

**LAND AT CRAYLANDS LANE/LONDON ROAD
LITTLE SWANSCOMBE, KENT
(Centred at NGR 559786 174912)**

**HISTORIC BUILDING RECORD
(HISTORIC ENGLAND LEVEL 1 & 3)**



**Commissioned by
Swanscombe Developments LLP**



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(HISTORIC ENGLAND LEVEL 3)**

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**Site Code: CLI 16
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SUMMARY

In April 2016 Archaeology South-East (a division of the Centre for Applied Archaeology, UCL) carried out a programme of historic building recording of the buildings and tramway tunnels adjacent to Craylands Lane and London Road, Little Swanscombe, Kent, DA10 0LP, prior to the proposed redevelopment of the site for residential use.

This recording exercise forms a detailed survey of the extant tramway tunnels at Historic England Level 3 (English Heritage 2006a). The wider site was subject to a Level 1 record, for contextual purposes. A desk-based assessment has previously been produced for the site by Archaeology South-East (ASE 2005).

The site was established as a quarry in the early 20th century, forming part of the Swanscombe Works. The Swanscombe Works was one of the largest cement producers throughout the 20th century, and at its closure in 1990 was the oldest cement producer in the world.

The remaining built heritage of the former quarry comprises a pair of railway tunnels: one running north beneath London Road and the other running eastwards beneath Craylands Lane. The eastern tunnel bears a date-stone recording its construction in 1908, whilst the northern was constructed between 1908 and 1938, according to cartographic sources (ASE 2005). A number of modern office buildings (post-1968) also lie within the development site.

CONTENTS

	List of Plates
	List of Figures
1.0	Introduction
2.0	Scope and Methodology
3.0	Site Location
4.0	Historic Background
5.0	Overview of the Buildings
6.0	Description of the Buildings
7.0	Discussion
8.0	Sources Consulted
9.0	Deposition of the Archive
10.0	Acknowledgements
	Plates
	Figures
	Appendix 1 Index of Digital Photographs
	Appendix 2 Kent HER Air-Raid Shelter Entry Details
	Appendix 3 OASIS Data Collection Form

LIST OF PLATES

Plate 1 General view of the former quarry site south of London Road, looking west (49)

Plate 2 General view of the former quarry site south of London Road, East Tunnel (2) visible in the background, looking east (25)

Plate 3 View of the former tramway access cutting connecting the North and East Tunnels (1 & 2), looking south-east (26)

Plate 4 North Tunnel (1), former chalk quarry (flooded), looking west (1)

Plate 5 North Tunnel entrance, looking south-west (2)

Plate 6 North Tunnel entrance, bricked-up to form a gun club, looking south (3)

Plate 7 North Tunnel interior, sub-divided gun-club entrance reception, looking north-west (6)

Plate 8 North Tunnel interior, sub-divided gun-club entrance reception, looking south-east (4)

Plate 9 North Tunnel interior, 'Firearms Act' signage dated to the 1937 and 1966 legislation – erected during the structure's use as a gun club, looking west (9)

Plate 10 North Tunnel interior, central store room, looking south-west (11)

Plate 11 North Tunnel interior, former firing range, looking south-east (15)

Plate 12 North Tunnel interior, former firing range, looking north-west (20)

Plate 13 North Tunnel interior, southern extension of the former firing range, looking south-east (16)

Plate 14 North Tunnel interior, ceiling construction of the southern extension of the former firing range, looking east (17)

Plate 15 North Tunnel interior, target wall within the southern extension of the former firing range, looking south-east (18)

Plate 16 North Tunnel, southern extension viewed externally south of London Road, looking north-east (21)

Plate 17 North Tunnel, southern extension viewed externally south of London Road, looking north-west (24)

Plate 18 East Tunnel, western entrance, Craylands Lane above, looking east (27)

Plate 19 East Tunnel, detail of the western entrance, looking east (28)

Plate 20 East Tunnel, western entrance '1908' date plaque, looking east (28)

Plate 21 East Tunnel interior, infilled eastern end in background, looking east (30)

Plate 22 East Tunnel interior, western entrance, operational overhead services, looking west (32)

Plate 23 East Tunnel interior, western entrance, looking west (33)

Plate 24 Timber railway sleepers located at the western entrance of the East Tunnel, possibly pertaining to the former transportation system between the quarry and the cement works, looking east (28)

Plate 25 A pair of iron 'I' section rails located at the western entrance of the East Tunnel, possibly pertaining to the former transportation system between the quarry and the cement works, looking south-east (29)

Plate 26 Vehicle depot located within the north-east corner of the site (unrelated to cement manufacture), looking north (46)

Plate 27 Vehicle depot located within the north-east corner of the site (store), looking south-east (42)

Plate 28 Vehicle depot located within the north-east corner of the site (workshop), east elevation, looking east (37)

Plate 29 Vehicle depot located within the north-east corner of the site (workshop), north and west elevations, looking south-east (35)

Plate 30 Vehicle depot located within the north-east corner of the site (office), south elevation, looking north (38)

Plate 31 Vehicle depot located within the north-east corner of the site (office), west elevation, looking east (36)

LIST OF FIGURES

- Figure 1 Site Location
 - Figure 2 Site Plan
 - Figure 3 Ordnance Survey 1" Old Series, 1816-19
 - Figure 4 Tithe Map, Swanscombe Parish, 1843
 - Figure 5 OS 6" Sheets IX and X 1st Edition, 1869
 - Figure 6 OS 6" Sheets IX and X 2nd Edition, 1898
 - Figure 7 OS 25" Sheets IX.4 and X.13rd Edition, 1908
 - Figure 8 OS 25" Sheets IX.4 and X.1 Revised Edition, 1938/9
 - Figure 9 OS 6" Sheets TQ 57 SE, 1967
 - Figure 10 Plan of the Kent Cement Works during the 20th Century
 - Figure 11 View of the Swanscombe Cement Works (c.1905)
 - Figure 12 Aerial View of the Swanscombe Cement Works (c.1927)
 - Figure 13 Swanscombe Works Quarry, Knockhall House (1936)
 - Figure 14 Aerial View of the Swanscombe Cement Works (c.1939)
 - Figure 15 Swanscombe Works Quarry (main line tunnel located top centre)
(Aug. 1947)
 - Figure 16 North Tunnel (Tunnel 1) – Floor Plan (1:100)
 - Figure 17 North Tunnel (Tunnel 1) – Longitudinal Section (1:100)
 - Figure 18 East Tunnel (Tunnel 2) – Floor Plan (1:100)
 - Figure 19 East Tunnel (Tunnel 2) – West Elevation (1:100)
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INTRODUCTION

- 1.1 In April 2016 Archaeology South-East (a division of the Centre for Applied Archaeology, UCL) carried out a programme of historic building recording of the buildings and tramway tunnels adjacent to Craylands Lane and London Road, Little Swanscombe, Kent, DA10 0LP (Figures 1 & 2; NGR 559786 174912), prior to the proposed redevelopment of the site for residential use (ref. DA/14/01689/OUT). This recording exercise forms a detailed survey of the extant tramway tunnels at Historic England Level 3 (English Heritage 2006a). The wider site was subject to a Level 1 record, for contextual purposes. A desk-based assessment has previously been produced for the site by Archaeology South-East (ASE 2005).
- 1.2 Dartford Borough Council attached the following condition (Condition 13) to the planning permission, requiring building recording to be carried out prior to the redevelopment of the site (Ref. DA/14/01689/OUT):

No work on site shall take place until the applicant, or their agents or successors in title, has secured the implementation of a programme of archaeological recording for the tunnel and other industrial archaeological features on site in accordance with a written specification and timetable which has been submitted to and approved by the Local Planning Authority.

Reason: To ensure that the industrial archaeological features are properly examined and recorded.

2.0 SCOPE & METHODOLOGY

- 2.1 The work was carried out in accordance with the relevant ClfA standards and guidance.
- 2.2 Dartford Borough Council recommended that the tunnels in the northern and eastern parts of the site be recorded to Historic England Level 3 standard prior to their demolition, while the cluster of post-1968 office buildings in the north-eastern corner of the site be recorded to Historic England Level 1 standard (English Heritage 2006a).
- 2.3 The site was visited by Hannah Green and Michael Shapland on the 21st April 2016 in order to carry out the recording work. This entailed the compilation of written notes and the production of a photographic and drawn record. The written record includes a description of the building's location, form, function (historically and at present), date, materials and sequence of development.
- 2.4 The drawn record comprises a location plan, floor plans, elevations and cross-sectional drawings of the tunnels as existing. These plans were produced during the recording exercise and are included within the report as Figures 16-19.
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- 2.5 The photographic record was produced using high-quality digital photography. Within the report selected digital images have been reproduced as plates to supplement the descriptive text. A full index of the digital photography is included as Appendix 1 and location plots are shown on the accompanying figures.
- 2.6 The Level 1 recording comprises a location/site layout plan, external photography with accompanying photo location plan, a very brief written description and the inclusion of background information from research otherwise carried out for the Level 3 survey.
- 2.7 Relevant cartographic sources were consulted, in addition to a visit to the Kent History and Library Centre, in order to place the structures within their historical context. All sources consulted are listed in Section 8.

3.0 SITE LOCATION

- 3.1 The site is located on the north-western edge of the Thames-side settlement of Swanscombe, whilst within the Dartford Borough administrative area, Ebbsfleet Development Corporation is the planning authority for the site. It lies within the Swanscombe Peninsula (west) to the south of the River Thames. The peninsula totals an area of 205ha between Greenhithe and Northfleet. The western area of the peninsula covers the land between Ingress Park and the Channel Tunnel Rail Link (CTRL) alignment and north of the North Kent Railway Line, comprising c.90ha.
- 3.2 The site itself encompasses an area of 2.1ha, bounded by London Road (A226), the main road link between Dartford and Gravesend to the north. Craylands Lane bounds the site to the east and joins London Road at the north-east corner of the site. The North Kent Railway Line (Swanscombe/Greenhithe) runs along the southern boundary of the site and the western boundary is formed by a cliff beyond which is residential land. Quarrying activity from the early 20th century has greatly altered the topography of the site and this is reflected in the variations in existing land surface. Levels on the eastern half of the site vary between 6.0 and 10.0m AOD (north to south) and reduce to 1.5m AOD at the base of the quarry in the west of the site.
- 3.3 To the east of the site is the former Omya Works Chalk Quarry. The former Croxton & Garry site lies to the north side of London Road (D.L. Associates 2014).
- 3.4 None of the structures within the site are listed or locally listed.
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4.0 HISTORIC BACKGROUND

The Cement Industry in Kent

- 4.1 From the late 18th century onwards, increasingly ambitious civil engineering projects created demand for the production of a strong hydraulic cement (Preston 2007, 15). North Kent became the nuclei of the emerging experimental Roman and Portland cement industry due to its advantageous location within close proximity of the River Thames for transportation on sailing barges and the local availability of raw materials (downland chalk and London Clay) (ASE 2005).
- 4.2 The initial significant breakthrough in the emerging cement industry came in the form of 'natural' Roman cement, patented in 1796 by James Parker (Preston 2007, 16). Due to the relative scarcity of the raw materials, experiments continued to create an 'artificial' cement. In 1822 James Frost patented 'British' cement, which was produced at Swanscombe from 1825 (Preston 2007, 16). The Swanscombe Works were bought by Francis and White (J.B.) in 1833. In 1824 Joseph Aspdin patented 'Portland' cement comprising amendments to the 'British' cement production process.
- 4.3 Due to a lack of clarification of the manufacturing process, these early 'artificial' cements were unreliable. Improvements were made throughout the period and by 1845. I.C. Johnson, the Swanscombe Works manager at J.B. White, perfected the process to create a superior product (Preston 2007, 16). A series of subsequent developments to the production process and kiln technology throughout the late 19th century transformed the early origins of the industry, improving the industry's economic efficiency. A surge of new cement works emerged during the mid-19th century onwards (Preston 2007, 16).

