



DOVER HARBOUR BOARD

HERITAGE RECORDING TRAIN FERRY DOCK AND DUNKIRK JETTY

TO THE DOVER WESTERN DOCKS, DOVER, KENT

Desktop Study



DOCUMENT STATUS

Date	Originator	Reviewed	Approved	Rev	Status
13/06/16	Hannah Cates	Victoria Cooper		01	Draft
12/08/16	Hannah Cates	HSG		02	Draft
12/09/16	Hannah Cates	Victoria Cooper		03	Final Draft
20/11/16	Hannah Cates/Victoria Cooper	Steve Rawlings	Steve Rawlings	04	Final (Updated with further information from AMSIS reports)



Contents

List of Plates	3
List of Figures (Appendix 001)	5
Summary	9
1. Project Background	10
2. Methodology.....	10
2.1 Aims and Objectives.....	10
2.2 Approach	11
2.3 Sources	11
3. Description of the Site	12
4. History of the Site	12
5. Technical Operation of the Train Ferry Dock	30
6. Current Condition.....	32
6.1 Dunkirk Jetty	34
6.2 Train Ferry Dock.....	46
7. Conclusions and Recommendations	55
8. References	57
9. Appendices.....	58
9.1 Appendix 001 – Figures.....	58

List of Plates

Plate 1: View of the Inner Harbour c.1890, DHB.

Plate 2: Train Ferry Dock, c.1933, Dover Museum d02172.

Plate 3: Unloading a Southern Railway Train Ferry Steamer, 1938, Dover Museum, E.A. Sweetman and Son d37649.

Plate 4: Opening of the Train Ferry Dock by the French Ambassador, 1936, Dover Museum d35690.



Plate 5: Western Dock: View of the Train Ferry Berth with the Berth Gates Open at High Tide 01/03/1938, DHB.

Plate 6: Train Ferry Carrying Heavy Artillery Equipment, c.1939, Dover Museum d43428.

Plate 7: General View from the West of the Prince of Wales Pier, the Train Ferry Dock and Admiralty Pier, 1949, DHB.

Plate 8: General View from the West of the Prince of Wales Pier, the Train Ferry Dock and Admiralty Pier, 1949, DHB.

Plate 9: Western Docks: General View Overlooking the Inner Harbour at the Western Docks area, 1950, DHB.

Plate 10: Entrance to Western Docks, View of the Train Ferry Dock, Tidal Basin Entrance, The Granville and Waterloo Dock, 1950, DHB.

Plate 11: General View of the Admiralty Pier, Marine Station and the Train Ferry Berth, 1950, DHB.

Plate 12: British Railways, Hampton Train Ferry in the Dock at Dover, 1950, Dover Museum d43454.

Plate 13: Aerial View of Granville Dock and Pier District (detail from), Aug 1956, DHB.

Plate 14: Train Ferry loading Goods Wagon, c.1960s, DHB.

Plate 15: 'Saint Germain' in the Train Ferry Dock, 04/05/1988, Dover Museum d47209.

Plate 16: Wick Channel, Tidal Dock and Granville Dock looking north, c.2010, DHB.

Plate 17: General view of Dunkirk Jetty, 2014, Atkins 2014a: 3.

Plate 18: Dunkirk Jetty from South Pier, looking south, 25/01/2016, DHB 2016a: 214.

Plate 19: Dunkirk Jetty from Train Ferry Dock Gates, looking south, 16/11/2016, DHB.

Plate 20: Dunkirk Jetty looking west, 25/01/2016, DHB 2016a: 66.

Plate 21: Overall view of Dunkirk Jetty, looking north-east from aggregates yard, 25/01/2016, DHB 2016a: 182.

Plate 22: Building at landward end of jetty 25/01/2016, DHB 2016a: 160.



Plate 23: Small building at end of jetty 25/01/2016, DHB 2016a: 41.

Plate 24: Change in construction at landward end of jetty (northern side), 2014, Atkins 2014a: 17.

Plate 25: Change in construction at landward end of jetty (southern side), 2014, Atkins 2014a: 27.

Plate 26: Ladder and partially removed steel framework, 23/11/15, DHB 2016a: 3.

Plate 27: End of jetty at the waterline, looking north west, 2014, Atkins 2014a: 21.

