



THE  
ENVIRONMENT  
PARTNERSHIP

---



# BRAINTREE, ESSEX

## MANOR STREET GASHOLDER STATION

### HISTORIC BUILDING SURVEY

TEP  
Genesis Centre  
Birchwood Science Park  
Warrington  
WA3 7BH

Tel: 01925 844004  
Email: [tep@tep.uk.com](mailto:tep@tep.uk.com)  
[www.tep.uk.com](http://www.tep.uk.com)

Offices in Warrington, Market Harborough, Gateshead, London and Cornwall

|                |                          |
|----------------|--------------------------|
| Document Title | Historic Building Survey |
| Prepared for   | Atkins Ltd               |
| Prepared by    | TEP - Warrington         |
| Document Ref   | 7806.002                 |

|          |                    |
|----------|--------------------|
| Author   | Amir Bassir        |
| Date     | September 2019     |
| Checked  | Sarah Hannon-Bland |
| Approved | Ian Grimshaw       |

| Amendment History |          |             |                     |                         |        |
|-------------------|----------|-------------|---------------------|-------------------------|--------|
| Version           | Date     | Modified by | Check / Approved by | Reason(s) issue         | Status |
| 1.0               | 27/09/19 | AB          | IG                  | Draft for client review | Draft  |
| 2.0               | 11/10/19 | AB          |                     | Final report            | Final  |
|                   |          |             |                     |                         |        |
|                   |          |             |                     |                         |        |





# OASIS Report Form

The Environment Partnership (TEP)

|                      |   |
|----------------------|---|
| <b>Job Number:</b>   | <b>7806</b>                               |
| <b>Project Name:</b> | Manor Street Gasholder Station, Braintree |
| <b>OASIS Number:</b> | theenvir1-436465                          |

| <b>PROJECT DETAILS:</b>   |  |                                 |
|---------------------------|--|---------------------------------|
| Short description         | TEP carried out archaeological recording of gasholders at the Manor Street Gasholder Station, Braintree, Essex ahead of planned demolition works. Gasholder 107 was built in 1925 by S Cutler and Sons and Gasholder 108 in 1951 by C W Walker. Both were spirally-guided gasholders |                                 |
| Project type              | Historic building recording  |                                 |
| Previous work             | Historic building recording  |                                 |
| Current lane use          | Industrial, derelict   |                                 |
| Future work               | Unknown  |                                 |
| Monument type and period  | Modern gasholder   |                                 |
| Significant finds         | None   |                                 |
| <b>PROJECT LOCATION:</b>  |  |                                 |
| County                    | Essex  |                                 |
| Site address              | Manor Street, Braintree, Essex, CM7 3QS  |                                 |
| Easting Northing          | TL 7648 2287   |                                 |
| Area (sq ,/ha)            | -  |                                 |
| Height aOD                | -  |                                 |
| <b>PROJECT CREATORS:</b>  |  |                                 |
| Organisation              | The Environment Partnership (TEP) Ltd  |                                 |
| Project brief originator  | Atkins Ltd   |                                 |
| Project design originator | TEP  |                                 |
| Director/Supervisor       | Amir Bassir  |                                 |
| Project manager           | Jason Clarke   |                                 |
| Sponsor or funding body   | National Grid  |                                 |
| <b>PROJECT DATE:</b>      |  |                                 |
| Start date                | 21-08-2019   |                                 |
| End date                  | 11-10-2019   |                                 |
| <b>ARCHIVES:</b>          | <b>Contents</b>  | <b>Location (Accession No.)</b> |
| Physical                  | None   |                                 |
| Paper                     | None   |                                 |
| Digital                   | Photographs  |                                 |
| <b>BIBLIOGRAPHY:</b>      |  |                                 |
| Title                     | Braintree, Essex, Manor Street Gasholder Station, Historic Building Survey   |                                 |
| Serial title & volume     | 7806.002   |                                 |
| Author(s)                 | Bassir, A  |                                 |
| Page numbers              | 33   |                                 |
| Date                      | 11-10-2019   |                                 |

| <b>CONTENTS</b>                       | <b>PAGE</b> |
|---------------------------------------|-------------|
| Executive Summary .....               | 1           |
| 1.0 Introduction .....                | 2           |
| 2.0 Objectives and Methodology .....  | 3           |
| 3.0 Historic Background .....         | 4           |
| 4.0 Historic Building Recording ..... | 6           |
| 5.0 Discussion.....                   | 10          |
| References .....                      | 11          |

| <b>TABLES</b>               | <b>PAGE</b> |
|-----------------------------|-------------|
| Table 1, Gasholder 107..... | 6           |
| Table 2, Gasholder 108..... | 8           |

## **Figures**

- G7806.001 Figure 1, Site location
- Figure 2, 1874 Plan of the Works (2/219)
- Figure 3, Ordnance Survey map of 1922
- Figure 4, Undated, late 20th century view of the site
- Figure 5, General view of Gasholder 107, looking north
- Figure 6, General view of the gasholder, looking north-east
- Figure 7, View of the gasholder moat
- Figure 8, Detail of the tank construction
- Figure 9, The stair to the tank walkway
- Figure 10, View of the crown, looking south-west
- Figure 11, The crown and spiral stairs
- Figure 12, View of the walkway, lift and grips
- Figure 13, View of the walkway and weights on the first lift
- Figure 14, Hydrostatic tanks
- Figure 15, Example of the roller carriages
- Figure 16, Measured drawing of an example roller carriage

Figure 17, General view of Gasholder 108, looking south

Figure 18, General view of the Gasholder 108, looking south-west

Figure 19, Detail of the tank and gussets

Figure 20, Example of the spiral stairs

Figure 21, View of the tank walkway with handrails and overflow plants

Figure 22, View of the tank stair

Figure 23, View of the crown, looking south

Figure 24, Detail of the lift grips

Figure 25, The crown edge with hydrostatic tanks

Figure 26, The crown with hydrostatic tank and central valve

Figure 27, Example of the tank roller carriage

Figure 28, Measured drawing of an example roller carriage

D7806.001 Plan of the Gasholder Station, showing figure locations

## Executive Summary

1. The Environment Partnership (TEP) Ltd was commissioned by Atkins Ltd on behalf of National Grid to undertake archaeological recording of gasholders at the Manor Street Gasholder Station, Braintree, Essex (TL 7648 2287), ahead of planned demolition works. The two gasholders had previously been assessed as having low heritage value and the recording was undertaken as a basic Level 2 survey in-line with Historic England guidelines.
2. Gasholder 107 was constructed in 1925 by S Cutler & Sons Ltd and was a spirally-guided gasholder with two lifts and above-ground tank, with a nominal capacity of 205,000 cubic feet (cu. ft.). Gasholder 108 was constructed in 1951 by C & W Walker Ltd and was spirally-guided with three lifts and an above-ground tank, and had a capacity of 500,000 cu. ft.
3. The gasholders were each found to be of fairly typical design for their respective time periods. Due to the sloping topography of the site both of the gasholders were built into relatively steep moats, thus requiring non-standard approaches to elements such as tank stairs.

