



**City of Edinburgh Council Trams York Place to  
Newhaven Archaeological Investigation on Leith Walk  
Data Structure Report  
Project 4870**

# City of Edinburgh Council Trams York Place to Newhaven Archaeological Investigation on Leith Walk

## Data Structure Report

**On behalf of:** Morrisons Energy Services Ltd.

**NGR:** NT 25980 743373 (York Place)

NT 27037 75964 (Laurie Street, junction)

**Project Number:** 4870

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*This document has been prepared in accordance with GUARD Archaeology Limited standard operating procedures.*

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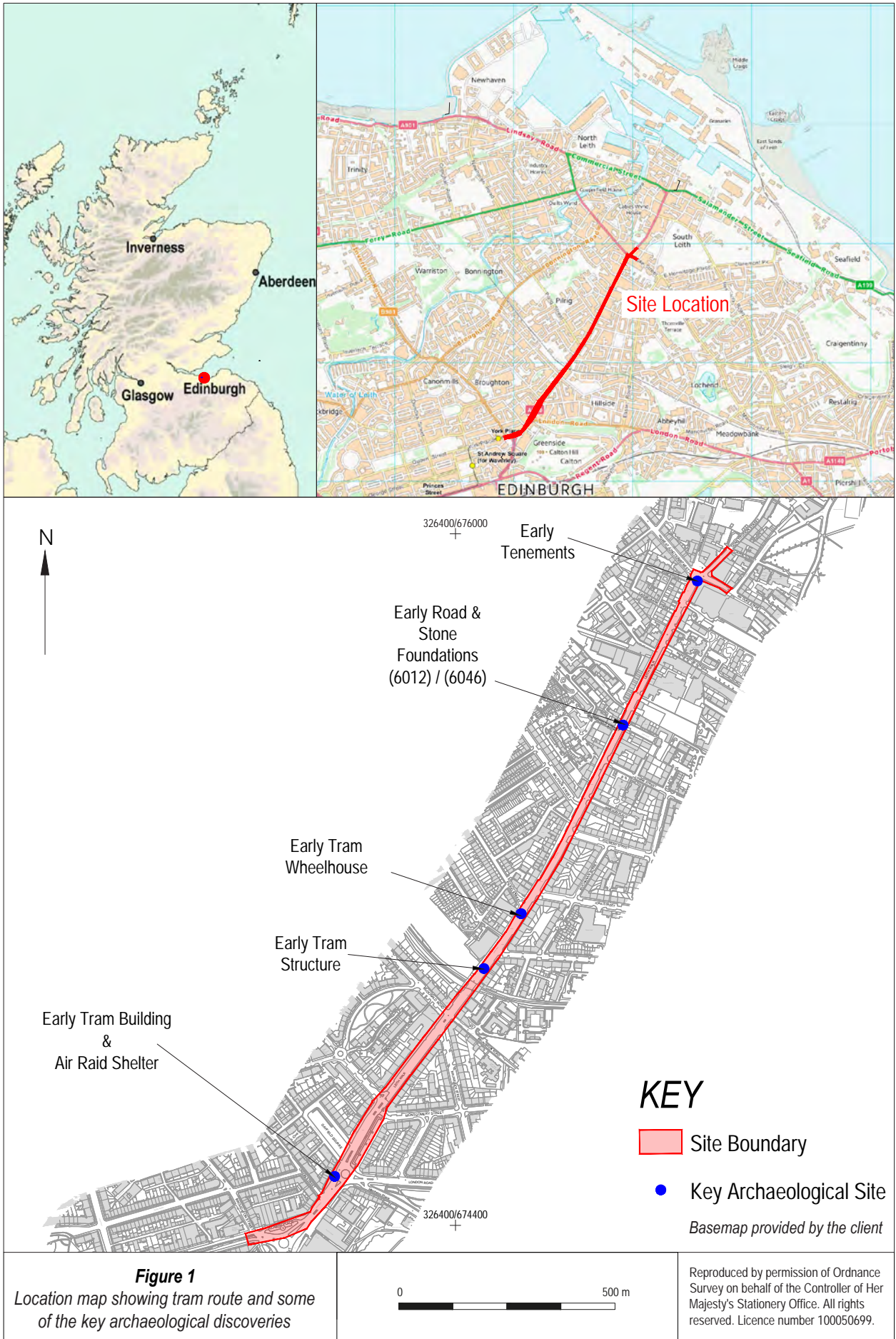
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## Executive Summary

- 1.1 This report covers part of the archaeological work carried out by GUARD Archaeology Ltd for the City of Edinburgh Council Trams to Newhaven project. Archaeological investigations were carried out on Leith Walk from York Place/Picardy Place to the Foot of the Walk and down to the junction with Laurie Street on Constitution Street. GUARD Archaeology Ltd was commissioned by Morrisons Utility Services Ltd (now Morrisons Energy Services) on behalf of the City of Edinburgh Council to carry out an archaeological programme of works during ground works. This was undertaken during works associated with service location, diversion, and the excavation for the tram track foundations.
- 1.2 A number of archaeological features and deposits were recorded during the course of the work including redundant stone-built culverts for drainage, live brick-built culverts, earlier road surfaces up to 1.6 m below the existing road level and remains of tenement buildings. Evidence of the former Edinburgh and Leith tramlines was also uncovered including several underground brick-built chambers with substantial metal roofs. One of these chambers at the junction with Pilrig Street appears to be a wheel house from the first tram system as that was operated by cables and pulleys. Two substantial cast iron wheels survived within the chamber. Other smaller chambers and ducts appear to be cable tunnels. While most of these chambers appear to be connected to the early tram systems one at Baxter's Place at the top of Leith Walk, appears to be an air raid shelter dating to World War 2. but as it had previously been filled with foam concrete it could not be fully investigated.
- 1.3 From the various deposits a number of artefacts were recovered including copper coins, leather fragments, Medieval, post-Medieval and Modern pottery, numerous fragments of glass and animal bone and other metal artefacts. No remains relating to the Siege of Leith in 1559 -60 were uncovered but analysis of the artefacts recovered during the project may provide evidence of material culture around the time of the siege. The scope of works was based on a research agenda prepared by the City of Edinburgh Council Archaeology Service (CECAS) and agreed in a Written Scheme of Investigation (WSI).

## Introduction

- 2.1 This report sets out the results of archaeological investigations undertaken by GUARD Archaeology Ltd, on behalf of Morrisons Utility Services (MUS), now Morrisons Energy Services Ltd and the City of Edinburgh Council along the route of the Edinburgh Trams Project mainly on Leith Walk from York Place to Laurie Street on Constitution Street. The results of the investigations between Laurie Street and Coatfield Lane on Constitution Street (See Appendix A for route and archaeological discoveries), including The South Leith Parish Churchyard excavation, were presented in a separate report (Hunter Blair *et al.* 2022). A further report has been prepared covering the investigations from Coatfield Lane on Constitution Street to Newhaven (Hunter-Blair and Gilmore).

## Archaeological & Historical Background

- 3.1 Edinburgh and Leith were originally two separate towns with Leith acting as the main port and harbour for Edinburgh. Leith is first mentioned in the early twelfth century when the existing harbour and settlement located at the mouth of the Water of Leith was granted by David I to Holyrood Abbey in its foundation charter of c.1128 AD. The Charter established two distinct burghs, north of the river under the jurisdiction of the Abbey and south of the river under state control (Franklin *et al.* 2019). Edinburgh was also expanding in the mid fifteenth century at the top of what is now Leith Walk Greenside Chapel, and later a Carmelite Friary and Leper Hospital were established. Part of the burial ground of the friary was discovered in 2008 during the last tram project (Franklin *et al.* 2019).
- 3.2 As both towns expanded there are historical records that describe the road linking the two and the road is clearly depicted on Petworth's Map of 1560, although the road is probably much

earlier than the date of the map. Daniel Defoe writing in 1725 describes the road as ‘a very handsome gravel-walk 20 feet (around 7 m) broad from Edinburgh to Leith which is kept in good repair by the public purse and no Horse suffered to come upon it’. Initially wheeled traffic was forbidden to use the road which is why the street is called Leith Walk. By 1776 the road was in a poor condition so the Council let a contract for its reconstruction as a metalled surface. The next major repair programme was in 1810 when the road level in the section to the south of Pilrig Street was raised by around 6 feet (1.82 m) to ease the gradient for traffic.

- 3.3 The buildings on either side of Leith Walk mostly date to the nineteenth century and the junction with Pilrig Street, about half way down, represents the boundary between Edinburgh and Leith. London Road, at the top of Leith Walk was built in the late eighteenth or early nineteenth century and is first shown on Kirkwood’s map of 1817 where it is marked as a lane.
- 3.4 As mentioned above, previous archaeological work at the junction of London Road/Greenside Place and Leith Walk uncovered part of the burial ground believed to be associated with the late Medieval chapel and hospital, and several burials were recovered during the first phase of tram construction (Franklin et al 2019). The Carmelite Friary was established around 1526 and subsequently became Greenside Hospital for lepers in 1591; the friary was located on a flat piece of ground at the north-east end of the street now called Greenside Row. At the north end of Greenside Row is a water pump which was formerly known as the Rood Well and is believed to relate to the original hospital or friary.

### Early Tram Systems

- 3.5 Edinburgh and Leith originally had two separate tram systems as Leith was a separate burgh until 1920. The Leith system was electrified, whereas the Edinburgh system used cable haulage, this cable was originally housed in a shallow trough between the tram rails. The main tram depot was at Shrubhill on Leith Walk where an underground chamber was located where the tram track turned into the depot, this was permanently manned during operating hours to try to reduce cable-snagging.
- 3.6 Passengers going from Edinburgh to Leith had to change trams (from cable-drawn to electric) at the junction with Pilrig Street on Leith Walk at the boundary between Leith and Edinburgh. This confused exchange of passengers was known locally as “the Pilrig muddle”, and lasted until the electrification of the Edinburgh system.
- 3.7 In 1922 the Edinburgh Corporation decided to convert the entire system to electric traction. This took around three years to implement and the last cable tram operated in June 1923; the entire tram system ceased to operate on 16 November 1956. Previous archaeological work uncovered remains of an underground chamber at Albert Place on Leith Walk that appears to relate to the early tram system (Moloney and Baker 2017).

## Aims, Objectives and Scope

### Research Aims

- 4.1 The project provided an opportunity to investigate themes relating to the development of Leith, the Port of Leith and Edinburgh in the Medieval period and how they relate to the wider development of burghs and economic centres in Scotland. The Medieval population of Leith represented by the burials in Constitution Street will also fit into this research. These research themes were developed according to criteria proposed by the Scottish Archaeological Research framework ‘Medieval Scotland: A future for its Past’ (ScARF 2012) and the South-East Scotland Archaeology Research Framework (SESARF) currently being developed.
  - The early development of the town and the Port of Leith;
  - Economic development of Leith, commerce, industry and manufacturing;



- Maritime connections;
- Human Population; health, trauma, disease and ethnicity.

4.2 The aims of the archaeological works defined in the scope of work (The City of Edinburgh Council Edinburgh Tram York Place to Newhaven Volume 3 Scope Document and Appendices, section S 110.4.7 – S-110.4.7.5) were to:

- Identify and fully record, excavate and analyse the extent and nature of known archaeological remains affected by the development within the Tram Infrastructure Clearance Zone (hereafter TICZ). This could include deposits and structures that relate to the development of the Medieval town and town defenses, material connected to the different sieges of Leith as well as more recent structures relating to town development, tenement buildings, the earlier tram infrastructure and World War 2 air raid shelter;
- Ensure all standing building remains that are to be altered by the development were recorded to an appropriate standard prior to dismantling taking place;
- Identify the presence or absence of as yet unknown archaeological features and deposits within the TICZ and define their extent and nature and ensure they are preserved by record prior to ground works proceeding in all relevant areas, if preservation in situ is not feasible;
- Undertake a programme of public engagement to promote the archaeology and heritage along the route which will provide a legacy for the Tram Project.

4.3 The objectives were therefore to:

- Conduct archaeological investigations (excavation, watching briefs which may result in preservation *in situ*), across the TICZ to establish the presence or absence of archaeological deposits and structures;
- Conduct an archaeological watching brief on the relevant areas within the TICZ to establish the presence or absence of any archaeological remains, and their character, date and extent if surviving;
- Preserve by record any archaeological deposits or structures, where preservation in situ is not feasible, to enable the development to proceed;
- Monitor areas for preservation *in situ* to ensure that all such works are carried out in accordance with an agreed methodology with CECAS for each site;
- Submit a report (or reports) to data structure level for agreement of the CECAS, on behalf of the Planning Authority, on completion of the archaeological fieldwork,
- Submit a Post-Excavation Research Design (hereafter PERD) for approval to CECAS on completion of the field work

## Methodology

5.1 All work was conducted in line with a Written Scheme of Investigation (Appendix xxx) agreed in advance with the City of Edinburgh Council and the following standards and guidance of the Chartered Institute for Archaeologists (CIfA), of which GUARD Archaeology is a Registered Organisation: Code of conduct (2021).

- CIfA Standard and guidance for the archaeological investigation and recording of standing buildings or structures (2020);

- Standard and guidance for archaeological field evaluation (2020);
- ClfA Standard and guidance for an archaeological watching brief (2020),
- ClfA Standard and guidance for an archaeological excavation (2020),
- ClfA Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives (2020).

- 5.2 Road surfaces and overburden were stripped using a mechanical excavator, fitted with a flat-bladed bucket or hydraulic breaker, under close archaeological supervision. Surfaces were removed to the surface of the subsoil or the first significant archaeological horizon or the required depth was reached. The trenches varied in size from narrow service investigation trenches to the full bulk excavation for the tram track slab. Sub-surface deposits were initially removed either by a vacuum excavator (Vac-Ex), a mechanical excavator with flat-bladed bucket, or by hand. All archaeological deposits were investigated by hand.
- 5.3 All on-site recording, written, drawn and photographic, was to the standards normally pertaining in archaeological fieldwork. Trenches were surveyed and located within the National Grid
- 5.4 Throughout the project public engagement was a high priority and as such during the investigations staff were available to answer questions on what was being uncovered and the process of excavation and recording. In addition, regular vlogs were posted on the Trams to Newhaven website [www.edinburgh.gov.uk/tramstonewhaven/community-benefits/project-archaeology-1?documentId=36&categoryId=12](http://www.edinburgh.gov.uk/tramstonewhaven/community-benefits/project-archaeology-1?documentId=36&categoryId=12)
- 5.5 As these investigations were partially undertaken during the COVID-19 pandemic all relevant, and evolving safety procedures and Scottish Government guidelines were followed to ensure the safety of the excavation team, contractors and members of the public in line with the Tram project procedures and safety measures. Also, the coronavirus restrictions meant that public and community engagement was moved to an online digital format rather than site visits as originally planned.

## Results

- 6.1 The initial element of the investigations comprised archaeological monitoring of trial trenches to locate the position of existing services and the excavation of trenches to divert these services or to install new ones. Excavation during these works uncovered mainly mixed redeposited modern materials or redeposited soils that filled the backfilled service trenches. Following on from this was the bulk excavation of the trench for the concrete track slab, this measured approximately 8 m wide and 0.9 m deep. Drainage trenches along the edges of the track slab were also excavated and these were approximately 0.6 m-1 m wide and 1.4-1.6 m deep, in addition there was the duct bank trench which was 0.6 m-1 m wide and up to 2 m deep. Excavations for new manholes, attenuation tanks and a power substation were also monitored and these works extended into adjacent streets including: Duke Street, Manderston Street, Jane Street, Lorne Street, Iona Street, 165A Leith Walk (old Tram Depot then Bus Depot), Montgomery Street and London Road. The tram route was sub-divided into a number of sections or work areas in order to maintain, wherever possible, vehicular and pedestrian access to the streets around the work areas.
- 6.2 The route covered in this report runs from the existing York Place Trams stop to the junction with Laurie Street on Constitution Street and is approximately 1.3 miles long; 98 trenches were monitored along the main route and the adjacent areas (See Appendix A). Trenches and areas were largely given consecutive numbers in order of excavation. The main archaeological investigations and watching brief were undertaken between November 2019 and June 2022.

Area/location	Area Number	Trenches
York Place/Antigua Street	3	1, 2, 4, 5, 6.
Gayfield Square/Annandale Street	47	26, 27, 29, 30, 31, 32, 34, 34B, 35, 37, 38, 39, 40, 41, 42, 43, 91, 96.
Annandale Street/McDonald Road	52	25, 44, 45, 46, 50, 64.
McDonald Road/Middlefield	73	3, 4, 5, 11, 12, 14, 15, 18, 20, 21, 23, 36, 48, 49, 51, 53, 57, 58, 63, 72, 76, 77, 78, 83, 86, 93.
Middlefield/ Pilrig Street	70	Recorded in the bulk excavation trench sheet.
Pilrig Street/ Dalmeny Street.	55	54, 61, 65, 87, 90.
Dalmeny Street/Orchardfield Lane	69	24, 33, 84, 87, 94.
Orchardfield Lane/Springfield Street	60	6, 7, 9, 59, 68, 92, 95.
Springfield Street/Jane Street.	62	13, 16, 22, 28, 56, 66, 67, 89, 95.
Jane Street/Crown Street.	75	8, 10, 17, 19, 71, 74, 75, 79, 80, 81, 82, 85, 95.
Crown Street/Foot of the Walk.	88	1, 2, 97, 95.
Foot of the Walk/Laurie Street.	35	4, 7, 8, 25, 118.

6.3 Earlier road surfaces and elements relating to the previous tram network were the principal archaeological remains recorded along Leith Walk but not the only ones, many drains, culverts and some building remain were also investigated. The natural subsoil was uncovered along the route and comprised of either a mid orange clay deposit, sometimes with thin bands or lenses of sand or a mid blue grey sand deposit.



Plate 1: Natural deposits recorded in the central trench in Section 60

## Post-Medieval structure and earlier road surfaces

- 6.4 During the excavation of Section 60, located between Orchardfield Lane and Springfield Street on Leith Walk, a series of archaeological deposits and structures were uncovered, these included stone-built rectangular foundations and an extensive road surface with associated drains and deposits.
- 6.5 The stone structure (6012) was uncovered 1 m below the current road surface and measured 3 m in length by 1.80 m wide and was 0.45 m high; it was built with lime mortar bonded square blocks approximately 300 mm by 200 mm by 400 mm in size and the mortar contained inclusions of marine shell. On the upper surface of the structure was a horizontal timber beam (6042) that was 1.68 m long with a square section 0.1 m by 0.1 m. Two vertically set timber posts (6040 and 6041) were located at opposite ends of the sandstone base, these were inserted in post-holes (6044 and 6045). Timber post (6040/6044) was 0.84 m by 0.24 m by 0.15 m maximum size while post (6041/6045) was 0.68 m by 0.16 m by 0.12 m maximum size. A service trench containing a fire clay pipe had been inserted through the stone base towards the southern end.

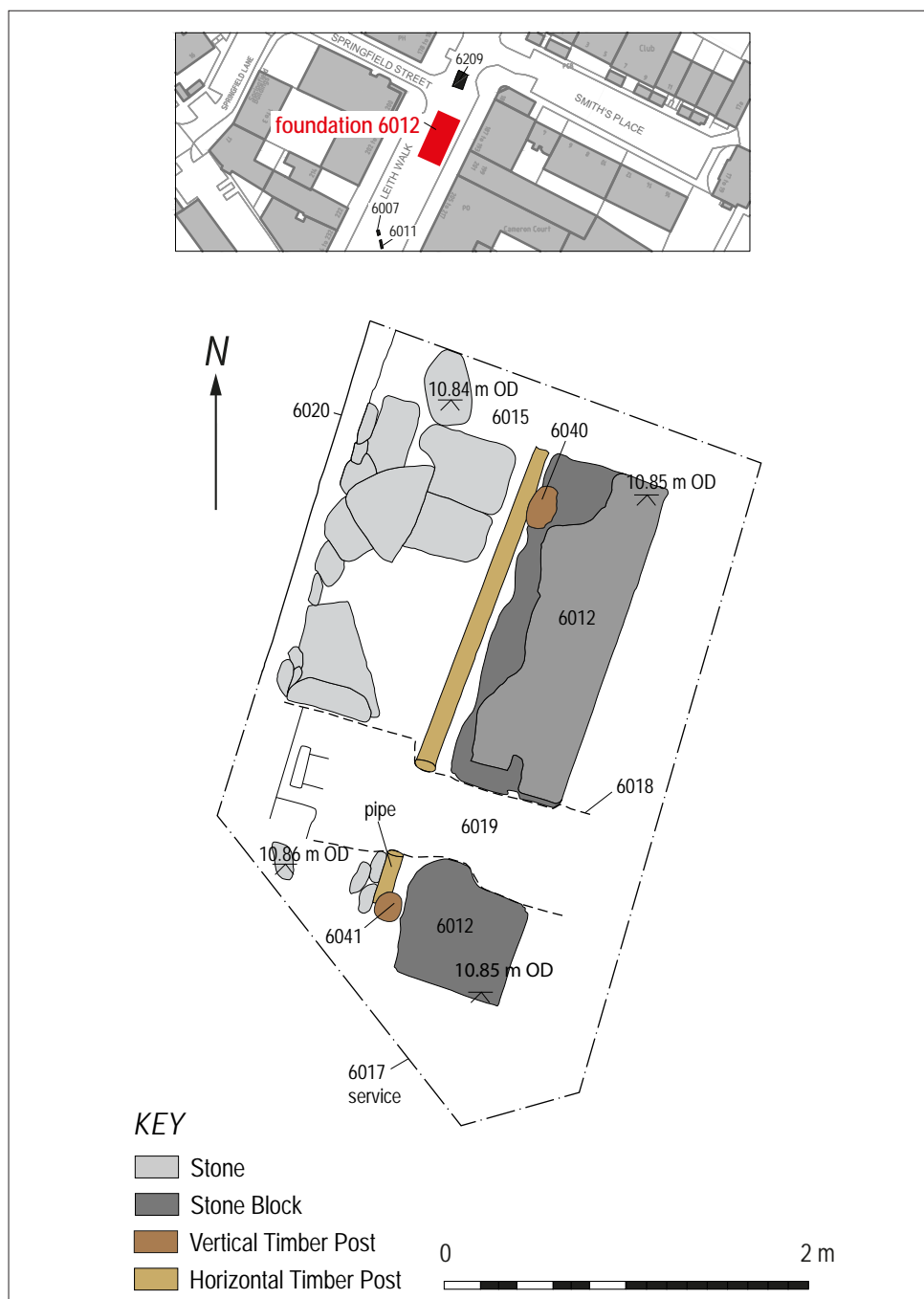


Figure 2: Plan of the masonry foundation 6012





*Plate 2: Stone foundation (6012) with timber posts cut by service trench*



*Plate 3: Detail of one of the vertical timber posts*



*Plate 4: Extended trench with drain in foreground, from the north*

- 6.6 Further investigations were undertaken both to the north and south of the stone foundation base. To the north the complete sequence of deposits was recorded as this area had not been disturbed by later service trenches. Here below the current road surface (6001) was a concrete foundation for the early tram system (6002) with a layer of bedding sand below (6014). The sand sealed an extensive deposit of grey brown sandy clay (6013) up to 0.36 m thick that contained fragments of clay tobacco pipe, pottery, animal bone and glass.
- 6.7 Deposit 6013 sealed deposits that were associated with the stone base (6012) and what appear to be drains on either side which extended beyond the northern limit of the stone base and had been cut into deposit (6013). To the east there were two possible drains, (6028) had been cut by the gas pipe that runs along the eastern side of Leith Walk. The surviving part of the ditch had steeply sloping sides and a rounded base and was 0.32 m wide and 0.35 m deep; the fill (6027) consisted of grey black silty sand with stones. Fragments of animal bone, glass and white earthenware pottery were recovered from this fill. A thin layer of grey clay (6023) partly covered drain 6028 and the adjacent drain 6022. Drain 6022 was 0.78 m wide and 0.5 m deep with steeply sloping sides. The upper fill of the drain appears to have been re-used or remodelled as two parallel lines of stones had been placed along either side to form an open drain or gully with a thin layer of small stones to form the base (6039). Below this was a compact layer of sand and iron slag (6037) 0.12 m thick. Below this was the main fill of the ditch (6038) that was 0.24 m thick and consisted of a green grey coloured sand with fragments of iron slag. This sealed the lowest fill (6043) which was 0.12 m thick, consisting of grey silty sand with stones. To the west of drain (6022), the main deposits (6013) sealed a thick layer of grey/black silty clay that partly sealed the stone foundation (6012), this layer was 0.3 m thick. Immediately to the west was the remains of another drain that had been cut from layer (6013) and cut through layer (6015). The drain (6020) was 0.3 m wide and 0.15 m deep with sloping sides and an overhanging lip, the fill (6016) consisted of green/grey silty sand; the surviving section of this drain had been partly truncated by services.



Plate 5: Stone foundation (6012) with drain and section, from the south

- 6.8 Further excavation revealed that the stone base (6012) was partly built over an extensive road surface that was uncovered 1.5 m below the current road level. The surface (6046) was constructed from sub-rounded and sub-angular whinstone rubble of different sizes set within silty sand. The surface extended for 11.70 m and was 0.80 m wide with a maximum thickness of 0.08 m. Below the stones that formed the road was an extensive deposit, possibly a drain (6051), that the road seems to have been built over; an open drain was retained on the north-west edge of the road. Pieces of wood were recovered from the edge of the drain. The road surface was truncated by a trench for a gas pipe trench along the south-east side and a service trench to the south. This service trench was unusual in that the sides of the trench had thick wooden shoring on both sides and similar planks of wood were laid over the top, a fire clay pipe was uncovered at the base of the trench.



Figure 3: Plan of cobbles, foundation base 6012 and drainage channel



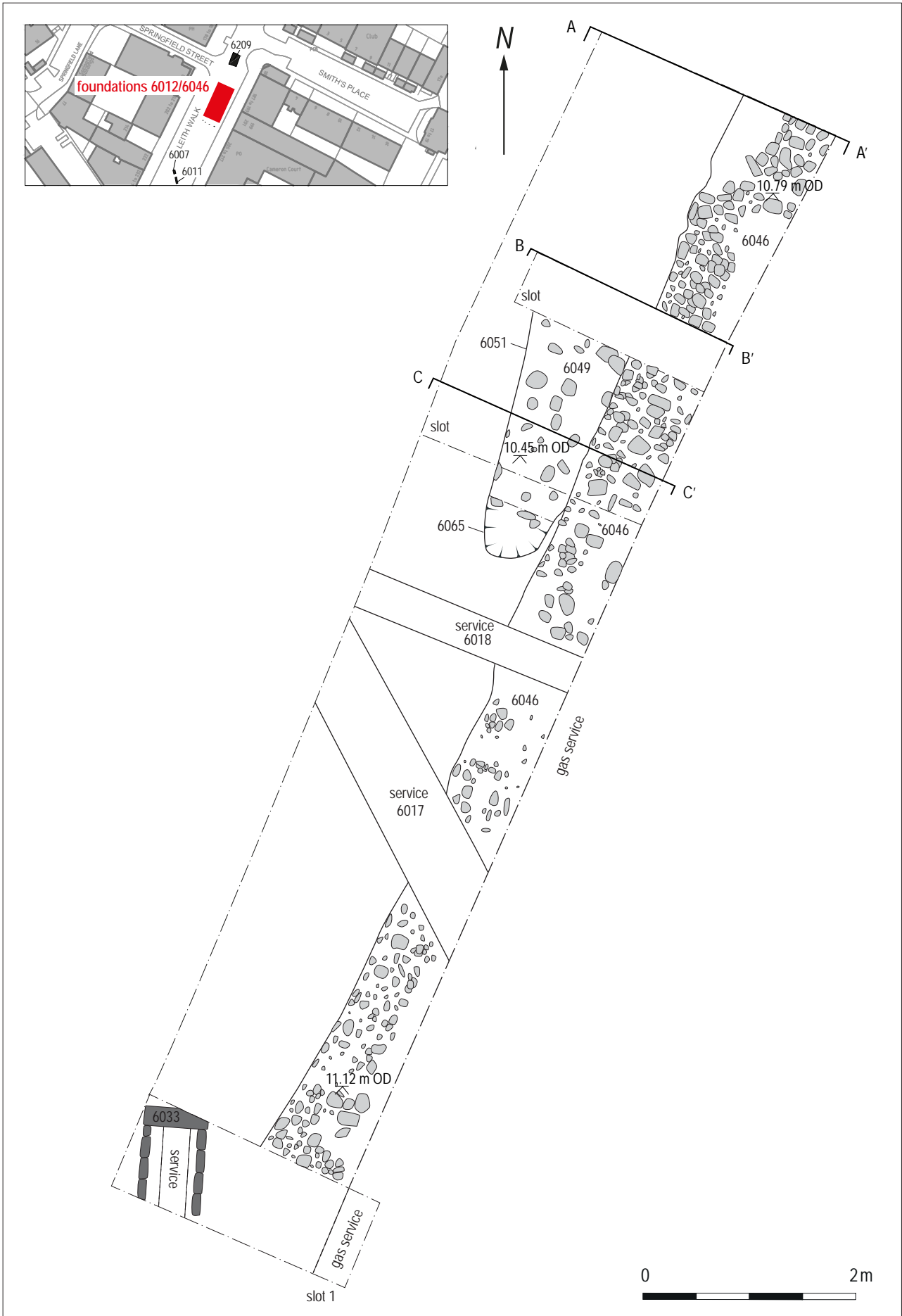


Figure 4: Detail of the cobbles and drains below the masonry foundation

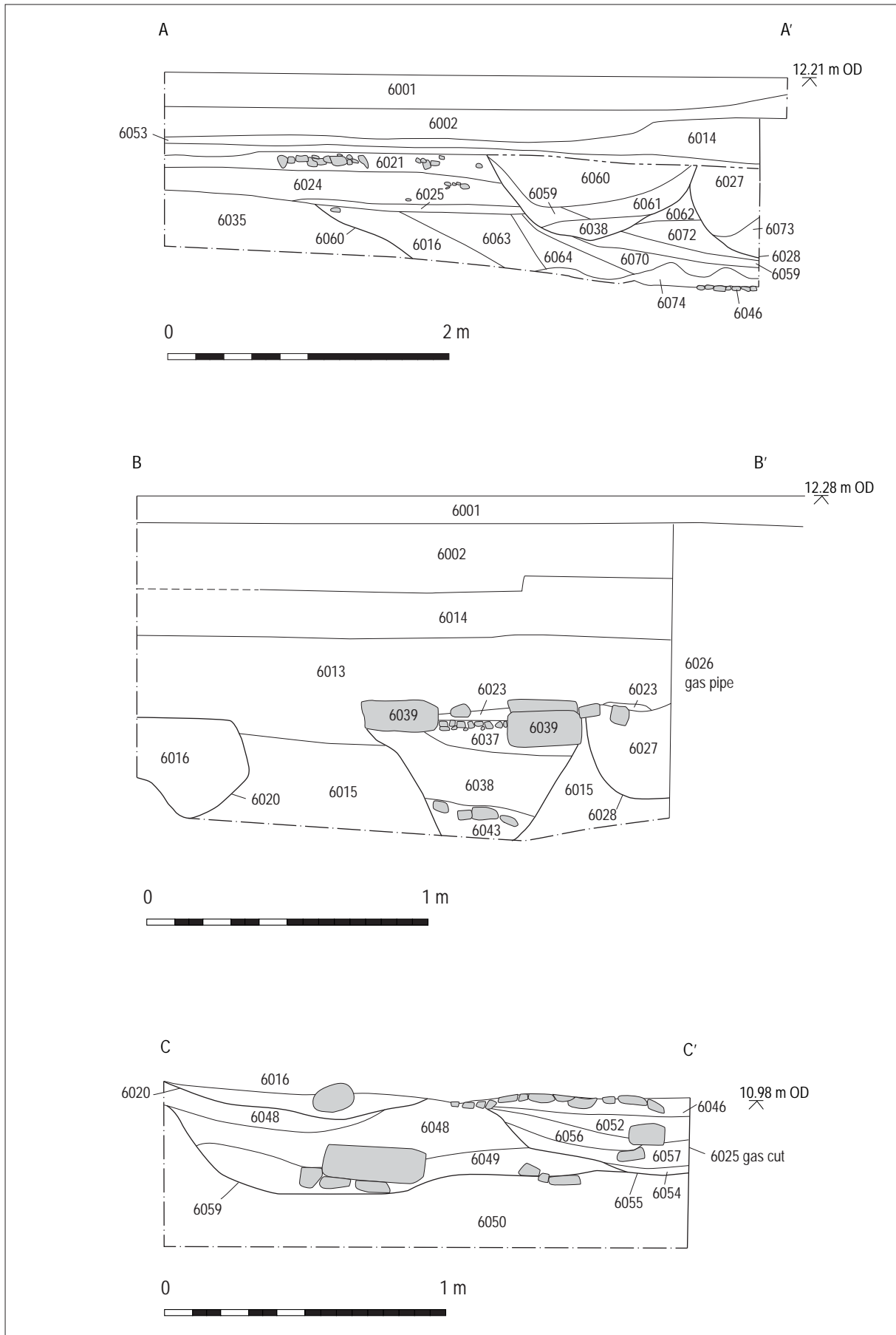


Figure 5: Sections showing the complete sequence of deposits in an around the masonry foundation and cobbled surface



*Plate 6: The stone foundation was removed to reveal a cobbled surface (6046) below, from the south*



*Plate 7: Full extent of the cobbled surface (6046), from the south*



*Plate 8: Detail of wood at north-west edge of the cobbled surface (6046)*



6.9 Drain 6051 was visible in section and could be traced for 1.50 m and appeared to be 2.80 m wide and 0.40 m deep. This was initially observed at the north-west side of the road and partially under it. The south side of this ditch and the road were truncated by a gas service trench, so the total width of both is unknown. That ditch was cut into the blue grey natural subsoil (6066).