Plate 28: Southern side of the jetty, looking west, 2014, Atkins 2014a: 22.

Plate 29: South site, external vertical wall of the Train Ferry Dock with 'wavebreaker toe' to the rear, looking west, 2014, Atkins 2014b: 3.

Plate 30: South site, external vertical wall of the Train Ferry Dock at change in orientation and change from keyed to plain blocks, 2014, Atkins 2014b: 16.

Plate 31: Wavebreaker Toe concrete slipway, 'pell-mell' wave breakers', 2014, Atkins 2014b: 21.

Plate 32: Train Ferry Dock Gates, Looking north-east, 25/01/2016, DHB 2016a: 197.

Plate 33: Detail of Train Ferry Dock Gates, Looking north, 25/01/2016, DHB 2016a: 198.

Plate 34: Detail of Train Ferry Dock Gates, Looking east, 25/01/2016, DHB 2016a: 200.

Plate 35: Detail of Train Ferry Dock Gates, Looking south-west, 25/01/2016, DHB 2016a: 206.

Plate 36: Train Ferry Dock Gates, Looking west, 23/11/2015, DHB 2016b: 75.

Plate 37: Detail of Train Ferry Dock Gates, Looking west, 23/11/2015, DHB 2016b: 72.

Plate 38: View of Train Ferry Dock Gates from Dunkirk Jetty, Looking west, 16/11/2016, DHB.

List of Figures (Appendix 001)

Figure 1: Location of the Train Ferry Dock and Dunkirk Jetty, 2016, DWDR.

Figure 2: Scope of Works for DWDR Stage Two, 2015, DWDR.



Figure 3: Scope of Works for DWDR Stage Three, 2015, DWDR.

Figure 4: State of Dover Haven by Thomas Digges, 1595, © The British Library Board, Cotton Augustus I.i, f.46.

Figure 5: The Haven of Dover by Vincent the King's painter, c.1520-1530, Kent History and Library Centre DHB/P141/1.

Figure 6: The Platt of Dover Castel Towne and Harbor by William Eldred, 1641, DHB Historical Drawings Archive.

Figure 7: Dover Harbour Surveyed by Mr John Scott Tucker, 1833, DHB Historical Drawings Archive.

Figure 8: Dover Western Docks 1907, from Dover Division Ordnance Survey Map Surveyed 1858, revised 1906 (detail from), 1907, DHB Historical Drawings Archive.

Figure 9: Plan of Entrance to Inner Harbour, 21/03/1908, DHB Historical Drawings Archive Ref: 6819.

Figure 10: Dover Harbour Western Docks General Plan, 1914, DHB Historical Drawings Archive Ref: 4356.

Figure 11: Southern Railway Dover Suggested Widening of Clarence Quay, 01/08/1933, DHB Historical Drawings Archive Ref: 5486.

Figure 12: Southern Railway Dover Train Ferry Dock, 24/01/1934, DHB Historical Drawings Archive Ref: 3773.

Figure 13: Dover Harbour Train Ferry Dock Suggested Layout for Train Ferry Traffic, c.1933, DHB Historical Drawings Archive Ref: 3775.

Figure 14: Southern Railway Dover Train Ferry Dock, 24/01/1934, DHB Historical Drawings Archive Ref: 3776.

Figure 15: Dover Harbour Train Ferry Dock, 28/06/1933, DHB Historical Drawings Archive Ref: 3777.

Figure 16: Dover Harbour Train Ferry Dock, 28/06/1933, DHB Historical Drawings Archive Ref: 3778.

Figure 17: Southern Railway Dover Train Ferry Dock Plan, c.1933, DHB Historical Drawings Archive Ref: 3779.



Figure 18: Southern Railway Dover Train Ferry Dock Plan, c.1933, DHB Historical Drawings Archive Ref: 3780.

Figure 19: Southern Railway Dover Train Ferry Dock Plan, 24/01/1934, DHB Historical Drawings Archive Ref: 4358.

Figure 20: Southern Railway Dover Train Ferry Dock Plan and Sections, 24/01/1934, DHB Historical Drawings Archive Ref: 6836.

Figure 21: Admiralty Pier Area Available for Wave Absorber, 29/06/1962, DHB Historical Drawings Archive Ref: 9331.

