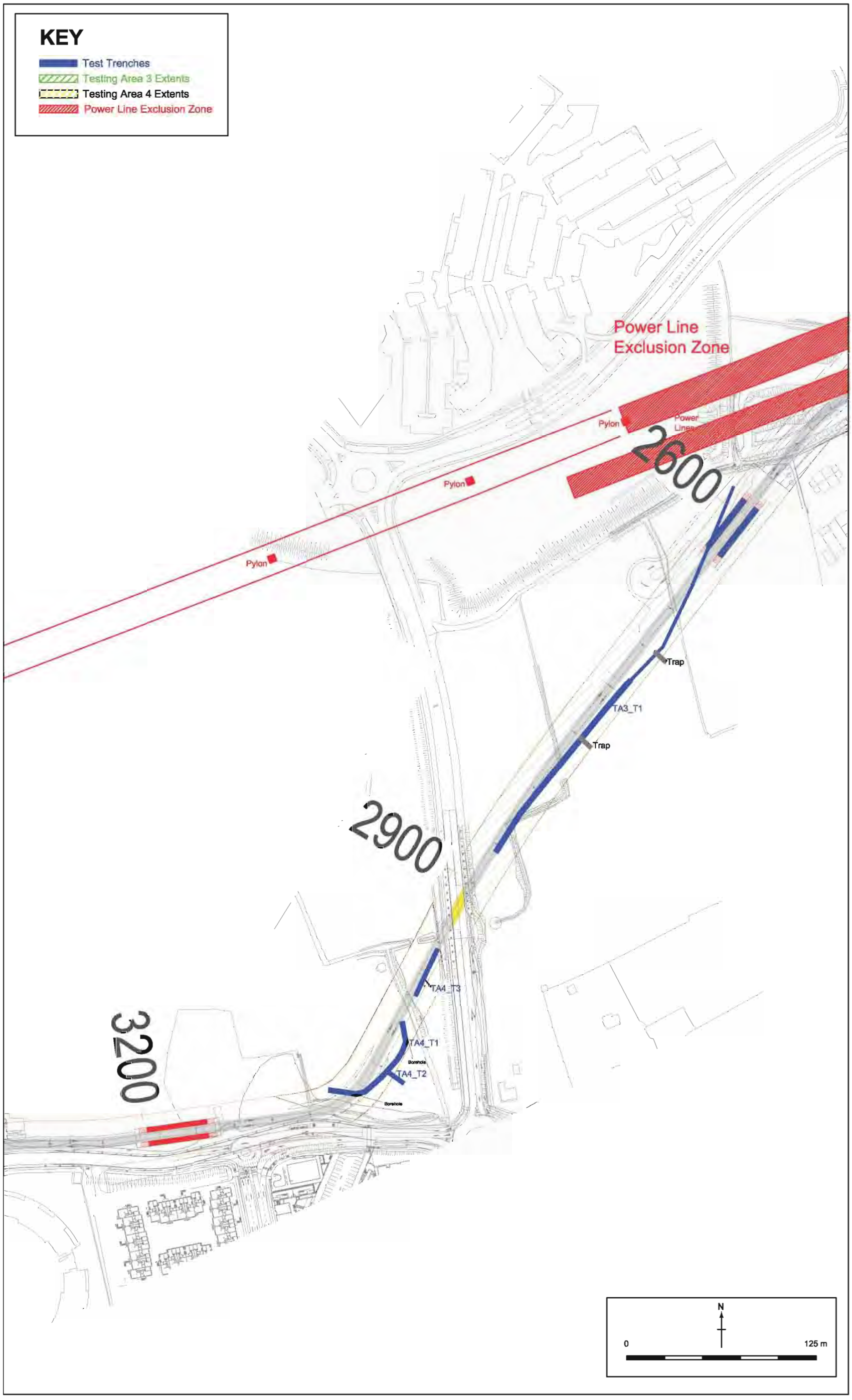

Figure 5 - Luas Line A1 Centreline Testing, Testing Areas 3 & 4 Trench Layout, City West Stop.