## 1.0 Introduction

- 1.1 The Environment Partnership (TEP) Ltd was commissioned by Atkins Ltd, acting on behalf of National Grid, to undertake a programme of archaeological recording at the Manor Street Gasholder Station, Braintree, Essex (TL 7648 2287). The site included two gasholders as well as associated pipework. This survey is a voluntary exercise commissioned by National Grid as part of their commitment to the heritage of their broader estate. This report has been produced in accordance with current best archaeological practice as defined in the Chartered Institute for Archaeologists' *Standard and Guidance for the Archaeological Investigation of Standing Buildings or Structures* (ClfA 2019) and the Historic England document *Management of Research Projects in the Historic Environment* (HE 2015a).
- 1.2 A Heritage Appraisal document (Montagu Evans, Undated), assessing the heritage significance of the site and gasholder, considered the gasholder to be of limited heritage significance and recommended a basic Level 2 recording as set out in the document *Understanding Historic Buildings, A Guide to Good Recording Practice* (HE 2015a) and the draft document *Guidelines for Evaluating and Recording England's Former Gasworks and Redundant Gasholders* (HE 2019). This report follows an approved Written Scheme of Investigation (TEP 2019). This report was produced by TEP and reviewed by Atkins Ltd.
- 1.3 The gasholder station was to the east of central Braintree, a short distance to the east of Braintree Station with railway lines passing to the south of the site. The surrounding area comprises modern residential and light industrial and retail units. The gasholder station is close to the intersection of Trinovantian Way and B1018 Manor Street. A builders' storage and sales yard was located to the immediate north of the site, however there was no access between the two areas.
- 1.4 The gasholders were decommissioned and purged and the station retained an active Cadent compound with a Pressure Reduction Station which was fenced from the larger site.
- 1.5 The Gasholders, designated 107 and 108 (formerly designated No.3 and No.4), dated to 1925 and 1951 respectively and were spirally-guided with above-ground tanks.
- 1.6 The local planning authority is Braintree District Council and the historic environment record is held by the Essex Historic Environment Record (HER).

## 2.0 Objectives and Methodology

- 2.1 The objectives of the archaeological work were as follows:
- Produce a drawn, photographic, and written record of the gasholders and associated infrastructure;
  - Provide a written account of the site, analysing any features of archaeological, historic or architectural interest, and to disseminate these findings in the form of a report and orderly archive.
- 2.2 The objective of Level 2 historic building recording is to provide a descriptive record of an extant structure, before and during demolition or conversion, where the building is known or suspected to retain limited historic significance. This provides a basic record in accordance with the Historic England document of 2015, *Understanding Historic Buildings: A guide to good recording practice* (HE 2015a). Draft guidelines for evaluating and recording former gasworks and gasholders recommend Level 1 / 2 recording for spiral guided gasholders or those of which there are numerous examples (HE 2019).
- 2.3 The survey was undertaken on the 21st August 2019 and included a photographic survey comprising general views of the site and gasholders, as well as detailed views of features of structural, historic or architectural interest such as the spiral guidance system and operating elements. Measured sketches were produced of an example roller carriage of each gasholder.
- 2.4 Photography was carried out using a Nikon D90 camera equipped with a Nikon 18-70mm lens. Photographic scales were included in shots where practical.
- 2.5 Both gasholders were built within unusually deep moats which had become highly overgrown and physical access to the structures was very limited. Vegetation overgrowth entirely prevented access and views around the south and eastern sides of gasholder 108 and the north side of gasholder 107.
- 2.6 An Operations Manual providing detailed information about the gasholders and the site more generally was provided by the client.
- 2.7 This report includes an overview of documents held at the National Gas Archive. A visit was made to the Essex Record Office to view any relevant documents, maps, and photographs.



## 3.0 Historic Background

- 3.1 Very little background material relating to this history of the gasworks and the gas company was available through either National Gas Archive or the Essex Record Office. The National Gas Archive website notes that the Braintree and Bocking Gas Company was formed in 1833 and was empowered in 1920 to construct an additional works in Braintree at Parsonage Farm. Following Nationalisation the undertaking became part of the Chelmsford Group of the Ipswich Division of the Eastern Gas Board.
- 3.2 In 1873 the Braintree and Bocking Gas Company made an application under the Gas and Water Works Facilities Act of 1870 for powers to maintain and continue gas works, and to raise additional capital and acquire additional lands. The application included a detailed plan of the Braintree Gasworks at Manor Street showing it to consist of three gasholders, a central complex of buildings including retort house, purifier house, oxide shed, stores and boiler house, a separate manager's house adjacent to the works entrance, and a linear building including stores and governor room abutting the northern site boundary. The gasholders comprised a small three-column holder, a larger five-column holder, both located at the north of the works, and a much larger six-column holder, demonstrating the phased expansion of the works as it responded to increasing demand.
- 3.3 This works was at the eastern periphery of Braintree adjacent to a Maltings and the Victoria Inn. Railway lines passed a short distance to the south of the gasworks. A gravel pit was located to the north and the general landscape to the east of the site was predominantly agricultural with individual farmsteads shown on the Ordnance Survey map of this date.
- 3.4 Ordnance Survey mapping shows that by 1897 the two small holders at the north of the site had been removed and a new gasholder built adjacent to the southern one.
- 3.5 By 1920 the existing buildings and plant had been rearranged with the retort house being expanded into the former coal sheds and eastwards thus removing the former smithy, store and meter house. The purifier house was expanded into the former oxide shed. The gasholders also had been altered, with the earlier gasholder adjacent to the retort house having been removed and a new gasholder (labelled as No.2 Holder on later plans) being built close to the site entrance. In 1920 it was proposed to enlarge the gasworks by expanding into the land to the immediate east of the existing site. The expansion would have included the construction of a new retort house, coal store and other buildings include oxide shed. The proposal also included provision for two potential new gasholder sites at the south of the works.
- 3.6 The proposed eastward expansion as set out in the plan of 1920 does not appear to have taken place, however a new gasholder, no. 3 (107) was built in one of the proposed new gasholder locations. An aerial view of the site dated 1946 (Britain from Above, ref: EAW001513) demonstrates that the Retort House had been altered or rebuilt by this date, now comprising a larger, more linear structure with another building to the east. The two earlier gasholders remained extant at this date.

- 3.7 An additional gasholder, no. 4 (108) was constructed in 1951. An Ordnance Survey map of 1953 demonstrates the changes visible on the 1946 aerial view, showing the new retort house as well as other new buildings on the site.
- 3.8 By the late 1960s town gas production had ceased in favour of natural gas from the North Sea and, in common with gas works sites throughout the UK the works buildings and plant, now redundant, began to be cleared.
- 3.9 Some clearance of buildings is evident on the OS map of 1961, including the demolition of the smaller historic gasholder. The former retort house was labelled as Depot on the map of 1968-70. The building appears to have been separated from the Gasholder Station by this date and by the mid-1970s appears to have been in use as part of a timber yard. The northern gasholder remained standing at this date but was demolished in the late 1980s or early 1990s.