6.10 Further investigation revealed that the ditch had three fills, the basal fill (6049) consisted of mid grey-brown silty clay 0.12 m thick with frequent sub-angular and sub-rounded stones. Above this was a grey sand (6048) 0.1 m thick with rare inclusions of charcoal and sub-angular stones. The upper fill (6058) consisted of mid brown grey sand 0.09 m thick. A possible recut (6020) for the ditch edge was uncovered parallel to the road edge; this was 2.1 m long, 0.3 wide and 0.15 deep with concave sides. The fill (6016) consisted of mid green grey sand with black sandy spots. It was visible around the stone-built structure or foundation (6012) described below.

6.11 In section 62, located between Springfield Street and Jane Street outside Allander House, another section of a ditch was uncovered 1.8 m below the current road level that is likely to be the continuation of drainage ditch (6051). The ditch extended for 9.50 m length but only 0.70 m of the width was visible as the ditch was only observed in the duct bank trench and below the limit of excavation. The ditch had steeply sloping sides and a concave base although the full extent was not exposed. The fill (6213) was 0.25 m thick and consisted of grey green silty sand with frequent stones. A large culvert (6212) truncated this ditch.

6.12 Continued excavation of the road revealed that the cobbled surface was laid within a wide shallow cut (6055) that was 0.25 m deep with sloping sides and a flat base. Below the cobbles that formed the surface were two deposit of brown silty sand (6056 and 6057) each up to 0.09 m thick that appear to be bedding layers for the cobbles. Below this were thin mixed grey brown silty sand layers (6053 and 6064) that formed the main foundation and were mixed with the natural subsoil.



Plate 9: Ditch 6022 at north-west side of the road surface, cut into the natural subsoil



Plate 10: Section 62, open drain (6051) along edge of the road in the duct bank trench

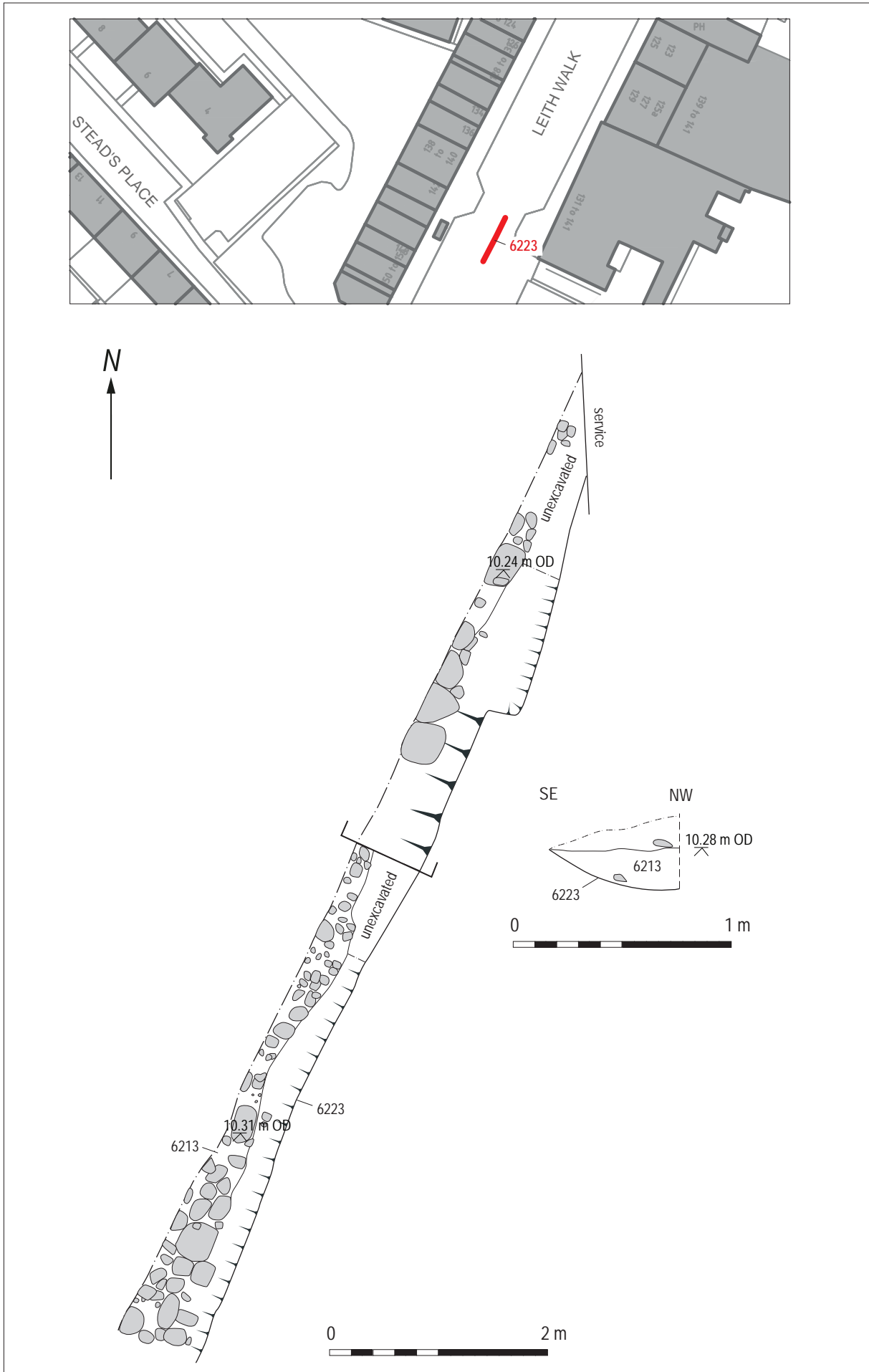


Figure 6: Plan of road and section exposed in duct bank trench





*Plate 11: Detail of relationship between open drain and later main culvert*



*Plate 12: Section 62, detail of south-west facing section through the drain and road*

### Other road surfaces

- 6.13 Earlier road surfaces were recorded in different sections along Leith Walk, these were recorded usually in the deeper drainage trenches and duct bank trench. These surfaces were generally constructed from sub-rounded and sub-angular small to medium sized stones with grey silty clay and were generally between 0.08 and 0.20 m thick.
- 6.14 In Area 47, between Gayfield Square and Annandale Street, a surface (4713) was recorded in the section of the duct bank trench and was visible for 15 m in length and was between 0.10 m and 0.15 m thick. Below the surface was a mid-orange brown silty sand (context?) with sub-angular stones probably the natural subsoil.
- 6.15 In Area 52, between Annandale and McDonald Road, only a 1.5 m long section of an earlier road survived (5210) at a depth of 1.5 m below the current road level.
- 6.16 In Area 73, located between McDonald Road and Middlefield an earlier road surface was recorded in several places within the duct bank trench. Surface (7307/7331) survived for 4.3 m in length to the south of the rail bridge at a depth of 1.6 m below the current road level and was up to 0.2 m thick.



Plate 13: Area 73, early road surface context (7307) at south side of the rail bridge

6.17 Another road surface (6209) was recorded consistently in most sections along Leith Walk at a depth of between 0.7 m and 0.9 m below the current road level at the approximate formation level for the tram track slab. This road surface had a core of sub-angular medium sized stones with dark silty sand and was between 0.25 m and 0.3 m thick. Unfortunately, the full width of the road was not uncovered at any point during the bulk excavation as the surface had been cut by various services, but a section of road edge or kerb was visible in section 62, where a possible open drain or gully was uncovered and was built of two parallel lines of large stones (6223).

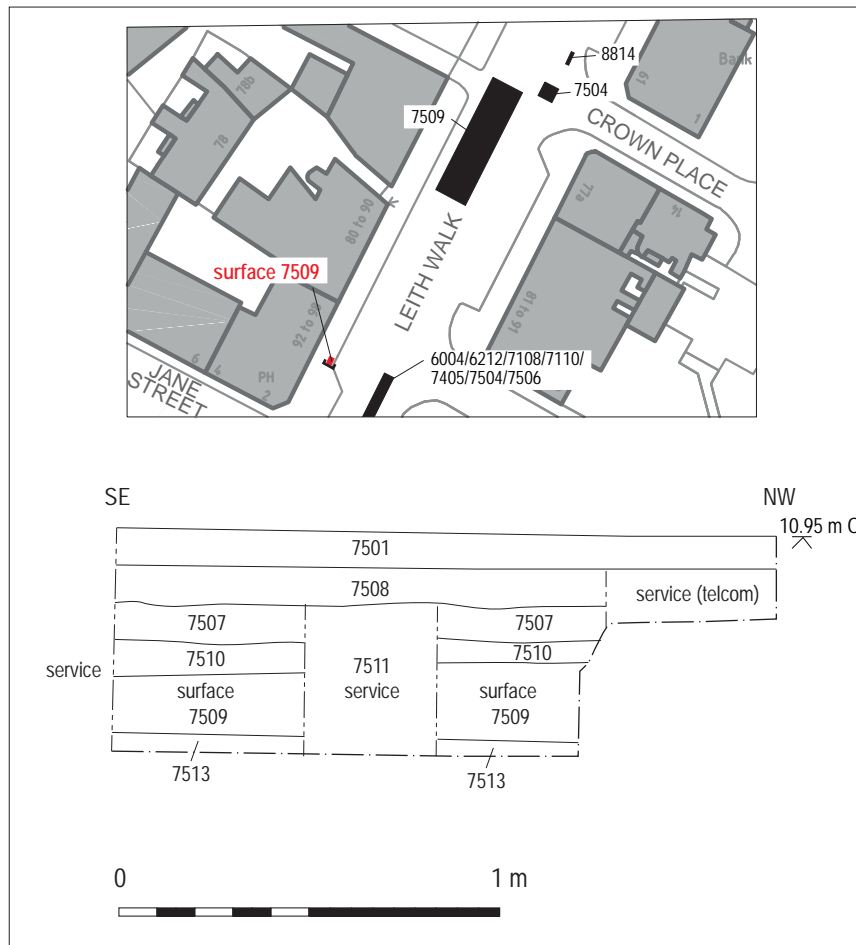


Figure 7: Section showing the sequence of deposits by Jane Street junction.



- 6.18 In Trench 62 near the junction with Jane Street the full sequence of deposits was recorded in section but had been cut by modern services. Below the modern road surface (7501) were the concrete foundations of the earlier tram system (7508) which sealed the cut of an earlier service trench (7511) that cut through a layer of re-deposited yellow sand (7507). Below this was a deep deposit of mixed silt and sand (7510) that was up to 0.4 m thick. Below this was the remains of an earlier cobbled road surface (7509). Below this was a mixed brown sand levelling layer (7513). A similar sequence was observed at different points along Leith Walk where the earlier road surface survived.
- 6.19 In Area 88, located between Crown Street and the Foot of the Walk, a road surface (8809) was located at a depth of 0.7 m below the current surface, in Area 75, between Jane Street and Manderston Street. The surface only survived as small pockets due to disturbance from a main gas pipe. In Area 62, between Springfield Street and Jane Street the road surface (6209) was recorded at a depth of 0.9 m below the current road level where it was truncated by several services. Outside Allander House (NO 139-141 Leith Walk) an extensive section of the road surface measuring 5 m by 2.35 m was revealed. While also in Area 62 by Steads' Place a metallated surface (6228) was recorded at a depth of 0.90 m below the present road surface.



Plate 14: Metallated road surface (6209) at Section 62. bridge

- 6.20 In Area 60, at Springfield Street a road surface (6021) was recorded at a depth of 0.6 m below the current road and an area 2.30 m long and 3.10 m wide was uncovered with the same characteristics of the surface recorded elsewhere. Below the road surface a deposit of dark grey brown silty sand (6024) with occasional sub-rounded medium stones 0.16 m thick was revealed. This deposit appears to be a foundation or bedding layer for the road surface.



Plate 15: Cleaning, top surface of the road at Area 60

- 6.21 In Area 69 at Lorne Street, fragmentary remains of a surface (6903) were encountered at a depth of 0.7 m below the current road surface. In Area 55, at the junction with Dalmeny Street an extensive area of a surface was recorded. The deposits below the road surface were similar to those in Area 60 and consisted of a dark greyish brown silty sand (6056) 0.16 m thick and below this was another layer of dark grey silty sand (6057) 0.08 m thick.

6.22 In Area 70, at Pilrig Street the surface (7013 and 7018) was recorded at a depth of 0.7m below the current road level but this same surface was found at a deeper level to the south, at 1.1 m below road level at Middlefield (7019). While at the junction with Shrubhill it was 0.9 m below (7315) and was also found at this same level at the north side of the rail bridge at Albert Place. It remained at a depth of 0.9 m below the current road level as far as Annandale Street (4711).

6.23 In Area 3, at the London Road and Antigua Street junction several earlier road surfaces were uncovered, all of them with a similar construction and appearance but at very different levels below the present road surface. The upper surface (0304) was only at 0.4 m below the current surface and, was constructed with sub-angular medium sized stones with a light grey cement. A second metallated surface (0106, 0310 and 0405) was located at 1 m below current road level and another (0311) at only 0.2 m below that, both were very similar in construction. A third surface (0518) was recorded at a depth of 1.4 m and the deepest one investigated (0522) at 1.8 m below street level.



Plate 16: View of the metallated road surface (6903) at the junction of Dalmeny Street (Area 55 and 69)



Plate 17: Area 55 and 69, recording the section through the road surface (6903) at the junction of Dalmeny Street

6.24 These earlier road surfaces were uncovered in several trenches and indicate that the early main road could have been between 10 and 12 m wide.

### Remains of the Old Tram System

6.25 Throughout this section of the tram route below the existing road surface were the remains of the previous tram system: the concrete foundation layer with sleepers made out of sections of track and several underground chambers and structures that relate to the cable pulley system.

6.26 The most significant remains are described below starting at Antigua Street/Baxter's Place (Area 3). In this section an underground complex consisting of two chambers and corridors with cables



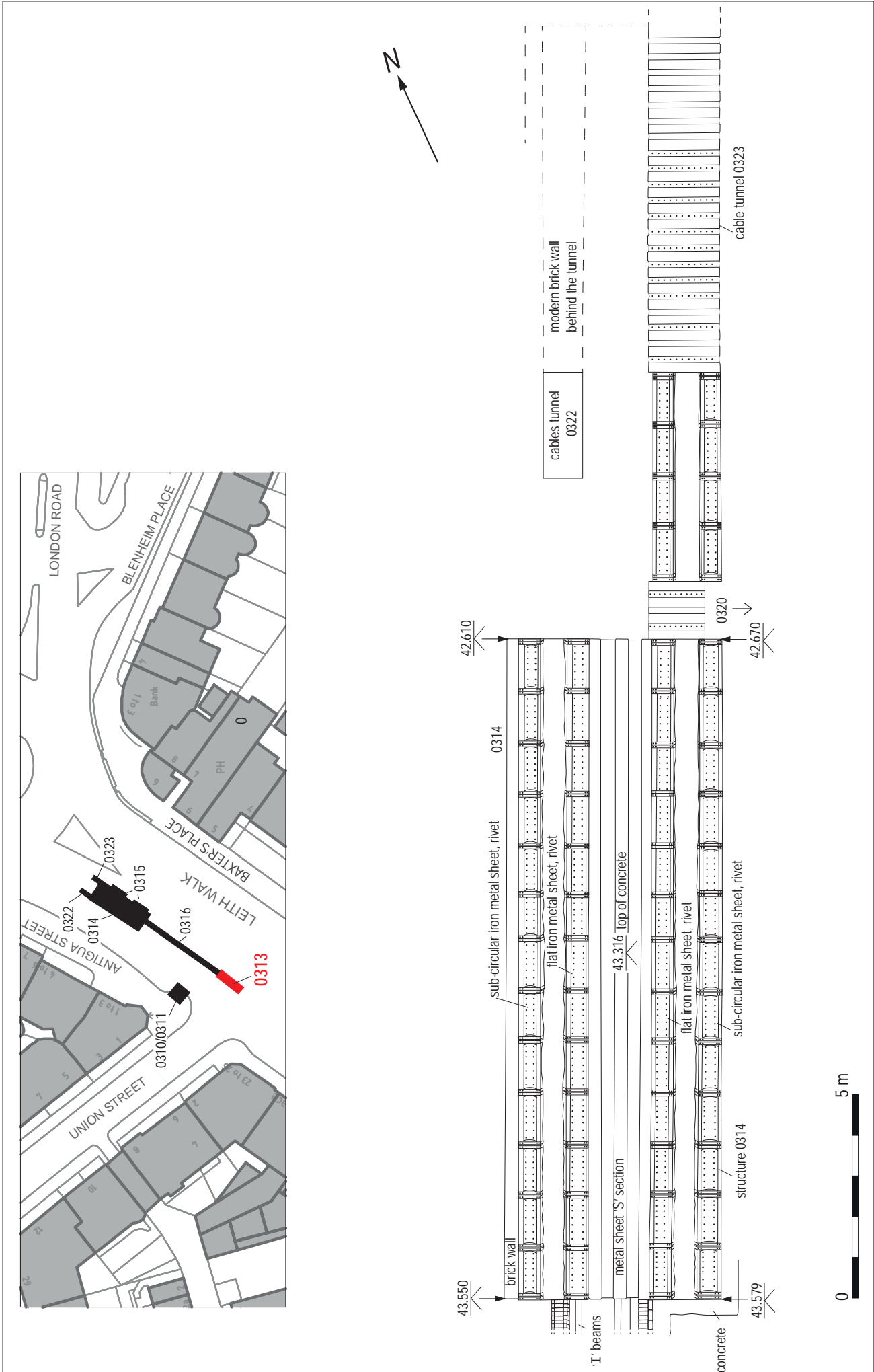


Figure 8: Plan of the surviving metal roof of the underground chamber at Antigua Street/Baxter's Place

tunnels were uncovered along with two small iron wheels that were part of the cable pulley system (finds 831 and 832 found inside structure 0314). Part of the structure was modified and used as an air raid shelter, during World War 2. Finally, in 2010 the access corridor that runs under the main road was filled with foam concrete making it inaccessible today.

- 6.27 The south-west chamber at Antigua Street/Baxter's Place (0313) was a rectangular room 6.5 m long by 1.9 m wide (12.35 m<sup>2</sup>) and the walls were 2.3 m high. The structure was built from light coloured bricks (230 mm by 110 mm by 80 mm) with a metal frame that supported a channel for the cable pulley system. The room had been deliberately filled in with building rubble, this was removed to reveal a drain in the floor made from bricks. A modern wall had been built to seal off the cable tunnel (0316) at the north-east. A recent service trench had damaged part of the cable tunnel and the side wall was missing; the service trench and surrounding area had been filled with gravel.
- 6.28 The main chamber at Antigua Street/Baxter's Place (0314) was a rectangular room 16.5 m by 5 m approximately, orientated SW/NE. The walls were made from bricks similar to those in the south-west chamber and were bonded with mortar. This chamber had been filled with foam concrete so could not be fully investigated.
- 6.29 The room was covered by a metal roof constructed from large corrugated sheet piles riveted together supporting the iron frame that contained the rails and the small wheels for the pulley system. The room could be accessed from two manholes, one on the north-west side of the road (0312) and the other on the south-east side (0320). This structure was connected to chamber (0313) by cable tunnel (0316), that was 20 m long and 1.1 m wide, although it had been damaged by a service trench. The main entrance to the chamber was located at the north-west side of the main structure.



*Plate 18: Overhead view of main chamber and cable tunnels at Antigua Street/Baxter's Place*

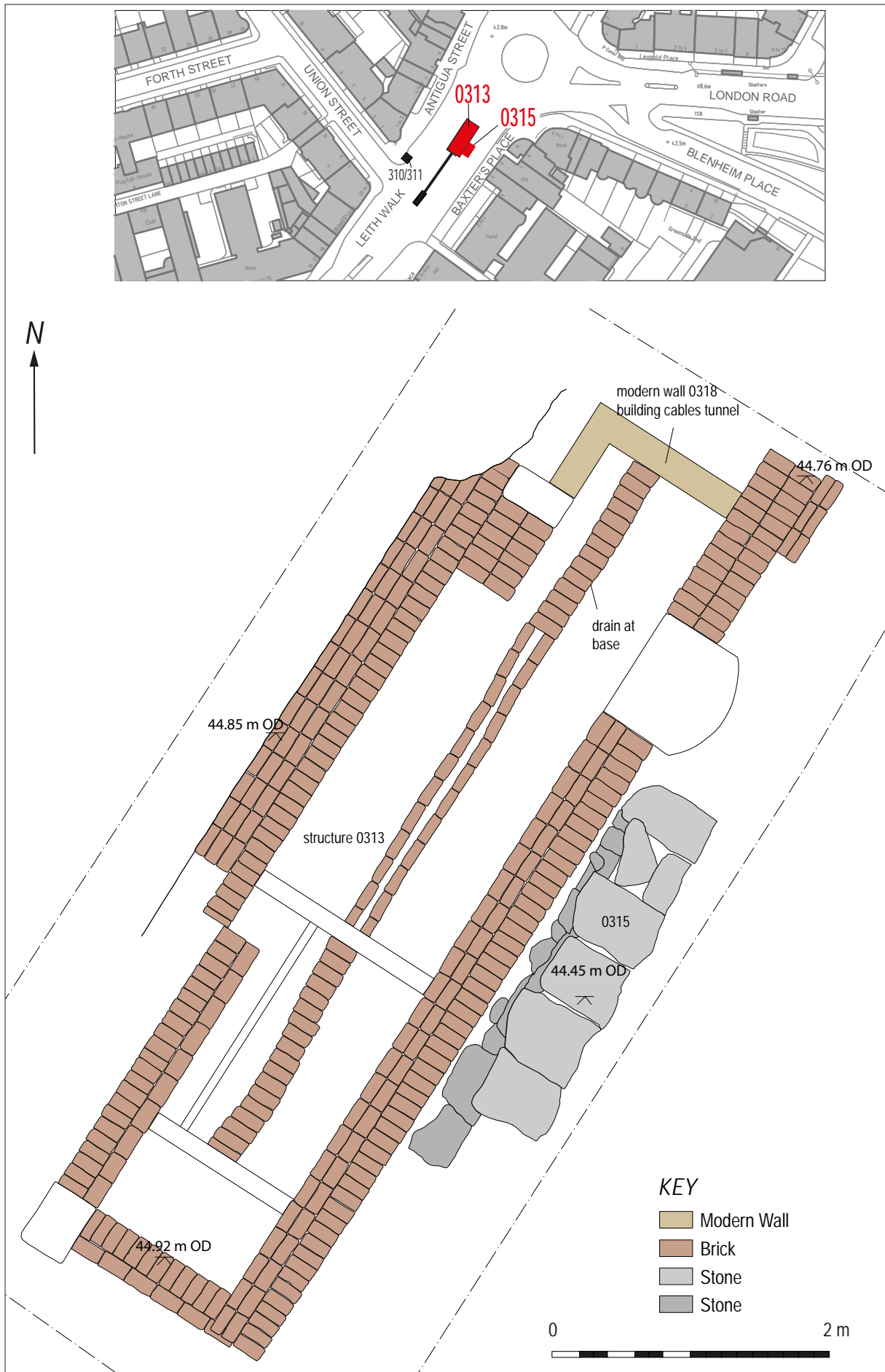


Figure 9: Plan of early Tram chamber 0313 at Antigua Street/Baxter's Place





*Plate 19: General view of chamber (0313) located at Antigua Street/Baxter's Place*



*Plate 20: View of manhole (0312) from north-west*



*Plates 21 and 22: Small wheel in situ suspended from the roof of the chamber at Antigua Street/Baxter's Place and a wheel found over the roof of the main chamber*



6.30 A second cable tunnel (0322), was uncovered next to the main chamber and was 2.6 m long by 1 m wide and ran parallel with the other cable tunnel (0323). It was built with the same bricks as the other chambers. Leading from this chamber was a brick-built duct with a circular profile and the bricks or tiles had a yellow glaze on the inside; this duct was 0.44 m diameter and the brick tile walls were 0.08 m thick. The base of the cable tunnels in this area was 2.2 m below the road level and was sealed off by a modern brick wall with reused iron rails forming a roof for this structure. A small corridor (0324), 1.6 m long by 1 m wide connected this tunnel with the parallel chamber next to it. The corridor had a brick-arched roof and had been filled with concrete so only the top of the arch was visible.