The J.B. White & Bros. Swanscombe Cement Works

- 4.4 The Swanscombe Works opened in 1825, under the ownership of James Frost and was situated to the north of London Road, to the north-east of the site (Stoyel and Kidner 1990, 38). In 1833 the firm was renamed Francis, White & Francis, this was rebranded John Bazeley White & Bros in 1852. By 1883 the works formed part of the Associated Portland Cement Manufacturers Ltd. (APCM), including their associated company British Portland Cement Manufacturers Ltd, which comprised an amalgamation of many works within the Kent region (Stoyel and Kidner 1990, 8). This change of ownership is reflected in the company's name change occurring in 1900. Until 1919 their title remains constant until it became Blue Circle Industries plc. in 1978. A process of rationalisation of the Kent cement works took place between c.1975 and 1990, this led to the concentration of the larger works in the form of merging companies, which led to closure of smaller, obsolete works between 1900 and 1914 (Preston 2007, 17). This was followed by the wholesale demolition and redevelopment of the works sites and of the quarries such as the Western Quarry, Northfleet, ahead of the Bluewater shopping centre, situated to the
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south-west of the Swanscombe Works. Cement manufacture ceased at the Swanscombe Works in 1991-2 and the site closed soon after.

- 4.5 The works were initially served by a tramway which ran north to Bell Wharf on the southern edge of the River Thames, which formed the first line in the area (Stoyel and Kidner 1990, 38). The line formed the works' main transportation route for their finished product via river barges; at this time little use was made of the main line railway for goods transportation (Stoyel and Kidner 1990, 6). A whiting works was situated to the west of the main works with a narrow gauge tramway to the chalk quarry pits situated near the cricket ground (Stoyel and Kidner 1990, 38).
- 4.6 As the chalk near the works became exhausted, further quarries had to be opened up, these were connected by tunnels through ground which could not be dug up for chalk owing to the presence of roads or buildings on the surface (Stoyel and Kidner 1990, 7). The works' principal quarry pits lay between the London Road and the South Eastern Railway, comprising the location of the present site.
- 4.7 There was a transhipment siding on the South Eastern Railway at Craylands Lane during the early history of the works. During the early 20th century a single track line was built from the exchange sidings on a steep and curving route to the works. The line became the principal route and followed the standard railway gauge to ensure easier connection with the main line railway (Stoyel and Kidner 1990, 42). The line ran through the tunnel under Craylands Lane, passing to the works and additionally under a footbridge across old workings, through a tunnel under Alkerten Lane, and into a very large quarry pit running down to Watling street, a distance a 1¼ miles from the Works (Stoyel and Kidner 1990, 49).
- 4.8 The works' tramway system was subsequently extended below the South Eastern Railway in a tunnel at Craylands and pits were opened south of the railway later extending for a considerable distance (Stoyel and Kidner 1990, 48). In 1929, the whole system in use around the works and quarries was laid to a standard railway gauge. During the same period, the steam locomotives operating on the tramway since 1875 were phased out for the introduction of diesel engines (Stoyel and Kidner 1990, 45).

The Site

- 4.9 The 1" Ordnance Survey Old Series map of 1816-19 (Fig. 3) shows the site lies within an area of formal fields, showing that it was under an agricultural regime at this date.
 - 4.10 The 1843 Swanscombe Parish Tithe Map (Fig. 4) shows the appraisal site to be entirely within agricultural land that is under arable cultivation (Parcel 212). Much of the surrounding land is also shown to be under arable cultivation, although an extensive chalk pit with associated industrial buildings and railway lay to the north-east (Parcels 321-25), forming the Swanscombe Cement Works. This change of land use from agricultural to industrial is representative of the wider
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landscape between the mid-18th and mid-19th centuries, accelerated by the rich gravel and chalk reserves available within the area.

- 4.11 The 1-inch 1st edition Ordnance Survey (1869) (Fig. 5) shows the site to be an open field, bounded to the south by the embankment of the railway line. Contours show that the land generally falls to the east, before rising again on the other side of Craylands Lane. The Swanscombe Cement Works to the north-east of the site has expanded to the south of London Road.
 - 4.12 No changes to the site are visible on the 6-inch and 25-inch 2nd edition Ordnance Survey (1898) (Figs 6). Chalk and gravel extraction within the immediate area has become quite extensive by this date.
 - 4.13 The 1908 25-inch Ordnance Survey (Fig. 7) depicts the area of the site as allotments and is almost entirely surrounded by quarrying/industrial activity connected to the expansive cement industry. A chalk pit serving the Swanscombe Cement Works is situated to the north of the site by the completion of this map.
 - 4.14 By the time of the 1938 25-inch Ordnance Survey (Fig. 8) the western half of the appraisal site has been opened up for quarrying, with a linear cutting running eastwards to Craylands Lane to enable it to be linked to the tramway network. The tunnel to the northern site edge is recorded running in a northwards direction from the quarry and links to the chalk pit to the north of London Road. The eastern tunnel presently under Craylands Lane is not shown on this map although its corresponding date stone suggests its construction by this date. The extreme north-east of the site has been enclosed and contains structures of an industrial nature, marked as 'Tanks', presumably linked to the cement industry. Allotment gardens are still shown to exist to the south of these buildings. The Kent HER records a WW2 trench air-raid shelter in these allotment gardens within the site's north-east corner, to the west of the structures (HER ref. TQ 57 SE 319 – Appendix 2), although it does not appear on the historic mapping. It is recorded that the shelter's construction date was 1939/40 and that by January 1940 the shelter had been concrete lined.
 - 4.15 Little change is shown on the 1967 6-inch Ordnance Survey (Fig. 9), with the presumed industrial units and allotments still depicted at the north-east of the site occupying the same footprint. A single structure (possibly representing the southern entrance of the northern tunnel) is depicted within the quarry itself towards the site's northern edge.
 - 4.16 The Ordnance Survey maps of 1974 and 1988 (not reproduced) are at an insufficient scale as to allow for detailed interpretation of the site. Despite this, the 1974 mapping is useful in detailing the linking of the tramway within the quarry to the east of Craylands Lane to the eastern tunnel (Figs 10 - 14). By 1988 the site remains much unchanged, although quarry within the site is labelled as 'disused'. In addition, the buildings within the north-east corner of the site have changed location and footprint, indicating the areas change in use as a vehicle depot, the buildings of which remain *in-situ* within the site (Fig. 15).
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- 4.17 Modern mapping shows the site has been encroached from the south, east and west by residential development. The area to the north of the site remains largely industrial in nature, with the Swanscombe Marshes beyond.

5.0 OVERVIEW OF THE BUILDINGS

- 5.1 The site forms an approximately rectangular wedge-shaped footprint. Due to the land being quarried during the early 20th century for its chalk to supply the former Swanscombe Cement Works, the ground levels vary significantly across the site; the northern boundary sitting 20m higher than the eastern edge (D.L. Associates 2014), forming cliff enclosures to the northern and western boundaries (Plate 1).
- 5.2 The site comprises a mix of hardstandings and self-seeded vegetation. The site's periphery is fenced and is accessed by a concrete road on its eastern side via Craylands Lane which runs throughout the centre of the site terminating at the western end (Plate 2). A deep and narrow linear cutting runs throughout the site in a south-easterly direction from the main quarry area. The cutting originally served to link the eastern tunnel with the Omya Works Chalk Quarry located to the east of Craylands Lane (Plate 3). A series of overhead service pipes formerly ran throughout this cutting (surveyed as part of the previous site recording exercises) but have previously been removed over the past decade and no longer remain *in-situ*.
- 5.3 The remaining built heritage of the former quarry comprises a pair of railway tunnels on the periphery of the site. One is located along the northern boundary and runs under London Road and connects to the former Croxton and Garry quarry. A further tunnel runs eastwards beneath Craylands Lane. The eastern tunnel bears a date-stone recording its construction in 1908, whilst the northern was constructed between 1908 and 1938, according to cartographic sources (ASE 2005). These tunnels are no longer operational, although the eastern tunnel houses several operational services by means of overhead pipework.
- 5.4 Since the closure of the cement works during the early 1990s the site has been occupied by a number of uses. Until the mid-1990s, land towards the rear of the quarry was used for car repairs, and a plant hire company operated on the remainder of the site (APCM, 1885). A number of concrete hardstandings remain from the previously demolished buildings pertaining to these uses within the quarry floor in the central part of the site. Three derelict modern office buildings (post-1967) lie within a large flat concrete yard towards the north east corner of the site. The buildings have not been occupied since the plant hire company ceased operations in the early 2000s.
- 5.5 No evidence of the recorded air-raid shelter (see Section 4.14; HER Ref. TQ 57 SE 319) was observed during the recording exercise, nor is it located on modern or historical Ordnance Survey mapping of the area. The shelter's absence from the mapping may be due to its recorded 'trench' type design, suggesting the
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structure is unlikely to have been excavated to any great depth below ground level or to have formed an extensive above ground structure. Additionally, the allotment gardens within which the structure is recorded as formerly located (NGR 559830 174930) was largely overbuilt post-war with an extension to the existing yard and buildings to the east, which may have resulted in its destruction. There is evidence to suggest that the site's Eastern Tunnel (Tunnel 2) may have been utilised as an informal air-raid shelter facility during WW2 in addition to the shelter. Evidence to suggest this comes in the form of a possible concrete blast-door type arrangement at the tunnel's western end (see Section 6.11. Additional documentary evidence to support this theory includes numerous HER records for the immediate vicinity that record many of the surrounding quarry railway tunnels were utilised as such, specifically two tunnels to the immediate south under Craylands Lane were used as public shelters and two to the north that were used specifically to shelter workers of the Swanscombe Cement Works (HER Ref. TQ57 SE 315, TQ57 SE 316, TQ67 SW 587 & TQ67 SW 589 – Appendix 2). However, if the tunnel was indeed used in this manner, its use as such left no other obvious trace.

6.0 DESCRIPTION OF THE STRUCTURES

Northern Tunnel (Tunnel 1; Figures 16 & 17)

- 6.1 Upon the closure of the Swanscombe Cement Works the tunnel was converted to form a gun club premises; the tunnel is now redundant of use. As part of these conversion works the tunnel's interior was enclosed and subdivided to form three areas (Figure 16).

Exterior

- 6.2 The northern entrance is set flush within the cliff face supporting London Road above (Plates 4 and 5). The original brickwork surrounding the tunnel entrance is of grey brickwork set within a lime mortar (Plate 6). The vertical sections of brickwork to either side of the opening are laid in English bond, whereas the segmental arch over is formed of three tiers of headers laid on edge. The brickwork supporting the eastern edge of the structure extends to a width of 0.96m; the western side was overgrown with ivy during the recording exercise but presumably mirrors this composition. The opening has been in-filled with English-bonded Fletton brickwork, set within a hard concrete mortar. The brickwork infilling the tunnel entrance is presumably contemporaneous with the alterations made to convert the tunnel for use as a gun club. A single substantial flush steel door set within a simple unadorned steel frame is located centrally within the tunnel arch. Above the door are two modern steel ventilation grilles.
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Interior

Reception Area

- 6.3 Internally the structure opens up into a narrow rectangular entrance lobby / reception area with arched ceiling (Plate 7). The room measures a width of 4.90m and extends to a depth of 4.43m. The area has been constructed by the addition of a breezeblock partition extending to the height of the tunnel apex (c.3.51m). The room is entered at its northern end, the opening of which measures a width of 0.79m and a height of 2m. The door opens out onto a concrete platform which extends c.1.12m into the room (Plate 8). The reception area has a concrete screed floor cover which is set at a lower level and accessed via concrete steps from the entrance. The floor rises towards the centre and forms two gullies at its eastern and western outer edges, which extend inwards from the outer walls by 0.65m. The original brickwork of the tunnel was obscured by a later white acrylic paint covering, although the basic pattern viewed externally presumably continues within. The eastern and western walls are both boxed-in at their upper level by modern timber ply-board downstands which house modern services.
- 6.4 The room appears to have served as a multi-functional room during the structure's use as a gun club. The room is filled with numerous modern items pertaining to office storage use, including steel shelving units secured to the western wall, various furniture items and a stainless steel sink utility unit within the room's north-western corner. A series of wall-mounted fabric notice boards contain signage detailing the Firearms Acts of 1937 and 1966, which serve as a visual aid in connecting the structure to its most recent use (Plate 9).