## 4.0 Historic Building Recording

### Gasholder 107 (former Gasholder No.3)

- 4.1 Gasholder 107 was the smaller of the two gasholders and was in the northern part of the site. It was constructed in 1925 by S Cutler & Sons Ltd and had two spiralling lifts and above-ground tank providing a nominal storage capacity of 205,000 cubic feet (cu. ft.). Although described as above-ground, the base of the tank was dropped below the surrounding ground level within a concrete moat or bund. The gasholder was a relatively small structure measuring c22m in diameter and with only two lifts providing a maximum height of 23.7m (not including the 1.3m / 4' 6" crown rise) and of which 4.5m or 15' was below ground level.
- 4.2 The Braintree Gasholder Station Manual document provides the following information about the gasholder:

*Table 1, Gasholder 107*

| Lifts                  | 1st (inner)         | 2nd (outer)      | Tank             |
|------------------------|---------------------|------------------|------------------|
| Diameter               | 21.33m<br>70' 0"    | 21.99m<br>72' 2" | 22.65m<br>74' 4" |
| Depth                  | 7.81m<br>25' 7 1/2" | 7.82m<br>25' 8"  | 8.07m<br>26' 6"  |
| No. of guide carriages | -                   | 8                | 10               |
| Lift rotation          | A/Clockwise         | Clockwise        | -                |

- 4.3 The tank was comprised of six courses of riveted steel sheets; no overlap plates were installed on the sheet overlaps. It was not possible to measure any of the sheeting dimensions. The concrete bund or moat measured c2-3m in width and was 4.5m in depth with a steep slope to the flat base. Steel handrails were installed around the top of the moat. The tank was built onto a concrete platform and an additional strengthening course of steel sheeting was positioned at the base of the tank over the side sheeting.
- 4.4 Ten paired triangular gusset plates were installed around the top of the tank each supporting the tank platform walkway and the outermost roller carriages. The position of taller gussets on the inner face of the tank could be inferred by the location of rivet heads.

- 4.5 The lifts were likewise formed of riveted steel sheets, 1/4" thick at the top and bottom rings and 10 gauge for the main intermediate sheets. The cup and grips were square and measured 9" x 3" x 3/8". The tank platform or walkway was formed of riveted grip-textured steel sheets which tapered in and out in width to accommodate the outer roller carriages. Circular profile handrails encircled the walkway carried by stanchions projecting from the tank. Similar handrails were installed on each of the lifts and on the crown edge. Grabwire emergency switches were located on both of the lift grips, along with monitoring and alarm units.
- 4.6 The tank walkway was accessed by a sloped ladder which spanned between the moat kerb and the tank edge and was secured by a gated cage at the base of the northern side of the tank.
- 4.7 The roller carriages had an unusual squared design in contrast to the more usual rounded forms. The rollers measured 230mm in diameter and the axles or spindles of each of the dual rollers were held in separate riveted box frames bolted to rectangular footing plates each measuring c860mm x 420mm. The lift rollers were of a similar but more compact design. The spiral guide rails were of standard weight, 51 lbs per yard and were mounted on 12" steel plates riveted to the lifts.
- 4.8 The spiral stairs were each formed of a simple free-standing frame of steel angles with steel steps and handrails on the outer face. Spiral rails were not attached to the spiral stairs.
- 4.9 The crown rise was relatively shallow at 1.3m and the crown was formed of six concentric rings of riveted sheets and a centre plate. There was a circular manhole on the 3rd crown ring at the north-west side of the gasholder above the inlet pipe and a second circular manhole to the south-east. At the crown apex was a 2" valve; other features noted on the crown were hydrostatic tanks.
- 4.10 No details of the crown frame is provided in the gasholder operations document.
- 4.11 A series of weights were installed on the outer lift grip around its southern side. These appear to be a form of repair increasing the weight of the lift at the south side in order to adjust the balance of the spiral-guidance system.
- 4.12 The gasholder had a common inlet/outlet pipe located at the north side of the gasholder. A buried valve-pit was located a short distance to the north-west of the gasholder from where the pipes led towards the former Retort House to the north of the gasholder compound.
- 4.13 The gasholder utilised an electrical anti-freeze system with Almar modular pumps fitted to each lift and circulating heated water to prevent freezing. An electrical control kiosk was adjacent to the moat at the south-east side of the gasholder with electrical cable trays carrying the cables to and up the sides of the tank. A vertical cable tower was at the south-west side of the tank platform.
- 4.14 2" tank overflow pipes were located at the south-east side of the gasholder close to the electrical cables and discharged into an interceptor.

## Gasholder 108 (former Gasholder 4)

- 4.16 Gasholder 108 was a spirally-guided gasholder with an above-ground tank and three lifts. It was constructed in 1951 by C & W Walker Ltd and had a nominal capacity of 500,000 cu. ft., more than double the capacity of Gasholder 107.
- 4.17 The tank diameter was c30m and it was 8.2m in height, however as with Gasholder 107 the tank was built into a depressed moat with c3.6m (12' 0") of the tank being below the surrounding ground level. With the lifts raised the gasholder reached a height of c32m (not including the 1.5m (5' 0") crown rise).

*Table 2, Gasholder 108*

| Lifts                | 1st (inner) | 2nd       | 3rd       | Tank   |
|----------------------|-------------|-----------|-----------|--------|
| Diameter             | 27.7m       | 28.57m    | 29.41m    | 30.02m |
|                      | 91' 0"      | 93' 9"    | 96' 6"    | 98' 6" |
| Depth                | 7.9m        | 7.9m      | 7.9m      | 8.2m   |
|                      | 26' 0"      | 26' 0"    | 26' 0"    | 27' 0" |
| No. Roller Carriages | -           | 12        | 16        | 20     |
| Lift rotation        | Clockwise   | Clockwise | Clockwise | -      |

- 4.18 The topography around the gasholder, and the southern part of the site in particular, presented a steep decline towards the south and south-west so that whilst the northern part of the gasholder was 3.6m below ground level, at its southern side the base of the tank was at ground level. The topography continued its descent southward towards the railway lines.
- 4.19 The moat was faced with concrete and presented steep sloping sides to the flat base. Steel handrails were installed around the top of the moat. The tank was built on a circular concrete platform and where the base of the tank was visible, the rivets for the bottom curb angle joining the tank sheets to the floor sheets could be seen,
- 4.20 The tank had a riveted construction comprising five courses of overlapping steel sheets; the upper two courses were interrupted at regular intervals by vertical sheets to which paired tapered gusset plates, larger than those on gasholder 107, were fixed, likely with matching gussets or stiffeners on the inner side of the tank. The operations manual notes access manholes in the lifts however due to vegetation it was not possible to see these. The tank platform walkway projected outwards from the tank face, carried on riveted brackets. The walkway included a short toe guard to which the stanchions supporting the circular profile handrails were mounted.
- 4.21 The gasholder operations manual notes that the lifts were each comprised of eight rings of plates and a cup plate and that the cup and grips were 10" channels. Vertical stiffeners appear to be installed on the inner face of the lifts along with purlins.