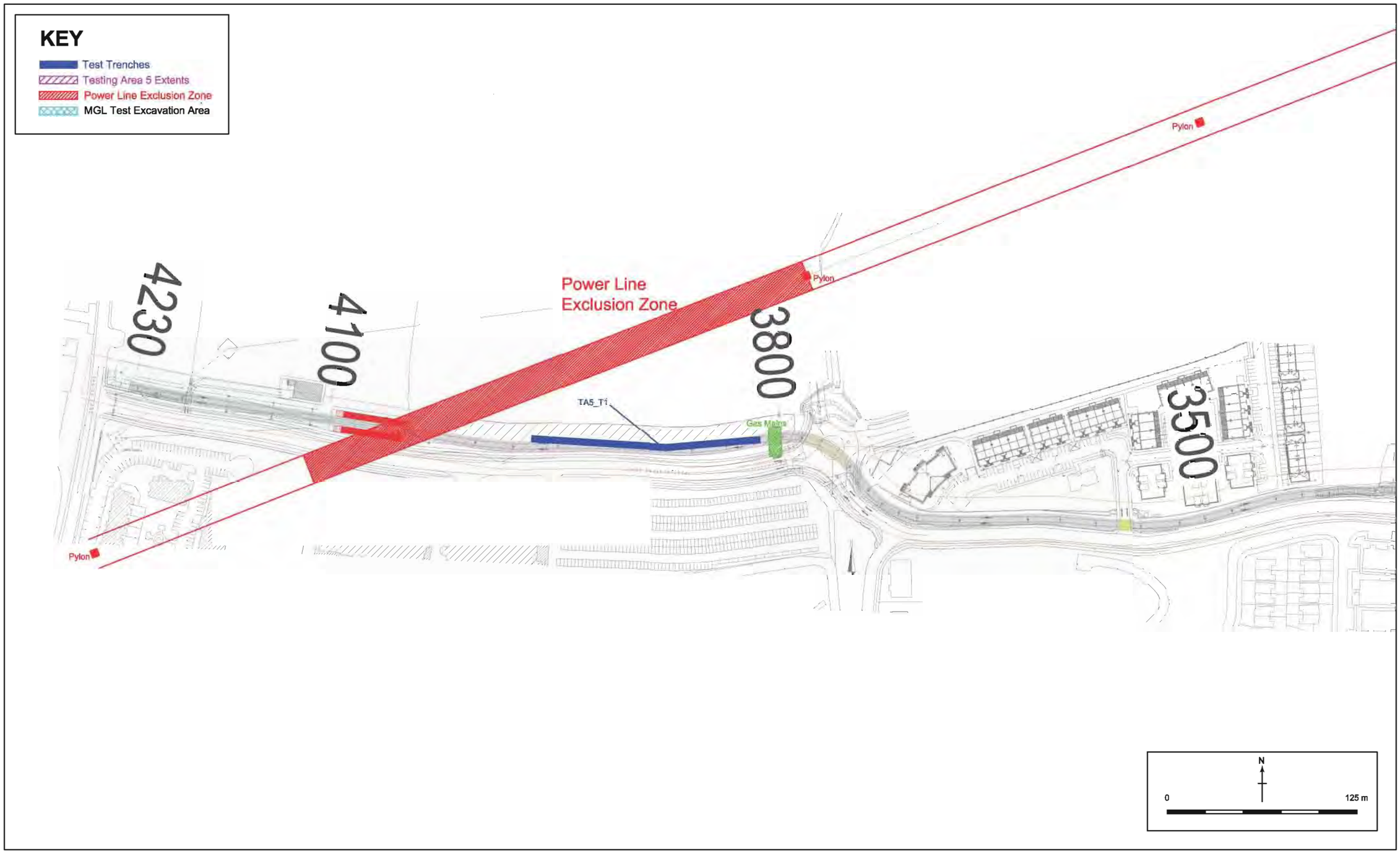

Figure 6 - Luas Line A1 Centreline Testing, Testing Area 5 Trench Layout, Saggart Stop.