Figure 22: Southern Railway Dover Train Ferry Dock Jetty, 31/07/1934, DHB Historical Drawings Archive Ref: 6837.

Figure 23: Southern Railway Dover Train Ferry Dock Jetty Detail of Modification to Piers, May 1935, DHB Historical Drawings Archive Ref: 9322.

Figure 24: Southern Railway Dover Train Ferry Dock Jetty General Details, July 1935, DHB Historical Drawings Archive Ref: 9323.

Figure 25: Southern Railway Dover Train Ferry Dock Jetty Alteration to Jetty and Fendering, September 1935, DHB Historical Drawings Archive Ref: 9324.

Figure 26: Southern Railway Dover Train Ferry Dock Jetty Steelwork at West End, September 1935, DHB Historical Drawings Archive Ref: 9326.

Figure 27: Southern Railway Dover Train Ferry Dock West End of Jetty Details, September 1935, DHB Historical Drawings Archive Ref: 9327.

Figure 28: Train Ferry Dock Plan of Proposed Cofferdam, date unknown, DHB Historical Drawings Archive Ref: 4357.

Figure 29: Dover Division Ordnance Survey Map Surveyed 1858, revised 1937-1938 (detail from), 1945, DHB Historical Drawings Archive.

Figure 30: Dover Harbour Train Ferry Dock as Built Site Plan, July 1993, DHB Historical Drawings Archive Ref: 24786.

Figure 31: Current Photographic Plate Locations, 2016, DWDR.

Figure 32: Train Ferry Jetty Wave Absorbing Wall, 05/12/1972, DHB Historical Drawings Archive Ref: 15841.



Figure 33: DWDR Stage 3 Site Plan showing Demarcation Lines for POWP and Existing Docks, 2016, DWDR.



Summary

In 2012, Dover Harbour Board (DHB) gained consent for Terminal 2 (T2), a major proposal for a new second ferry terminal and marina development in the Western Docks, via the Dover Harbour Revision Order 2012 (the HRO). DHB are now carrying forward the construction of certain elements of the HRO. The scheme being progressed lies within the consented development for T2 and is referred to as the Dover Western Docks Revival (DWDR).

A collection of historic building surveys and desktop studies have been completed by the DWDR team on behalf of the Port of Dover. These have been undertaken in order to create a record of historical assets which can be found within the Port of Dover and that will be subject to impact from the construction of DWDR. Research for these reports commenced before any of the planned construction work begun on the revival scheme.

This report comprises a desktop study and historic record of the Train Ferry Dock and the Dunkirk Jetty.



1. Project Background

In 2012, Dover Harbour Board (DHB) gained consent for Terminal 2 (T2), a major proposal for a new second ferry terminal and marina development in the Western Docks, via the Dover Harbour Revision Order 2012 (the HRO). DHB are now carrying forward the construction of certain elements of the HRO. The scheme being progressed lies within the consented development for T2 and is referred to as the Dover Western Docks Revival (DWDR).

There are 11 Listed Buildings and two Scheduled Monuments within the Port of Dover. Neither of the Scheduled Monuments and only two of the Listed Buildings fall within the footprint of the DWDR scheme that will be directly affected by the overall works. Listed Building Consent has been obtained for work affecting the listed structures

In addition to the listed buildings, however, there are a number of non-designated historic structures which will be subject to impact from the DWDR scheme. A Level 1 photographic heritage recording of the entirety of the DWDR foot print was carried out by DHB, between 2nd September 2015 and 9th February 2016. The purpose of this recording was to log the current physical properties of the Western Docks and highlight select structures of historic importance.

Subsequent to this Level 1 photographic recording, desktop studies have been undertaken for the following structures of historic importance:

- Granville Dock, Tidal Basin, Tug Haven and the Wick Channel;
- The Telford Sluices and Associated Sluice Mechanisms;
- The Union Street Swing Bridge and Wellington Dock gates;
- Train Ferry Dock and the Dunkirk Jetty;
- The Prince of Wales Pier; and
- The Promenade.

This report presents the results of the desktop study for the Train Ferry Dock and the Dunkirk Jetty.

2. Methodology

2.1 Aims and Objectives

The aim of the desktop study is to provide a detailed record of the Train Ferry Dock and the Dunkirk Jetty prior to impact from the construction of DWDR.