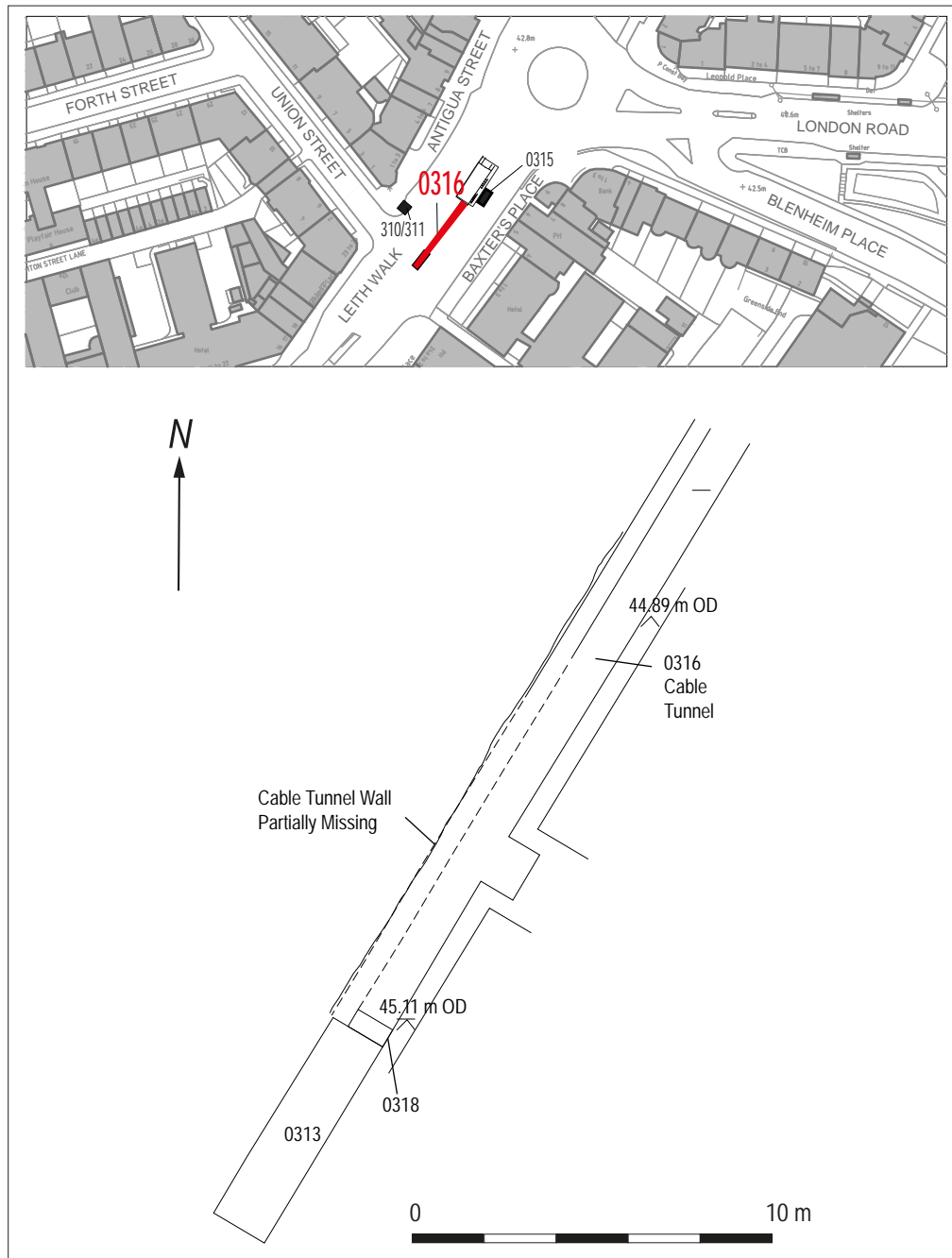


Figure 10: Plan of Tram chamber 0313 and the cable tunnel



*Plate 23: Entrance to the small corridor that communicate the parallel cable tunnels*



*Plate 24: Cable tunnel running north-east/south-west.*



*Plate 25: Detail of cable tunnel built from glazed tiles.*





*Plate 26: Plan view of cables tunnel (0323) taken from north-east*

6.31 Another 12 m of cable tunnel was uncovered along the south-east side of chamber (0323); this section still had the sheet metal corrugated roof in place but it was completely filled with foam concrete and could not be investigated. Attached to this tunnel at the north-west end was a horizontal iron beam 3.4 m long, 0.52 m wide and 0.28 m high supported by an iron pillar (1.15 m visible height). Attached to the main chamber was a small entrance corridor with a vaulted brick roof that might have been added when these chambers were used as an air raid shelter.



*Plate 27: Horizontal beam and pillar associated to the cables tunnel at Antigua Street/Baxter's Place*



*Plate 28: entrance to the corridor running north-west/south-east with arched roof partly filled by foam concrete*



6.32 More remains of the cable tunnel were recorded in Area 73, from McDonald Road to Middlefield including a section on the south side of the rail bridge but it was in poor condition and measured 3.2 m in length, 2.4 m width and survived to a height of 0.8 m (7308). This section of the cable tunnel was built with yellow or red bricks (230 mm by 110 mm by 90 mm) stamped with the "ETNA" brand name and a grey mortar; the roof did not survive.



Plate 29: Remains of cables tunnel (7308) discovered in section at south of the rail

6.33 At the north side of the rail bridge a section of the cable tunnel turned to the west at Shrubhill where a cable wheelhouse had previously been recorded (Dalland M 2016).

### Albert Place Cable tunnels and chamber

6.34 At Albert Street a well-preserved section of the cable tunnel (7314) was recorded. The tunnel was built with brick walls, this section measured 16 m long and 2.8 m wide and 1. m high with a cement floor and rivetted iron corrugated sheet roof.



Plate 30: Area 73, detail of brick-built cable tunnel (7314)

6.35 Further north at Albert Place another chamber was investigated, this room (5715) was 9.8 m long by 5 m wide and part of the roof still survived; this consisted of seven panels of rivetted corrugate iron (5705). The room was filled with concrete and only the top 0.26 m was visible inside the structure but the external walls were 1.6 m high.

6.36 Unusually the foundation trench for this structure survived (5716) although it had been partially filled in with concrete. When the roof was removed a central iron beam was exposed (measuring 8.25 m by 0.4 m by 0.4 m), this supported the roof and was resting on two pillars.



Plate 31: Area 73, inside detail of cable tunnel (7314)

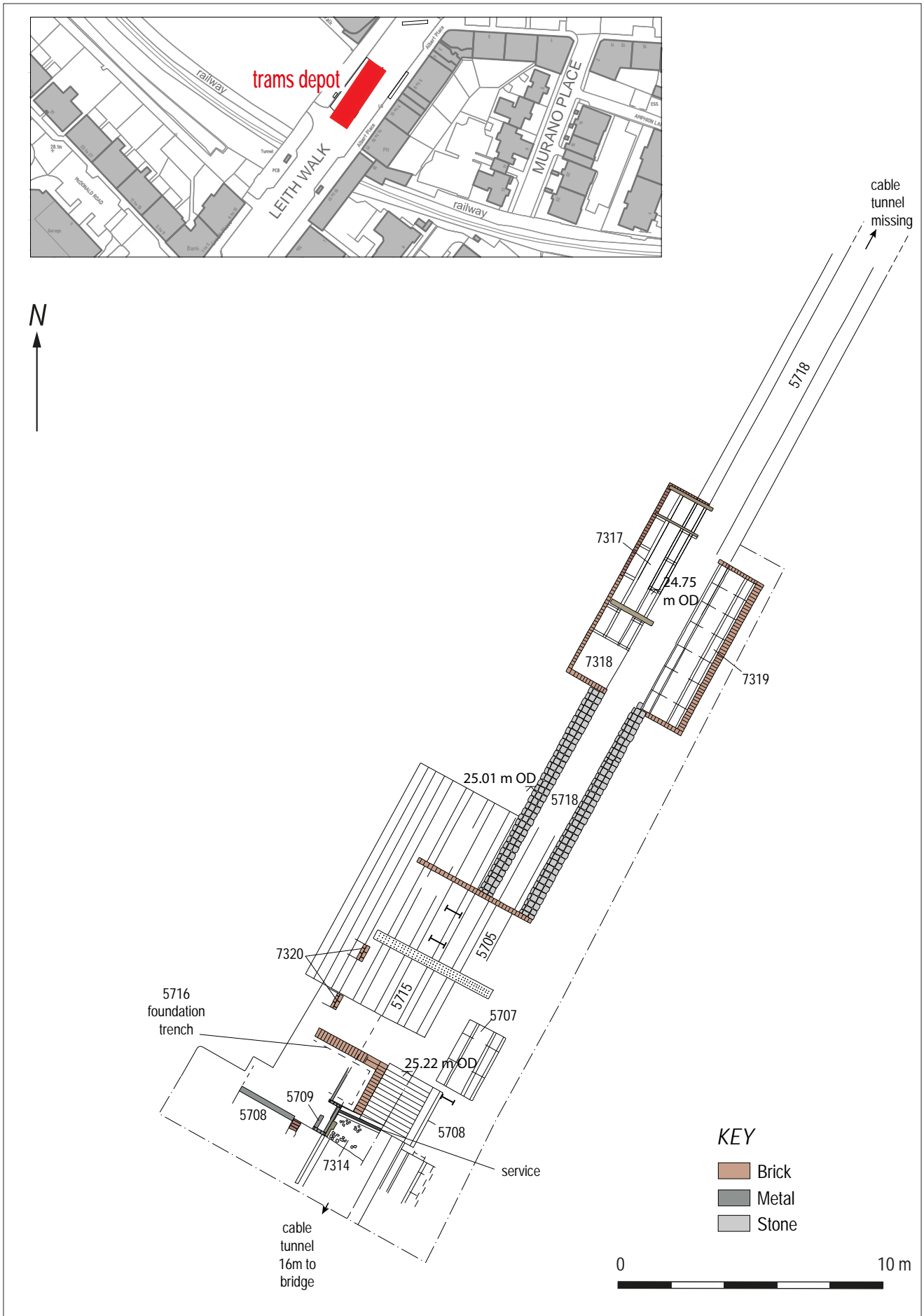


Figure 11: Plan of underground structures relating to the Old Tram system





*Plate 32: Removing the metal sheet pile roof of the cable house (5705) at Albert Place*



*Plate 33: Horizontal central beam uncovered inside the cable housing*



*Plate 34: Iron pillar supporting the central beam*

### Wheelhouse at Pilrig Junction

- 6.37 During the bulk excavation of Area 70 at the junction with Pilrig Street, another chamber was uncovered on the south-east side of Leith Walk and appeared to be intact. Excavation revealed that the original cast iron wheels were still in position, a remarkable find in relation to the old Trams system.
- 6.38 The chamber (7016) was rectangular in plan measuring 5.5 m by 2.96 m by 2.98 m and built from bricks (240 mm by 100 mm by 80 mm). The chamber had been deliberately infilled with rubble and was contaminated with grease at the bottom. Three of the walls of the chamber survived intact but the southern wall had been demolished and that area was filled with rubble with modern hardcore on top. Inside two vertically set cast iron wheels, approximately 1.8 m in diameter were found *in situ*; these wheels would have been used to guide the cable system. The wheels were anchored to two iron beams and were bolted into position, the beams were supported on four stone and brick foundation bases. Some of the bolts had been removed which could indicate that the wheels were due to be removed when the system was no longer in operation. Once the wheelhouse had been cleaned and recorded the wheels and beams were removed for conservation. The floor of the chamber was not flat but had a slight slope to allow the grease/oil to run into a hole in the centre.
- 6.39 This building was located at the boundary between Edinburgh and Leith and tram passengers had to change here as there were two different tram systems for the two burghs up until 1922/23.



Plate 35: Location of the wheel house with Pilrig Church in the background



Plate 36: General view of the wheel house (7016)





*Plate 37: Completing the excavation of the Wheelhouse, from the North*



*Plate 38: Wheels being removed in advance of conservation treatment*



*Plate 39: Detail of one of the wheels in situ*



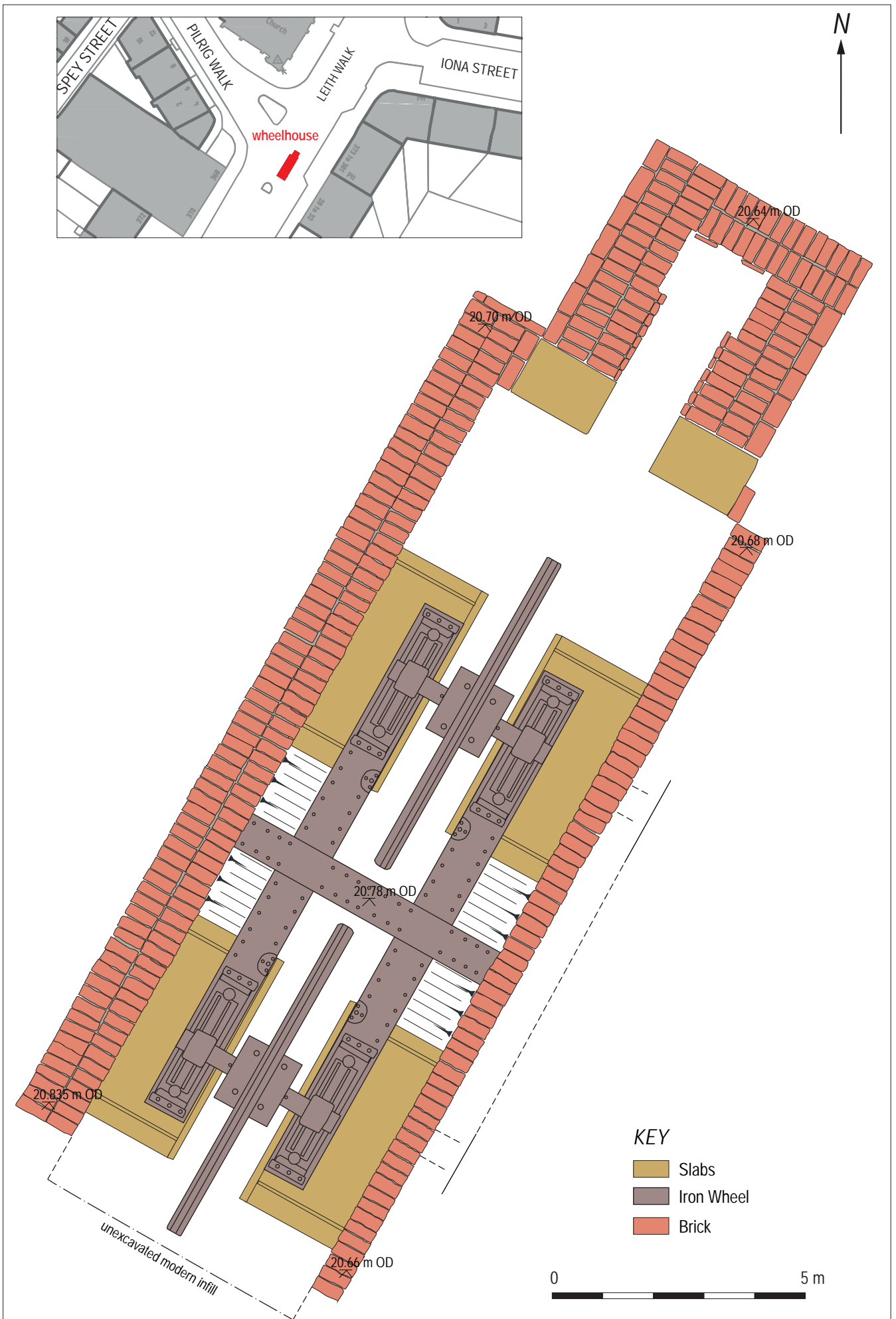


Figure 12: Plan of the early Tram wheelhouse at Pilrig Street.

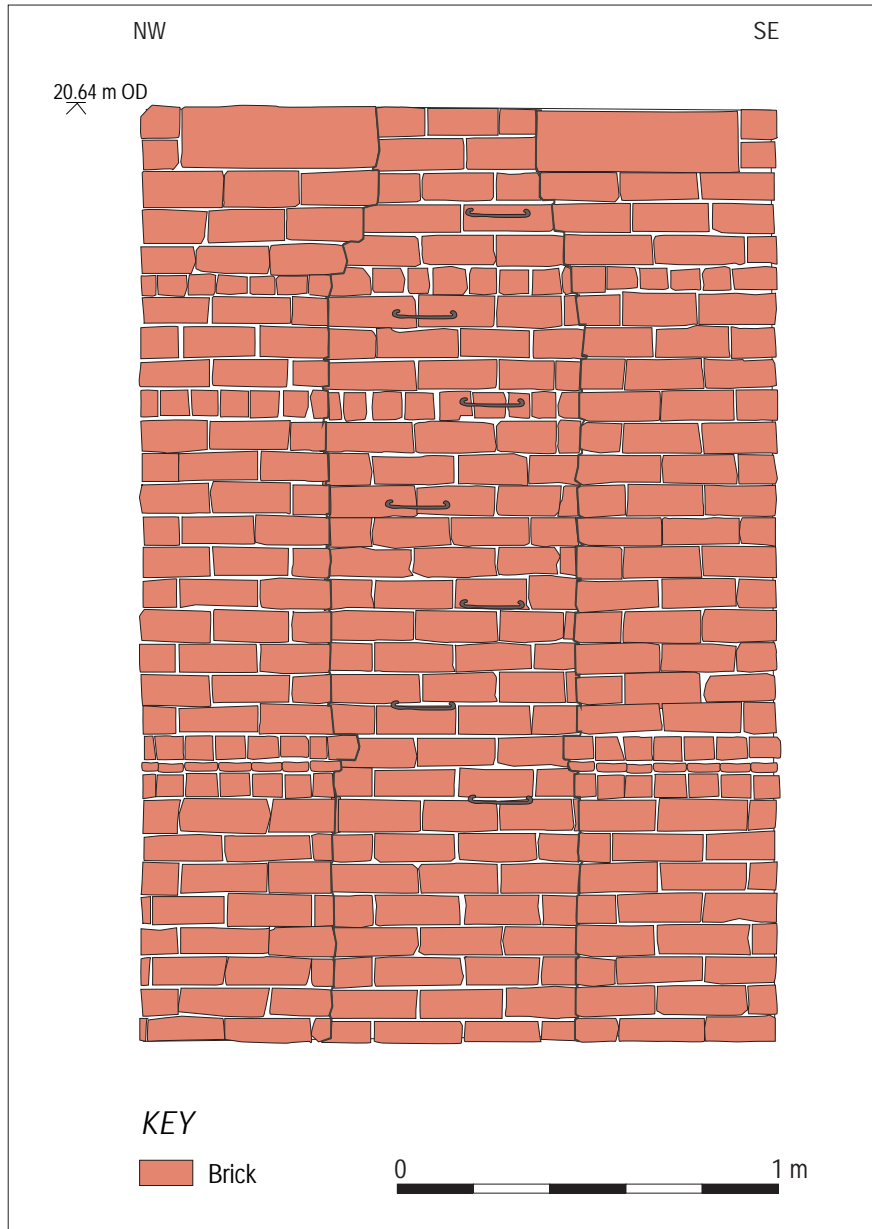


Figure 13: South elevation of the early Tram wheelhouse at Pilrig Street.

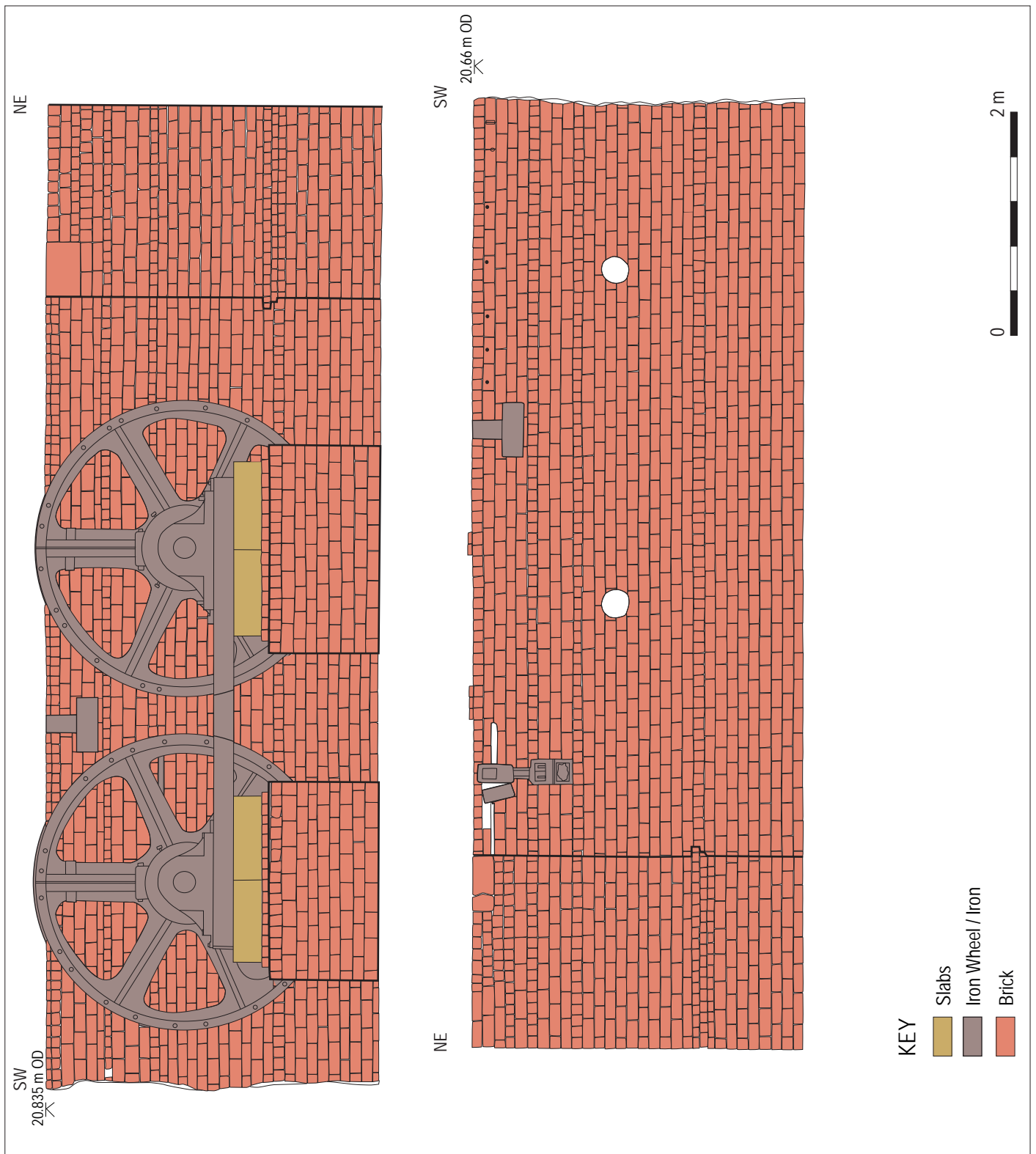


Figure 14: West and East elevations of the early Tram wheelhouse at Pilrig Street.



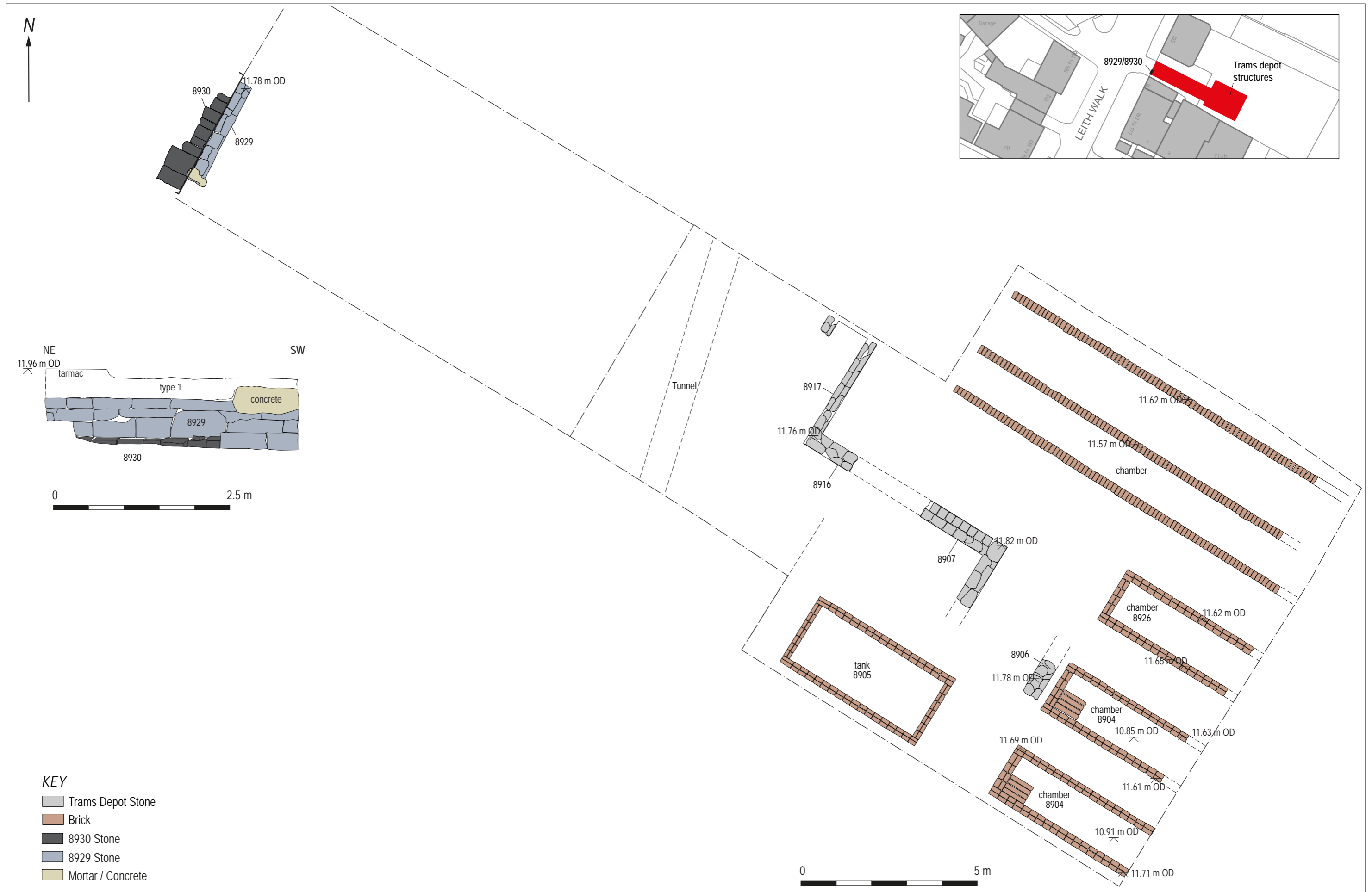


Figure 15: location plan showing Old tram Depot and surviving structures

## New Tram Sub-station at 165 Leith Walk

- 6.40 Monitoring of the foundation trench for a new power substation and connecting ducts at 165A Leith Walk revealed elements of the old Trams Depot that previously occupied the site. The new sub-station is situated to the rear of offices on the east side of Leith Walk that were built in 1938 and were part of a large deposit and yard, setback from Leith Walk. The depot stopped being used for trams in 1956 and was then used as a bus depot. The excavation revealed four brick underground chambers, tram rails, some tanks (possibly oil reservoirs), along with cobbled and concrete surfaces and a brick-built cable duct.
- 6.41 The four brick-built chambers (recorded in pairs as (8904) and (8926)), were situated on the east of the excavation area, and were parallel to each other and appeared to be of one construction phase. The chambers were built from bricks, were rectangular in plan and were faced with white glazed bricks or white tiles on the interior, they were beneath the level of the old tram tracks. Access was by steps and there was no evidence for a roof, this suggests that they were intended for the maintenance and repair of the tram cars. The chambers were filled with mixed building debris containing mainly bricks. These deposits were contaminated by fuel and oil, and for this reason a full archaeological investigation was deemed unsafe.
- 6.42 There were concrete surfaces associated with the chambers and these usually consisted of two layers, the base layer formed a level surface and the tram tracks were laid on the top layer. A small area of a cobbled surface was also recorded underneath the old tram track and therefore pre-dates the tram depot.



*Plate 40: Removing the concrete floor of the bus station to reveal the old tram tracks encased in concrete*



*Plate 41: Brick-built maintenance chambers (8904) for Trams*



*Plate 42: General view of excavation trench for new sub-station after chambers removed*



*Plate 43: Old fuel tanks recovered during the excavation for the new sub-station*

- 6.43 During the excavation of the duct bank trench that connected the substation with the tram track on Leith Walk, other structures were exposed, including a possible old cable duct (8914). The cable duct ran across the trench from south/north and had brick walls and a reinforced concrete roof that the old tram tracks were laid over. Inside the tunnel there were metal brackets at regular intervals on the walls to support cables and pipes.
- 6.44 At the entrance/exit of the depot, in line with the front of the existing buildings, a wall foundation was uncovered (8929) that was 3.39 m long by 0.37 m wide, surviving to a height of 0.72 m. The foundation was in line with the surviving gate pillar at the entrance to the depot. This foundation was built with sandstone and whinstone bonded with mortar. A culvert (8930) was partially under this wall running NE/SW. The culvert was 3 m long and 0.65 m wide and the walls were built from sandstone blocks bonded with mortar with a flat regular capstone roof; the capstones measured approximately 500 mm by 340 mm by 100 mm in size.



## Railway Infrastructure

- 6.45 As part of the bulk excavation for the tram track the top of the arched railway bridge at Shrubhill was exposed where the railway crosses Leith Walk.



Plate 44: Top of the rail bridge arches exposed during the bulk excavation in area 73

## Cobblestones surfaces

- 6.46 There was little evidence for the cobblestone surface or setts that would have been the main road surface on Leith Walk in the nineteenth and early twentieth century and it may be that this was largely removed when the original tram track was laid. In Area 3, small sections of cobblestones were recovered at Antigua Street (0411 and 0508) and in Picardy Place (0304) just below the modern road surface where part of the surface was exposed during the bulk excavation. The surface was constructed with regular rectangular cobblestones 0.16 m thick and survived directly below the present road surface.

## Tenements

- 6.47 At the junction with York Place and Broughton Street minor elements relating to demolished tenement building were recorded. The building remains comprised a roughly east/west aligned basement wall, that survived for a distance of 12 m and only had dressed facing stones on the internal wall face. The wall was built in a foundation trench excavated into the natural clay (0335). Three walls roughly aligned north/south and 2.2 m apart sub-divided the basement into small compartments (0336, 0337 and 0338). A fragment of wider tenement party wall (0.7 m length by 0.6 m wide and 0.25 m high) on the same alignment was located towards the west end of the building (0339). The walls were all built from yellow sandstone rubble bound with lime mortar. A square concrete street-lamp post base had been built against



Plate 45: Tenement wall revealed at Picardy Place

the east end of the basement wall. The walls are probably from a triangular shaped tenement building that is shown on the First Edition Ordnance Survey map of 1853, this building was demolished in 1969.