Gun Store

- 6.5 The Gun Store (Plate 10) is accessed via a single flush steel door located within the breezeblock partition at its south-east side. The room is smaller in size, measuring a depth of 2.87m, which feels narrower due to a series of storage cupboards lining the store's north and south walls. The southern breezeblock partition is comprised in the same manner as its northern counterpart but contains a centrally placed wide viewing window, 1.52m in width, modern in appearance with a flush timber frame. Whilst the steel storage units located against the southern wall are free-standing, the northern gun storage cupboards form a fixed arrangement comprised of breezeblock walls with steel doors. The wall and floor coverings continue in the same arrangement as described within the reception area.

Firing Range

- 6.6 The Firing Range (Plates 11 and 12) occupies the majority of the tunnel's internal area, measuring an overall length of c.25m. The room is set above the existing ground floor level by 0.20m and is entered at its north-east corner via a single doorway identical in appearance to that previously described. The doorway opens out onto a rudimentary timber-framed stage area, clad with
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plywood sheeting. Beyond the stage, which extends 2.5m into the room, the concrete screed flooring continues. The brickwork forming the outer eastern and western walls and arched ceiling construction continues in the same manner as elsewhere, and the boxed timber downstands, described previously, continue along the entire length of both the eastern and western walls within this area. The floor within the firing range is as elsewhere but the gullies towards the southern end of the tunnel appear more pronounced due to a significant rise in floor level at this end. This rise in floor level is reflected in the height of the tunnel apex at this end of 3.10m.

- 6.7 The far southern end of the Firing Range forms an extension to the original tunnel extent. An English-bonded brick wall set within the upper level of the tunnel arch marks the join of the extension and the original extent of the Eastern Tunnel at 17.78m into the length of the room (Plate 13). The lower half of the wall is supported by a steel 'I' section girder propped up on timber posts at the outer east and west walls. The range continues below the brick-infill, with an additional support steel located 3.15m from the first (Plate 14). The outer eastern and western wall comprise a continuation of the English-bonded brickwork as elsewhere with the exception that the far south-eastern end is formed by an unusual arrangement of a sequence of metal doors, possibly used for insulation / protective purposes as this end served as the target wall. The ceiling level is much reduced at this southern end, extending to a height of between 1.54m and 1.94m and is formed of a rudimentary timber frame clad with corrugated metal sheeting, polystyrene insulation and plywood panelling. The flooring comprises a mix of dirt / rubble and concrete screed, and is set level with that recorded within the Gun Store. The far southern wall is clad with a mix of timber boarding and metal sheeting, painted black numerical signage (1 – 4) identifies this end elevation formerly housed the target wall (Plate 15). Two small openings within the east and west wall at this end presumably served ventilation purposes and provided housing for modern operational services during the tunnel's later use.
- 6.8 The southern extension is best observed externally from the tunnel's southern end (Plate 16). The structure extends in a southerly direction from the cliff which forms the northern extent of the site and is rectangular in form. The roof is finished with a flat concrete capping. The structure is rather rudimentary in appearance; orange-grey brickwork forms the western elevation, the southern elevation is formed of breezeblock and a haphazard arrangement of flush and corrugated iron / steel sheeting forms the eastern elevation (Plate 17). The original tunnel opening within the cliff face is infilled at its upper level with yellow bricks and the remaining features mirror those displayed on the northern end. This extension presumably dates to the structure's latter use as a gun club, although the bricks forming the western elevation appear contemporaneous with the oldest brickwork present within the site and may have either formed part of an earlier structure in this location or else may have been reused from elsewhere.
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Eastern Tunnel (Tunnel 2; Figures 18 & 19)

- 6.9 The Eastern Tunnel (Plate 18) is presently redundant of use, except for the housing of several overhead live service pipes which extend below Craylands Lane. The structure appears to have been subject to only minor alterations since its intended use as a service tunnel, in stark contrast to the treatment of the Tunnel 1.
- 6.10 The western entrance (Plate 19) is set within the chalk cliff face supporting Craylands Lane above. The west elevation comprises a yellow brick construction with interspersed overfired bricks of a mottled grey appearance. The brickwork is laid in English bond within a lime plaster with large gravel inclusions. The arch forming the opening of the tunnel is formed of three tiers of headers laid on edge. The brickwork extends to a height of 4.56m above the lowest ground level measurement at this end of the site, and is finished with a soldier course above the wall is stepped back into the face of the cliff by c.0.25m and extends upwards to an overall standing height of 8.18m. Located centrally above the apex of the tunnel arch is a carved plaque dated 'A.D. 1908' (Plate 20).
- 6.11 The lower half of the tunnel entrance is partially infilled with two substantial concrete partition walls that appear to form either simple supports for the overhead service pipework or a type of blast-door arrangement in relation to the tunnel's possible secondary use as an air-raid shelter (see Section 5.5). Each wall comprises jointed cast-concrete blocks, forming a staggered arrangement that creates a narrow entrance passage aligned north – south, which is entered externally at its southern end.

Interior

- 6.12 Internally the tunnel forms a single narrow rectangular opening, aligned approximately south-west – north-east (Plates 21 and 22). The tunnel measures a width of c.4.93m and extends to a visible depth of 30.65m. The tunnel is entered at the northern end of its western elevation. The eastern end of the tunnel has been infilled with a combination of brick rubble and chalk, beyond which the top section of a corresponding cast concrete wall can be seen which is identical in arrangement to that previously described at the western end.
- 6.13 The English-bonded brickwork which forms the north and south walls and ceiling arch is predominantly covered with a white paint covering but areas of yellow brick construction are visible beneath. These outer walls rise to a height of 3.52m where they form the spring of the tunnel arch, the apex of which is set at 4.37m above ground level.
- 6.14 The tunnel floor consists of a combination of rubble / dirt and concrete hardstanding. The floor rises towards the centre and forms two gullies at its northern and southern outer edges, which extend inwards from the outer walls by 0.42m.
-

- 6.15 Along the length of the tunnel are a series of five regularly-spaced concrete plinths which support the overhead services (later additions). Each plinth comprises four rectangular concrete blocks measuring 1.00m x 0.38m, stacked to a height of 0.45m. Each plinth supports a rudimentary tubular metal frame which forms a vertical support for the pipework above (Plate 23). An additional service pipe is located along the structure's northern wall and is attached using a series of simple flat-plate metal brackets.

Railway

- 6.16 During the site visit no evidence of the former railway network was observed *in-situ*. Despite this, a small number of timber railway sleepers and a pair of iron 'I' section rails were located adjacent the western entrance of Tunnel 2 (Plates 24 and 25). It is likely these items pertain to the former transportation system that formerly linked the site and the cement works during the site's operation as a chalk quarry.

North-East Compound

- 6.17 The north-east corner of the site is occupied by three derelict buildings (Plate 26), set upon a large flat concrete yard. The buildings comprise a former vehicle depot that occupied this part of the site following the closure of the cement works' in 1991-2. The derelict buildings are all of a modern construction (post-1967) and form a store (Plate 27), workshop (Plates 28 and 29) and an office (Plates 30 and 31).

7.0 DISCUSSION

- 7.1 The site was established as a chalk quarry in the early 20th century and formed part of the Swanscombe Cement Works, located to the north-east. The Swanscombe Cement Works formed one on the largest cement producers throughout the 20th century, and at its closure in 1990 was the oldest cement producer in the world.
- 7.2 The wider site is representative of the gradual expansion of the cement industry in England, specifically within the Kent region during the 19th and 20th centuries. The site itself forming an example of the use of the extensive tramway network constructed by the industry as a means of goods transportation.
- 7.3 The remaining built heritage of the former quarry comprises a pair of railway tunnels, one running north beneath London Road (Tunnel 1) and the other running eastwards beneath Craylands Lane (Tunnel 2). The eastern tunnel bears a date-stone recording its construction in 1908, whilst the northern was constructed between 1908 and 1938, according to cartographic sources. Despite a lack of *in-situ* evidence of the former tramway system, a limited number of displaced timber sleepers and a pair of I-section rails are sufficient to indicate its former presence. Additionally, the existing site topography clearly
-

identifies the former tramway circulation routes across the site despite their dismantling.

- 7.4 The reuse of the northern tunnel as a gun-club and the emergence of a number of modern office buildings within the development site during its later history reflect the site's later occupation by a plant hire company and vehicle depot during the end of the 20th century. This change in use is indicative of the general transformation of the cement industry within Kent during the period, representing the effect of the transition of smaller individual firms into larger merging companies, in effect forcing the closure of smaller sites and their subsequent redevelopment.

8.0 SOURCES CONSULTED

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Google Earth – aerial photography of Little Swanscombe area, 2016.

www.kent.gov.uk
Kent History and Library Centre

<http://webapps.kent.gov.uk/KCC.ExploringKentsPast.Web.Sites.Public/SingleResult.aspx?uid=MKE90530>

Kent HER – Tunnel and shelter entry details

www.britainfromabove.org.uk

Britain From Above – Aerial Photography

www.heritagegateway.org.uk

9.0 DEPOSITION OF THE ARCHIVE

A full archive intended for deposition with Dartford Borough Museum has been prepared. A further digital copy of the report (including plans, illustrations and photographs) has been compiled for the Kent Historic Environment Record on CD-ROM in a .pdf format. The archive has been assigned the site code CLI 16. The full site archive will be prepared in accordance with the principals of English Heritage's *Management of Archaeological Projects* (1991). The archive will comprise a hard copy of the full report, a pdf version of the report on CD, the full photographic record with registers, field notes and drawings.

10.0 ACKNOWLEDGEMENTS

Archaeology South-East would like to thank Swanscombe Developments LLP for commissioning this Historic Building Record and the staff at the Kent History and Library Centre for their assistance in the provision of additional background information.