The objectives of the desktop study are:

- To clarify the impact from the construction of DWDR;
- To provide a description of the history of the site based on archive material and secondary sources;
- To provide a historic record of the structure through historic plans, maps, charts and photographs;
- To provide a current record of the structure through recent photographs, laser scanning or measured drawings if available; and
- To identify any further recording requirements or mitigation measures that may be required prior to the commencement of works for DWDR.

2.2 Approach

Work for this desktop study was undertaken in accordance with the Written Scheme of Investigation for DWDR prepared by Royal HaskoningDHV (2015). The methodology for the desktop study was carried out with consideration of available standards and guidance, including:

- CIfA, 2014, Standard and Guidance for the archaeological investigation and recording of standing buildings or structures; and
- Historic England, 2016, Understanding Historic Buildings: A guide to good recording practice.

This study comprises an account of the structure's origins, development and use, and includes evidence on which this analysis has been made. The research for this desktop study was undertaken using readily available sources to help understand the construction, development and historical context of the Train Ferry Dock and the Dunkirk Jetty. This study incorporates the findings and interpretations of this research.

2.3 Sources

Key primary sources for this report include historic Ordnance Survey maps in the DHB archive and historic newspapers sourced from the British Newspaper Archive Online (<http://www.britishnewspaperarchive.co.uk/>). Further use has been made of published secondary sources, including books and online research. To illustrate the development of the structure's appearance and form use has been made of the DHB archive, including photographs, drawings and plans. Dover Museum has provided a valuable source for illustrations and photographs, all others are taken from the DHB Photographic Archive. Although some hard copies of these documents exist, in particular the historic Ordnance Survey maps, the majority of these are digital copies that can be found in the DHB archive. The historic maps can be found in the archives in Harbour House, Waterloo Crescent.



3. Description of the Site

The Train Ferry Dock and Dunkirk Jetty are located along the south edge of Wick Channel, and east of Tug Haven (National Grid Reference: TR 32014 40375). Dunkirk Jetty is located between Jet Foil Basin and Wick Channel in the Western Docks, within the limits of Dover Harbour (National Grid Reference: TR 32152 40300). **Figure 1** in **Appendix 001** shows the location of the Train Ferry Dock and the Dunkirk Jetty within Western docks.

As part of the DWDR scheme, the Train Ferry Dock is located within an area of land reclamation. The dock gates and structure will be left *in situ* and buried in the volume of reclamation material. Dunkirk Jetty will be demolished. **Figures 2-3** in **Appendix 001** demonstrate the work that will be undertaken.

4. History of the Site

The Train Ferry Dock was built off the site of an existing South Pier, sometimes locally known as the southern dock wall. A pier in the approximate position of South Pier can be traced back to the sixteenth century where it is shown on a 1595 map of the State of Dover Haven by Thomas Digges (**Figure 4** in **Appendix 001**). These were built along similar lines to earlier bulwarks and groins that had acted as obstructions to the deposit of shingles within the harbour, as well as for defensive purposes (Hasenson, 1980, pp. 23-31).

These early structures had first been erected in the late fifteenth century by Sir John Clark, a priest and master of the Maison Dieu, who constructed a groin from chalk and earth extending from the south-west of the harbour. The works of Clark were developed by Sir John Thompson, another clergyman, in c.1530. Thompson extended upon the groin built by Clark increasing its length and also constructed another chalk groin to the north of the existing structure creating a harbour mouth (Leach 2006, pp. 25-30). Evidence of Thompson's work can be traced back to an impression of the port drawn by Vincent, King Henry VIII's royal painter, dated c.1530 (**Figure 5** in **Appendix 001**). The perspective in this image is slightly misleading as it is not a formal map or plan, but this clearly shows the early, informal layout of the harbour.

In 1641 William Eldred, local Freeman and later Master Gunner at Dover Castle, produced a series of surveys of Dover Harbour. Eldred's *The Platt of Dover Castel Towne and Harbor* (**Figure 6** in **Appendix 001**) indicates the development of the harbour since Digges' time. Although the form of the harbour has altered very little there is a clear expansion of the surrounding built structures.