- 4.22 The dual roller carriages were fairly compact with the roller axles or spindles housed into single piece footings and with removable end plates to access the axles. The roller wheels were measured as 230mm in diameter. The lift roller guides were of the same form with more compact footings. The spiral rails were standard weight 41lbs per yard and mounted on 12" rail plates; no run out stops were installed on the rails.
- 4.23 The crown consisted of eight concentric rings of riveted plates and a centre plate. The top curb is described in the operations manual as two 4" x 4" x 1/2" splayed angles. The crown sheeting appeared to be in a generally good condition with some rust and paint flaking and no obvious repairs were noted. The crown frame is described as consisting of 24 rafters of 5" x 5" tees joined by flat lower boom / chords with double struts and flat main ties.
- 4.24 Off-centre to the crown apex was a 3" valve and hydrostatic tanks were noted at the western edge of the crown. Three oval manhole covers were recorded at the north, east, and west sides of the crown.
- 4.25 The 18" common inlet/outlet mains were located at the east side of the gasholder.
- 4.26 The tank walkway was accessed from the north-east where an elevated walkway over the moat led to a stair with landing projecting from the tank walkway. The stair was gated and caged and handrails installed on both sides of the stair. An emergency stop button for the anti-freeze units was installed at the top of the stairs with grab wire emergency cables located close by. Various monitoring units, temperature probes, electrical junction boxes etc were installed on the lift hand rails.
- 4.27 The tank overflow pipes were at the north-eastern side of the gasholder adjacent to the stair. The operations manual notes an overflow box installed inside the tank sheeting 3 1/2" below the platform and connecting to the 4" overflow pipes.
- 4.28 A small square building constructed of breeze blocks and with a cat slide roof was located adjacent to the stair walkway. There were two boilers inside with flues projecting through the roof. A sign on the double doors read 'switchgear'. An electrical kiosk was also located close to the stair walkway and elevated cable trays carried the gasholder electrical cables to the various electrical units on the tank and lifts. The electrical anti-freeze system included self-monitoring modular pumps to circulate heated water around the tank and lifts.

## 5.0 Discussion

- 5.1 The two gasholders, in their design and construction, were found to be fairly typical of their type and respective dates of construction. The overall uniformity in their construction demonstrates the generally consistent approach to spirally-guided gasholder design in the early to mid-20th century.
- 5.2 The gasworks had been operational since at least the 1870s, and while documentary evidence for the site is limited, an examination of mapping and plans demonstrates the common pattern of gasworks and gasholder development, with small three to five column-guided gasholders being constructed in the mid-century and superseded by larger column-guided gasholders in the 19th century, and with spirally-guided gasholders of increasing capacity being constructed in the early and mid-20th century. Following the switch to natural gas the gasworks buildings began to be cleared and the gasholders were converted for new distribution.
- 5.3 Although clearly of much greater capacity than the earlier gasholders, gasholders 107 and 108, when compared to other gasholders of the period, were very limited in their capacity with the largest gasholder, no.108 providing a maximum of 0.5 million cu. ft. It is probable that the constraints of the site, both in available space and the difficult topography, restricted the size of gasholder that could be accommodated. In order to compensate for the steep southward slope of the site, the area around the gasholders was built up to a level platform and both of the gasholder tanks were sunk into moats or bunds with tank access stairs being elevated over these.
- 5.4 The site is not included in the 151 sites covered in the Step 3 Monuments Protection Programme (Trueman 2002).

## References

Chartered Institute for Archaeologists, updated 2019, *Standard and Guidance for the Archaeological Investigation of Standing Buildings or Structures*

Historic England, 2015a, *Management of Research Projects in the Historic Environment*

Historic England, 2015b, *Understanding Historic Buildings, A Guide to Good Recording Practice*

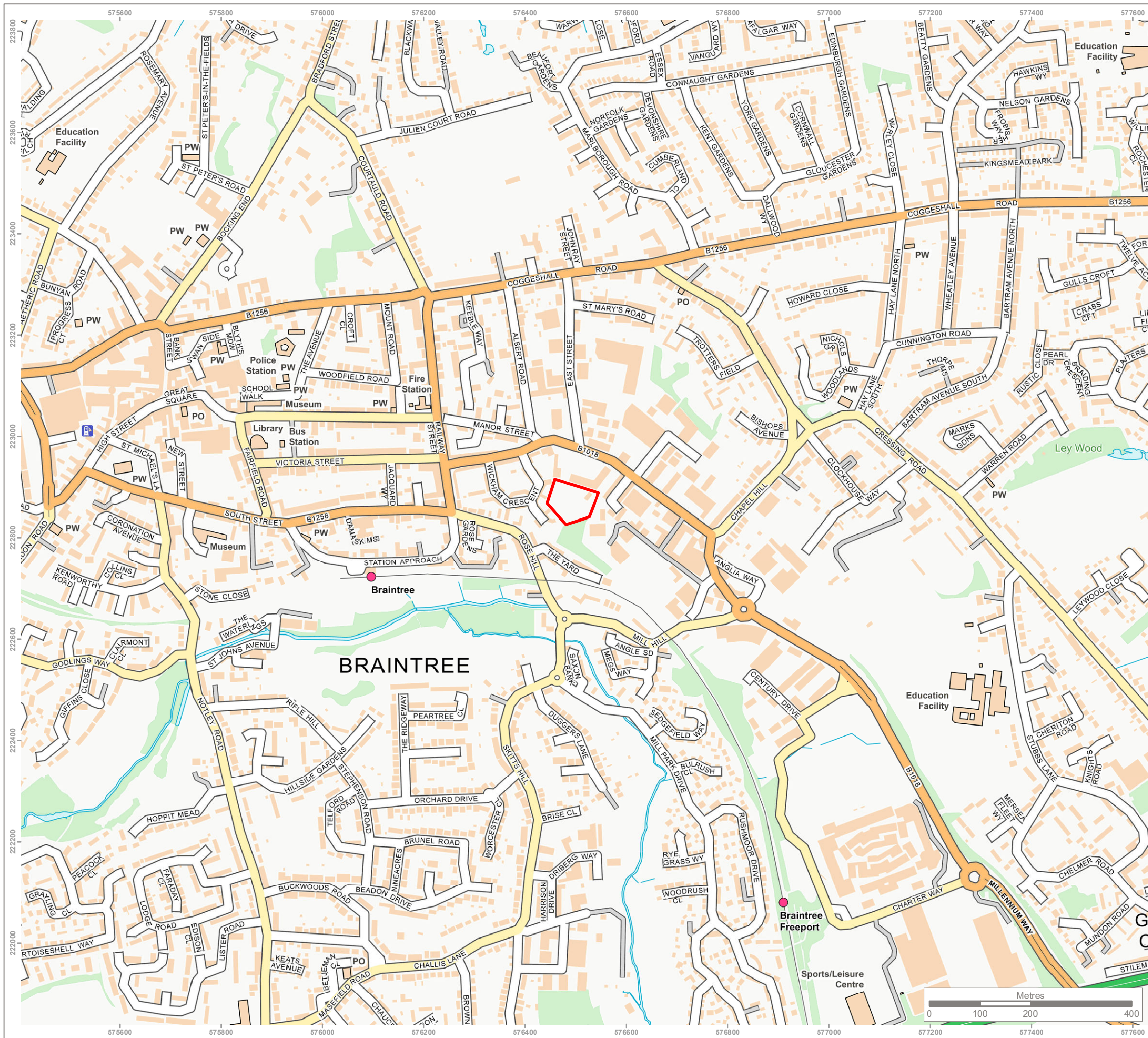
Historic England, 2019, *Guidelines for evaluating and recording England's former gasworks and redundant gasholders* (Draft)