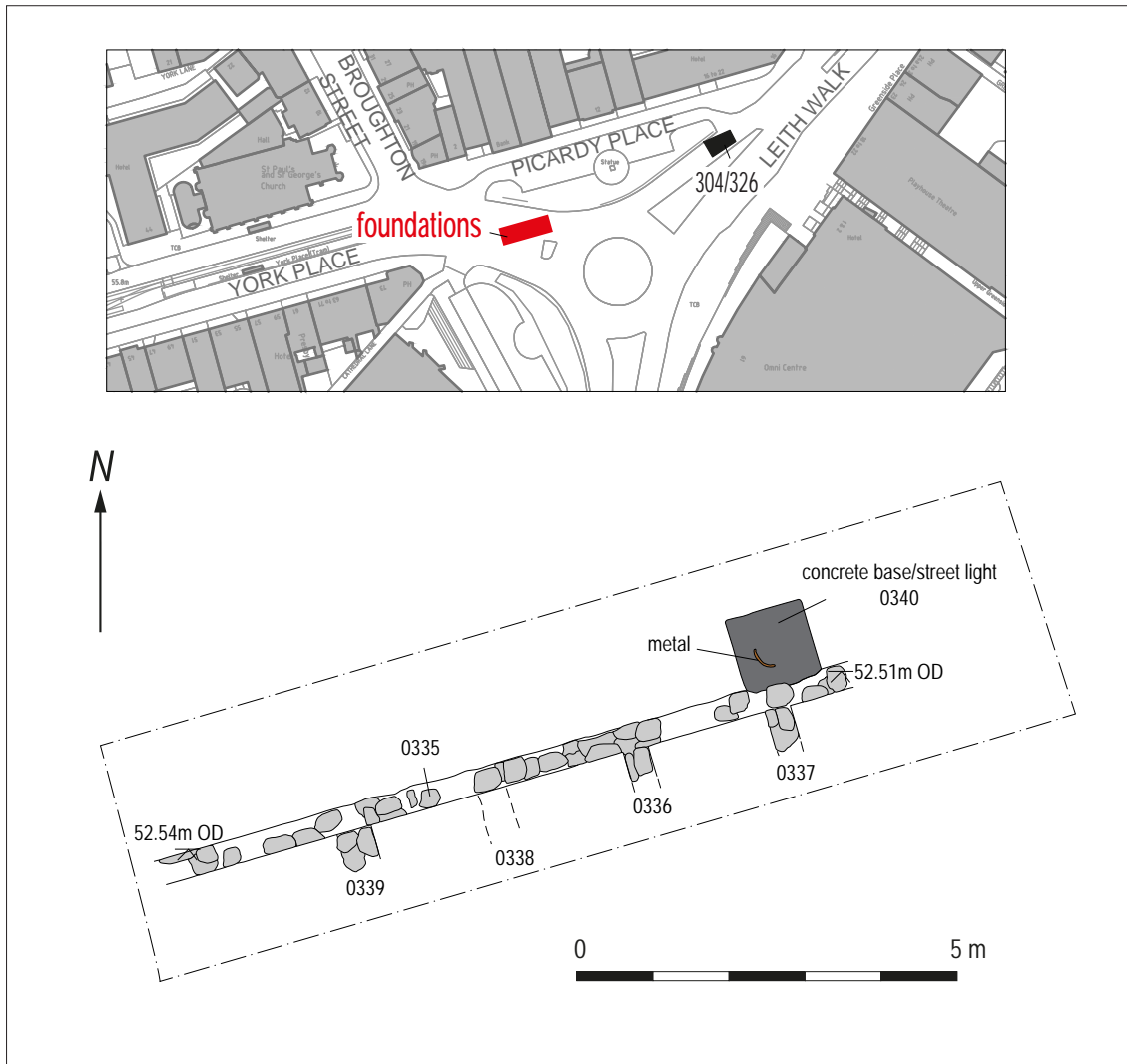


Figure 16: Surviving tenement foundations at Picardy Place

6.48 At the ‘Foot of the Walk’ the remains of another nineteenth century tenement building were recorded during the excavation of drainage trenches and the bulk excavation. Part of a wall was recorded 0.65m below the current road surface (10.115 m AOD) outside Nos. 7-9 Leith Walk, running SW/NE. The wall was 7 m long by 0.85 m wide with a visible height of 0.85 m and was constructed with irregular sandstone blocks



Plate 46: North-west facing section of tenement wall (8830) and associated drainage at the Foot of the Walk

measuring up to 420 mm by 600 mm by 140 mm in size and bonded with a grey white lime mortar (8830). Two trial trenches were excavated on either side of the wall. In the trench at the east facing section of the wall, the foundation trench for the wall (8833) was uncovered filled with a 0.7 m thick layer of sub-angular large roughly shaped stones, but it had been truncated by services. In the west facing section a culvert for drainage was uncovered parallel to the wall. The culvert (8331) was 7 m long by 0.9 m wide and 0.49 m deep. It was built with rectangular large sandstone blocks (ranging from 360 mm by 180 mm by 160 mm to 460 mm by 190 mm by 60 mm) bonded with a grey white lime mortar; no capstones were found covering the drain.

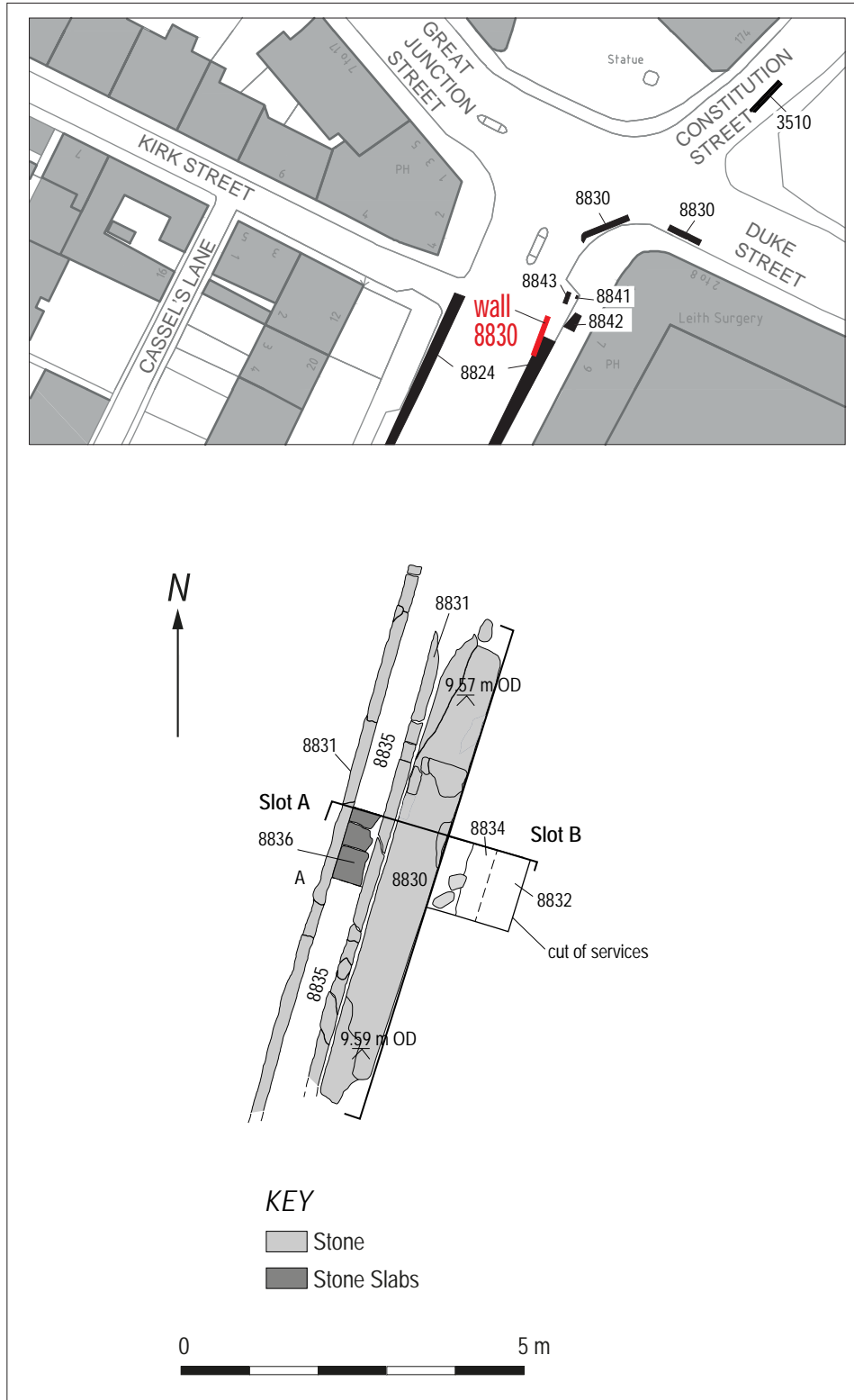


Figure 17: Location plan of tenement foundations at the Foot of the Walk



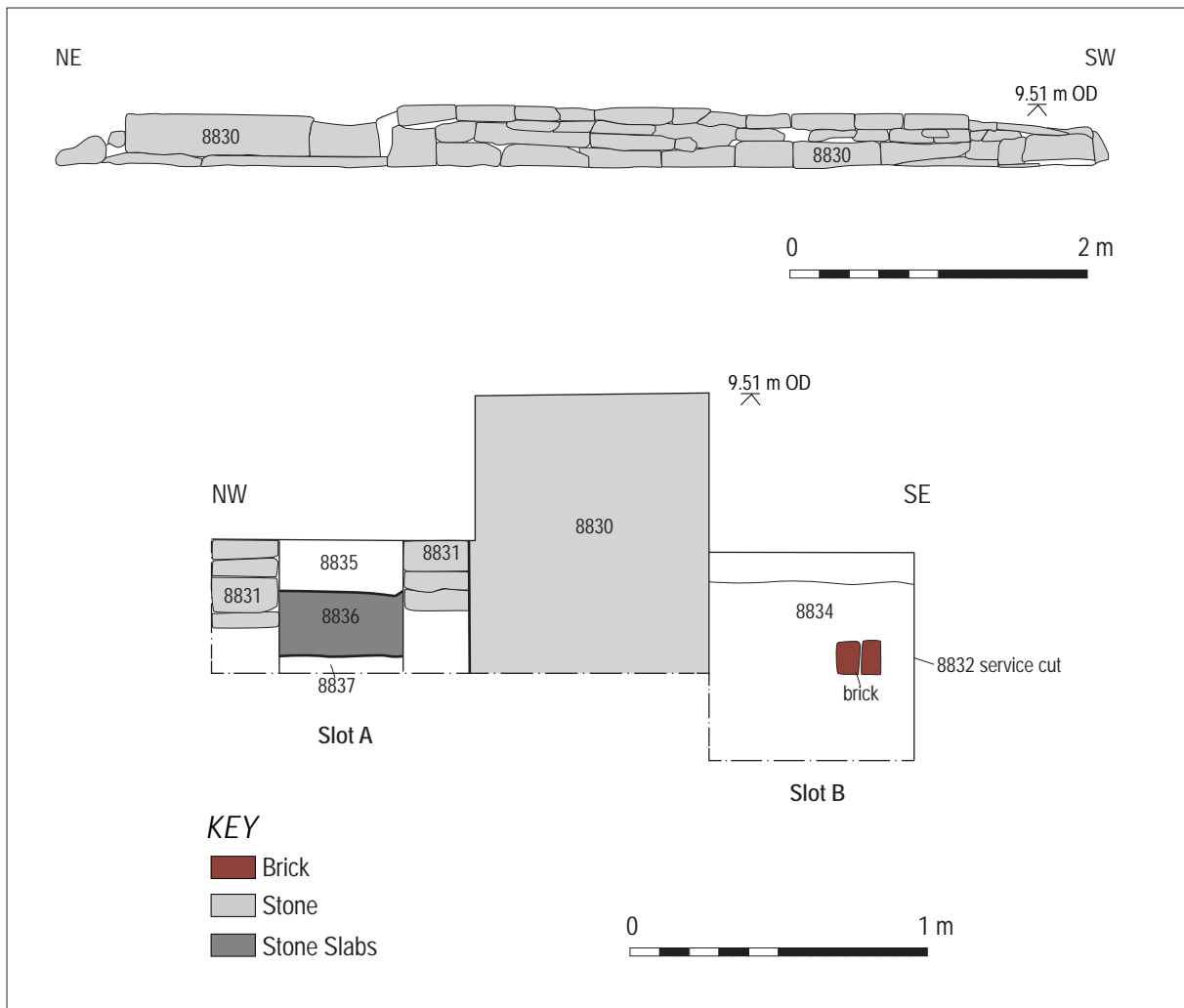


Figure 18: Section and elevation of tenement foundations at the Foot of the Walk

- 6.49 When the bulk excavation reached the corner with Duke Street, more remains of the same tenement wall were uncovered curving to the east. The second section of the wall (8838) was 8 m long by 0.96 m wide with a visible height of 0.96 m; this section of wall was more truncated by services than the previous section.
- 6.50 Another section of the wall (8841) was uncovered, was aligned east/west and measured 0.35 long m by 0.5 m wide with a height of 0.9 m. The wall was constructed with sandstone blocks with lime mortar. Next to the wall was a floor surface constructed from yellow bricks laid on edge (8843); this surface extended for 2 m, was 0.7 m wide and 0.13 m thick. This floor surface was uncovered at 1.6 m below the current pavement level and was associated with walls (8838) and (8841). The last structure recorded in this area was another possible wall or foundation that measured 1.8 m long by 1.2 m wide with height of 0.28 m; this was built from sandstone rubble with lime mortar but was severely truncated by services.
- 6.51 At the Foot of the Walk, a lime mortar bonded sandstone rubble wall aligned north/south, facing stones and a rubble core was uncovered (2503). The building stones measured 500 mm by 400 mm by 200 mm in size and the wall was 3.9 m long, 0.8 m wide and 0.65 m in height. This wall was aligned along the west side of the pavement on the west side of Constitution Street. This wall may be part of a tenement building that is depicted on the Ordnance Survey 25" 2nd edition map of Edinburghshire sheet III. 4 published in 1896. A brick wall bonded with lime mortar was located at the west side of wall (2503), this was built over a light grey concrete floor (2506) and extended for 3 m.

- 6.52 On the east side of Constitution Street near the corner with Duke Street another wall was uncovered it was built from yellow sandstone blocks with lime mortar (3521). The wall was 2.1 m long, 0.62 m wide and 0.61 m high, orientated NE/SW with the building stones measuring 250 mm by 310 mm in size.



Plate 47: Location view of second portion of wall (3521/8830) recorded turning into Duke St

## Culverts

- 6.53 Culverts were the most frequently encountered structures along the Leith Walk area. A total of 27 culverts were recorded and they generally fall into two categories: culverts with a square section with a flat capstone and culverts with arched roofs, the latter were usually the larger main drains.

- 6.54 In Area 3, two culverts were recorded, both with square sections. Structure (0327), located at Picardy Place, measured 0.9 m long, 0.4 m wide and 0.14 m visible height. This culvert lay on a north/south orientation, was constructed with sandstone blocks and mortar and was uncovered during the duct bank excavation lying perpendicular to the trench.



Plate 48: Flat capstone culvert (0315) at Antigua St

- At Antigua Street, culvert (0315) was located 0.88 m below the current road level south-east of the earlier underground trams chamber (0314, see figure 8). The culvert measured 3.08 m long, 0.61 m wide and 0.55 m high, it was constructed from sandstone blocks bonded with light grey mortar. The culvert was truncated at both ends by later buildings and services.
- 6.55 In Area 47 three culverts were recorded, culvert (3506) was orientated north/south and measured 1.7 m in length, 0.3 m wide and 0.15 m high (not fully excavated). It was filled by a mottled yellow and brown grey clay (3507) with occasional inclusions of small sub-angular stones and was truncated by a cast iron pipe. Culvert (4709) was constructed of stone slabs bonded with mortar and measured approximately 2.5 m in length, 0.9 m wide and 0.6 m high. Culvert (9105) was made from sandstone blocks and was 0.8 m long and was filled with a brown grey silty sand (9107) with inclusions of lime mortar and medium sized stones.

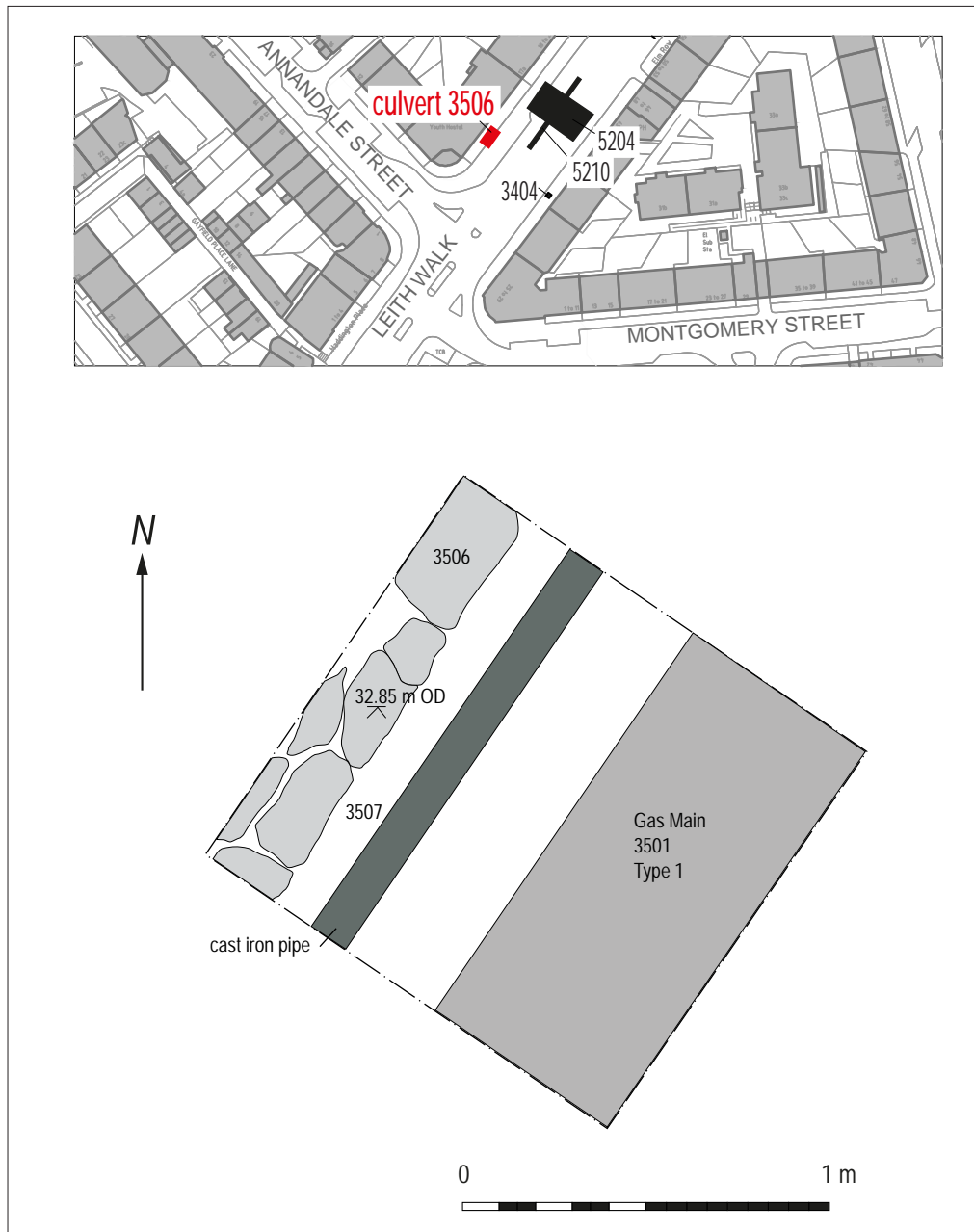


Figure 19: Location and plan of culvert 3506

- 6.56 In Area 52 one arched culvert (5211) was recorded in two different trenches and was orientated ESE/WNW. In the first trench a 1.6 m section was uncovered and in the second trench a 1.2 m long section. The culvert was 1 m wide and 0.9 m deep and was built from stones bonded with white mortar and cement, it had been truncated on the west side.
- 6.57 In Area 55, a small section of a culvert (5506) was uncovered it was rectangular in plan and was constructed from sandstone and whinstone blocks bonded with mortar and measured 2.2 m long, 2.06 m wide and was orientated north/south.
- 6.58 In Area 60 four culverts were recorded, culvert (6805) was 1.6 m long and 0.9 m wide, and 0.8 m deep, oriented WSW/ENE. The walls were constructed of worked sandstone with dressed sides and flat capstones.



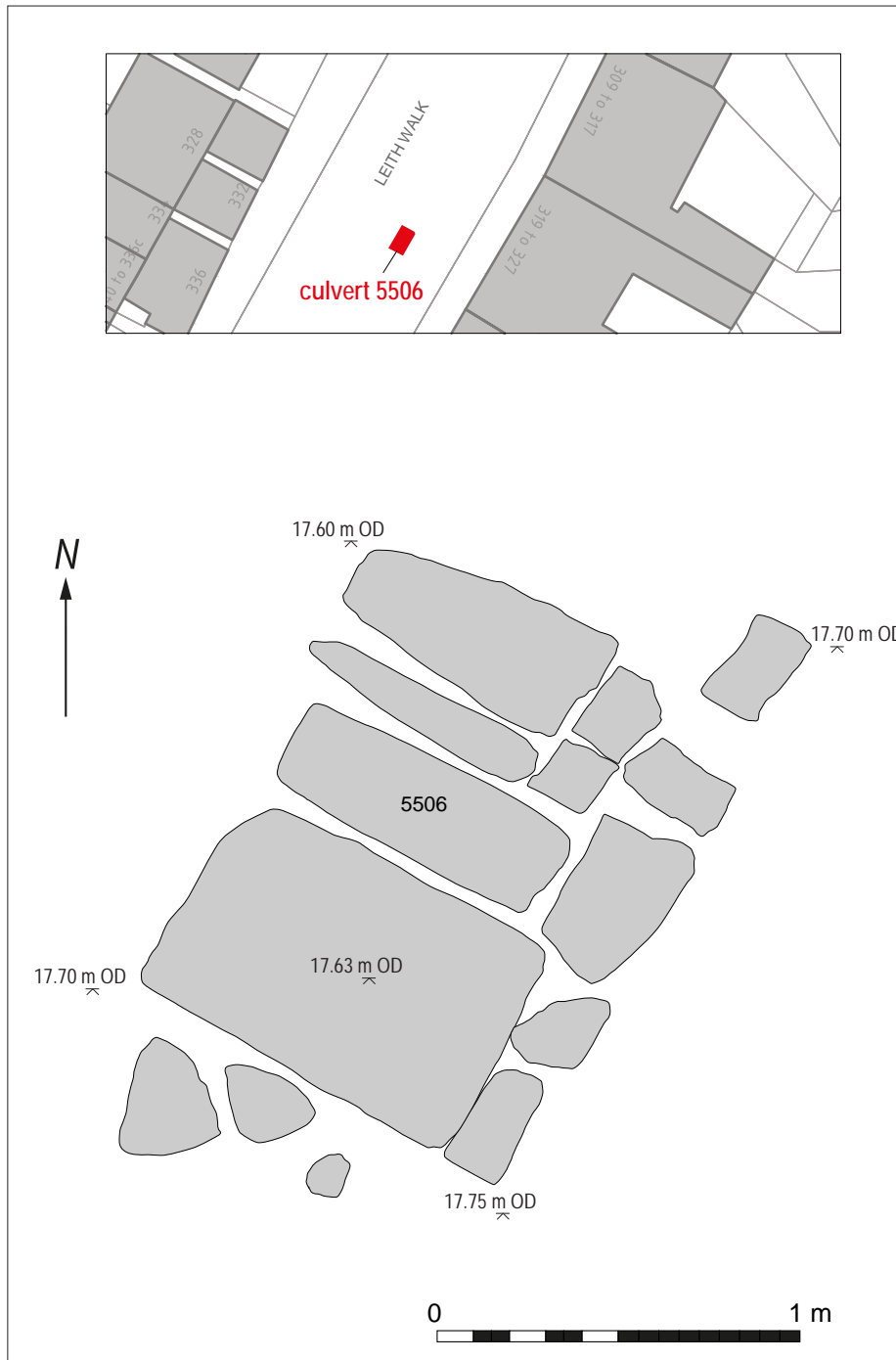


Figure 20: Location and plan of culvert 5506

- 6.59 Another arched culvert (6007) was uncovered and measured 3.5 m long, 0.8 m wide and 1 m deep, oriented east/west. The side walls were constructed of large red sandstone slabs and were bonded to the arched roof with mortar. It was truncated by a pipe that had broken the arched roof. Another culvert (6011) measured 6.9m in length, 0.62m wide and 1m high, oriented NNW/SSE, built from orange-grey sandstone blocks and lime mortar.
- 6.60 The last culvert recorded during the watching brief was (9504) and it was located in the south-east lateral drainage trench at a depth of 2 m below the current ground surface, it was orientated SE/NW perpendicular to the trench excavation.

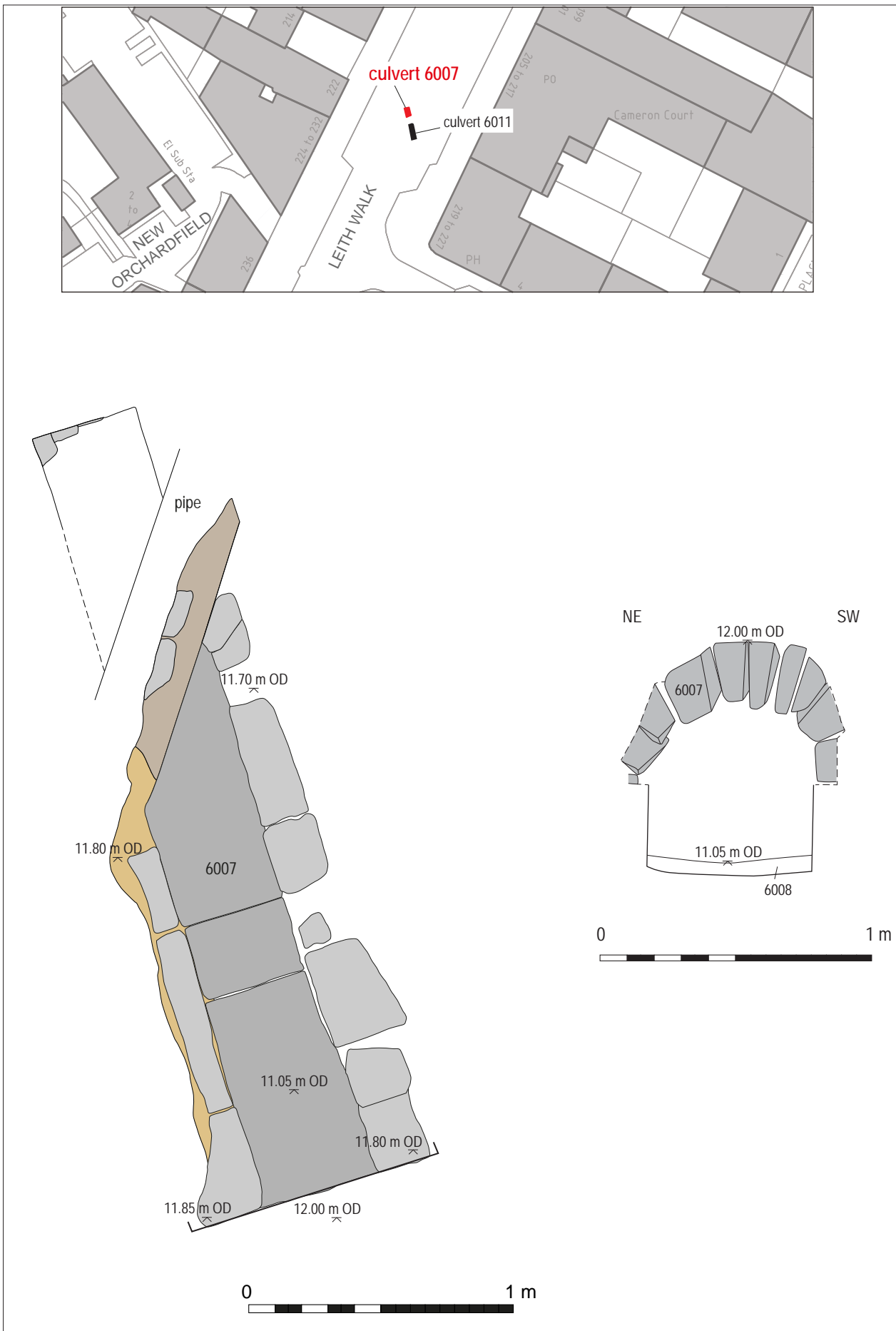


Figure 21: Location, plan and elevation of culvert 6007



*Plate 49: Location culvert (6226) with a square section and no surviving capstones*



*Plate 50: Plan view of culvert (6214) where it joins the main arched culvert (6212)*



*Plate 51: Inside view of the main arched culvert in Section 75*



- 6.61 In Area 62, a large arched culvert was located in several trenches and was also uncovered in Area 75. The culvert (6604, 6703, 6212) was at 1.4 m below the current surface and was fully uncovered during the bulk excavation as it had to be dismantled and filled in. The culvert was constructed of rectangular sandstone blocks and mid grey cement, the stones were up to 1.3 m long, 1 m wide and 1.1 m thick, it was oriented NE/SW. Once exposed a flat culvert (6214) was orientated SE/NW and joined the main culvert (6212) running north/south, it measured 1.2 m long, 0.2 m wide. It was composed of sandstone blocks bonded with light grey white mortar with flat capstones. Both culverts were built into the natural orange clay subsoil (context?).
- 6.62 Culvert (6226) was located outside No. 167 Leith Walk at a depth of 0.9 m from current road surface. It had been sealed at both ends with bricks and was cut into the natural orange clay (context?) and was full of water. The culvert was 6.5 m long, 0.6 m wide and 0.6 m deep, it was oriented NW/SE. It was built with four courses of sandstone blocks with a rectangular flat capstone that measured 800 mm by 500 mm by 140 mm.
- 6.63 Another square culvert (6245) was recorded outside No. 104 Leith walk; it had been truncated by services and measured 8.3 m long, 0.6 m wide and 0.5 m high; it was aligned NW/SE and was constructed with sandstone blocks bonded with red mortar.
- 6.64 In Area 75, an arched culvert (7108) was uncovered that had a rectangular shaped culvert join it (7110). The main culvert measured 4 m by 1.2 m (outside) with unknown height and SW/NE orientation. It was constructed of sandstone blocks bonded with grey mortar for the walls and rectangular white granite and sandstone blocks for the arch. Another section of this culvert was recorded as (7405) (2.5 m long, 1.2 m wide and 1.5 m high). The rectangular shaped culvert (7110) that joined the main culvert measured 1.4 m long and 0.46 m wide, the height was not visible. The main culvert was located at a depth of 2.05 m from current road surface.
- 6.65 In Area 88 three culverts were recorded. Culvert (8814), were located outside No. 61 Leith Walk and had been truncated by services, it was approximately 10 m long and 0.4 m wide with a maximum height of 0.45 m and some of the flat capstones were still in position. Culvert (8828) was also truncated and measured 3.1 m by 0.45 m with a height of 0.33 m, it was aligned north/south and was built with large sandstone blocks bonded with lime mortar.
- 6.66 In Section 88 in addition to the culvert and early road surface there was a useful sequence of deposits that survived in this area was uncovered. The current road surface (8801) was 0.2 m thick and covered the concrete foundation bed of the earlier tram system (8802) which was 0.36 m thick. Below this was a deep deposit of dark brown silty clay (8827) that was up to 1 m thick although it had been disturbed by the insertion of various services including culverts. Below this was a similar layer of dark brown silty clay (8823) which was 0.3 m thick but was more compacted and this sealed the earlier cobbled road surface (8824/6209). The road surface was 0.2 m thick and constructed of rounded stones of various sizes. Below this was natural subsoil that consisted of orange/brown clay (8825).