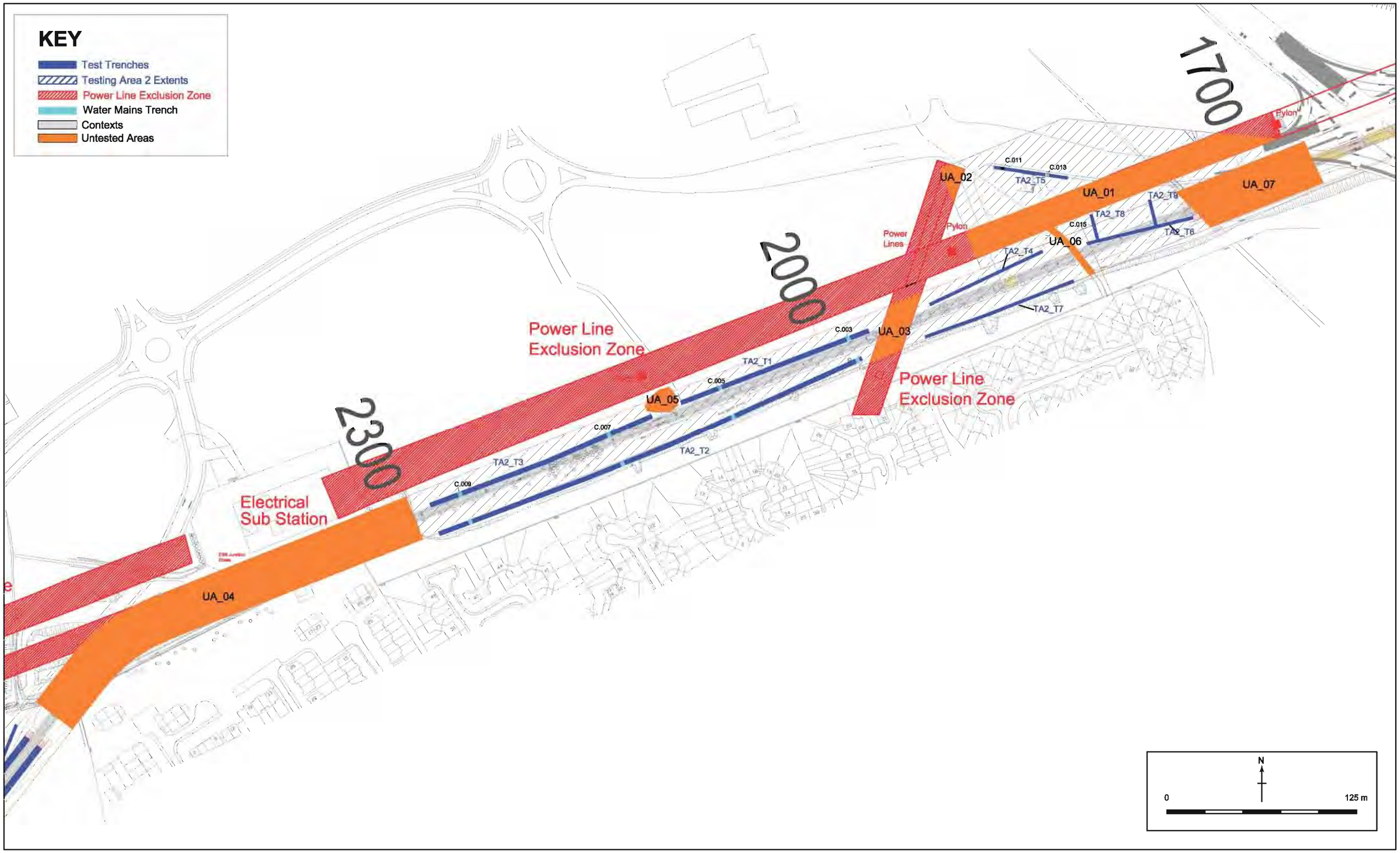

Figure 7 - Luas Line A1 Centreline Testing, Untested Areas in Testing Area 2 Trench Layout, Cheverstown Stop.