PLATES



Plate 1 General view of the former quarry site south of London Road, looking west (49)



Plate 2 General view of the former quarry site south of London Road, East Tunnel (2) visible in the background, looking east (25)



Plate 3 View of the former tramway access cutting connecting the North and East Tunnels (1 & 2), looking south-east (26)



Plate 4 North Tunnel (1), former chalk quarry (flooded), looking west (1)



Plate 5 North Tunnel entrance, looking south-west (2)



Plate 6 North Tunnel entrance, bricked-up to form a gun club, looking south (3)



Plate 7 North Tunnel interior, sub-divided gun-club entrance reception, looking north-west (6)



Plate 8 North Tunnel interior, sub-divided gun-club entrance reception, looking south-east (4)

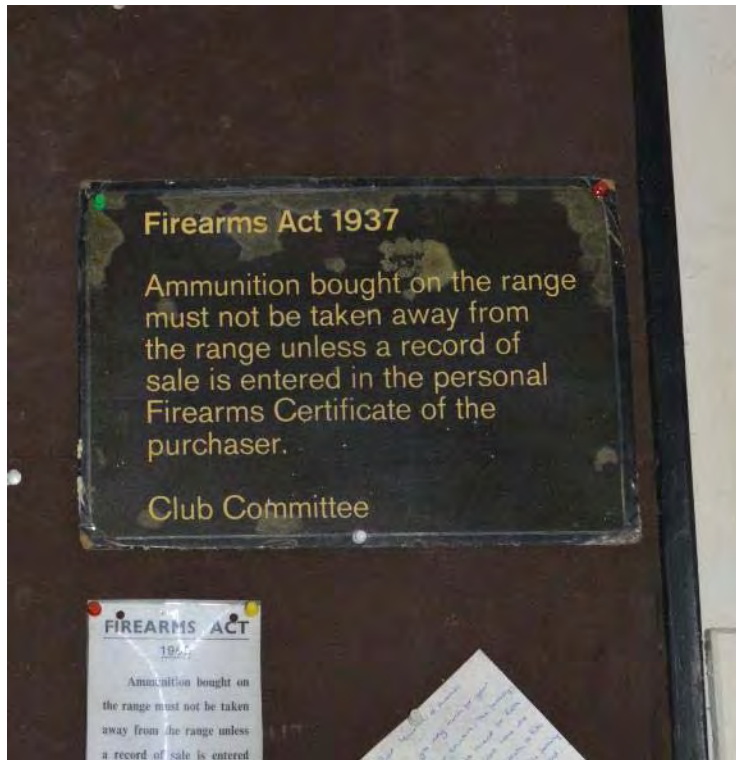


Plate 9 North Tunnel interior, 'Firearms Act' signage dated to the 1937 and 1966 legislation – erected during the structure's use as a gun club, looking west (9)



Plate 10 North Tunnel interior, central store room, looking south-west (11)



Plate 11 North Tunnel interior, former firing range, looking south-east (15)



Plate 12 North Tunnel interior, former firing range, looking north-west (20)



Plate 13 North Tunnel interior, southern extension of the former firing range, looking south-east (16)



Plate 14 North Tunnel interior, ceiling construction of the southern extension of the former firing range, looking east (17)



Plate 15 North Tunnel interior, target wall within the southern extension of the former firing range, looking south-east (18)



Plate 16 North Tunnel, southern extension viewed externally south of London Road, looking north-east (21)



Plate 17 North Tunnel, southern extension viewed externally south of London Road, looking north-west (24)



Plate 18 East Tunnel, western entrance, Craylands Lane above, looking east (27)



Plate 19 East Tunnel, detail of the western entrance, looking east (28)



Plate 20 East Tunnel, western entrance '1908' date plaque, looking east (28)



Plate 21 East Tunnel interior, infilled eastern end in background, looking east (30)



Plate 22 East Tunnel interior, western entrance, operational overhead services, looking west (32)



Plate 23 East Tunnel interior, western entrance, looking west (33)



Plate 24 Timber railway sleepers located at the western entrance of the East Tunnel, possibly pertaining to the former transportation system between the quarry and the cement works, looking east (28)



Plate 25 A pair of iron 'I' section rails located at the western entrance of the East Tunnel, possibly pertaining to the former transportation system between the quarry and the cement works, looking south-east (29)



Plate 26 Vehicle depot located within the north-east corner of the site (unrelated to cement manufacture), looking north (46)



Plate 27 Vehicle depot located within the north-east corner of the site (store), looking south-east (42)



Plate 28 Vehicle depot located within the north-east corner of the site (workshop), east elevation, looking east (37)



Plate 29 Vehicle depot located within the north-east corner of the site (workshop), north and west elevations, looking south-east (35)



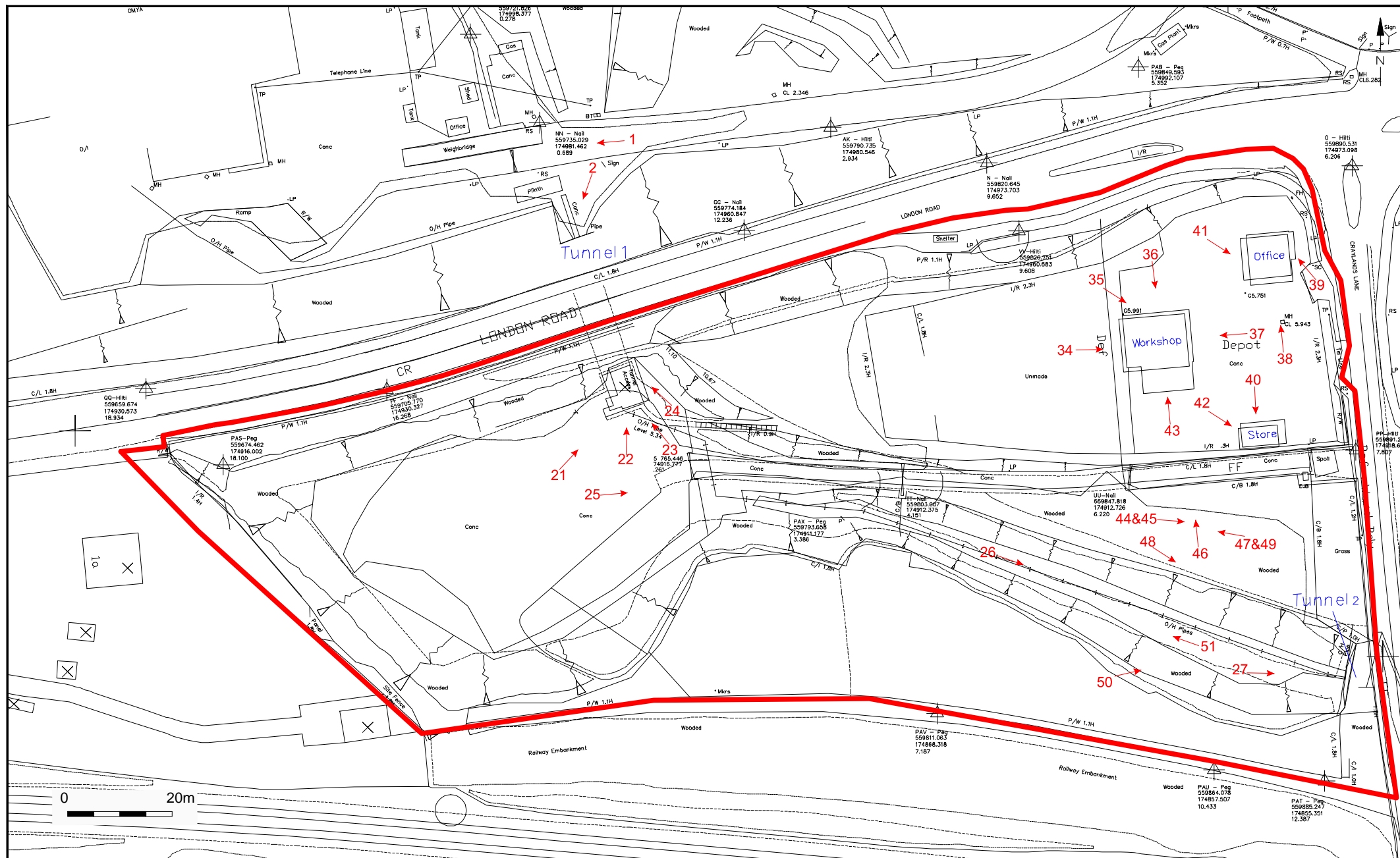
Plate 30 Vehicle depot located within the north-east corner of the site (office), south elevation, looking north (38)



Plate 31 Vehicle depot located within the north-east corner of the site (office), west elevation, looking east (36)



© Archaeology South-East		Land at Craylands Lane / London Road, Little Swanscombe, Kent	Fig. 1
Project Ref: 160242	May 2016	Site location	
Report Ref: 2016180	Drawn by: HG		