Montagu Evans, *Undated, National Sites Heritage Review, 46, Manor Street, Braintree, CM7 3BH*

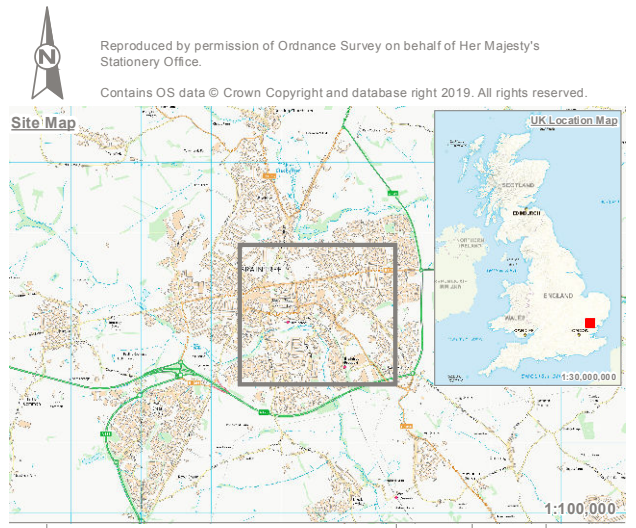
TEP, 2019, *Written Scheme of Investigation for Historic Building Recording at the Manor Street Gasholder Station, Braintree*

Trueman, M, 2002, *Gas Industry Step 3 Report for Monuments Protection Programme*, English Heritage





**KEY**  
 Site Location



| Rev | Description | Drawn | Approved | Date |
|-----|-------------|-------|----------|------|
|     |             |       |          |      |

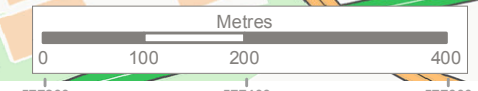
**TEP THE ENVIRONMENT PARTNERSHIP**  
 No.1 The Chambers, Bowden Business Village  
 Leicester Road, Market Harborough, LE16 7SA  
 Tel 01858 353120 e-mail tep@tep.uk.com www.tep.uk.com

Project  
**Braintree, Manor Road**

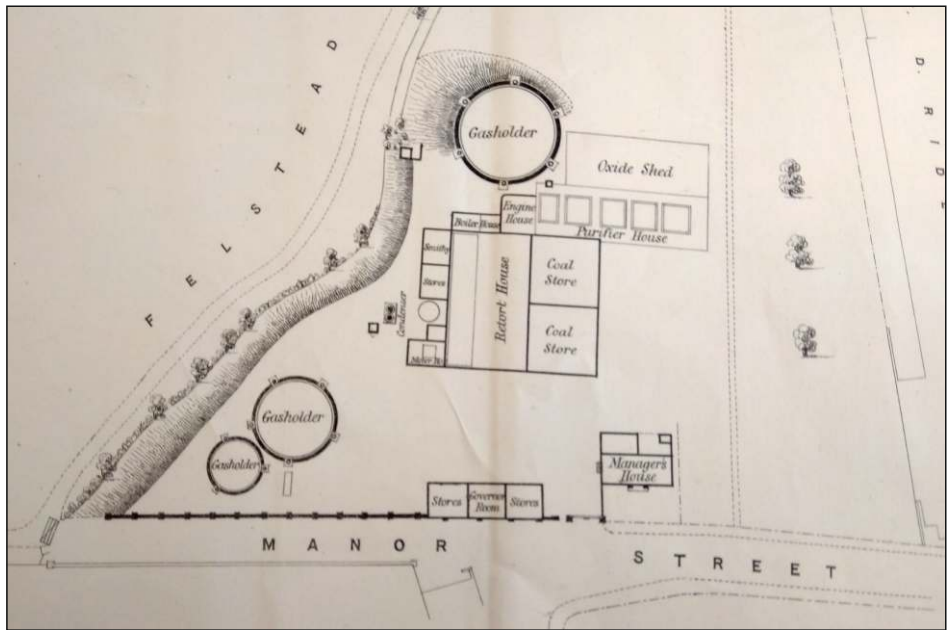
Title  
**Site location**

Drawing Number  
**G7806.001**

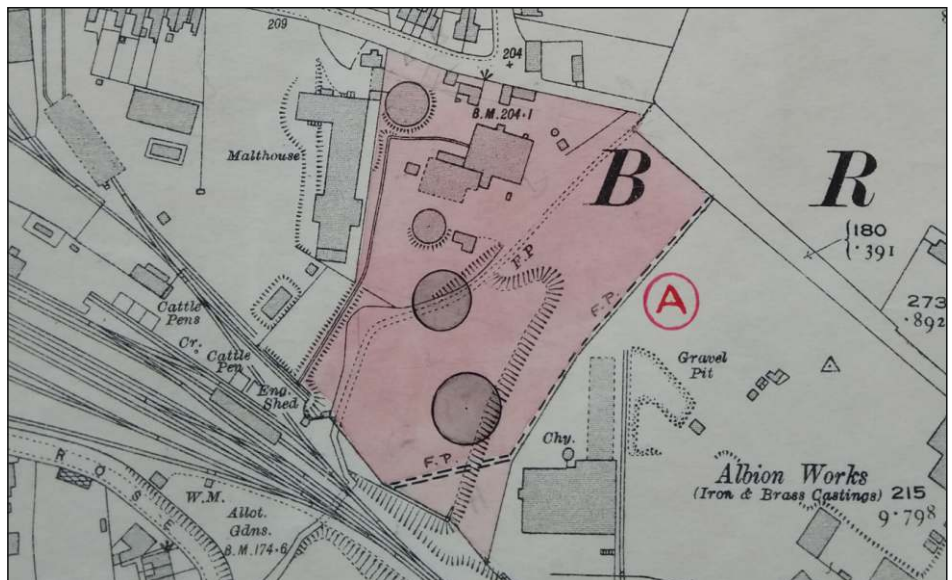
| Drawn | Checked | Approved | Scale        | Date       |
|-------|---------|----------|--------------|------------|
| AB    | MK      | JC       | 1:7,500 @ A3 | 13/08/2019 |