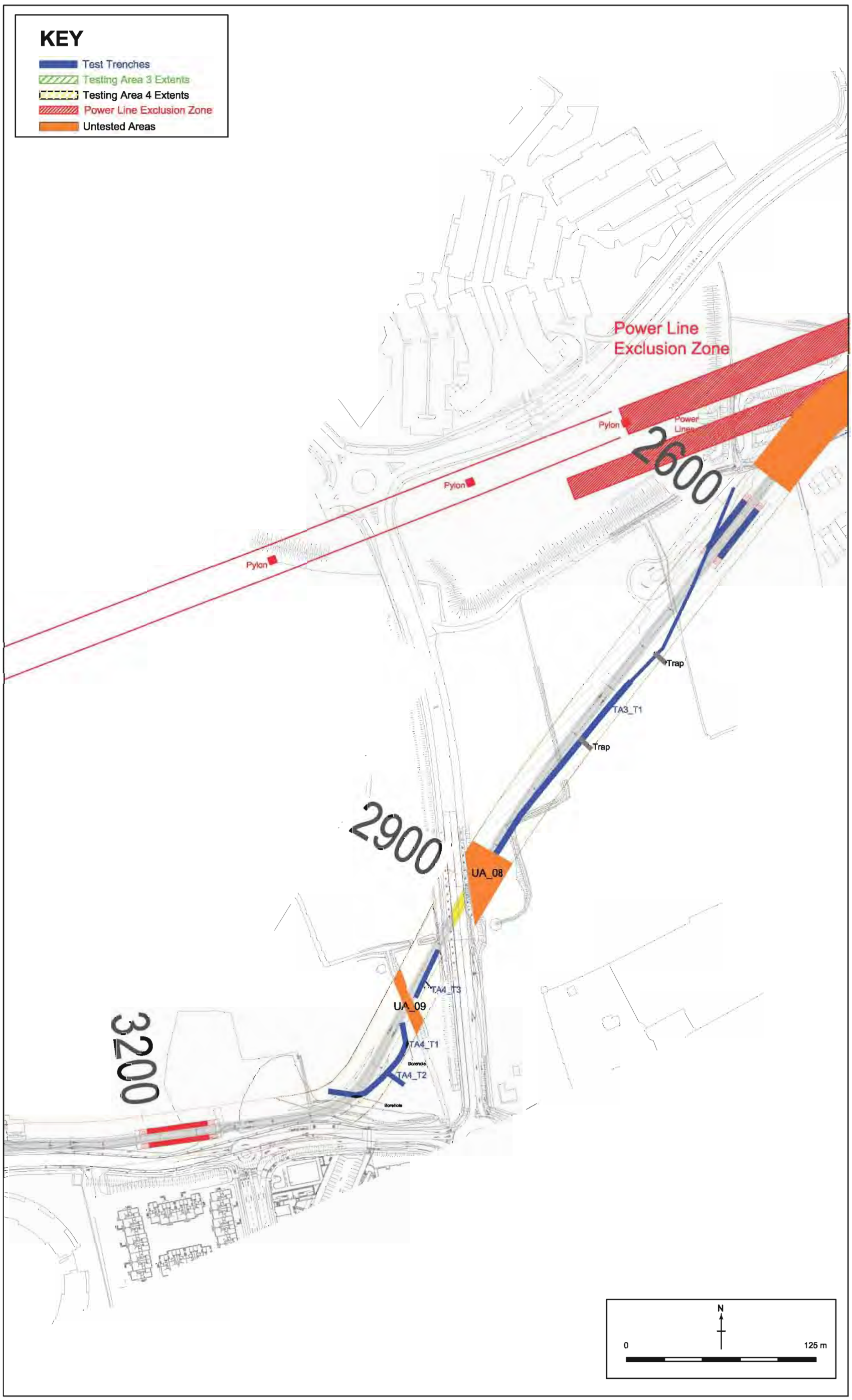

Figure 8 - Luas Line A1 Centreline Testing, Untested Areas in Testing Areas 3 & 4 Trench Layout, City West Stop.