Area/location	Area Number	Culvert Context Number
York Place/Antigua Street	3	0315, 0327.
Gayfield Sq./Annandale Street	47	3506, 4709, 9105.
Annandale St./McDonald Road	52	5211.
Pilrig St./ Dalmeny St.	55	5506.
Orchardfield Lane/Springfield St.	60	6007, 6011, 6805, 9504.
Dalmeny St./Orchardfield Lane	69	8703.
Springfield St./Jane St.	62	6212, 6214, 6225, 6226, 6245, 6604, 6703, 8930.
Jane St./Crown St.	75	7108, 7110, 7405.
Crown St./Foot of the Walk.	88	8814, 8828, 8848.
Foot of the Walk/Laurie St.	35	3527.

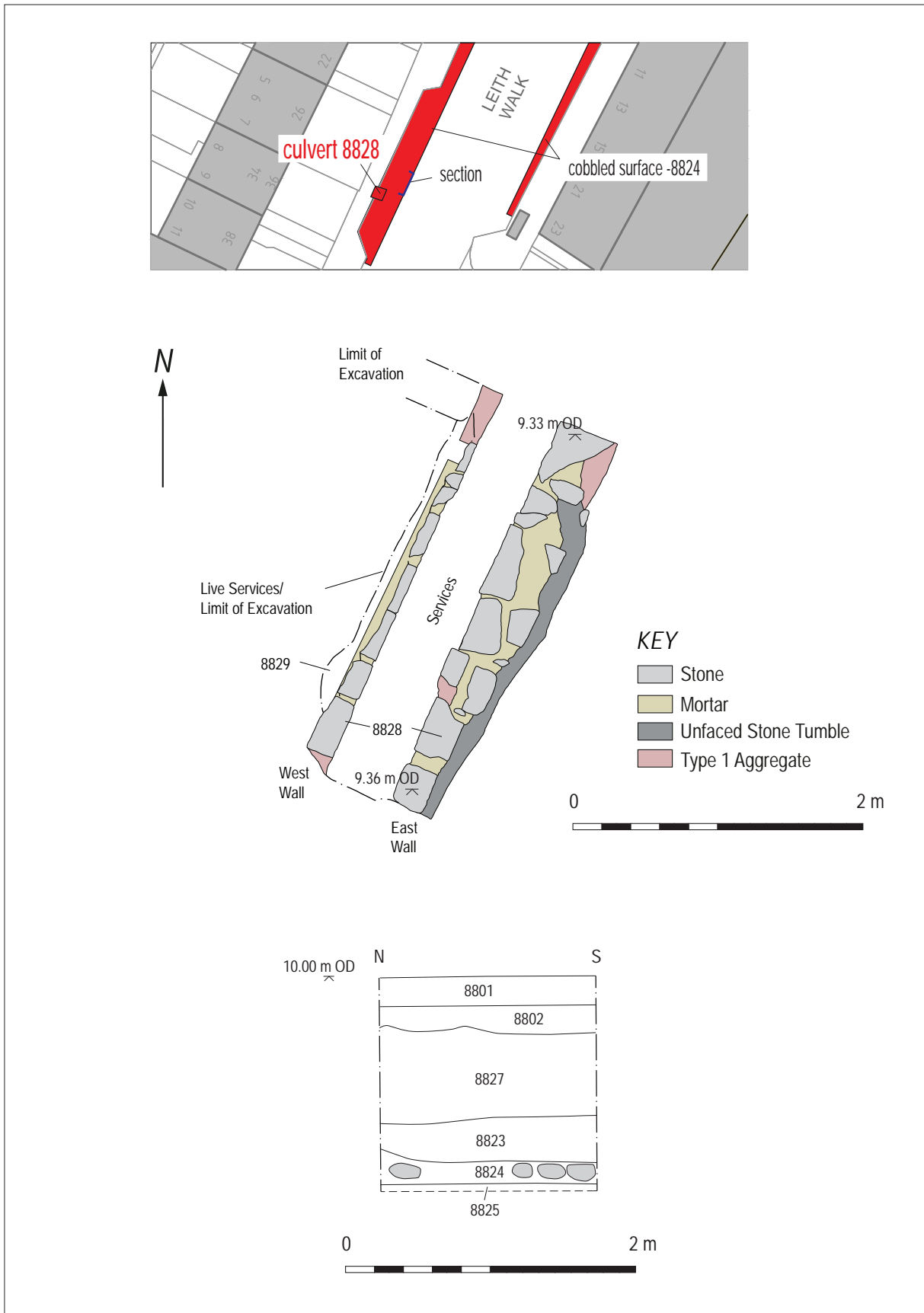


Figure 22: Location and plan of culvert 8828 along with the section showing the sequence of deposits

## Attenuation Tanks

6.67 As part of the tram construction programme large attenuation tanks for rain water catchment were built along the route, usually in the side streets off the east side of Leith Walk. These tanks were built at Elm Row, Iona Street and Lorne Street and provided an opportunity to investigate potential archaeological remains beyond the main route on Leith Walk. At all the attenuation tank sites below the modern disturbance and services there was a layer of mixed deposits that contained brick fragments and mortar debris, these deposits probably relate to the construction of the street and tenements. Below, there was a possible plough soil layer above the natural sand. These relatively shallow modern deposits seem to confirm that the area was largely open agricultural land until the late eighteenth of nineteenth century when Edinburgh and Leith expanded and built over the fields.



Plate 52: Construction of the attenuation tank on Iona Street



Plate 53: Attenuation tank on Iona Street, detail of natural sand deposits

## Artefacts

7.1 During the course of the archaeological investigations that were undertaken on Leith Walk a number of artefacts were recovered. The artefacts were given a reference number (small find number) and were recoded along with the section, trench and context numbers that they were recovered from (full details of the artefacts are included in the project records). The table below describes the range and type of artefacts that were recovered. A full assessment of the artefacts will be included in the Post-Excavation Research Design (PERD) to follow this report.

### Total number of artefacts recovered

Artefacts	Number	Notes/description
Ceramic	361	Mixture of possible Medieval, post-Medieval and Modern pottery along with clay tobacco pipe fragments including bowls.
Lithic	1	A fragment of flint.
Stone	5	Building stone and architectural fragments.
Bone	134	Disarticulated animal bones and fragments mainly from mixed deposits and possible middens.
CBM	11	Bricks, roof tiles, tiles and a fragment of wall plaster.
Glass	65	Mainly window glass, and bottles but also glass slag



Artefacts	Number	Notes/description
Coins	5	Includes a George III halfpenny dating to 1799
Metal	28	Includes nails, tools, iron remains relating to the previous Trams system and iron slag.
Organic	5	Includes leather shoes.
Wood	5	Timbers from the Medieval road and stone foundations.

## Discussion

- 8.1 Leith Walk is a particularly long street, around 2.5 km that runs from Picardy Place to ‘the Foot of the Walk’ and has a gradual slope throughout the length from the south/north. It was and still is the main link between Edinburgh and Leith from the Medieval period through to the present day. This important transport link was demonstrated by the survival of different road surfaces some nearly 2 m below the current road level. Associated with an early road surface was a stone-built foundation base complete with wooden uprights still in position, this could mark a toll gate on the road or even the ‘gallows’ depicted on Adair’s map of 1682 (Franklin et al), although the map locates the gallows further to the west rather than on Leith Walk.
- 8.2 Several structures were uncovered that relate to the previous tram systems; the Edinburgh system was cable operated while the Leith one was electric and they met at the Pilrig Street junction where passengers had to change trams (see above). The present works at Pilrig uncovered an underground brick-built chamber complete with two large metal winding wheels from the cable system, this presumably marked the terminal for the Edinburgh line. Further north at Shrubhill, where the tram depot was located on the west side of Leith Walk, another underground chamber was uncovered but unfortunately this one had been filled in with foam concrete and could not be fully investigated. Another series of chambers and cable ducts was uncovered at Antigua Street/Baxter’s Place at the top of Leith Walk.
- 8.3 Further south at 165 Leith Walk where the new tram electricity sub-station is located, this was originally a tram depot before becoming a bus depot in the 1950s. Investigations here revealed several tram tracks still in position leading into the depot and to a series of underground inspection pits complete with white glazed brick walls and access steps along with later fuel tanks.
- 8.4 Some of these brick-built underground chambers had substantial metal roofs built from corrugated sheets of metal, similar in construction to World War 2 air raid shelters that were uncovered at Haymarket when the present tram system was built (Rennie & Will 2013). Another of these air raid shelters was known to survive at Baxter’s place; this was uncovered and the entrance investigated, unfortunately like the structure at Shrubhill this had been filled with foam concrete and could not be fully investigated. These chambers had presumably been filled with concrete on safety grounds to avoid the road collapsing into the voids created by the chamber.
- 8.5 Many culverts and some building remains also survived. At the ‘Foot o’ the Walk’ at the junction between Leith Walk and Great Junction Street, the remains of stone tenement walls and drains were uncovered under the present road surface. These remains demonstrate how the current road system and layout has changed and been adapted to form a wider street and junction.
- 8.6 As Leith Walk is the main road between Edinburgh and Leith there is a rich source of historical references and maps that provide a framework for the building and repair of the road as well as the growth and expansion of both Edinburgh and Leith. Initially both burghs were separate with field and space between the towns, but as the towns expanded these fields were built over to create the present townscape. This development was a slow process and most of the streets and tenements on either side of Leith Walk were built in the late eighteenth and early nineteenth century. Evidence for an earlier street frontage, on a slightly different alignment to the present one was uncovered at the Foot of the Walk, and on Constitution Street. Many of the excavated archaeological remains relate to the development of Leith Walk and the surrounding area.

- 8.7 Surprisingly the ground works relating to the present tram work did not uncover evidence relating to the fortifications and siege works that are known to have been built round Leith in the sixteenth and seventeenth centuries. The earliest known defences were probably ditches and banks which were later replaced by earthen ramparts and stone walls. The ramparts to the south are thought to follow the approximate line of Great Junction Street. The subsequent construction of the road, buildings and the insertion of services may have removed any evidence of the defences that may have at one time survived.

## Conclusions

- 9.1 In order to fully understand the chronological and spatial development along the tram route around Leith Walk, it is advised that analyses and specialist appraisal of the artefact and ecofact assemblages are undertaken. This will ensure that the results of this work contribute to our understanding of how this part of Edinburgh developed through the Medieval period to the post-Medieval and Modern period. Therefore, a post-excavation research design (PERD) will be prepared that will outline the programme of work and detail the scope of post-excavation work that is required. The aim will be to synthesise the results of the excavation assemblage analysis for dissemination through publication in an appropriate journal or monograph.
- 9.2 GUARD Archaeology would stress that these recommendations are intended for guidance only. While these recommendations are developed in accordance with ClfA Standards and Guidelines, and in discussions with CECAS, final decisions on the nature and extent of any future archaeological work rest with the planning authority.
- 9.3 The online OASIS form at <http://ads.ahds.ac.uk/project/oasis/> for this project will be completed within 3 months. Once the Data Structure Report has become a public document by submission to or incorporation into the NRHE, the City of Edinburgh Archaeology Service archaeologist John Lawson will validate the OASIS form thus placing the information into the public domain on the OASIS website.

## Acknowledgements

- 10.1 Guard Archaeology Limited would like to thank Morrisons Energy Services for commissioning the work and for their help throughout the project, John A. Lawson from the City of Edinburgh Council Archaeology Service for his help and advice. The excavation team, Alan Hunter- Blair, Juan Ignacio de Vicente Ojeda, Gemma Jurado, Clare McCabe, Edward Rayner, Owen Godbert, Nicole Kennedy, Clare Shelley, Laura Muser, Lauren Reid, Amanda Gilmore. Technical and logistical support was provided by Aileen Maule, Jen Cochrane and Clark Innes. Illustrations were by Jennifer Simonson with desk top publishing by Eddie Perez Fernandez. The project was managed for GUARD Archaeology by Bob Will and Warren Bailie.

## Bibliography

Bailey, L., Borden, A., Jones, E., McMeekin, J., Murray, R. & Simonson, M. (2013). Edinburgh Trams: A data structure report for Watching Briefs on utility diversions for the Edinburgh Trams Project 2008-2010. Headland Archaeology.

Dalland M 2016 SHRUB HILL TRANSPORT DEPOT, EDINBURGH: *Report on watching brief*

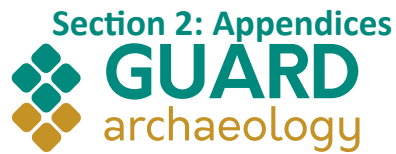
*for Places for People.* Headland Archaeology Report

Franklin, J., Troy, C., Britton, K., Wilson, D. & Lawson, J. A. (2019). Past Lives of Leith: Archaeological Work for Edinburgh Trams. The City Council of Edinburgh.

Moloney, C. & Baker, L. (2017). The Leith Programme, Phase 4, Leith Walk, Edinburgh. Data structure report for Archaeological watching Brief. Rubicon Heritage.

Rennie C & Will B (2013) Edinburgh Tram Scheme: tram construction phase investigations, Data Structure Report, Project 3405, unpublished client report Guard Archaeology.

**City of Edinburgh Council Trams York Place to Newhaven  
Archaeological Investigation on Leith Walk  
Data Structure Report**

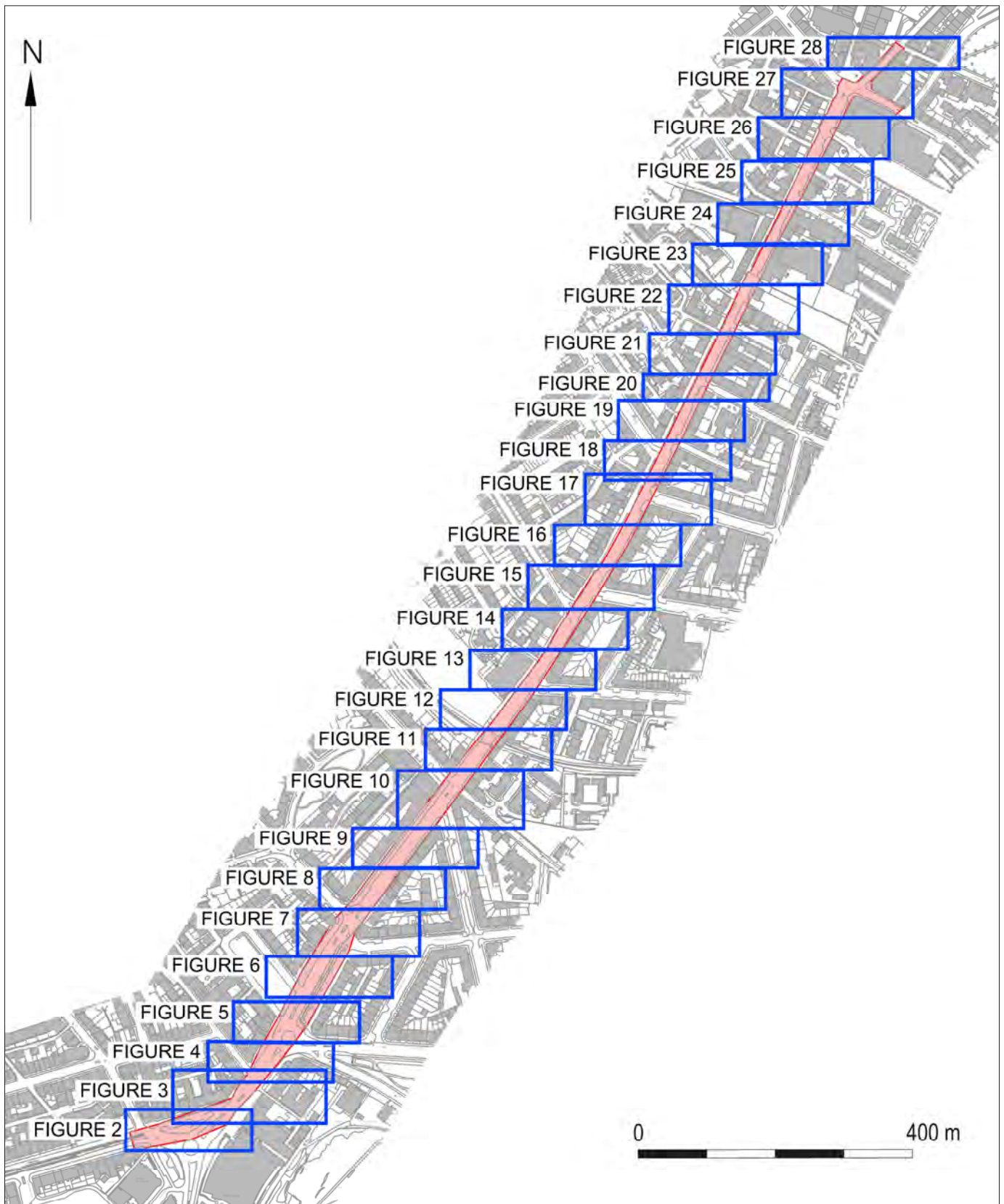


[www.guard-archaeology.co.uk](http://www.guard-archaeology.co.uk)

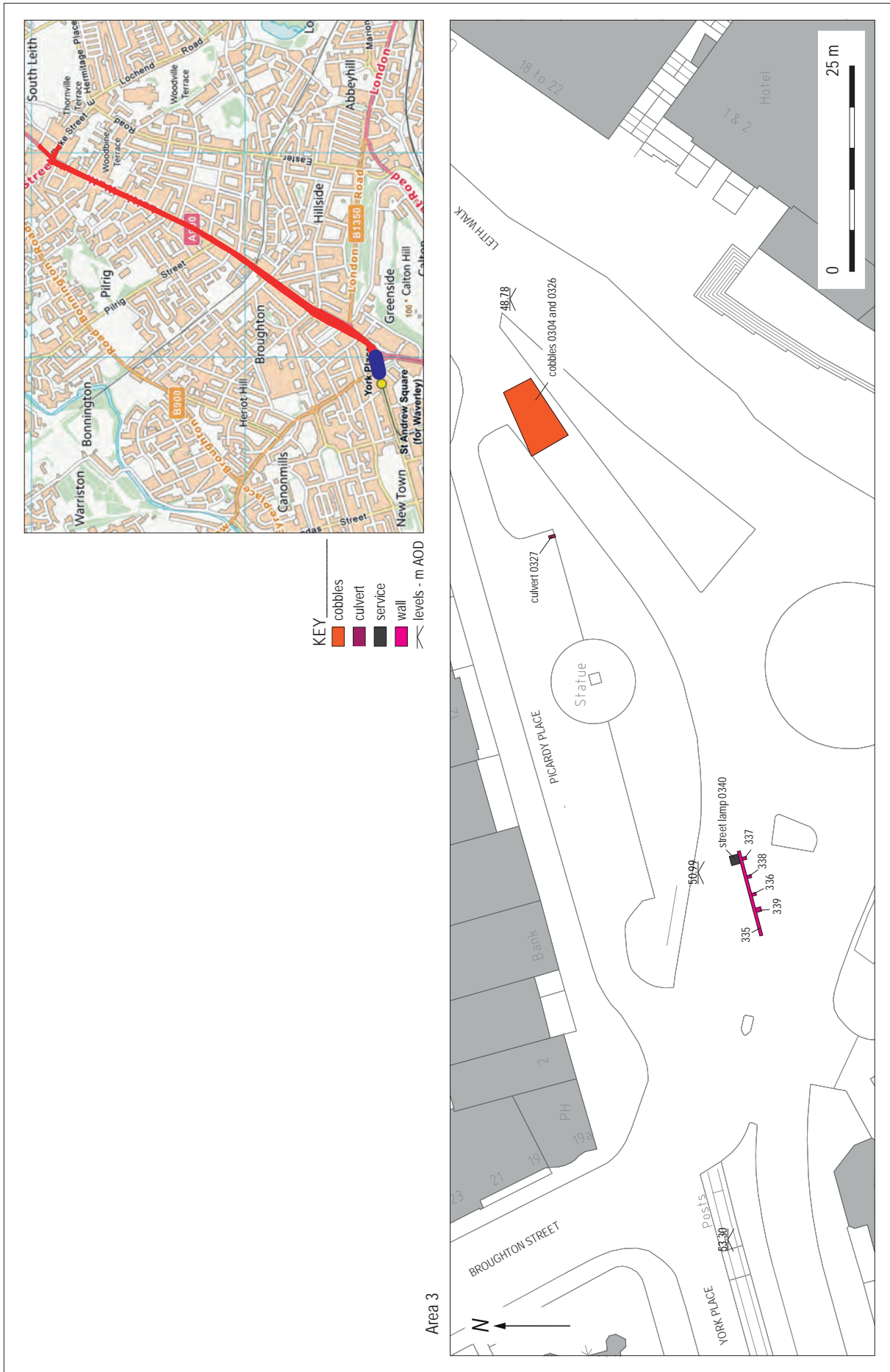


## Appendices

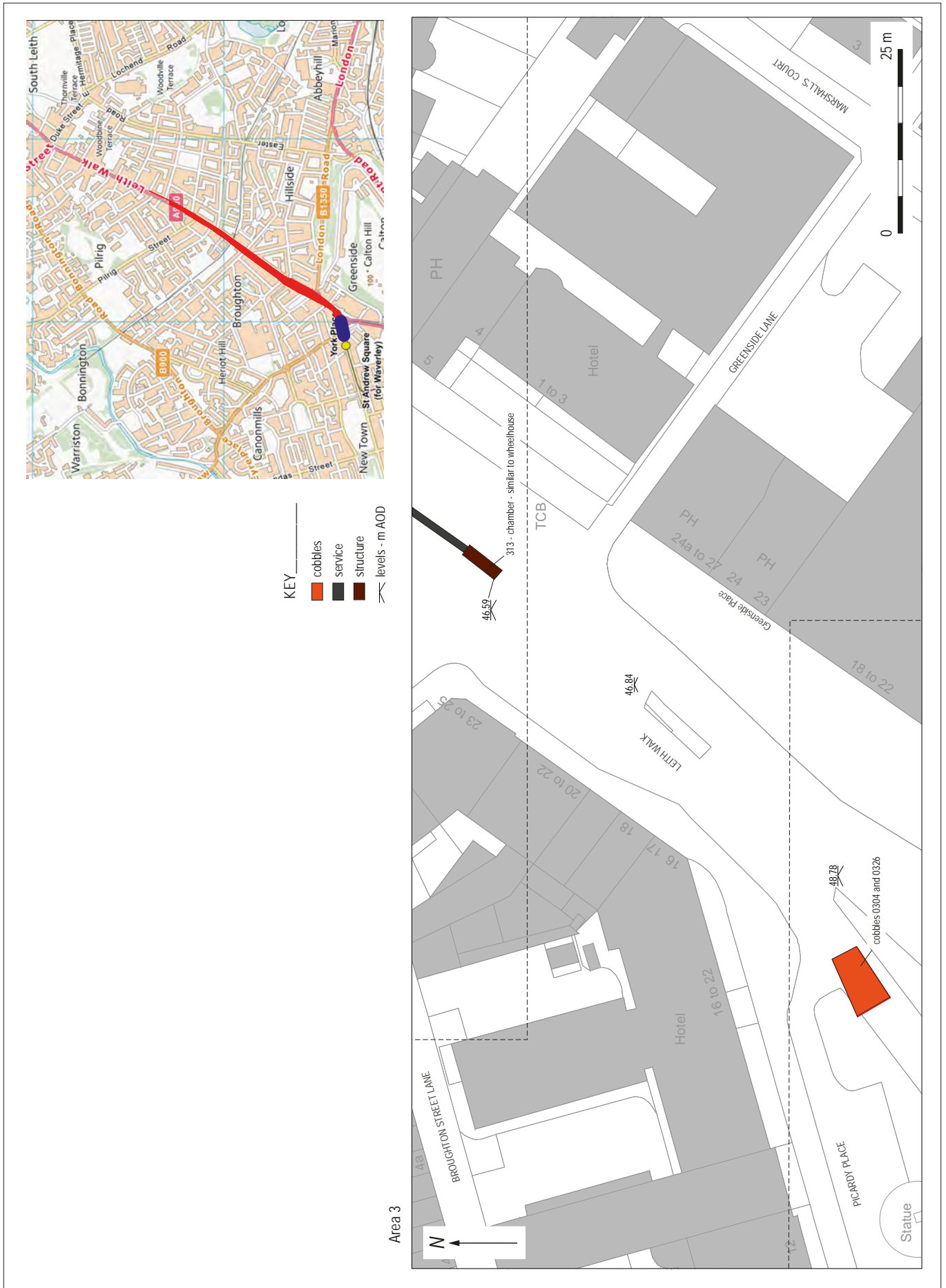
**Appendix A: Route map from York Place to Foot O' the Walk showing location of all archaeological work, this has been broken down into 27 maps (one location and 26 sections)**