1874 Plan of the Works (2/219) Fig 2



Ordnance Survey map of 1922 Fig 3



Undated, late 20th century view of the site Fig 4



General view of Gasholder 107, looking north Fig 5



General view of the gasholder, looking north-east Fig 6



View of the gasholder moat Fig 7





Detail of the tank construction Fig 8



The stair to the tank walkway Fig 9



View of the crown, looking south-west Fig 10

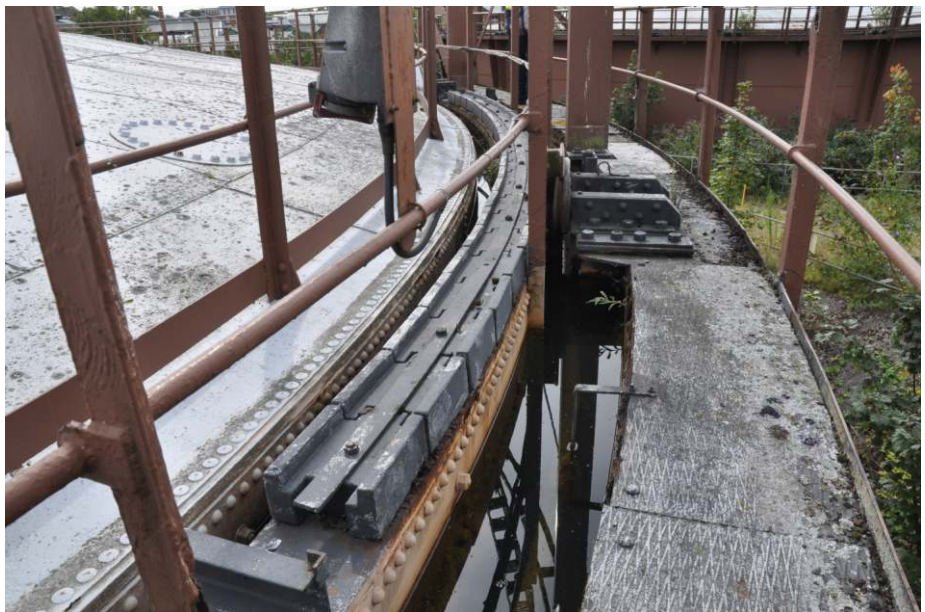




The crown and spiral stairs Fig 11



View of the walkway, lift and grips Fig 12



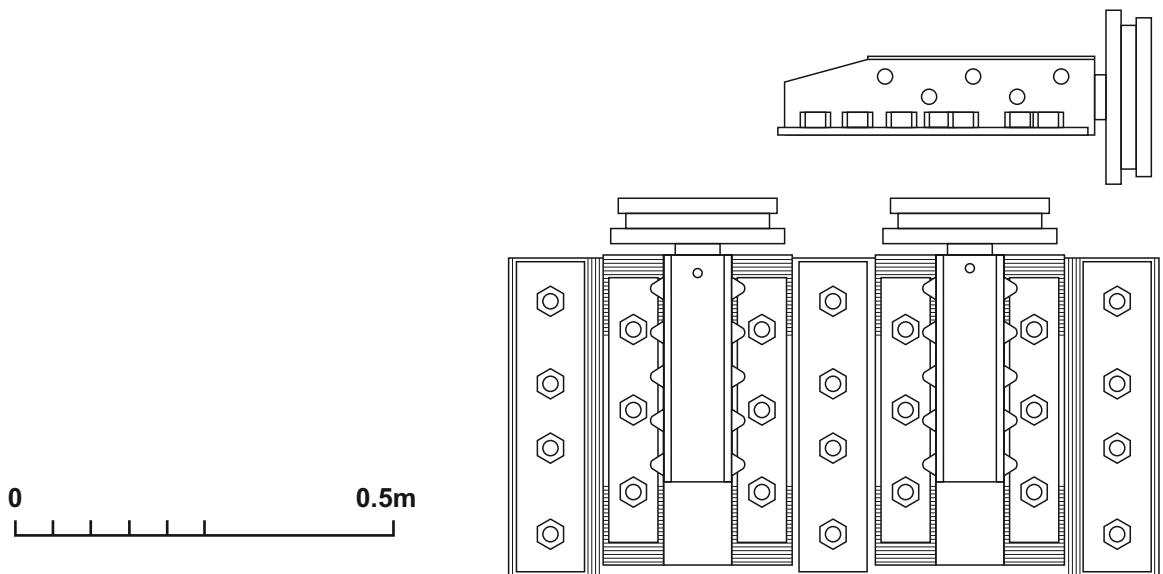
View of the walkway and weights on the first lift Fig 13