© Archaeology South-East

Land at Craylands Lane/London Road, Swanscombe

Project Ref: 160242

May 2016

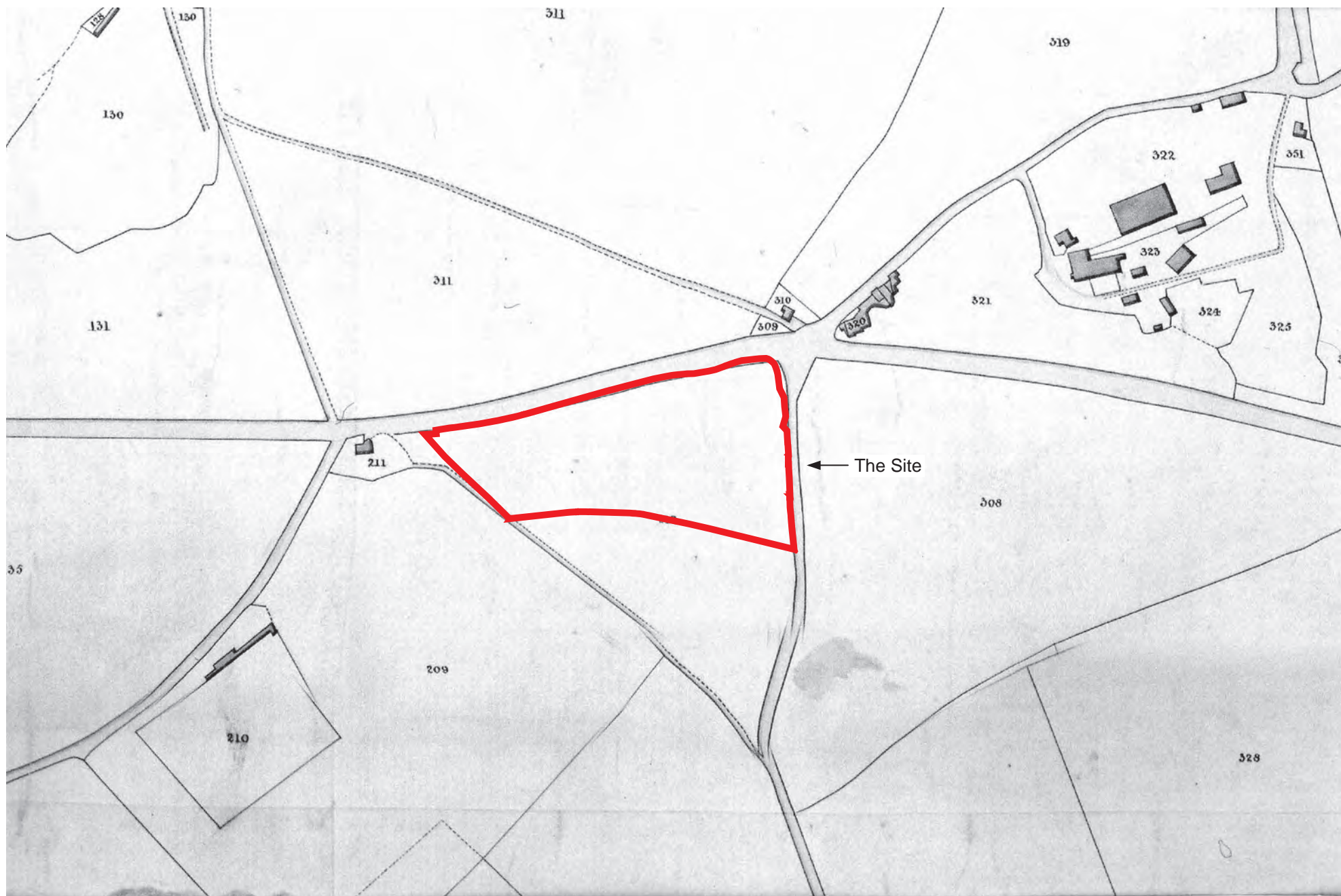
Report Ref: 2016180

Drawn by: HG

Site Plan

Fig. 2





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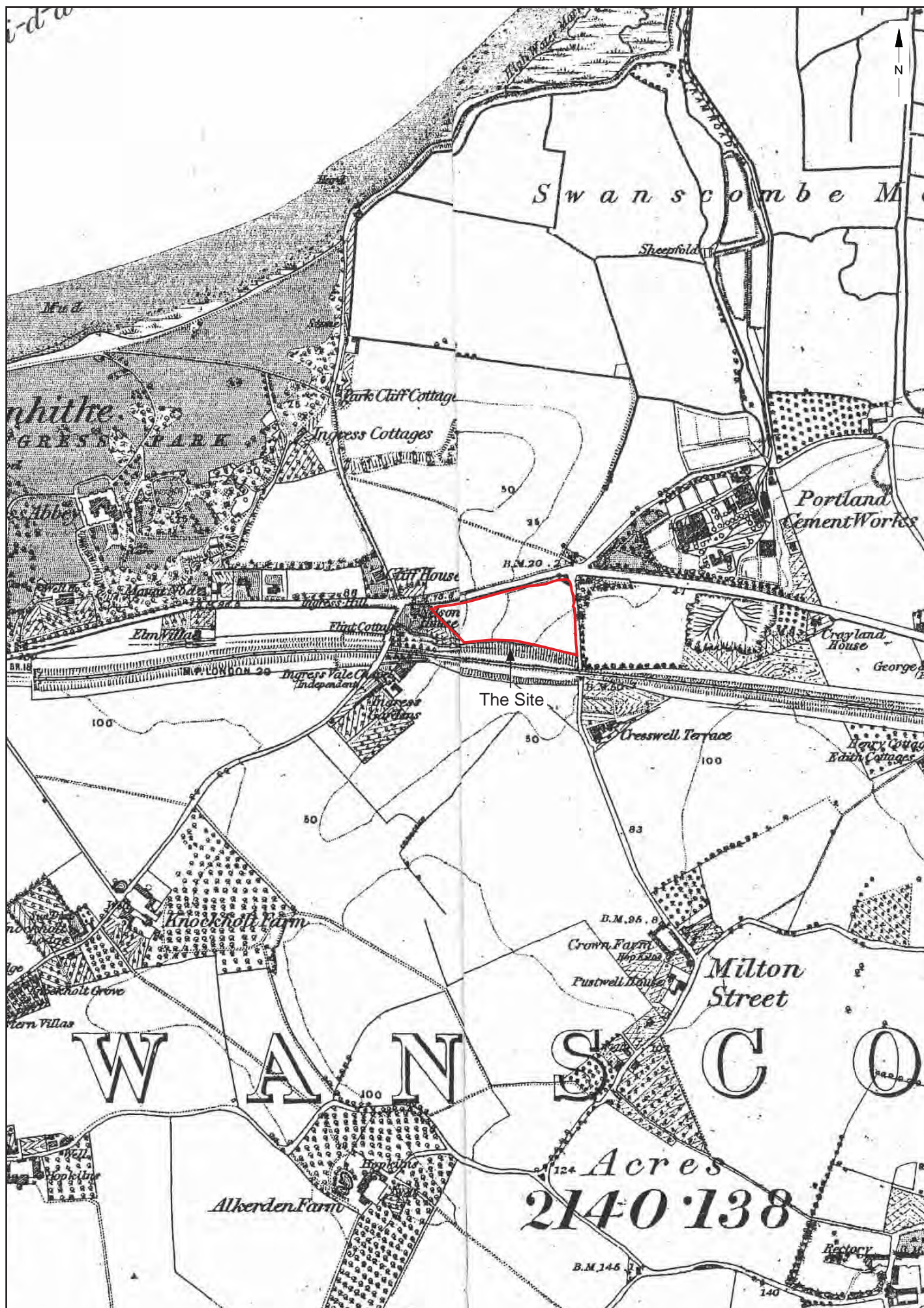
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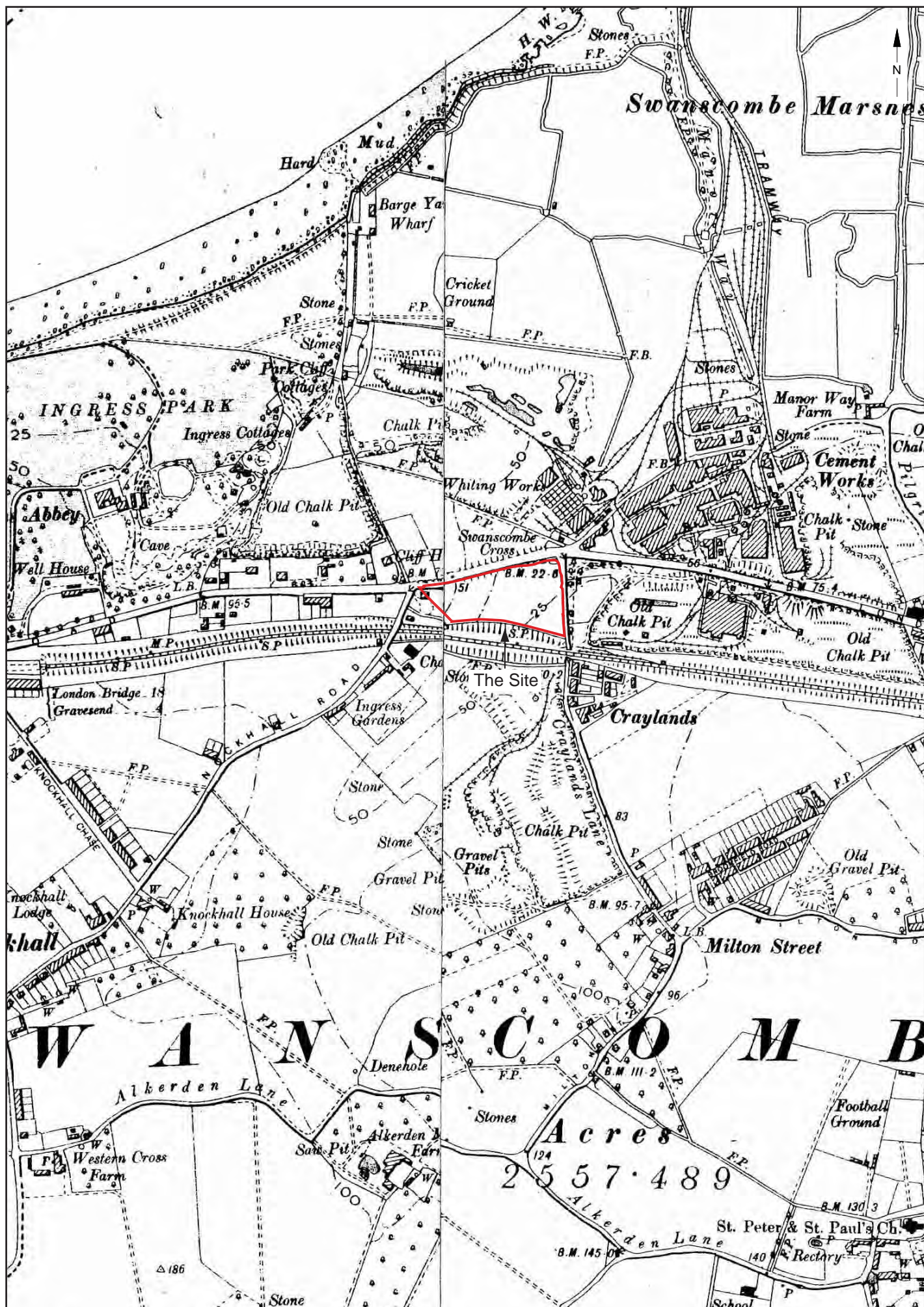
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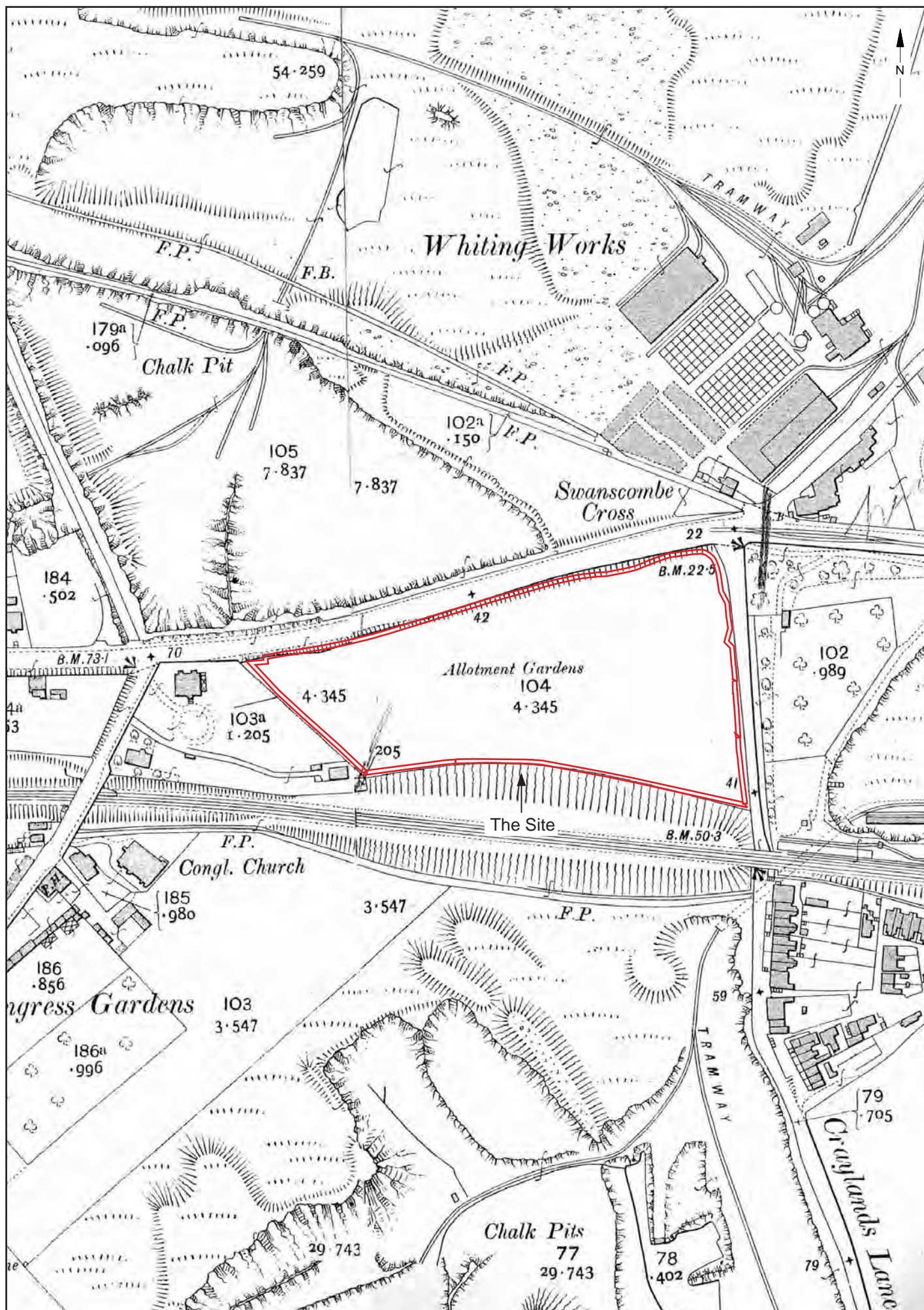
Land at Craylands Lane/London Road, Swanscombe