The South pier, as shown in the Digges and Eldred maps, is thought to have largely survived, with necessary repairs, until 1827 when the harbour commissioners ordered James Moon, harbour master and resident engineer, to rebuild the South Pier as well as the North Pier. Evidence of the rebuilt pier can be seen in a survey of Dover Harbour in 1833 by Mr John Scott Tucker (**Figure 7** in **Appendix 001**). The South Pier was then subsequently rebuilt to accommodate plans for new culverts introduced by Thomas Telford in 1833-1834. The South Pier was extended and a reservoir installed, which was necessary for supplying the culverts (Hasenson, 1980, p. 63 & 70). Information regarding this development can be found in the accompanying desktop study on Telford's Sluices and Associated Sluice Mechanisms produced by Dover Harbour Board (2016). The form of this new South Pier can be seen in the 1907 Ordnance Survey map (**Figure 8** in **Appendix 001**) and also in the background of a photograph, c.1890, of this part of the Western Docks (**Plate 1**).



Plate 1: View of the Inner Harbour c.1890, DHB.



DHB plans, dated February 1908, show section drawings of proposed works for South Pier with a filling of large stone blocks, with a proposed new concrete wall with chalk filling to the north west, and new timber wharfing to the south (**Figure 9 in Appendix 001**). This would have altered the form of the South Pier, extending it in a north-eastern direction. However, a later plan for the Train Ferry Dock (**Figure 10 in Appendix 001**) suggests these works did not take place and the pier remained unaltered.

The Train Ferry Dock was constructed between 1933 and 1936 after the Channel Tunnel project was rejected once again by Parliament. Proposals for a tunnel under the English Channel had been made since the early nineteenth century, but none had come to fruition (Whiteside, 1962, p. 17). Prior to the introduction of the train ferry in 1936 there was a lack of continuous transport across the Channel. Passengers arriving to Dover by train had to alight in order to embark on a ferry to cross the Channel, and subsequently had to disembark and board another train service to their destination. Southern Railway decided that they would provide a new train ferry service from Dover to Dunkirk eliminating the need to change trains or mode of transport. New technology meant it would be possible to load trains arriving at Dover straight onto the ferries, whatever the tide level, without the passengers having to disembark. Effectively this comprised of a platform, known as a link-span, which was hinged on the shoreline that could be levelled to vessels. It would also offer convenient overnight trains.

The first train ferry had been located at Richborough, just around the coast from Dover. The gantry tower, fabricated in 1916, held a platform hinged at its landward end that could be adjusted according to the tide. This train ferry service was vital in the war effort during World War One but the gantry tower was subsequently moved to Harwich where it remains today as the earliest cross-channel train ferry terminal (Historic England, 2016).

Southern Railway, in conjunction with Dover Harbour Board, decided that the service at Dover would be installed between the Admiralty Pier and the South pier. Clarence Quay would also be widened before work on the dock began in order to lay more train lines and give more approach space to the Train Ferry Dock (**Figure 11 in Appendix 001**).

Southern Railway accepted a tender from Messrs. Edmund Nuttall and Sons. and Co. and John Mowlem and Co. of Westminster for the construction work of the dock, necessary for berthing the ferry steamers. The amount of this tender was £231,000 (The Dover Express and East Kent News, 04/08/1933, p. 9) and preparatory work was under way by the 6th of October in 1933. Evidence of this can be found in a photograph showing construction on the South Pier (**Plate 2**) and in newspaper articles of the time (The Dover Express and East Kent News, 06/10/1933, p.5).



Specifications and plans for the Train Ferry Dock itself were drawn up by the Chief Engineer of Southern Railway, George Elson, and his office (Elson, 1937, p. 7) (**Figures 12-20** in **Appendix 001**). Plans showing the Train Ferry Dock also show pell-mell block wave breakers, erected on a slipway immediately south. These would have been constructed to deflect the force of the waves from the structure. However, in later plans of this area, such as **Figure 21** in **Appendix 001**, the pell-mell block wave breakers have been replaced with a more regimented order of concrete blocks. These are not labelled in plans and therefore it is unclear whether these served as wave breaker units. It has been suggested that they were erected as anti-tank 'pimples' or 'dragon's teeth' during the Second World War (Archaeological Data Service, 2016).