Hydrostatic tanks Fig 14



Example of the roller carriages Fig 15



Measured drawing of an example roller carriage Fig 16





General view of Gasholder 108, looking south Fig 17



General view of the Gasholder 108, looking south-west Fig 18



Detail of the tank and gussets Fig 19



Example of the spiral stairs Fig 20



View of the tank walkway with handrails and overflow pipes Fig 21

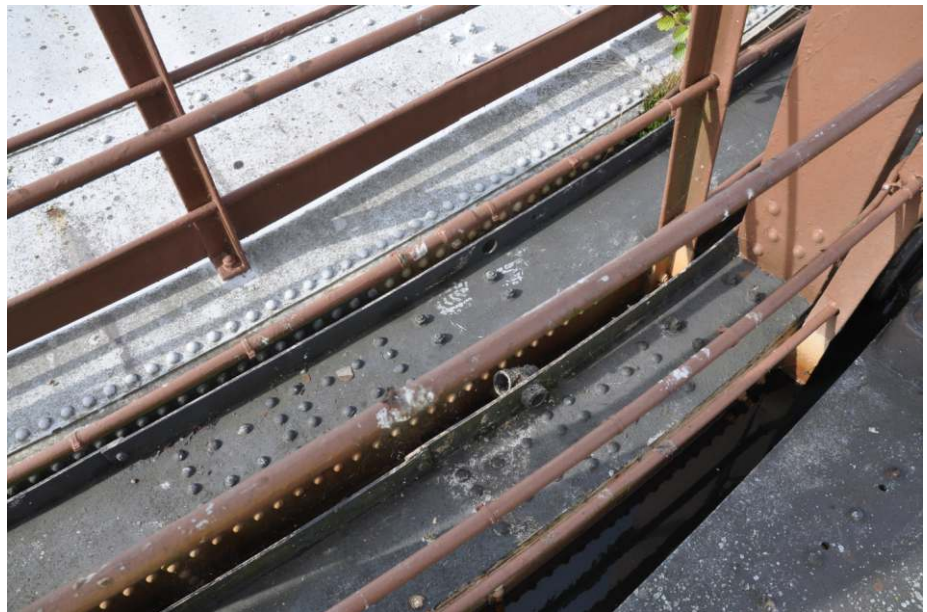


View of the tank stair Fig 22





View of the crown, looking south Fig 23



Detail of the lift grips Fig 24



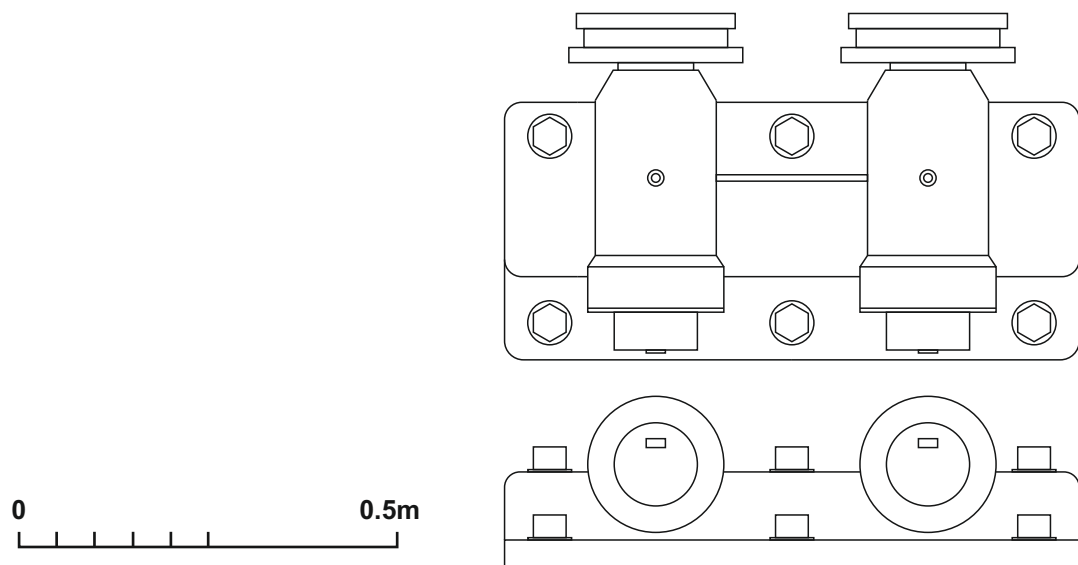
The crown edge with hydrostatic tanks Fig 25