Appendix A: Figure 1

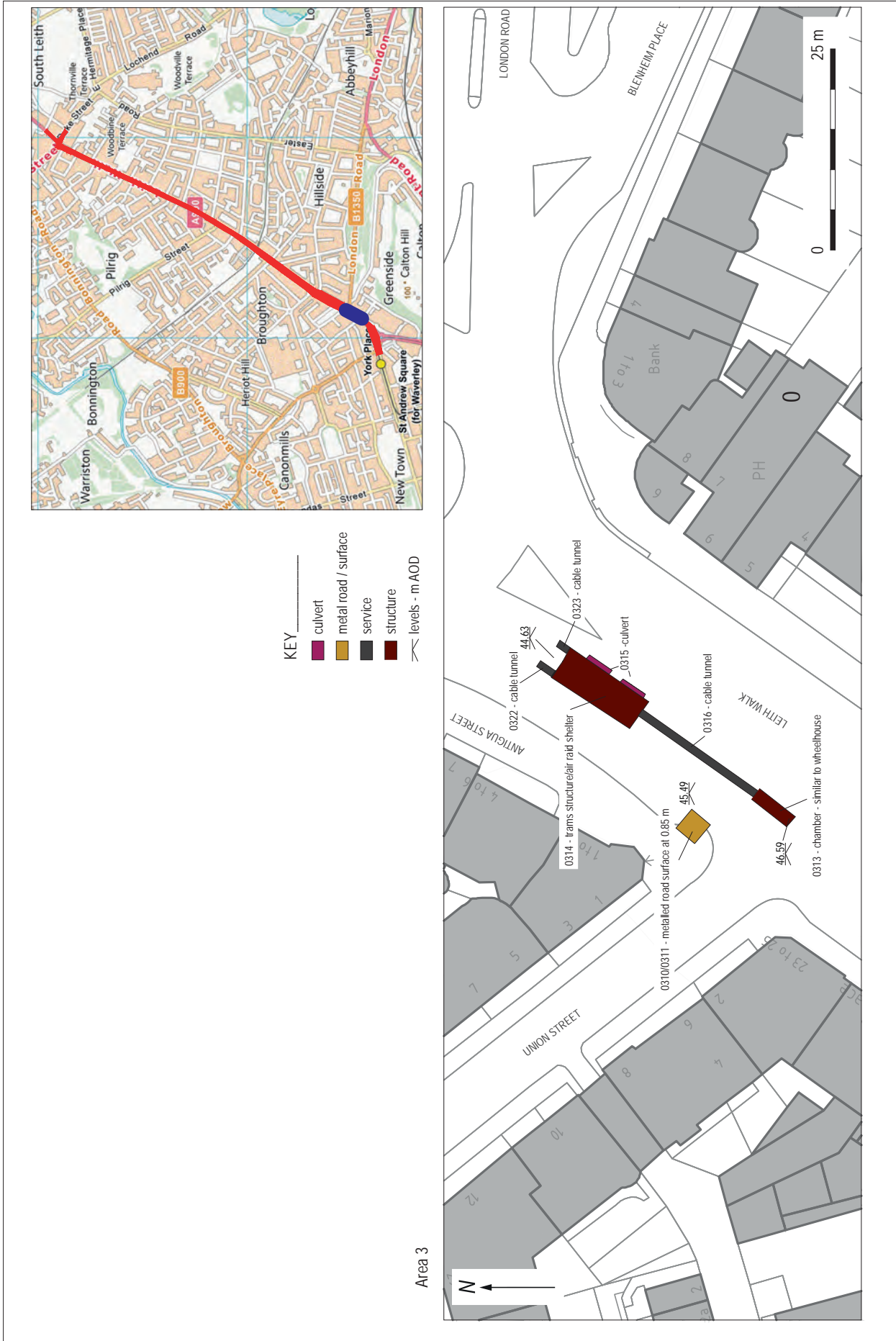


Appendix A: Figure 2

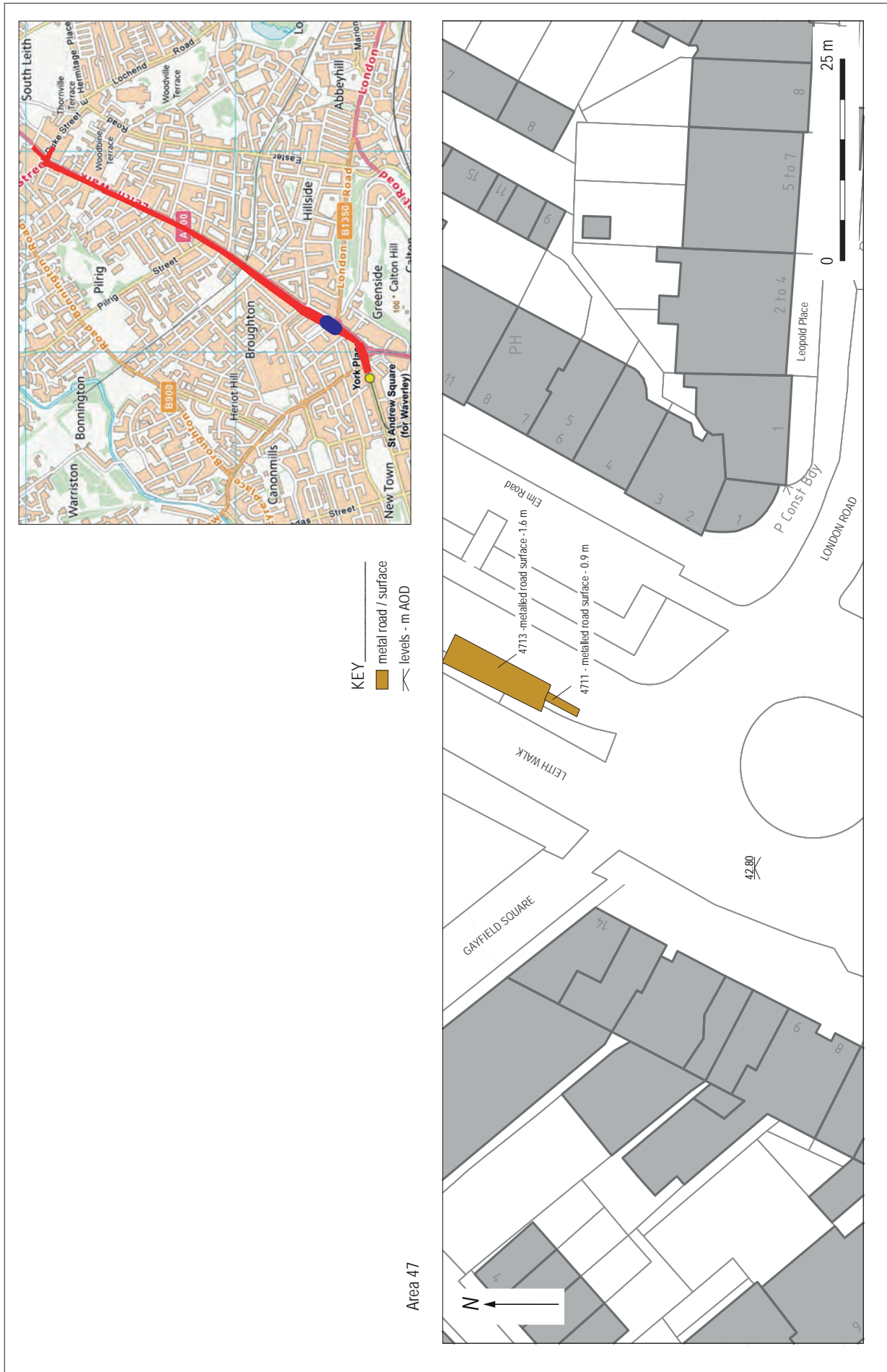


Appendix A: Figure 3

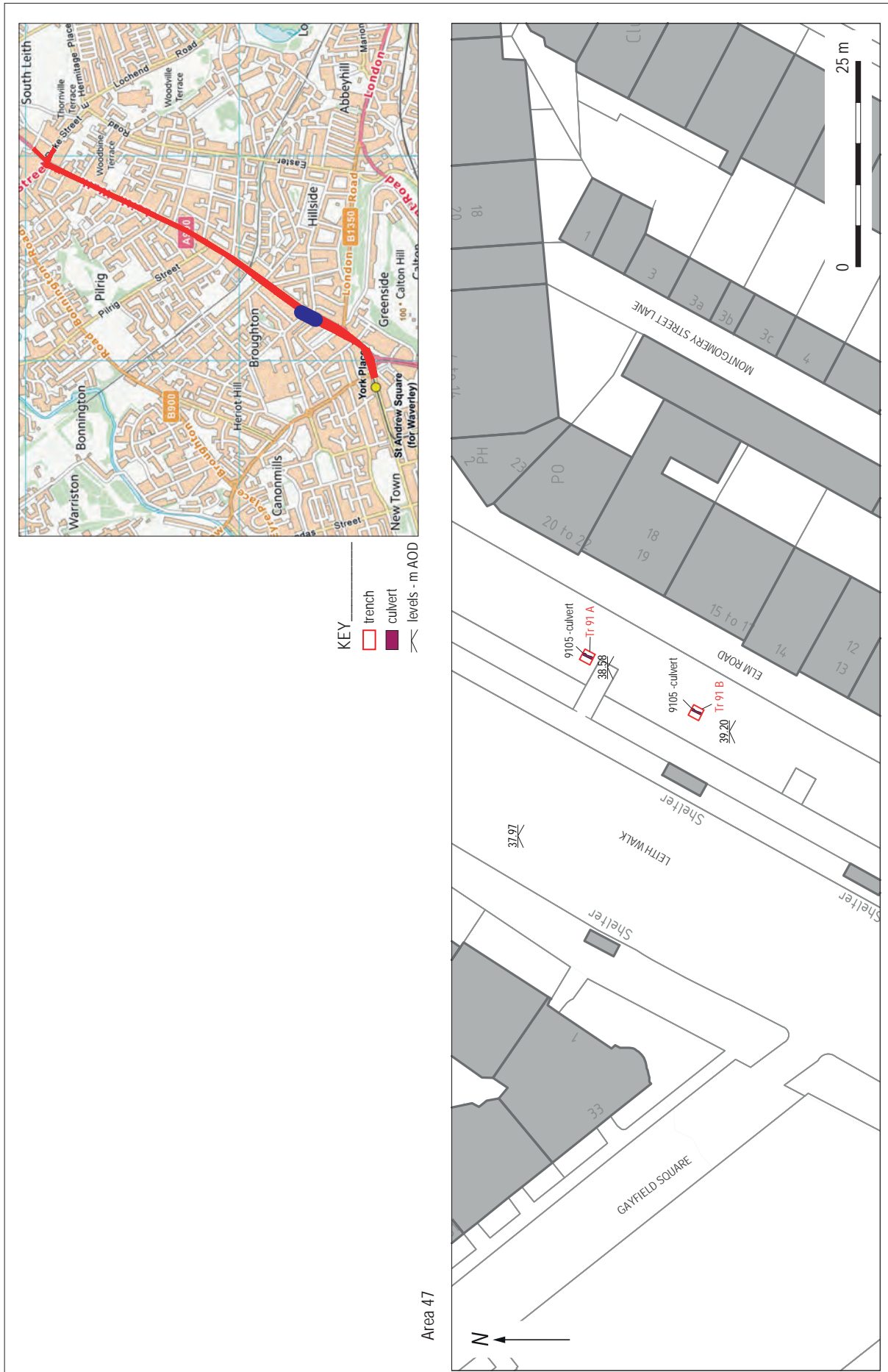




Appendix A: Figure 4

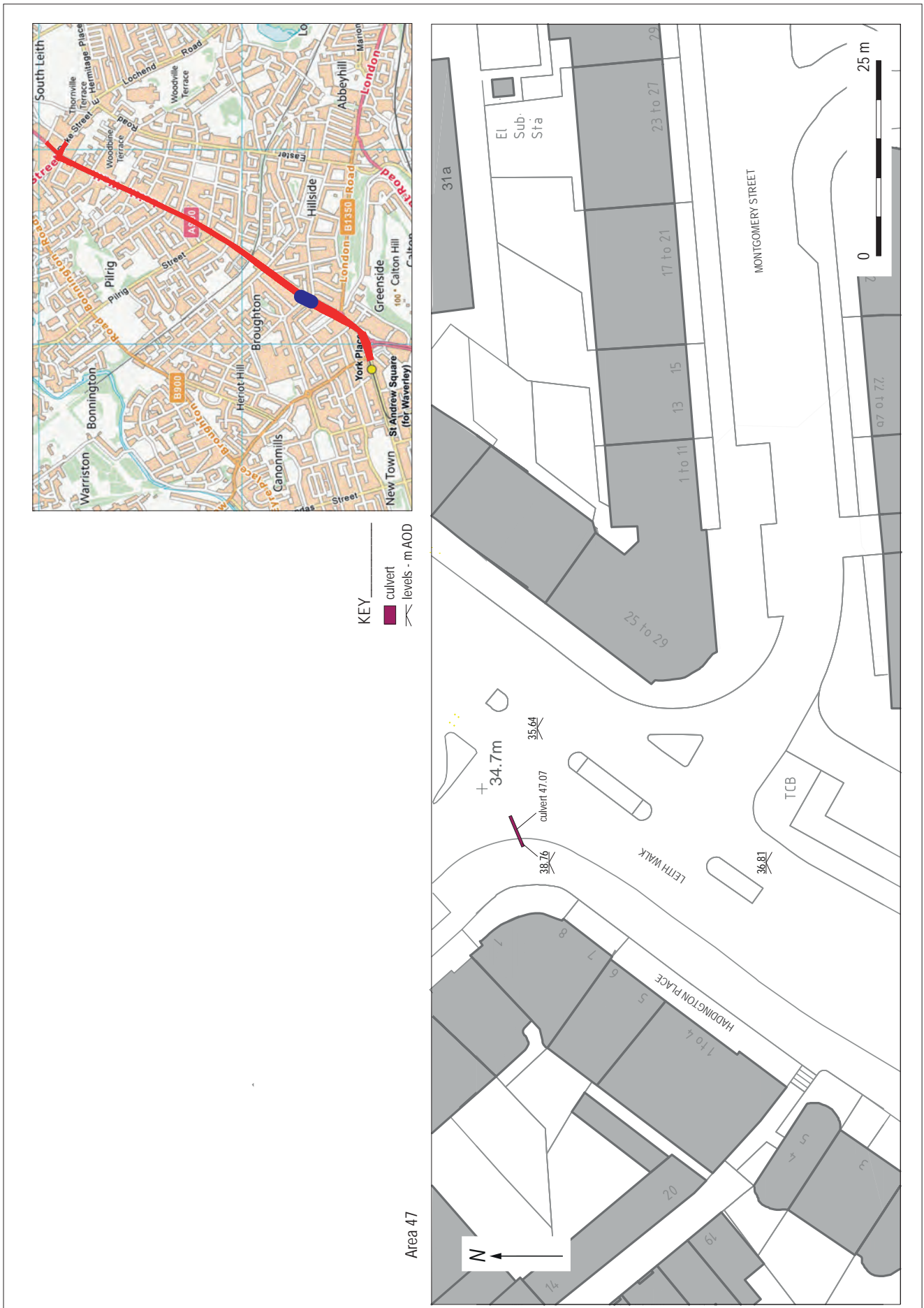


Appendix A: Figure 5

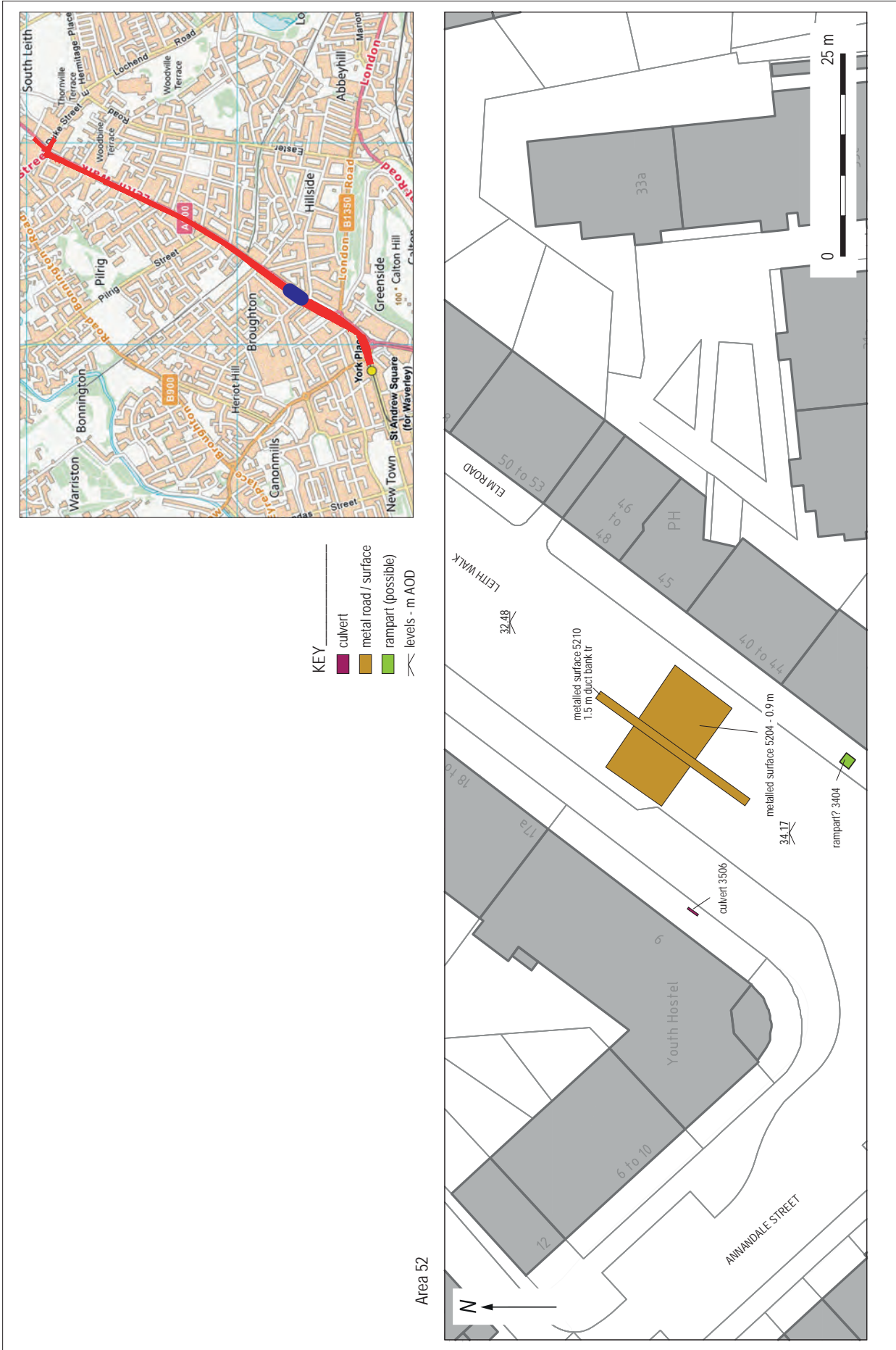


Appendix A: Figure 6

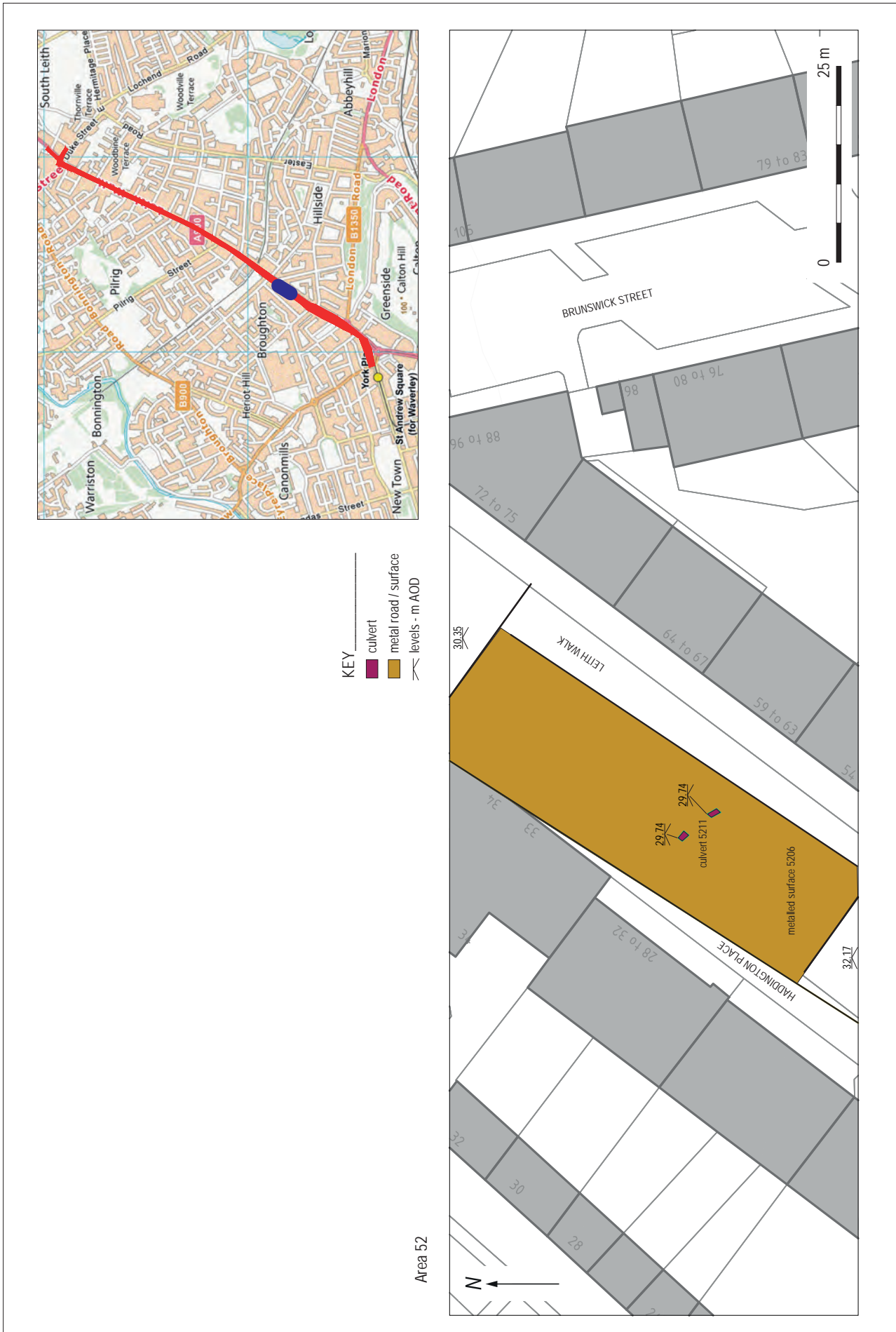




Appendix A: Figure 7

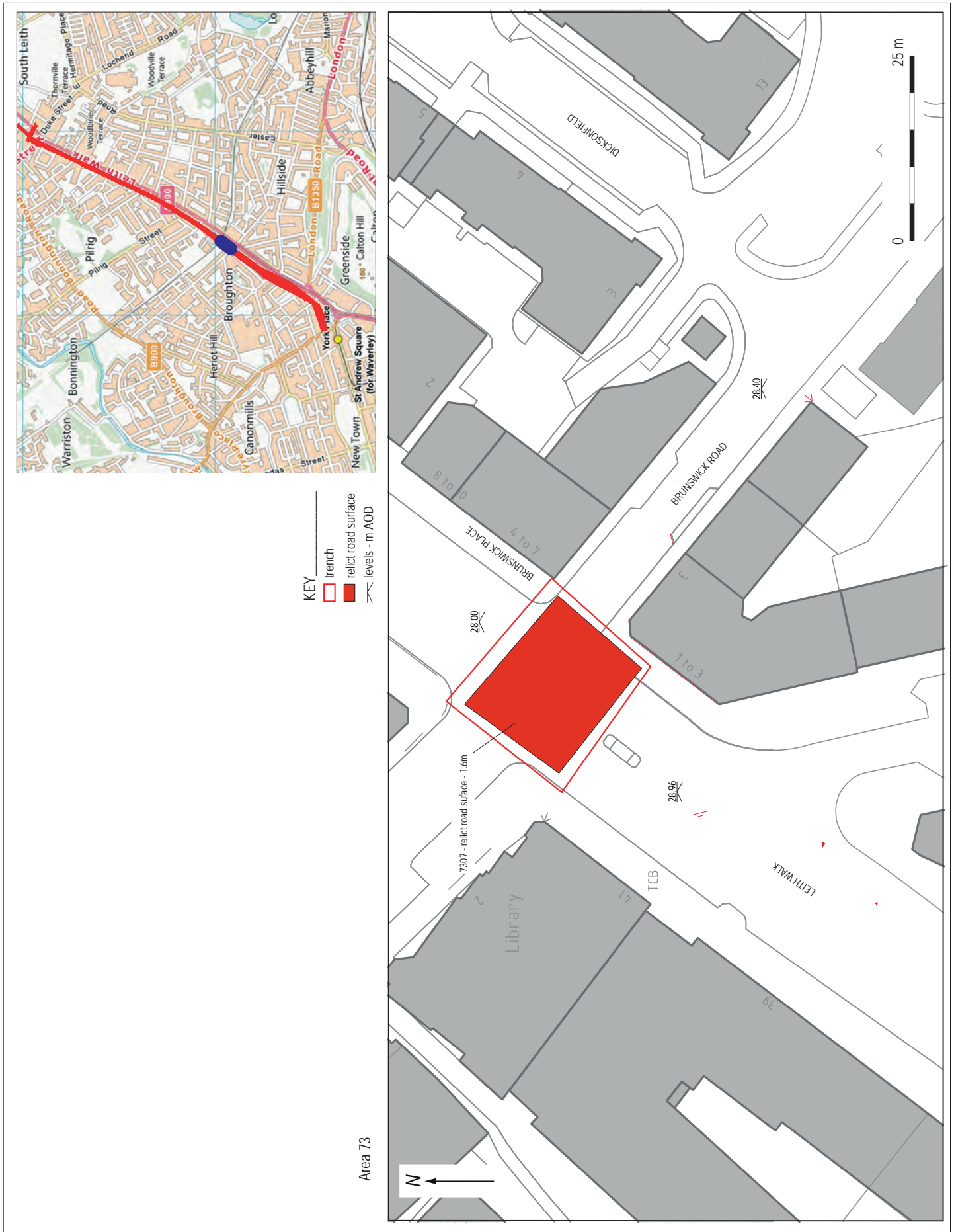


Appendix A: Figure 8

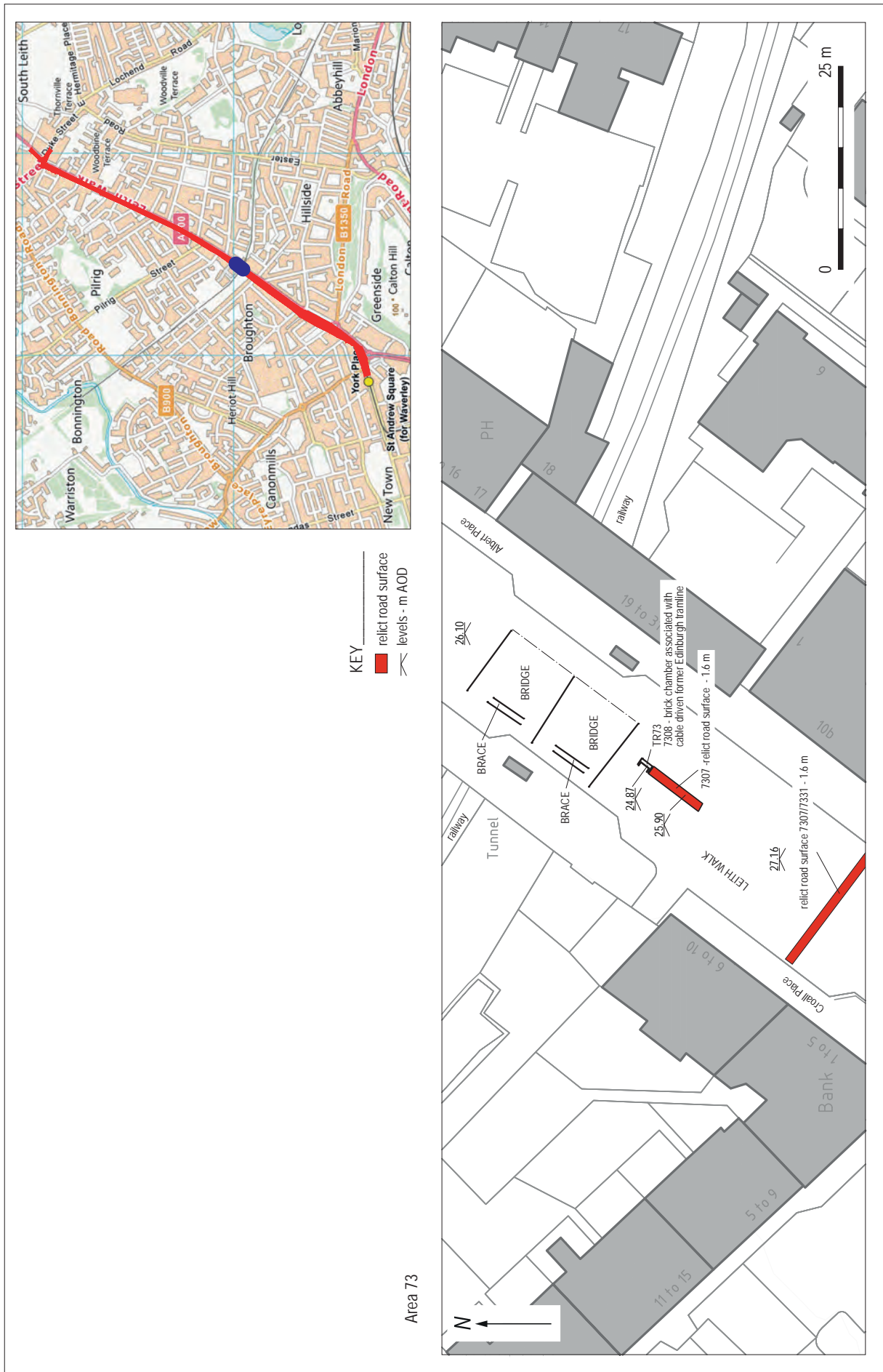


Appendix A: Figure 9