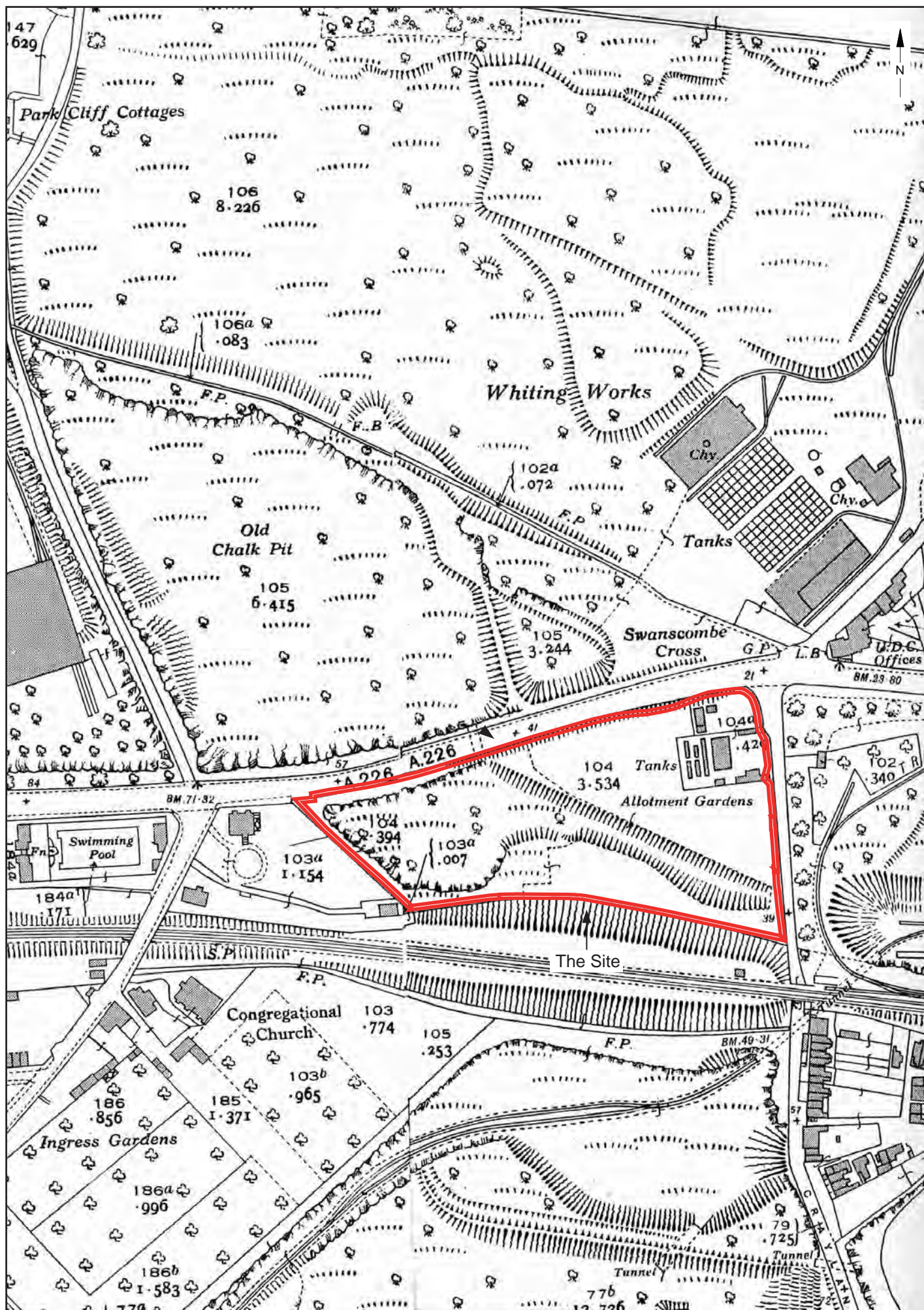
Tithe Map, Swanscombe Parish, 1843

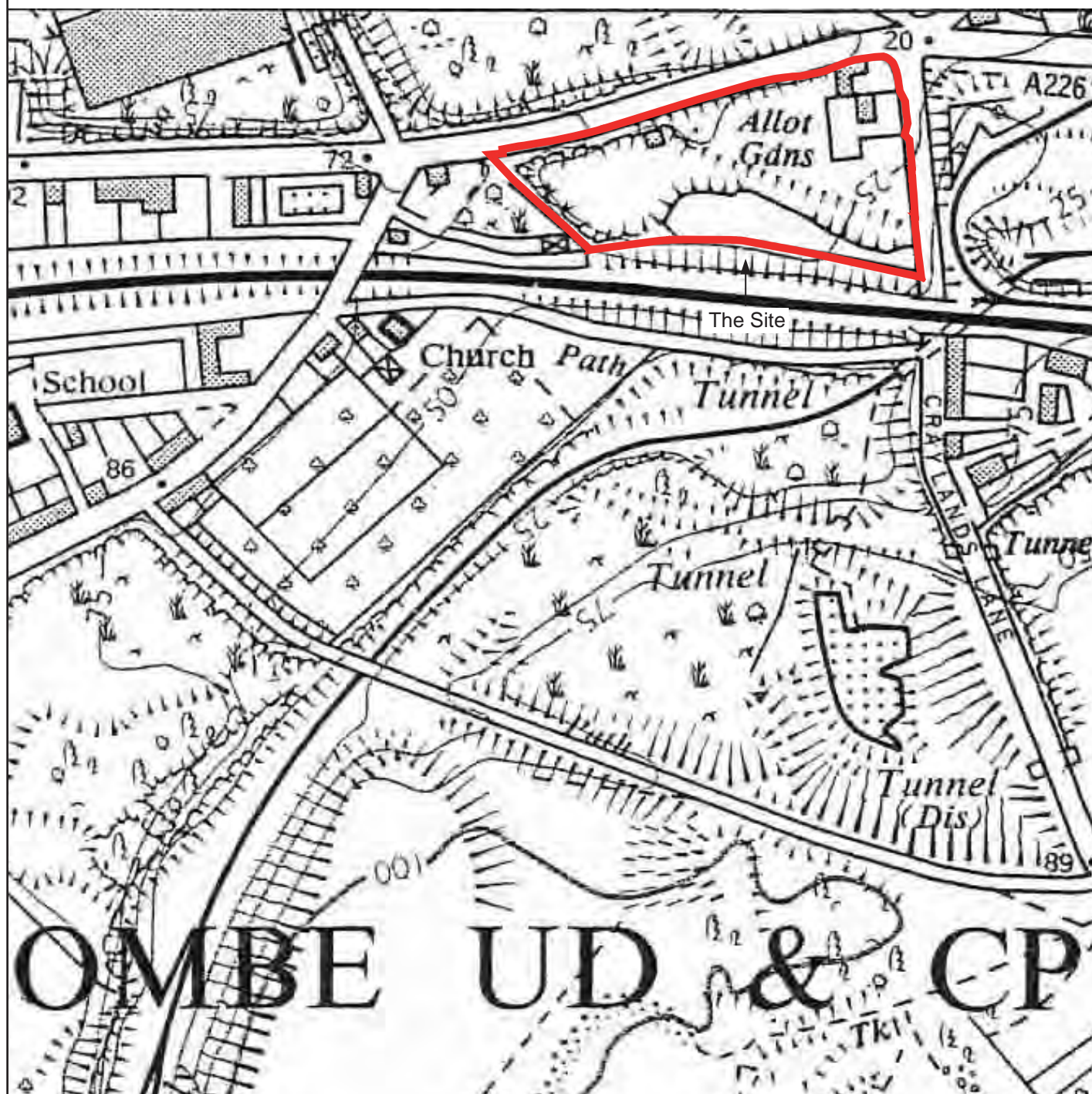
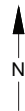
Fig. 4