The crown with hydrostatic tank and central valve Fig 26

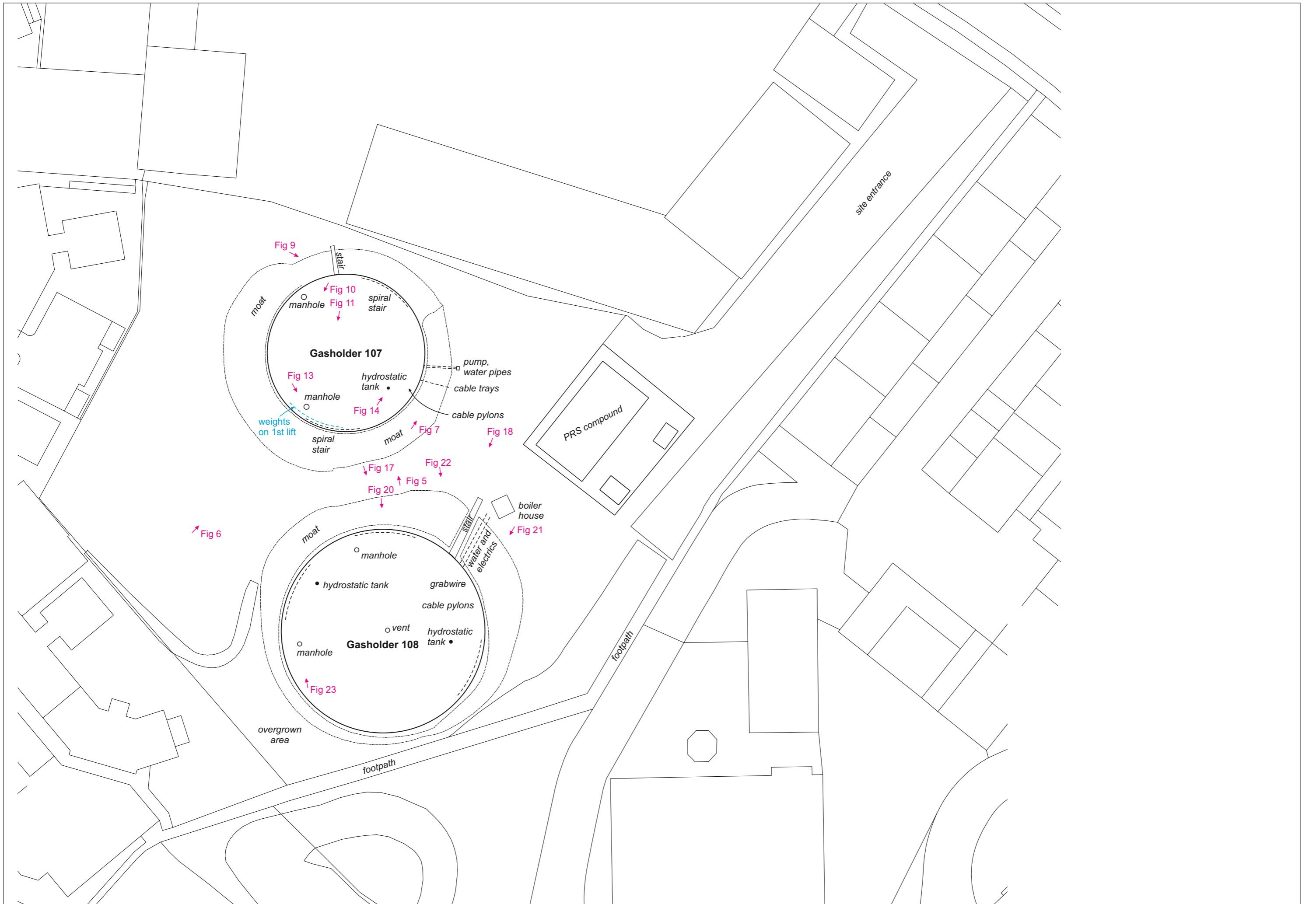


Example of the tank roller carriages Fig 27



Measured drawing of an example roller carriage Fig 28





## Braintree, Manor Street Gasholder Station

Photographic Register

21st August 2019

Nikon D3500, Nikon 18-70mm Lens

| File / Photo No. | Description                                |
|------------------|--|
| DSC0220          | General view from site entrance, to SW     |
| DSC0223          | View to adjacent chimney                   |
| DSC0224          | View to adjacent chimney                   |
| DSC0250          | Boiler House / Substation                  |
| DSC0271          | Gasholder 107                              |
| DSC0272          | Walkway between gasholder, looking E       |
| DSC0276          | General view at NW                         |
| DSC0324          | General view at NW                         |
|                  |  |
|                  | <b>Gasholder 107</b>                       |
| DSC0221          | Gasholder 107, general view                |
| DSC0225          | Gasholder 107, view of tank                |
| DSC0227          | Gasholder 107, view to N                   |
| DSC0229          | Gasholder 107, pump                        |
| DSC0230          | Gasholder 107, view to N                   |
| DSC0231          | Gasholder 107, view to N                   |
| DSC0232          | Gasholder 107, moat                        |
| DSC0233          | Gasholder 107, view from W                 |
| DSC0236          | Gasholder 107, view to SE                  |
| DSC0242          | Gasholder 107, tank stair                  |
| DSC0243          | Gasholder 107, tank stair and moat         |
| DSC0247          | Gasholder 107, tank and stair              |
| DSC0248          | Gasholder 107, tank and stair              |
| DSC0249          | Gasholder 107, tank and walkway            |
| DSC0263          | Gasholder 107, tank and walkway            |
| DSC0264          | Gasholder 107, moat                        |
| DSC0265          | Gasholder 107, tank and walkway, electrics |
| DSC0266          | Gasholder 107, antifreeze                  |
| DSC0267          | Gasholder 107, overflow and antifreeze     |
| DSC0287          | Gasholder 107, view from GH108             |
| DSC0307          | Gasholder 107, crown, looking SW           |
| DSC0308          | Gasholder 107, crown, looking S            |
| DSC0309          | Gasholder 107, view of crown               |
| DSC0310          | Gasholder 107, crown manhole               |
| DSC0311          | Gasholder 107, crown and spiral stair      |
| DSC0312          | Gasholder 107, roller carriage             |
| DSC0313          | Gasholder 107, roller carriage             |
| DSC0314          | Gasholder 107, roller carriage             |
| DSC0315          | Gasholder 107, roller carriage             |
| DSC0317          | Gasholder 107, crown and manhole           |
| DSC0318          | Gasholder 107, crown hydrostatic tank      |
| DSC0319          | Gasholder 107, crown, looking north        |
| DSC0321          | Gasholder 107, walkway and lift weights    |
| DSC0325          | Gasholder 107, crown looking N             |
| DSC0326          | Gasholder 107, crown and lift weights      |
| DSC0327          | Gasholder 107, spiral stair                |
| DSC0327          | Gasholder 107, hydrostatic tank            |
| DSC0329          | Gasholder 107, lift grip / lutes           |
| DSC0331          | Gasholder 107, electrics                   |
| DSC0332          | Gasholder 107, electrics                   |
| DSC0333          | Gasholder 107, spiral stair, cable pylons  |
| DSC0334          | Gasholder 107, spiral stair, cable pylons  |
| DSC0336          | Gasholder 107, grab wire                   |
| DSC0337          | Gasholder 107, walkway and lute            |
| DSC0338          | Gasholder 107, crown and manhole           |







DSC\_0220



DSC\_0221



DSC\_0223



DSC\_0224



DSC\_0225



DSC\_0227



DSC\_0229



DSC\_0230



DSC\_0231



DSC\_0232



DSC\_0233



DSC\_0236



DSC\_0242



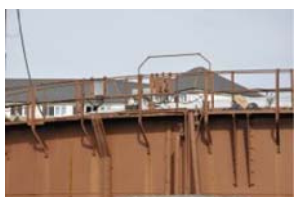
DSC\_0243



DSC\_0247



DSC\_0248



DSC\_0249



DSC\_0250



DSC\_0263



DSC\_0264



DSC\_0265



DSC\_0266



DSC\_0267



DSC\_0271



DSC\_0272



DSC\_0275



DSC\_0276



DSC\_0278



DSC\_0307



DSC\_0308



DSC\_0309



DSC\_0310



DSC\_0311



DSC\_0312



DSC\_0313





DSC\_0314



DSC\_0315



DSC\_0317



DSC\_0318



DSC\_0319



DSC\_0321



DSC\_0324



DSC\_0325



DSC\_0326



DSC\_0327



DSC\_0328



DSC\_0329



DSC\_0331



DSC\_0332



DSC\_0333



DSC\_0334



DSC\_0336



DSC\_0337



DSC\_0338



DSC\_0339





DSC\_0222



DSC\_0239



DSC\_0240



DSC\_0244



DSC\_0245



DSC\_0246



DSC\_0251



DSC\_0252



DSC\_0253



DSC\_0254



DSC\_0255



DSC\_0256



DSC\_0258



DSC\_0273



DSC\_0274



DSC\_0279



DSC\_0280



DSC\_0281



DSC\_0282



DSC\_0283



DSC\_0284



DSC\_0285



DSC\_0286



DSC\_0287



DSC\_0288



DSC\_0289



DSC\_0290



DSC\_0291



DSC\_0292



DSC\_0293



DSC\_0294



DSC\_0295



DSC\_0296



DSC\_0297



DSC\_0298





DSC\_0299



DSC\_0300



DSC\_0301



DSC\_0302



DSC\_0303



DSC\_0304



DSC\_0305



DSC\_0306



DSC\_0323



DSC\_0330



---

**HEAD OFFICE**

Genesis Centre,  
Birchwood Science Park,  
Warrington  
WA3 7BH

Tel: 01925 844004  
E-mail: [tep@tep.uk.com](mailto:tep@tep.uk.com)

**MARKET  
HARBOROUGH**

No. 1 The Chambers,  
Bowden Business Village,  
Market Harborough,  
Leicestershire,  
LE16 7SA

Tel: 01858 383120  
E-mail: [mh@tep.uk.com](mailto:mh@tep.uk.com)

**GATESHEAD**

Office 26, Gateshead  
International Business  
Centre,  
Mulgrave Terrace,  
Gateshead  
NE8 1AN

Tel: 0191 605 3340  
E-mail: [gateshead@tep.uk.com](mailto:gateshead@tep.uk.com)

**LONDON**

8 Trinity Street,  
London,  
SE1 1DB

Tel: 020 3096 6050  
E-mail: [london@tep.uk.com](mailto:london@tep.uk.com)

**CORNWALL**

4 Park Noweth,  
Churchtown,  
Cury,  
Helston  
Cornwall  
TR12 7BW

Tel: 01326 240081  
E-mail: [cornwall@tep.uk.com](mailto:cornwall@tep.uk.com)

---