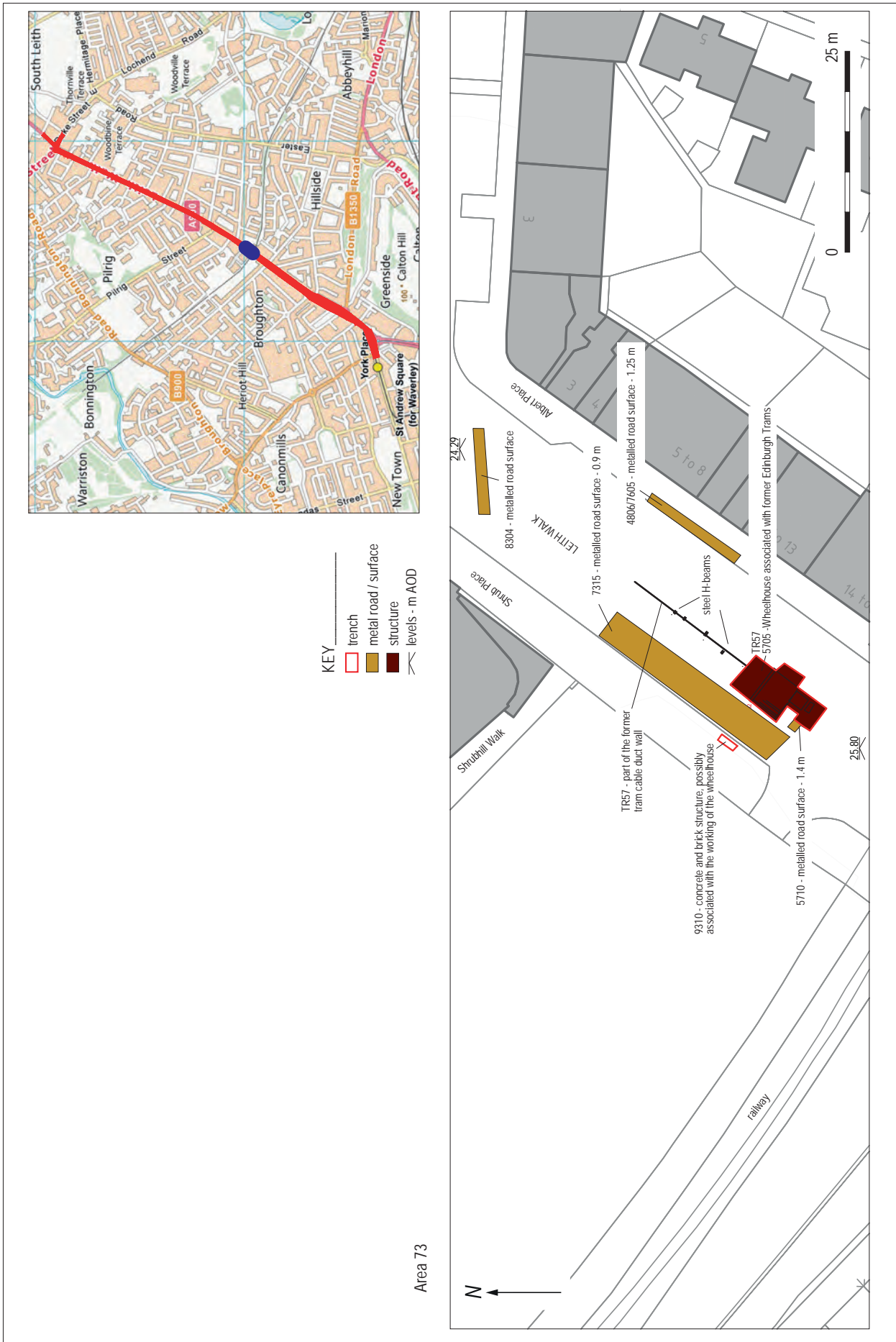




Appendix A: Figure 10



Appendix A: Figure 11

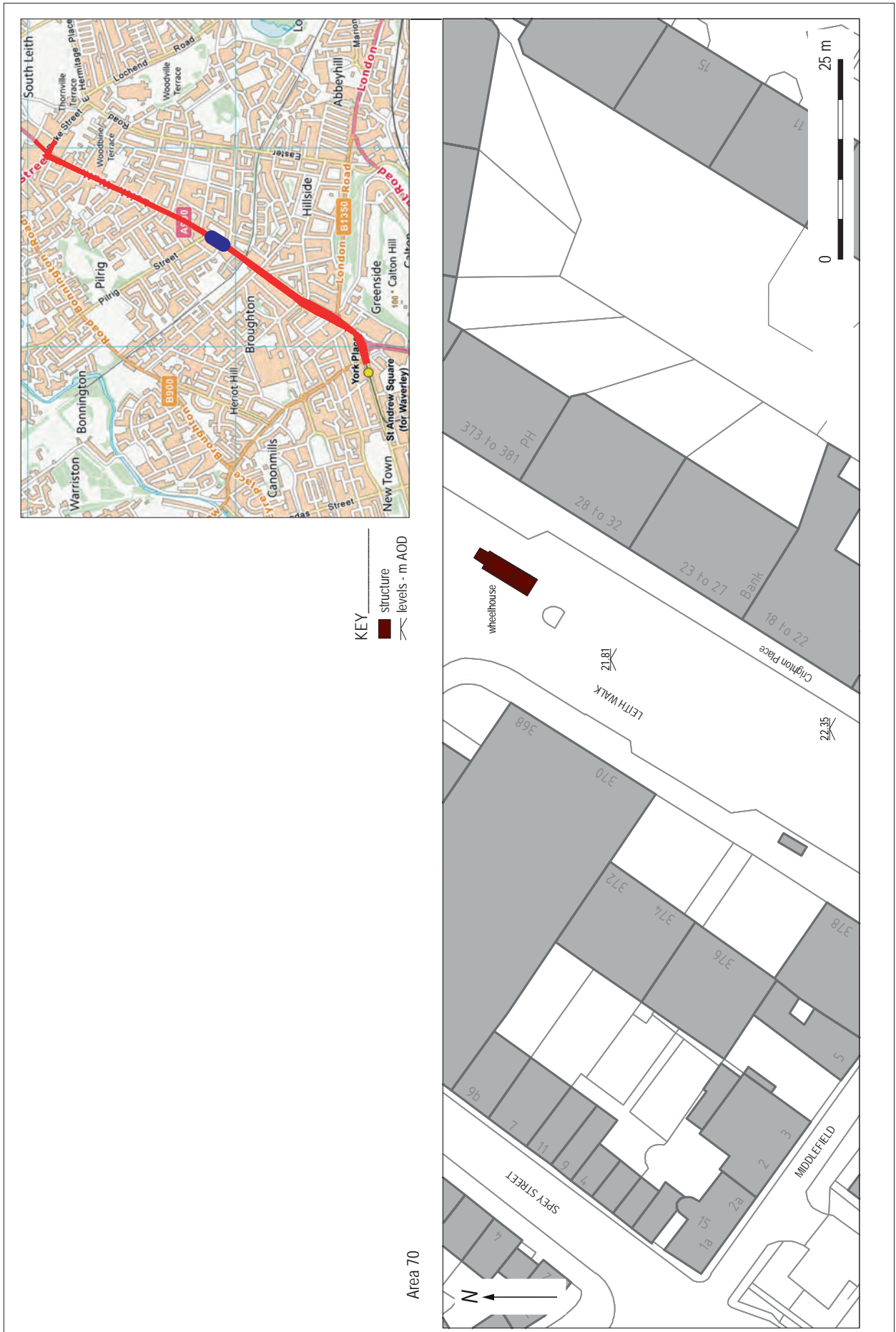


Appendix A: Figure 12

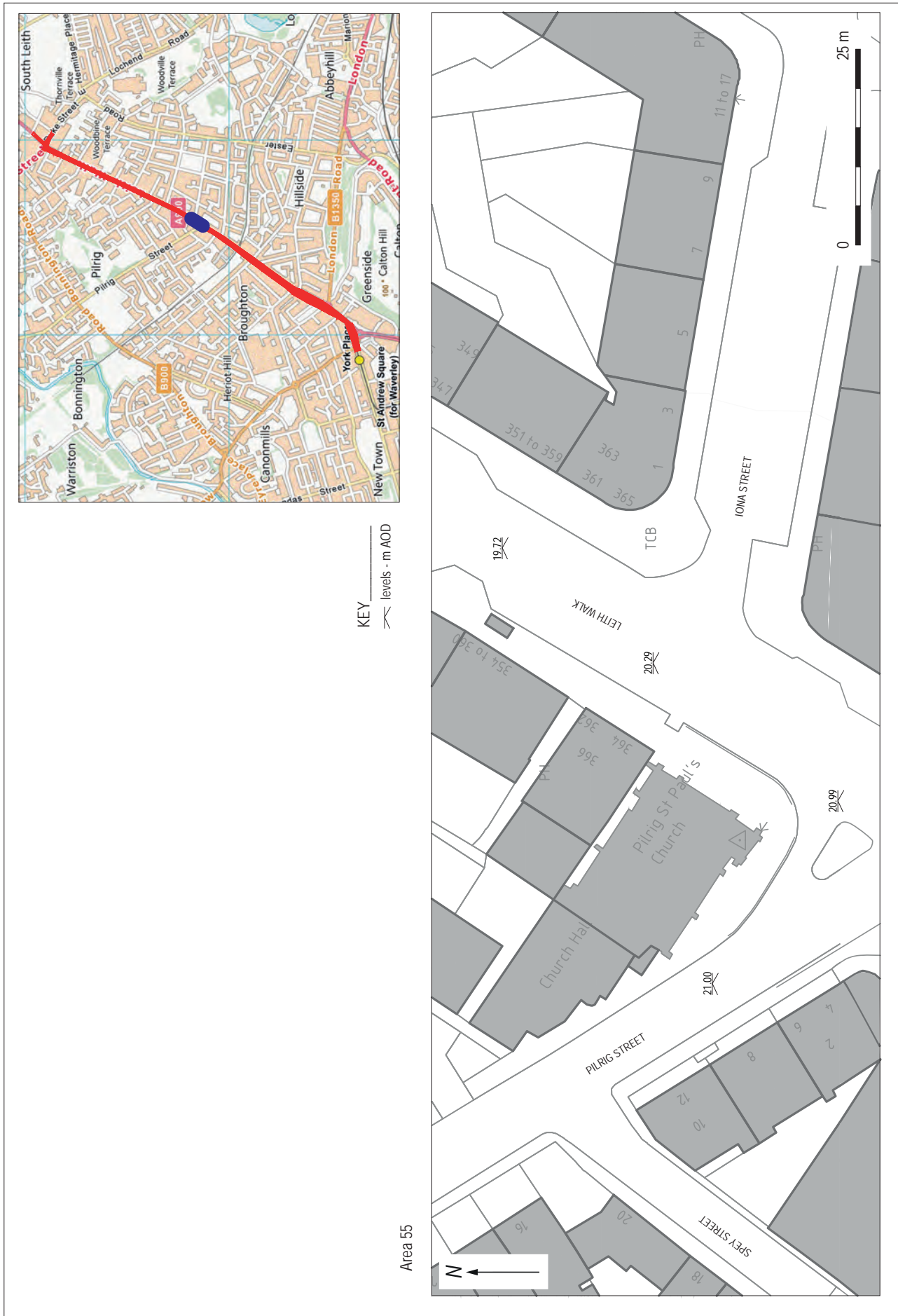




Appendix A: Figure 13

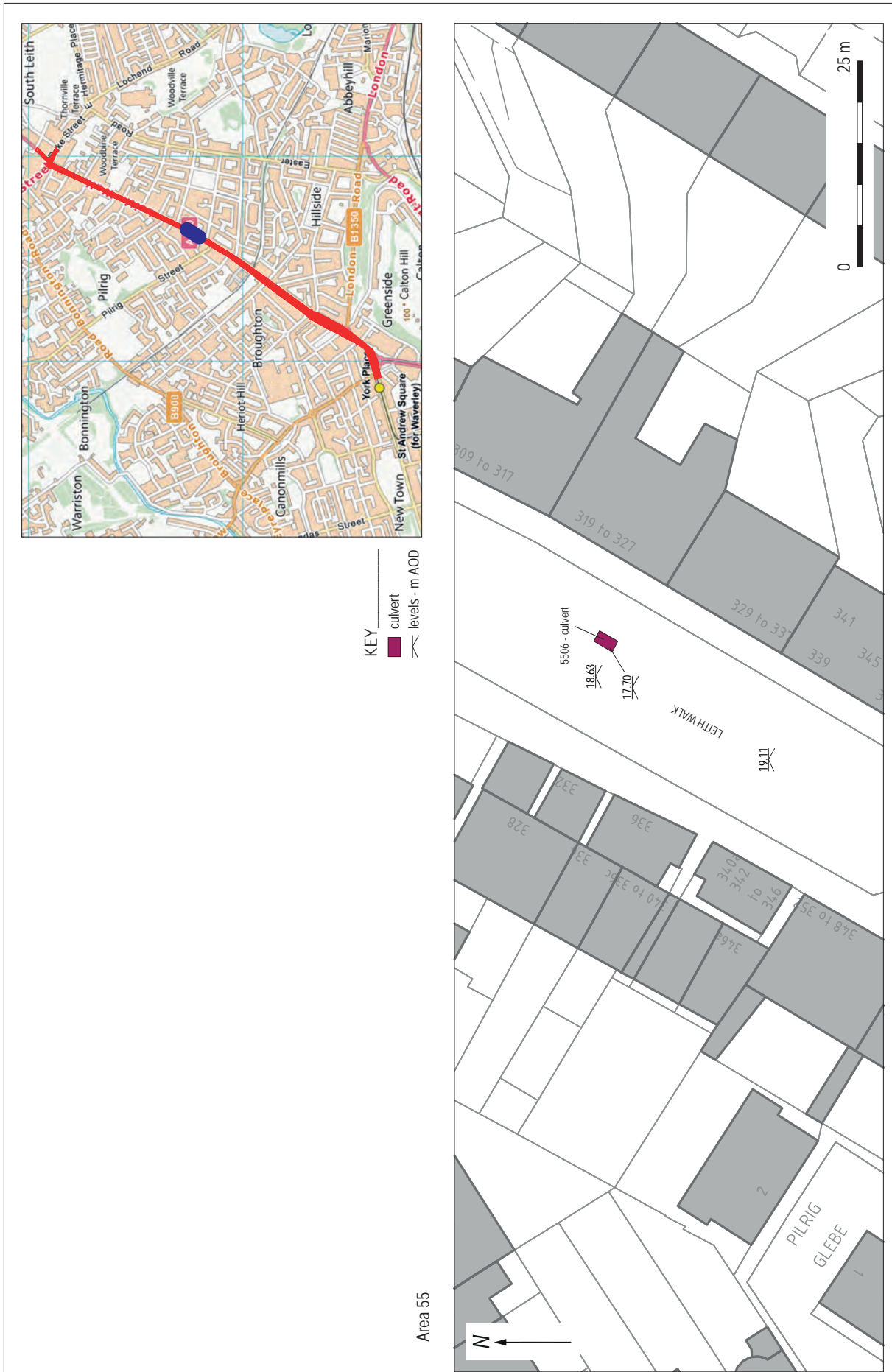


Appendix A: Figure 14

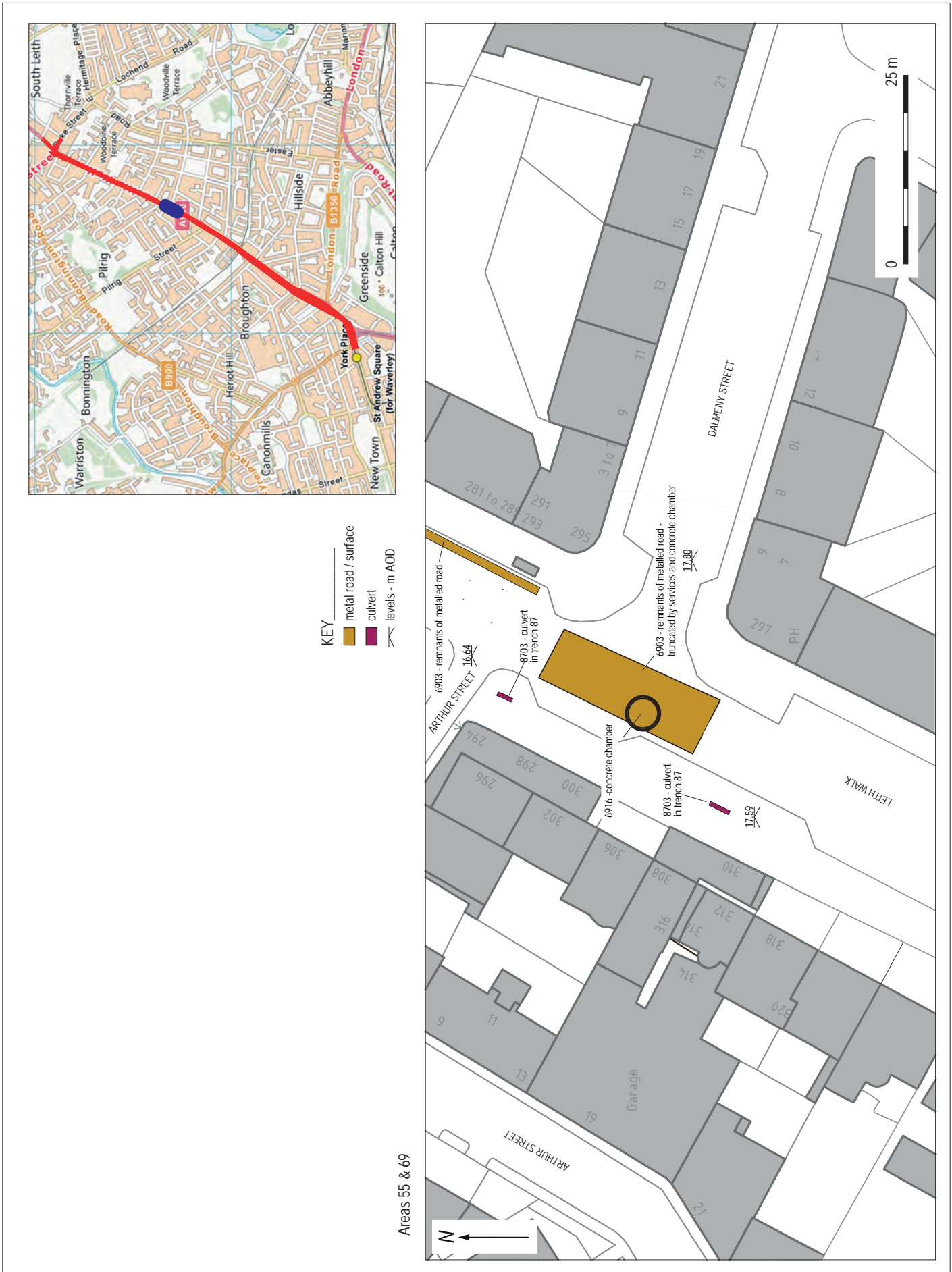


Appendix A: Figure 15

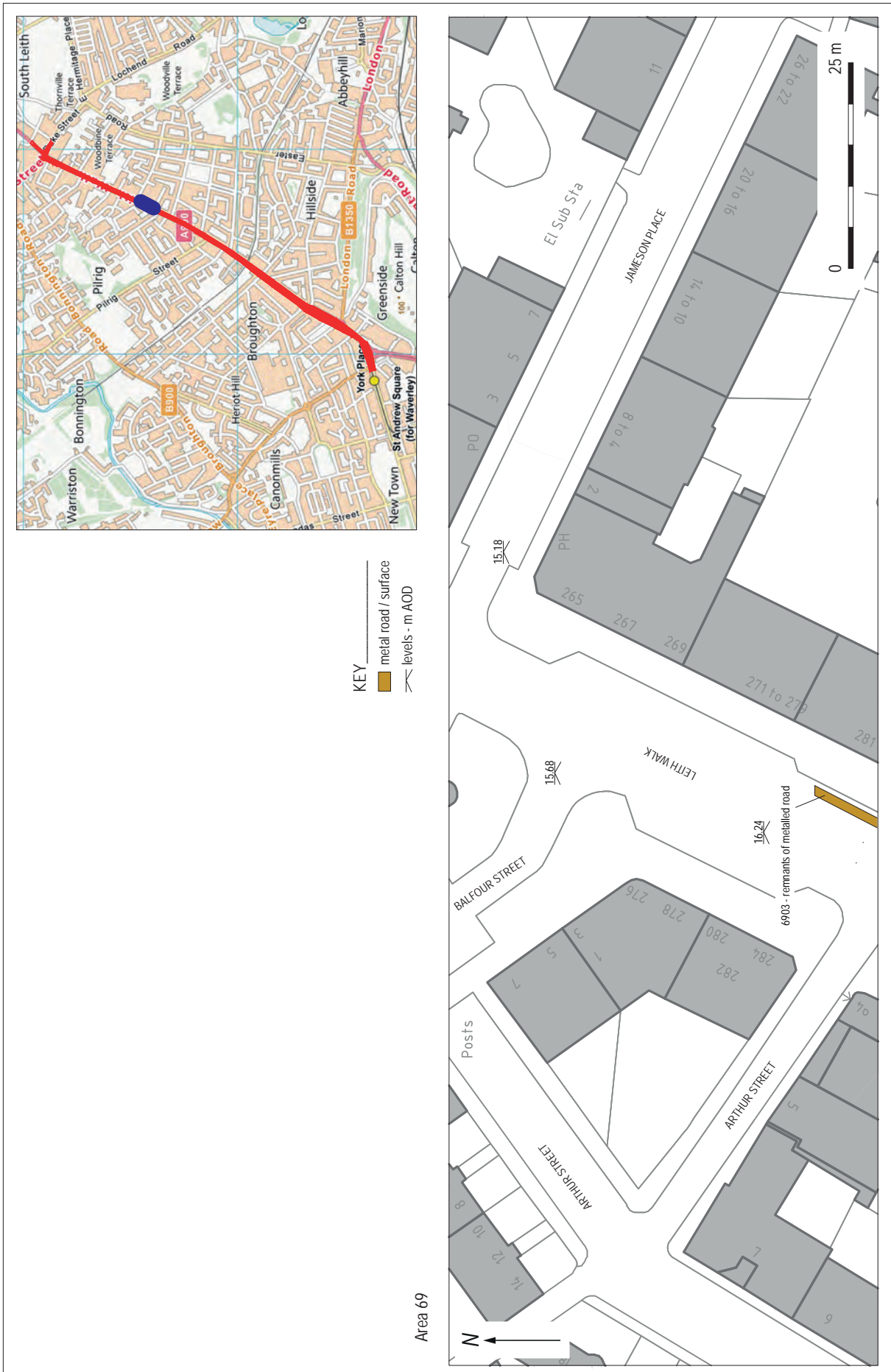




Appendix A: Figure 16

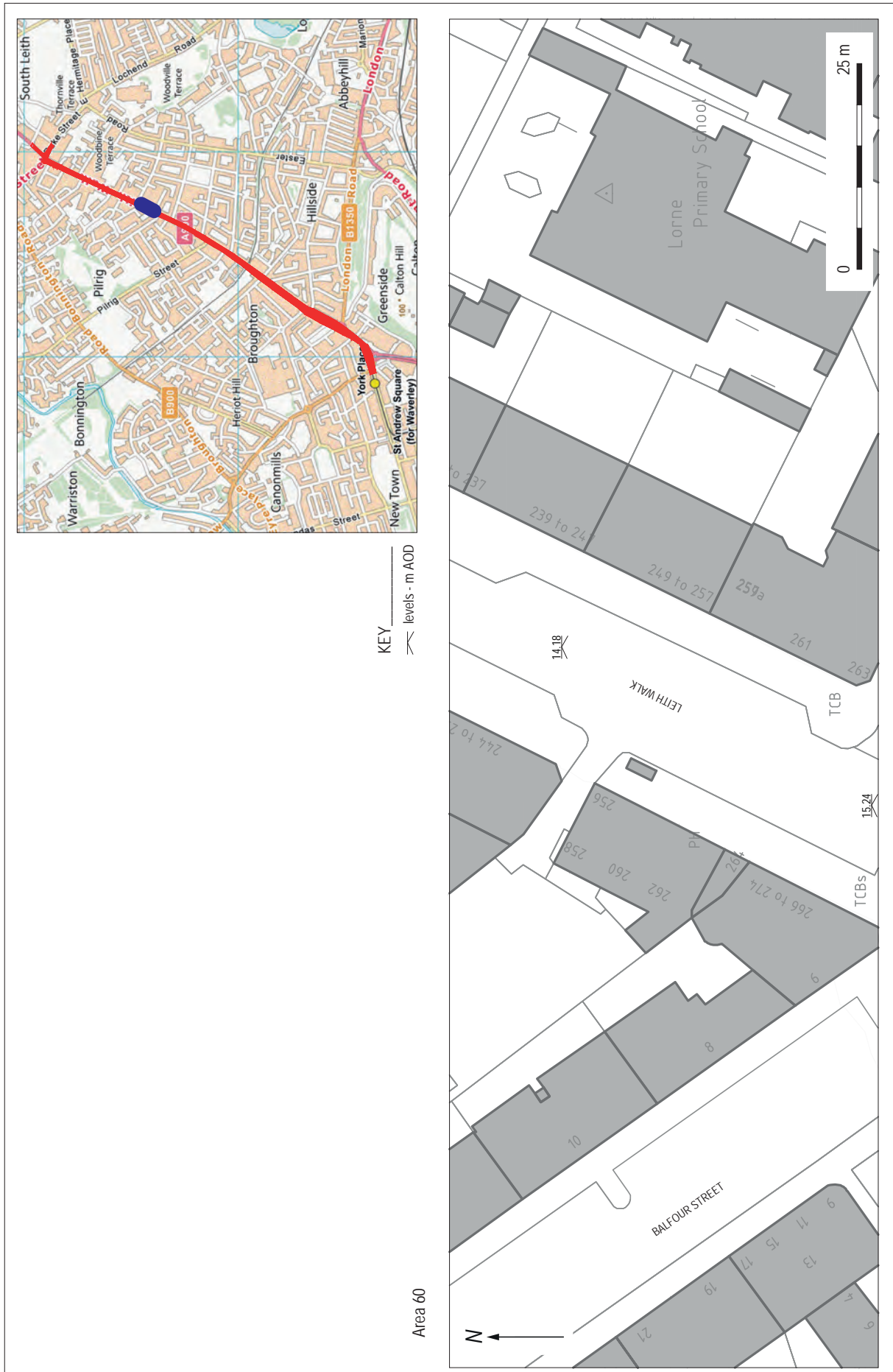


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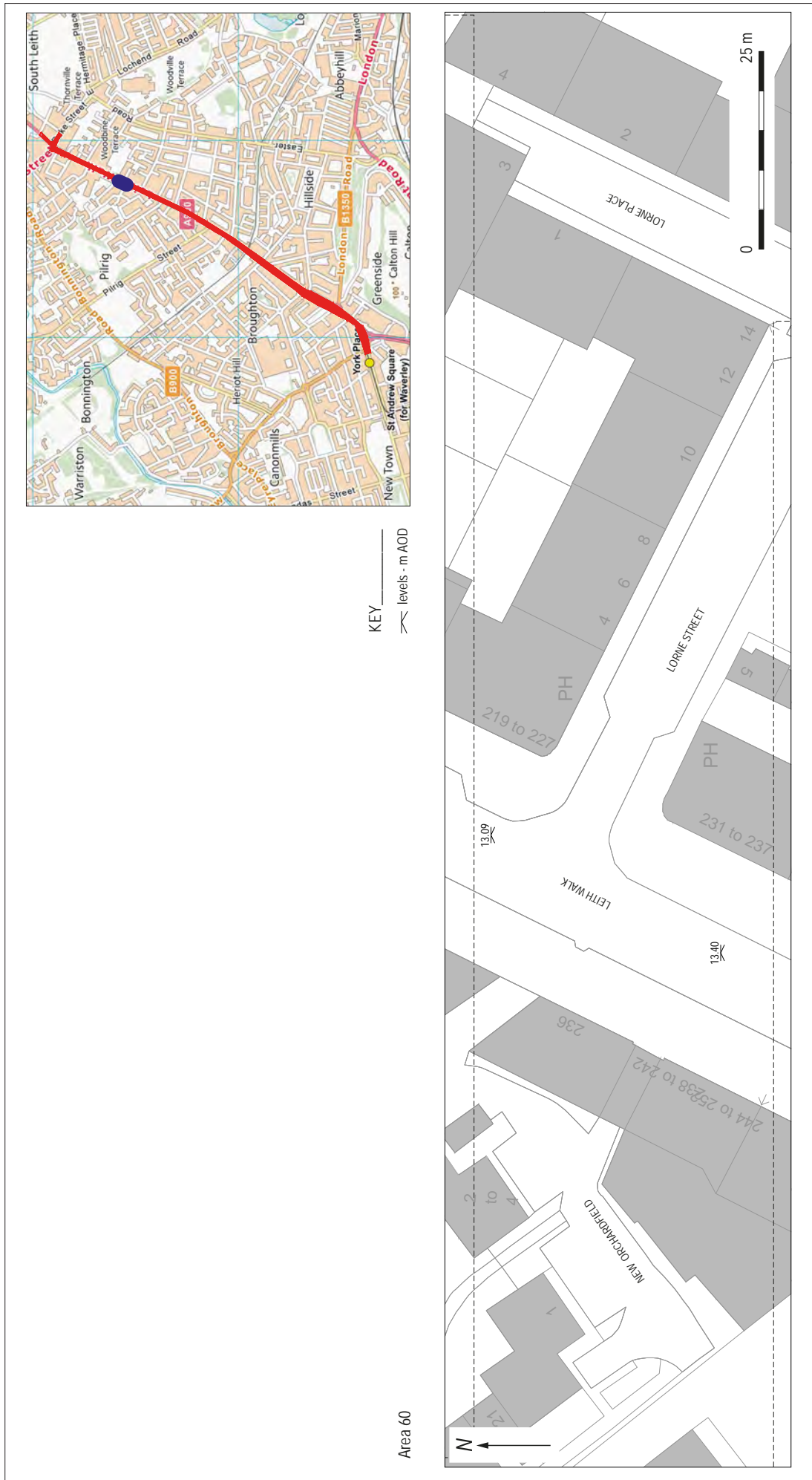