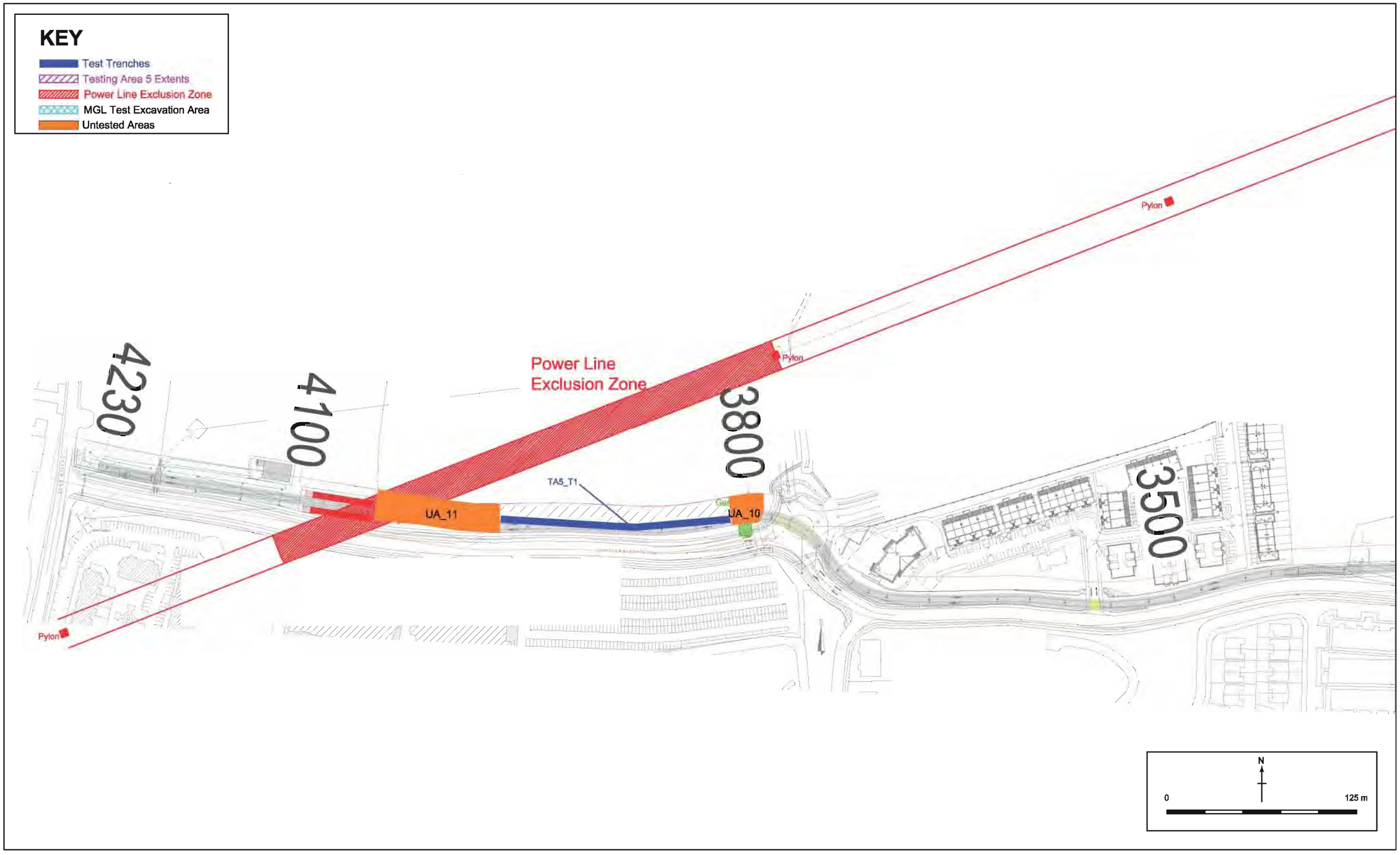

Figure 9 - Luas Line A1 Centreline Testing, Untested Areas in Testing Area 5 Trench Layout, Saggart Stop.

Plate 1 - Testing area 1, trench 1, facing southwest.

Plate 2 - Testing area 2, trench 2, water mains trench, (003), facing northeast.

Plate 3 - Testing area 2, trench 5, (011), natural; feature, facing north.

Plate 4 - Testing area 2, trench 5, (013), modern stone filled drain, facing east

Plate 5 - Testing area 3, trench1, facing southwest

Plate 6 - Testing area 4, trench 3, facing southwest.

Plate 7 - Testing area 5, trench 1, facing west.