A concrete train ferry jetty was also part of the scheme, extending from the dock and reaching a further 362ft (**Figures 22-27** in **Appendix 001**). The jetty was initially known as the train ferry jetty but is now known as Dunkirk jetty, because the service ran to Dunkirk. By the end of July 1934 the plans for the Train Ferry Dock and jetty were finalised. In the construction of the dock it was decided to erect a temporary cofferdam so that the dock could be built in the dry shelter provided (**Figure 28** in **Appendix 001**). However, due to numerous chalk faults deep in the chalk bed the dam continually failed. Eventually it was decided to remove the fault layer of chalk by means of a special dredger, enabling concrete blocks to be laid and allowing the drainage of the dock (Hasenson, 1980, p. 347).

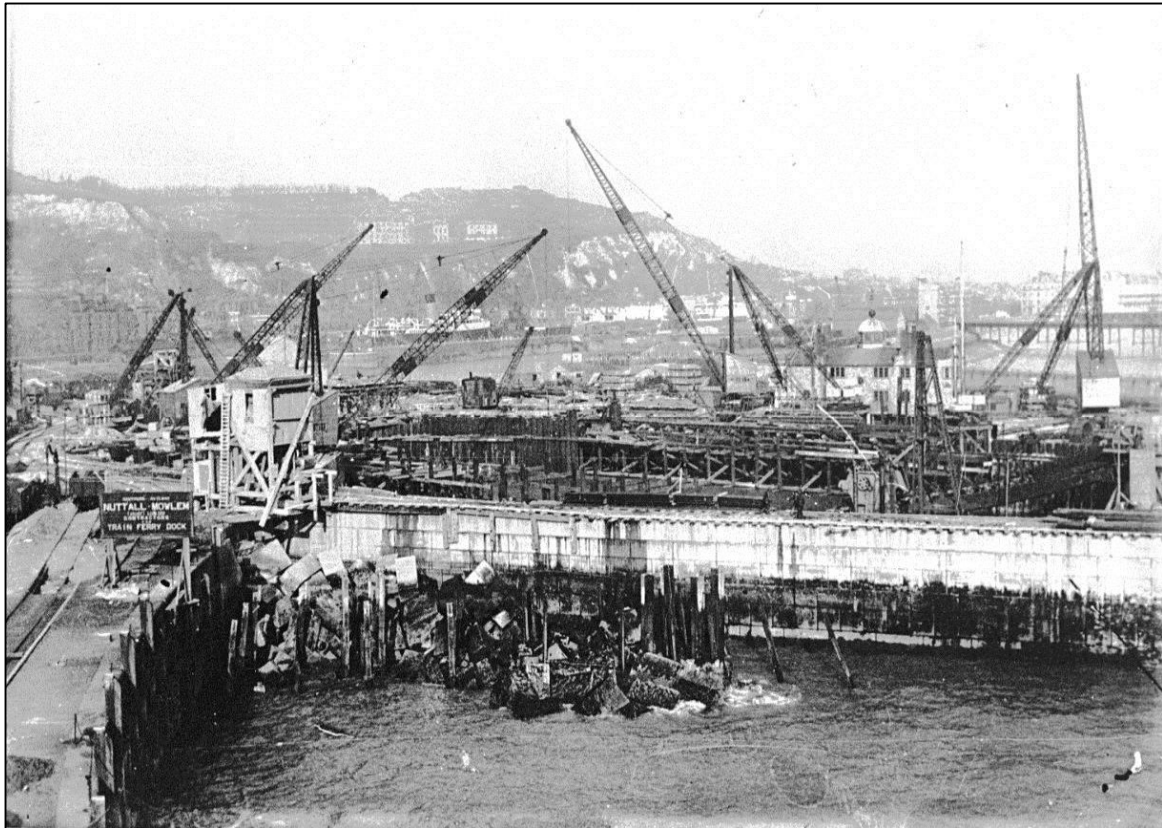


Plate 2: *Train Ferry Dock, c.1933, Dover Museum d02172.*

The electrically-controlled double gates to the dock were designed by leading Scottish civil engineers William Arrol and Sons and each weighed over 300 tonnes. These gates enabled the ferry to be levelled with the shore track, as the water within the dock was levelled by a system of pumps, allowing trains to run straight on board the ferries (a summary of the technical operation of the Train Ferry Dock can be found in section 5 of this study). This was a feature particular to the Train Ferry Dock at Dover due to the changing tides, a circumstance that did not occur at the train ferry on the River Stour at Richborough. The first portion of the gate was 'launched' on 22nd January 1936 and the second gate in July 1936 (The Dover Express and East Kent News, 24/01/1936, p. 9 and 03/07/1936, p. 13). Unfortunately no plans or drawings of the gates have been located to date, and this is an acknowledged gap in this record of the historical development of the Train Ferry Dock and Dunkirk Jetty.