Appendix A: Figure 18

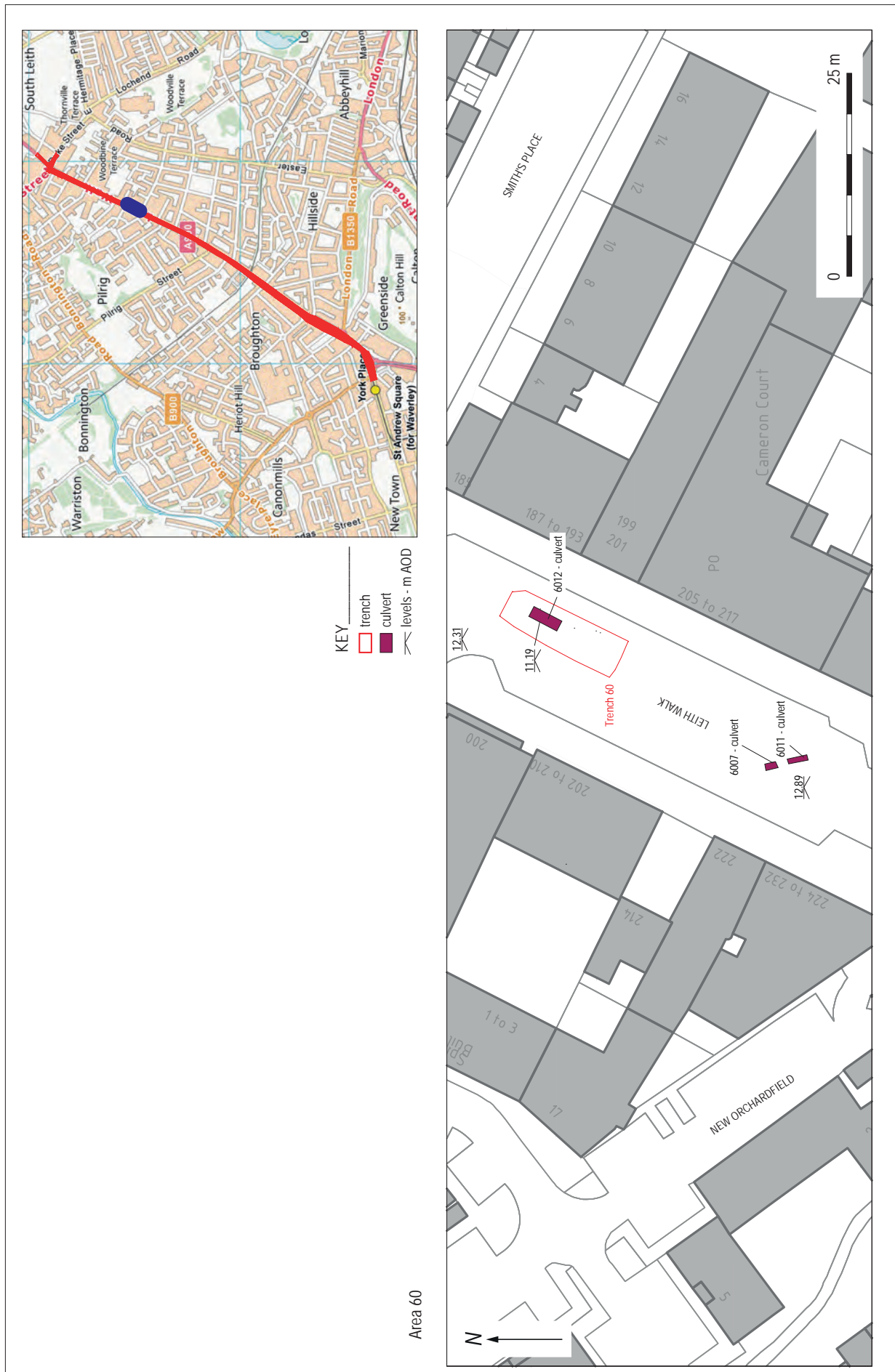




Appendix A: Figure 19

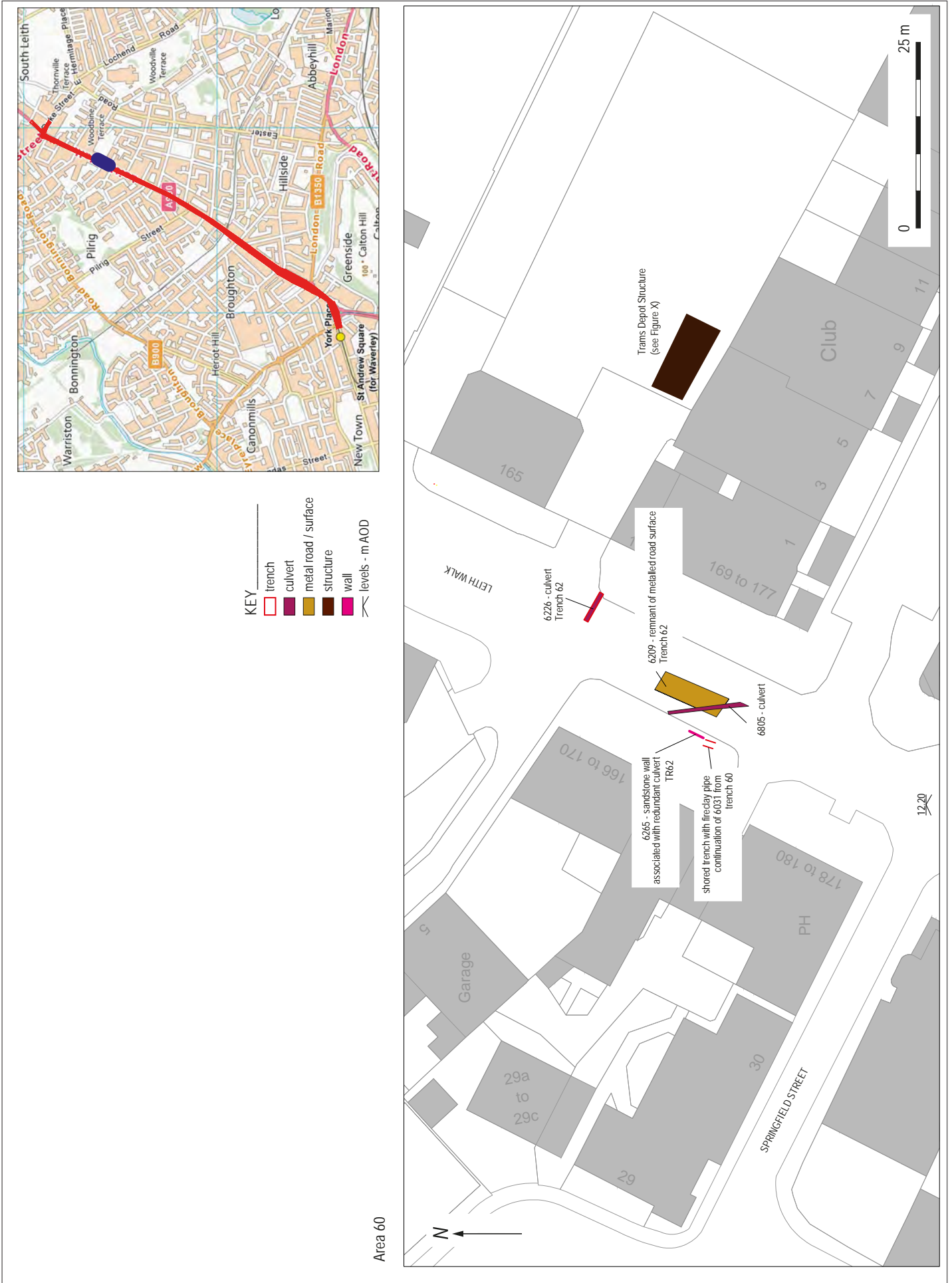


Appendix A: Figure 20

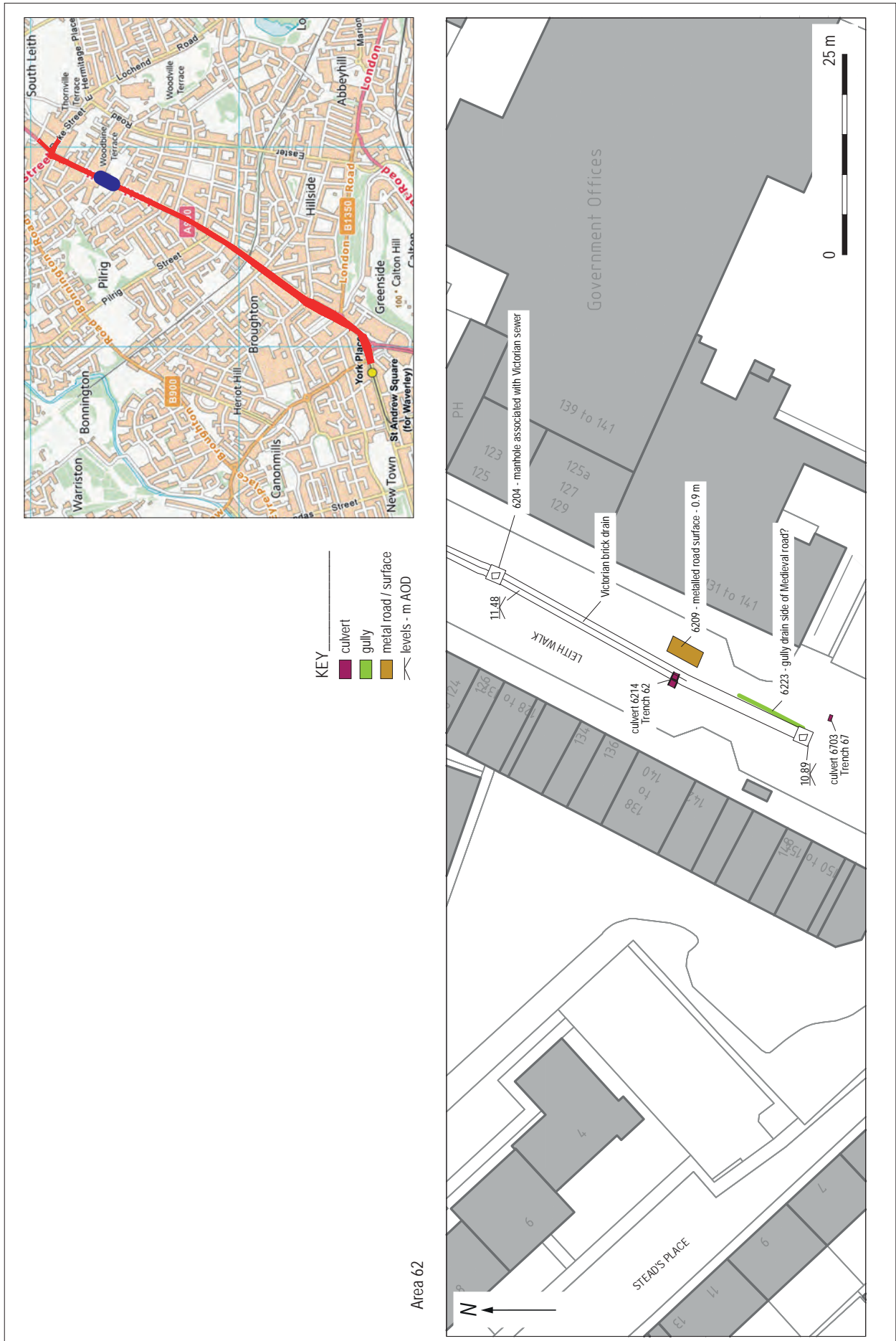


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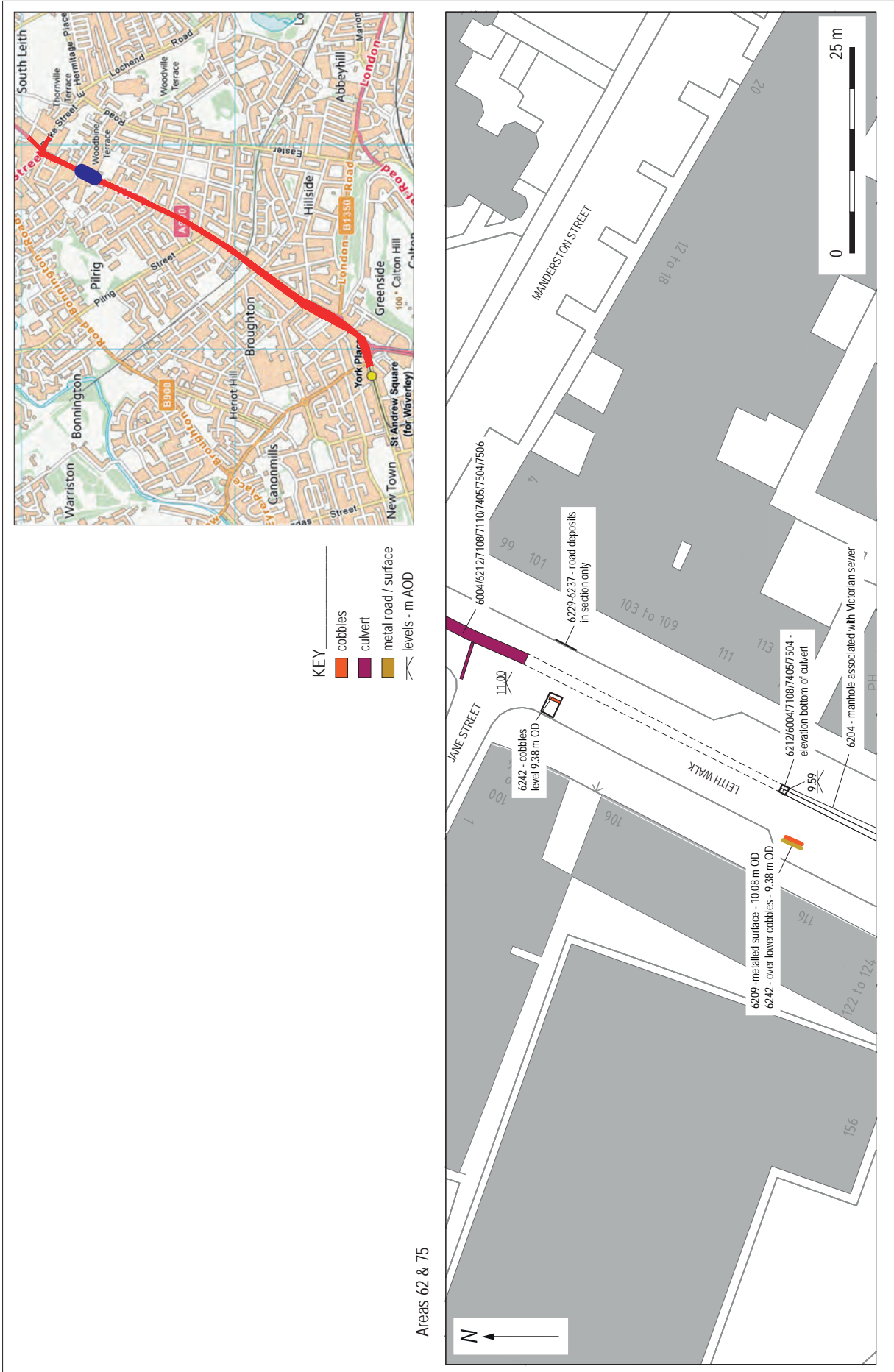




Appendix A: Figure 22

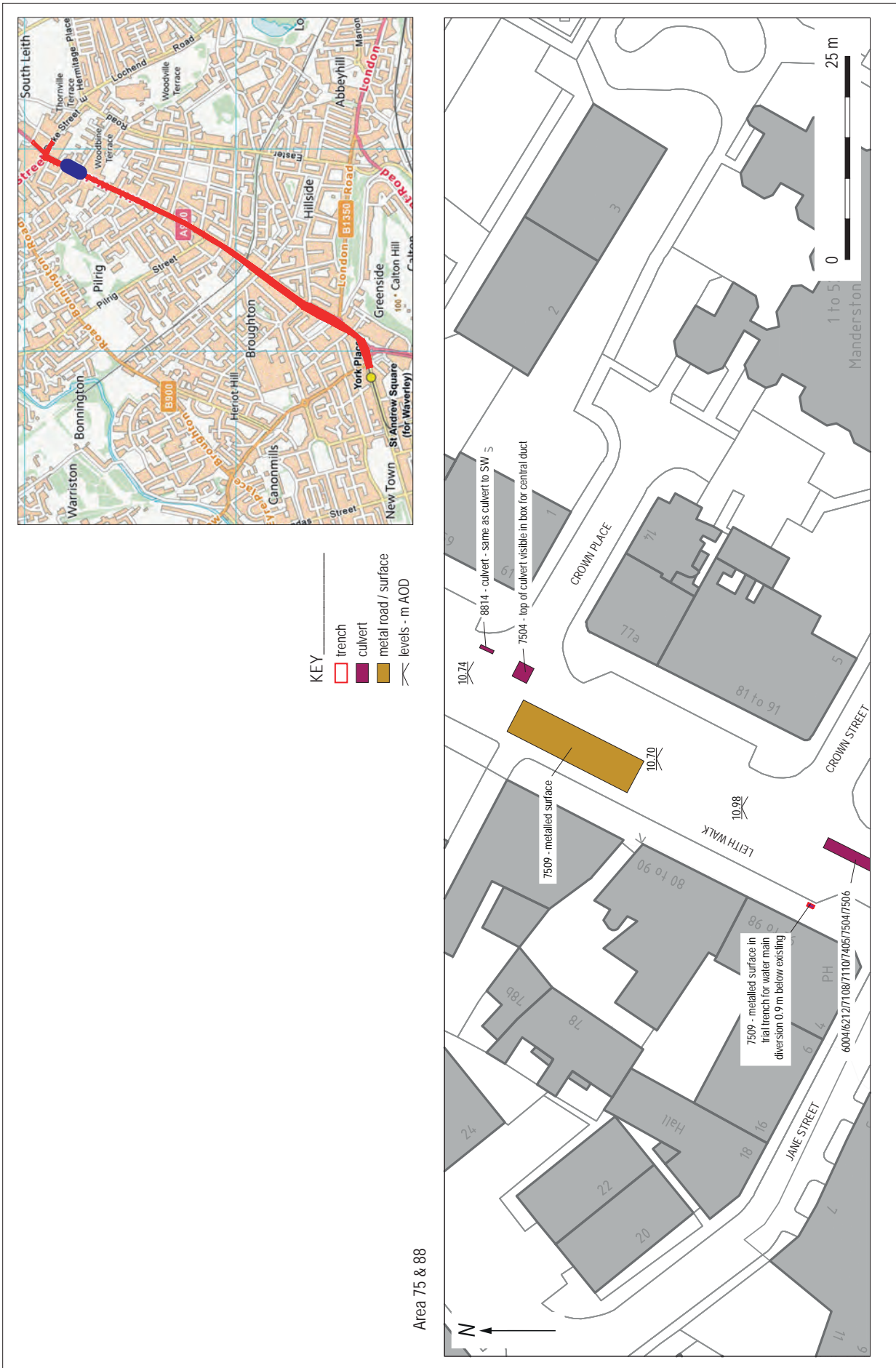


Appendix A: Figure 23

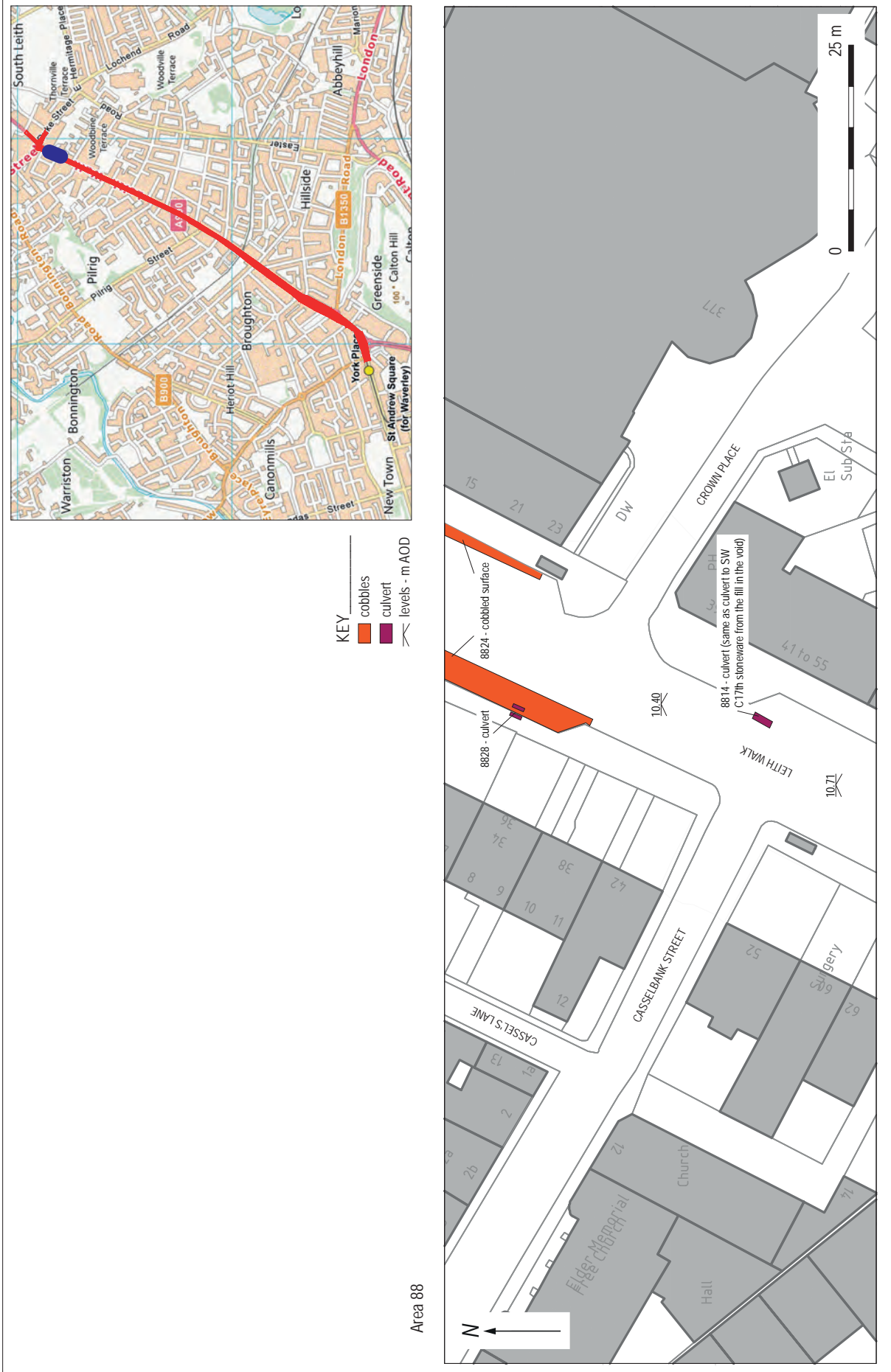


Appendix A: Figure 24

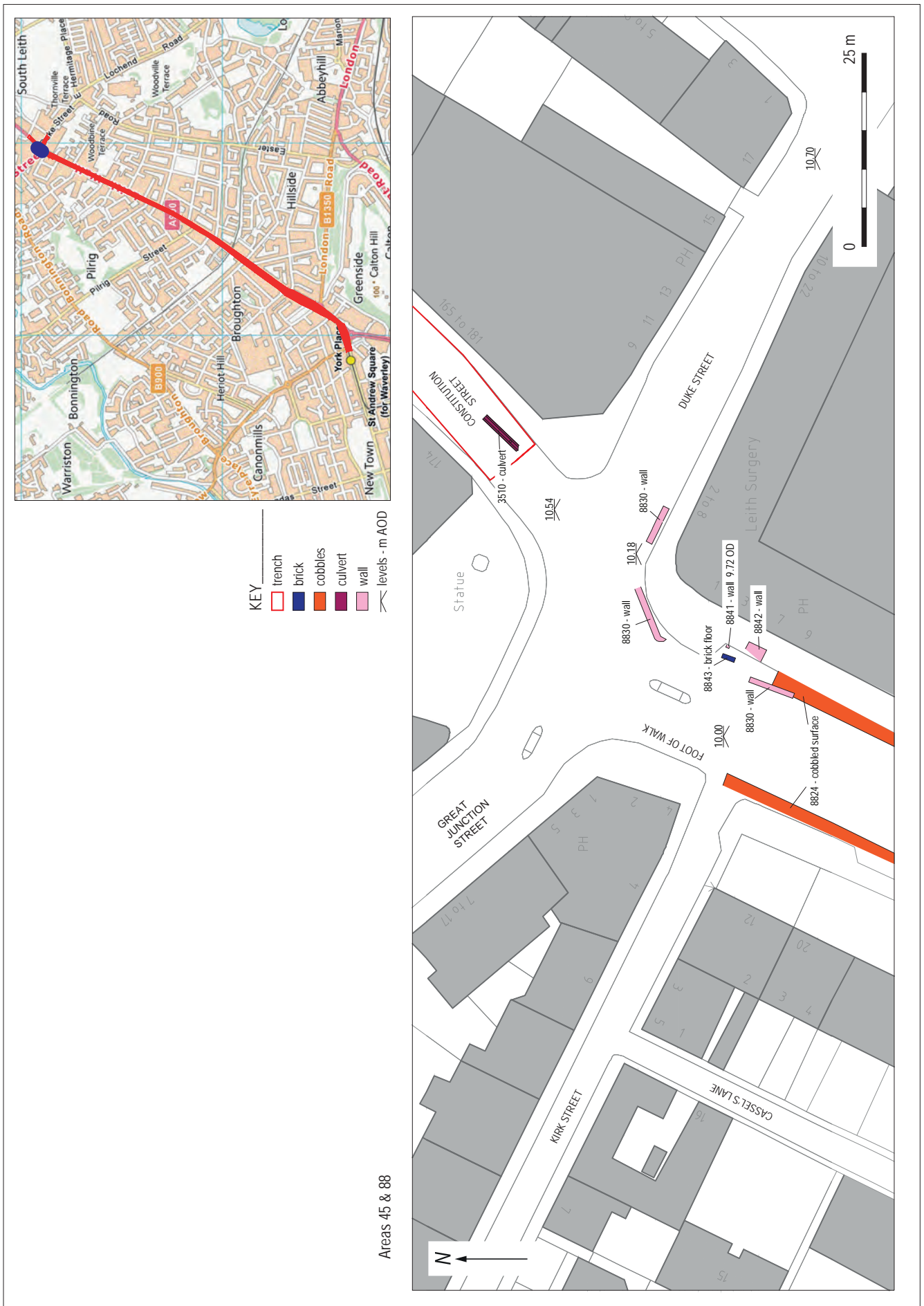




Appendix A: Figure 25



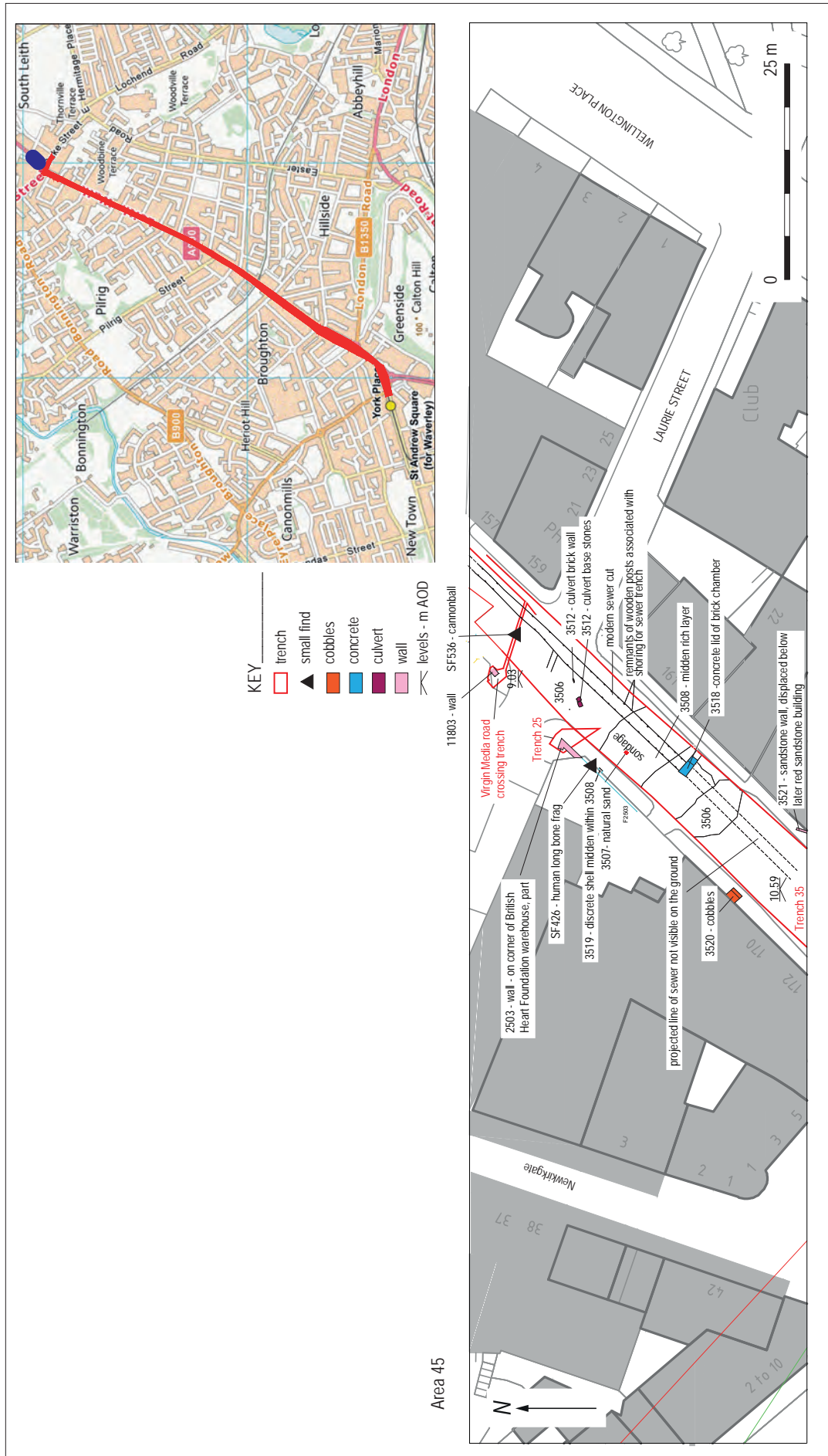
Appendix A: Figure 26



Areas 45 & 88

Appendix A: Figure 27





Appendix A: Figure 28

## Appendix B: Discovery and Excavation Scotland Entry

LOCAL AUTHORITY:	City of Edinburgh
PROJECT TITLE/SITE NAME:	Edinburgh Trams York Place to Newhaven, Archaeological Investigations on Leith Walk
PROJECT CODE:	4870
PARISH:	Edinburgh
NAME OF CONTRIBUTOR(S):	Gemma Jurado Fresnadillo, Alan Hunter-Blair and Bob Will
NAME OF ORGANISATION:	GUARD Archaeology Limited
TYPE(S) OF PROJECT:	Watching Brief & Excavation
NMRS NO(S):	n/a
SITE/MONUMENT TYPE(S):	n/a
SIGNIFICANT FINDS:	Medieval and post-Medieval pottery, Tobacco Pipes, Glass, Coins, Leather, Wood, Animal Bone, Original Trams Pulley system parts.
NGR (2 letters, 6 figures)	
START DATE (this season)	November 2020
END DATE (this season)	June 2022
PREVIOUS WORK (incl. DES ref.)	Franklin, J., Troy, C., Britton, K., Wilson, D. & Lawson, J. A. (2019). Past Lives of Leith: Archaeological Work for Edinburgh Trams. The City Council of Edinburgh.
MAIN (NARRATIVE) DESCRIPTION: (May include information from other fields)	<p>As part of the City of Edinburgh Council Trams to Newhaven project. Archaeological investigations were carried out on Leith Walk from York Place/Picardy Place to the Foot of the Walk and Laurie Street on Constitution Street. GUARD Archaeology Ltd was commissioned by Morrisons Utility Services Ltd (now Morrisons Energy Services) on behalf of the City of Edinburgh Council to carry out an archaeological watching brief during ground works. This was undertaken during works associated with service location, diversion, and the excavation for the tram track foundations.</p> <p>A number of archaeological features and deposits were recorded during the course of the work including redundant stone-built culverts for drainage, live brick-built culverts, earlier road surfaces up to 1.6 m below the existing road level and remains of tenement buildings. Evidence of the former Edinburgh and Leith tramlines was also uncovered including the concrete track slab along with inverted lengths of steel rail forming sleepers and subterranean brick chambers including a well-preserved wheelhouse with cast-iron wheels <i>in-situ</i>. From the various deposits a number of artefacts were recovered including copper coins, leather fragments, medieval, post-medieval and modern pottery, numerous fragments of glass, animal bone and other metal artefacts.</p>
PROPOSED FUTURE WORK:	Post-excavation analysis and publication
SPONSOR OR FUNDING BODY:	Morrisons Energy Services Ltd.
CAPTION(S) FOR ILLUSTRS:	n/a
ADDRESS OF MAIN CONTRIBUTOR:	Unit 52, Elderpark Workspace, 100 Elderpark Street, Glasgow. G51 3TR
EMAIL ADDRESS:	info@guard-archaeology.co.uk
ARCHIVE LOCATION (intended/deposited)	Archive to be deposited in NMRS.

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