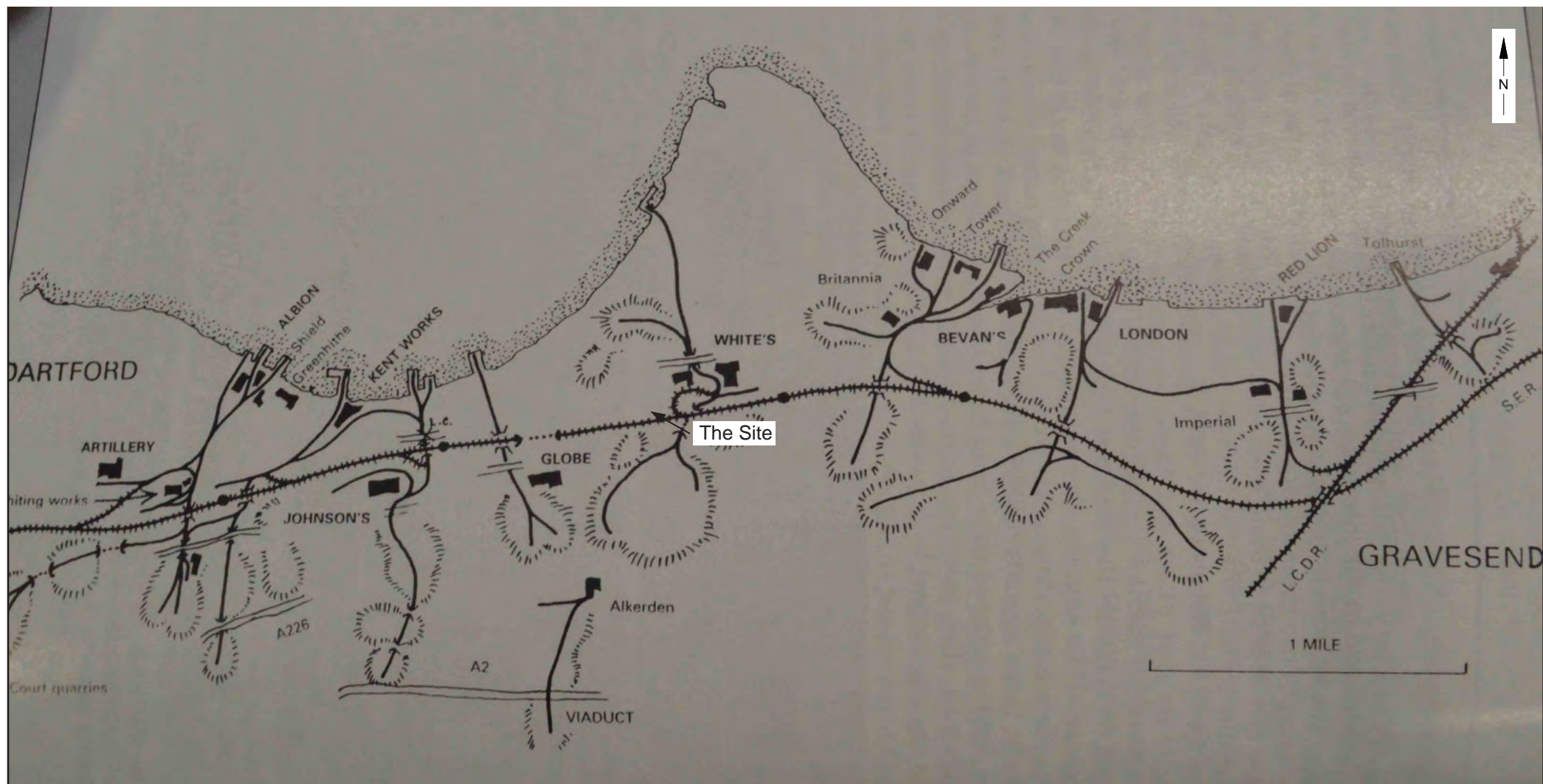












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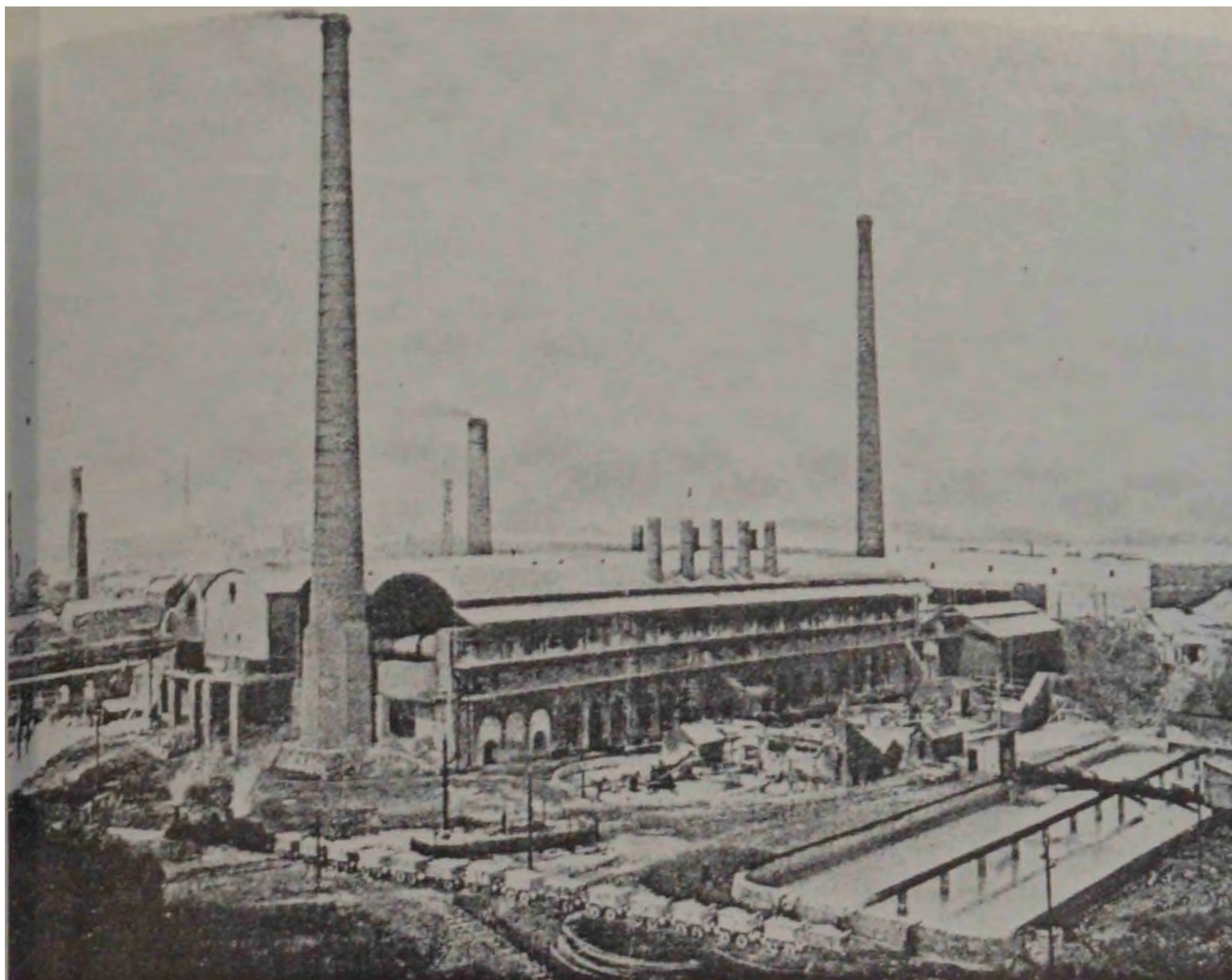
Report Ref: 2016180

Drawn by: HG

Land at Craylands Lane/London Road, Swanscombe

Plan of the Kent Cement Works during the 20th Century
(Stoyer & Kidner 1990, 10)

Fig. 10



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Land at Craylands Lane/London Road, Swanscombe

View of the Swanscombe Cement Works (c.1905)
(Stoyer & Kidner 1990, 46)

Fig. 11



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Land at Craylands Lane/London Road, Swanscombe

Aerial View of the Swanscombe Cement Works (c.1927)
(<http://www.britainfromabove.org.uk/image/epw017659>)

Fig. 12



© Archaeology South-East		Land at Craylands Lane/London Road, Swanscombe	Fig. 13
Project Ref: 160242	May 2016	Swanscombe Works Quarry, Knockhall House (1936) (Stoyer & Kidner 1990, 46, 49)	
Report Ref: 2016180	Drawn by: HG		



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Project Ref: 160242
Report Ref: 2016180

May 2016
Drawn by: HG

Land at Craylands Lane/London Road, Swanscombe

Aerial View of the Swanscombe Cement Works (c.1939)
(<http://www.britainfromabove.org.uk/image/epw060595>)

Fig. 14



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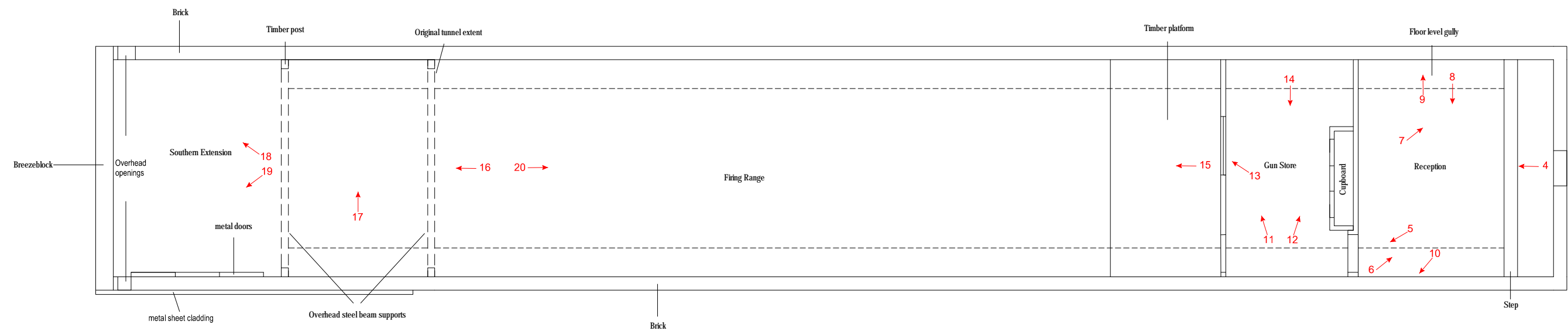
Project Ref: 160242
Report Ref: 2016180

May 2016
Drawn by: HG

Land at Craylands Lane/London Road, Swanscombe

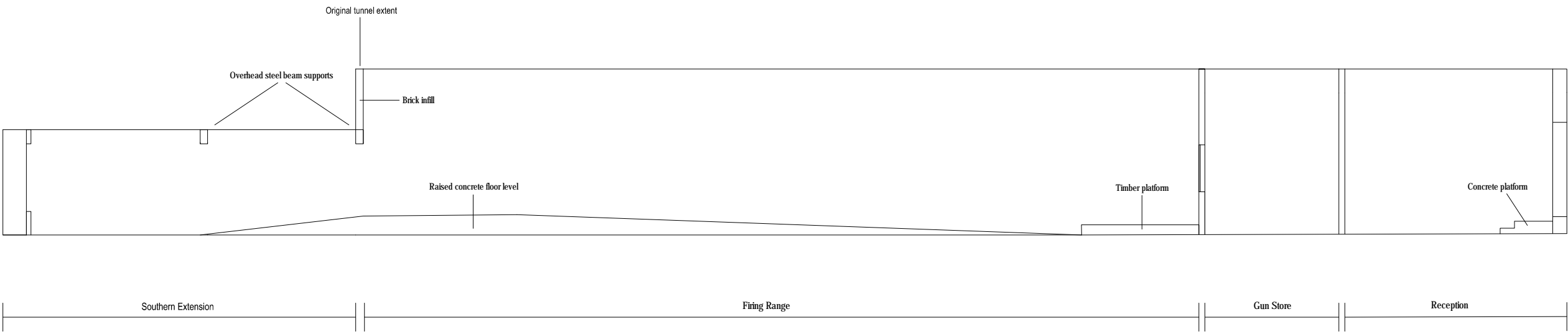
Swanscombe Works Quarry (main line tunnel located top centre) (Aug. 1947)
(Stoyer & Kidner 1990, 48)

Fig. 15

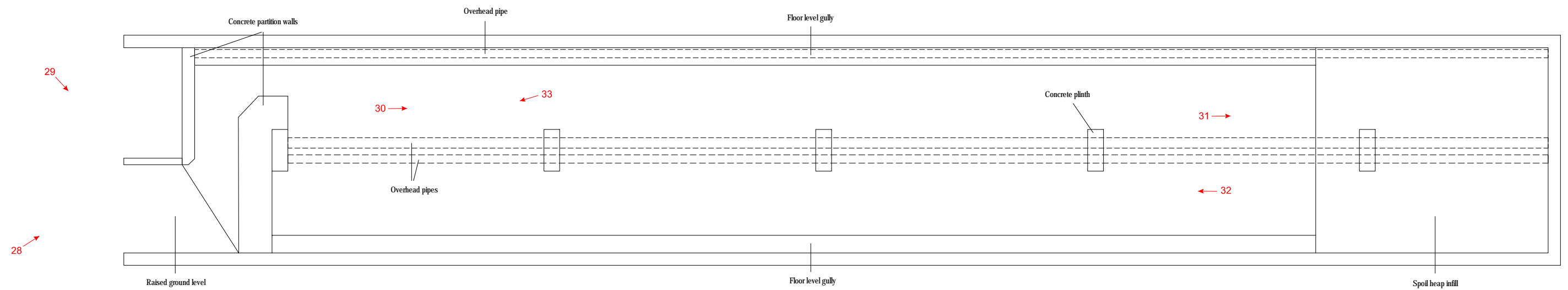
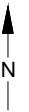