Willam Arrol and Sons were also commissioned to install the train line that ran up to the Train Ferry Dock. This was built on 1.8 acres of the newly reclaimed land on the area of Clarence Quay. A photograph of the Train Ferry Dock from 1938 demonstrates how the link-span enabled these tracks to run straight onto the vessels (**Plate 3**).



Plate 3: *Unloading a Southern Railway Train Ferry Steamer, 1938, Dover Museum, E.A. Sweetman and Son d37649.*

The inauguration ceremony of the Train Ferry service between Dover and Dunkirk took place on the 12th October 1936, led by the French Ambassador M. Corbin (The Dover Express and East Kent News, 16/10/1936, p. 9) (**Plate 4**). The regular service of the 'Night Ferry' launched on the 14th October 1936 and was Britain's first international passenger sleeper service (Hasenson, 1980, p. 348).

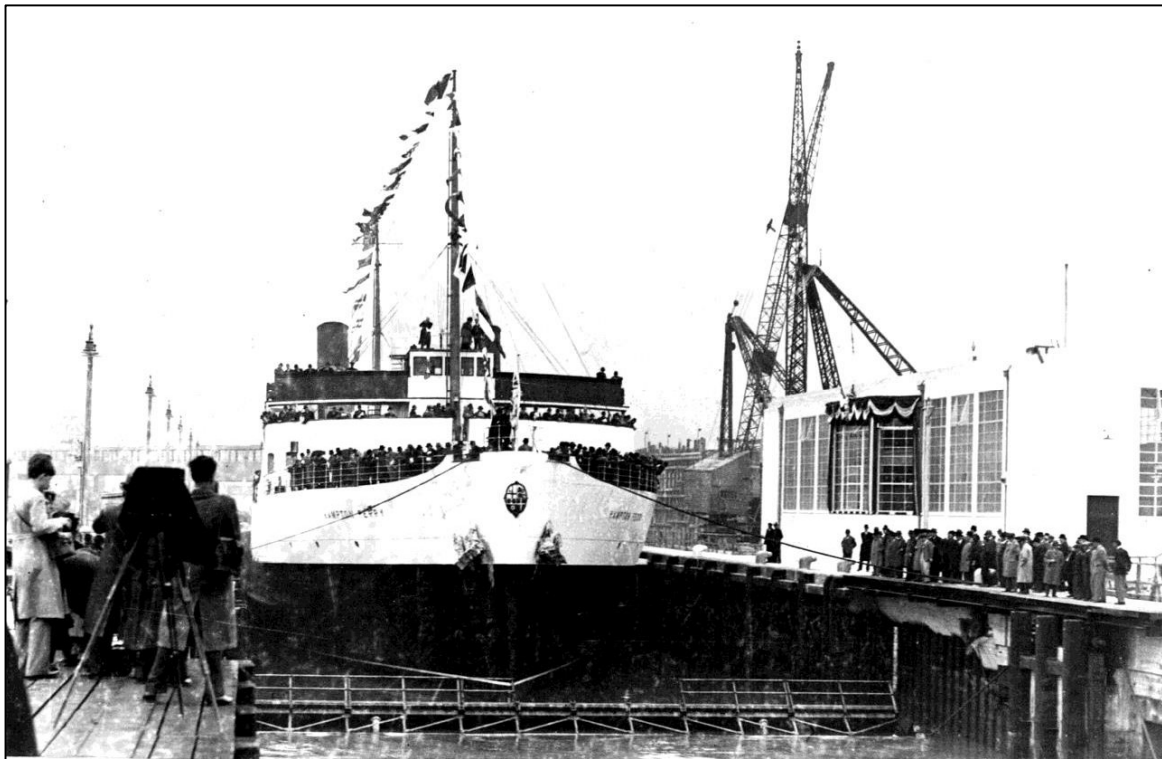


Plate 4: *Opening of the Train Ferry Dock by the French Ambassador, 1936, Dover Museum d35690.*

The 1945 Ordnance Survey map shows the newly complete Train Ferry Dock, Train Ferry jetty and the customs transit sheds (**Figure 29** in **Appendix 001**). This is also demonstrated by a photograph of the Train Ferry Dock, taken in 1938 (**Plate 5**). In comparing these two images, which both demonstrate the physical fabric as built, with the original plans it would seem to suggest the work was completed as intended.