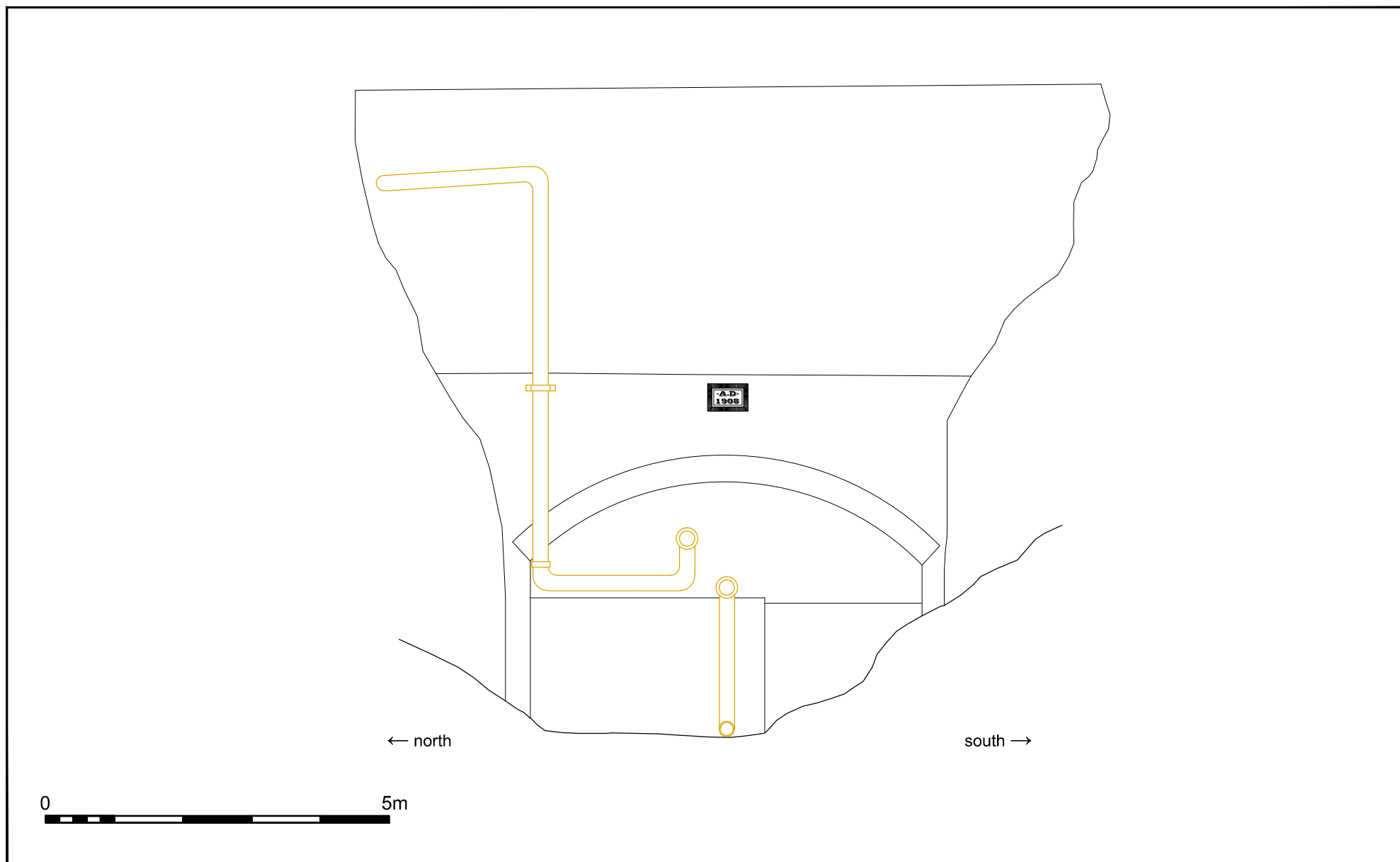
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© Archaeology South-East		Land at Craylands Lane / London Road, Swanscombe	Fig. 17
Project Ref: 160242	May 2016	North Tunnel (Tunnel 1) - Longitudinal Section (1:100)	
Report Ref: 2016180	Drawn by: HG		





© Archaeology South-East		Land at Craylands Lane/London Road, Swanscombe	Fig. 19
Project Ref: 160242	May 2016	East Tunnel (Tunnel 2) - West Elevation (1:100)	
Report Ref: 2016180	Drawn by: MGS		

Appendix 1 Index of Digital Photographs



160242_0001



160242_0002



160242_0003



160242_0004



160242_0005



160242_0006



160242_0007



160242_0008

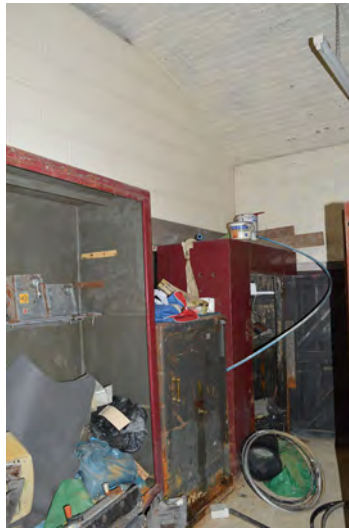


160242_0009

Appendix 1 Index of Digital Photographs



160242_0010



160242_0011



160242_0012



160242_0013



160242_0014



160242_0015



160242_0016



160242_0017



160242_0018

Appendix 1 Index of Digital Photographs



160242_0019



160242_0020



160242_0021



160242_0022



160242_0023



160242_0024



160242_0025



160242_0026



160242_0027

Appendix 1 Index of Digital Photographs



160242_0028



160242_0029



160242_0030



160242_0031



160242_0032



160242_0033



160242_0034



160242_0035



160242_0036

Appendix 1 Index of Digital Photographs



160242_0037



160242_0038



160242_0039



160242_0040



160242_0041



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160242_0043



160242_0044



160242_0045

Appendix 1 Index of Digital Photographs



160242_0046



160242_0047



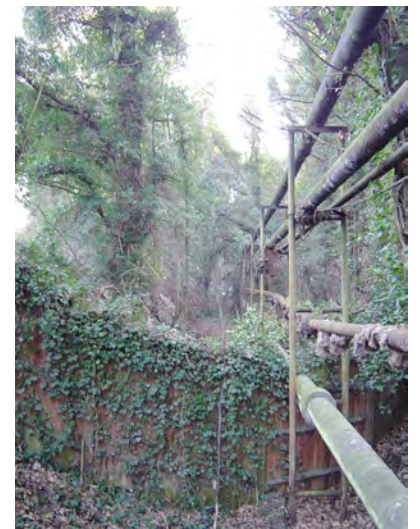
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160242_0049



160242_0050



160242_0051

Appendix 2 Kent HER Entry Details

Site air-raid shelter:

HER Number: TQ 57 SE 319

Type of record: Monument – Air Raid Shelter (Modern 1940 AD to 1945 AD?)

Name: Allotment Gardens Second World War air raid shelter, Craylands Lane, Swanscombe, Dartford, Kent.

Grid Reference: TQ 5983 7493

Description

Second World War trench air raid shelter in the allotment gardens in the SW angle of the junction of Craylands Lane with the London Road, Swanscombe, Kent. Built in 1939/40. By January, 1940 the shelter had been concrete lined. No other details known. The allotment gardens were largely overbuilt post-war with an extension to an existing yard and buildings. It is not known whether there are any remains.

Source: Swanscombe Urban District Council, 10/01/1940. *Minutes of Air Raid Precautions Committee* (Bibliographic reference). SKE24139.

Air-raid shelter use of Swanscombe quarry railway tunnels:

- 1) HER Number: TQ 57 SE 315

Type of record: Monument – Air Raid Shelter (Modern 1939 AD to 1945 AD?)

Name: Craylands Lane (south) Second World War tunnel air raid shelter, Swanscombe, Dartford, Kent.

Grid Reference: TQ 5992 7458

Description

Second World War air raid shelter tunnel under Craylands Lane, Swanscombe. This was a quarry railway tunnel which had been sandbagged at its ends. This was done in September, 1939. No other detail are known. The tunnel is no longer visible, having been buried under landfill. There was a similar shelter about 100m to its north.

Source: Swanscombe Urban District Council, 08/09/1939, *Minutes of Emergency Committee* (Bibliographic reference). SKE24134.

- 2) HER Number: TQ 57 SE 316

Type of record: Monument – Air Raid Shelter (Modern 1939 AD to 1945 AD?)

Name: Craylands Lane (north) Second World War tunnel shelter, Swanscombe, Dartford, Kent.

Grid Reference: TQ 5992 7470

Description

Second World War tunnel air raid shelter under Craylands Lane, Swanscombe. This quarry railway tunnel was made into a public shelter in September, 1939. No other detail are known. It was later buried under landfill. There was a similar tunnel shelter about 100m to its south.

Source: Swanscombe Urban District Council, 08/09/1939, *Minutes of Emergency Committee* (Bibliographic reference). SKE24135.

- 3) HER Number: TQ 67 SE 587

Type of record: Building – Air Raid Shelter (Modern 1939 AD to 1945 AD)

Name: Swanscombe Cement Works Second World War air raid shelter tunnel (west) under London Road, Swanscombe, Dartford, Kent.
Grid Reference: TQ 6009 7496

Description

12m long former communication tunnel (west) between chalk quarries north and south of London Road, under London Road, Swanscombe, Dartford, Kent used as an air raid shelter by workers at the Swanscombe Cement Works during the Second World War. Its entrances have been blocked in later orange brickwork. The northern entrance presents as protected by a still-extant concrete blast wall.

Source: VTC Smith, 27/08/2008, *Revealed during field investigation and supported by local knowledge* (Verbal communication). SKE24206.

4) HER Number: TQ 67 SE 589

Type of record: Building – Air Raid Shelter (Modern 1939 AD to 1945 AD)

Name: Swanscombe Cement Works Second World War air raid shelter (east) under London Road, Swanscombe, Dartford, Kent.

Grid Reference: TQ 6033 7492

Description

12m long pre-existing tunnel under London Road, Swanscombe, Dartford, Kent, joining two chalk quarries, used informally during the Second World War as an air raid shelter for the workers of the Swanscombe Cement Works, north of London Road. The tunnel still exists but its northern entrance has been blocked by a steel gate.

Source: VTC Smith, 27/08/2008, *Revealed during field investigation and supported by local knowledge* (Verbal communication). SKE24208.

Appendix 3 OASIS Data Collection Sheet

OASIS ID: archaeol6-251290

Project details

Project name Land at Craylands Lane/London Road, Swanscombe, Kent - Historic Building Record

Short description of the project In April 2016 Archaeology South-East (a division of the Centre for Applied Archaeology, UCL) carried out a programme of historic building recording of the buildings and tramway tunnels adjacent to Craylands Lane and London Road, Little Swanscombe, Kent, DA10 0LP, prior to the proposed redevelopment of the site for residential use. This recording exercise forms a detailed survey of the extant tramway tunnels at Historic England Level 3 (English Heritage 2006a). The wider site was subject to a Level 1 record, for contextual purposes. A desk-based assessment has previously been produced for the site by Archaeology South-East (ASE 2005). The site was established as a quarry in the early 20th century, forming part of the Swanscombe Works. The Swanscombe Works was one of the largest cement producers throughout the 20th century, and at its closure in 1990 was the oldest cement producer in the world. The remaining built heritage of the former quarry comprises a pair of railway tunnels: one running north beneath London Road and the other running eastwards beneath Craylands Lane. The eastern tunnel bears a date-stone recording its construction in 1908, whilst the northern was constructed between 1908 and 1938, according to cartographic sources (ASE 2005). A number of modern office buildings (post-1968) also lie within the development site.

Project dates Start: 21-04-2016 End: 11-05-2016

Previous/future work Yes / Not known

Any associated project reference codes 160242 - Contracting Unit No.

Any associated project reference codes CLI16 - Sitecode

Type of project Building Recording

Site status None

Current Land use Industry and Commerce 1 - Industrial

Monument type RAILWAY TUNNEL Modern

Monument type QUARRY Modern

Significant Finds NONE None

Project location

Country England

Site location	KENT DARTFORD SWANSCOMBE AND GREENHITHE Land at Craylands Lane/London Road, Swanscombe, Kent
---------------	--

Postcode DA10 0LP

Study area 2.1 Hectares

Site coordinates TQ 59786 74912 51.450093205239 0.299819554715 51 27 00 N 000
17 59 E Point

Project creators

Name of Archaeology South-East
Organisation

Project brief Swanscombe Developments LLP
originator

Project design Swanscombe Developments LLP
originator

Project director/manager Ron Humphrey/Amy Williamson

Project supervisor Hannah Green

Type of Client sponsor/funding body

Name of sponsor Swanscombe Developments LLP

Project archives

Physical Exists?	Archive	No
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Digital Archive Dartford Museum
recipient

Digital Archive ID CLI16

Digital Media "Images raster / digital photography", "Text"
available

Paper Archive Dartford Museum
recipient

Paper Archive ID CLI16

Paper available	Media	"Aerial Photograph","Correspondence","Notebook - Excavation','Research','Notes","Photograph","Plan","Report","Unpublished Text","Drawing"	General
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Project bibliography 1

Publication type Grey literature (unpublished document/manuscript)

Title	Historic Building Record (Level 3) - Land at Craylands Lane/London Road, Swanscombe, Kent
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Author(s)/Editor(s) Green, H.

Other bibliographic 2016180
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