Plate 5: *Western Dock: View of the Train Ferry Berth with the Berth Gates Open at High Tide 01/03/1938, DHB.*

During World War Two the Royal Navy took over two of Dover's ferry boats, the *Hampton* and *Shepperton Ferry*, and converted them into minelayers. The same two ships were also used to bring troops back from Dunkirk during Operation Dynamo (Hasenson, 1980, p. 356). The Train Ferry Dock and the ferry boats were also used to transport locomotives across to Europe, bringing supplies to fighting men and to give valuable help in the distribution of food, medical stores and coal following the liberation of Europe (The Dover Express and East Kent News, 11/05/1945, p.5). The ferry boats were also used to transport heavy artillery (**Plate 6**).

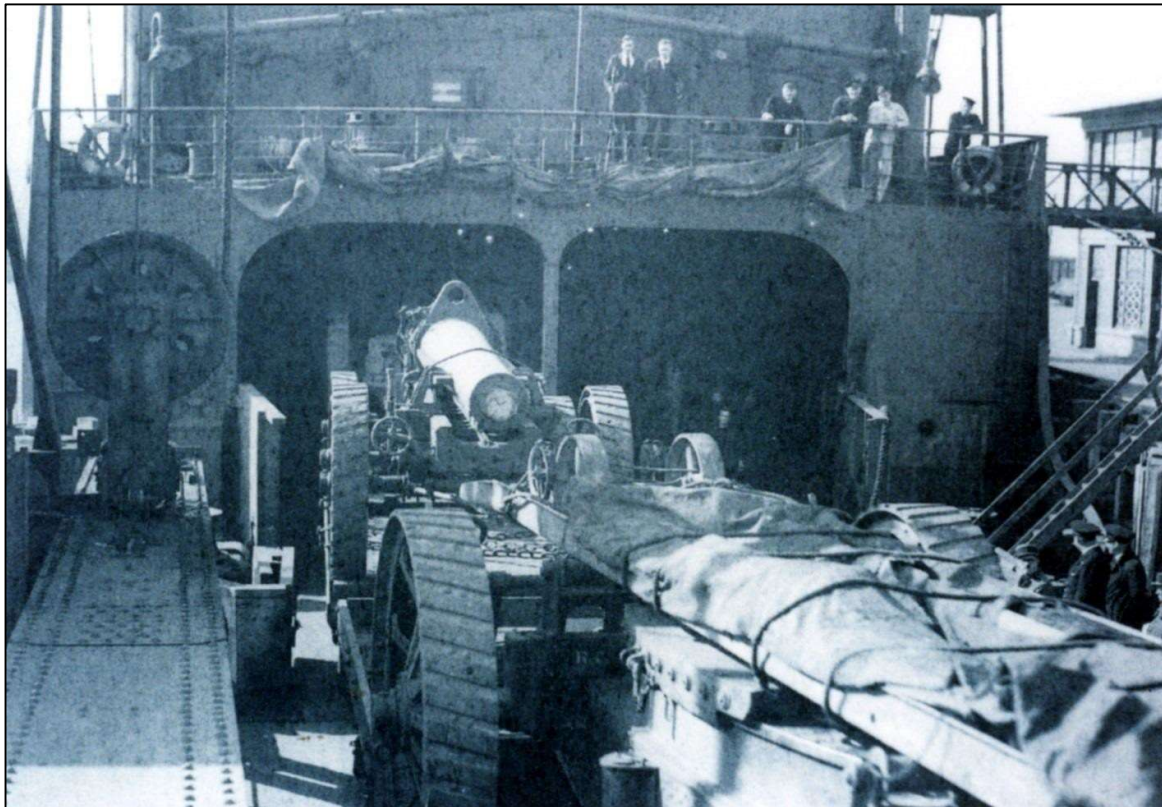


Plate 6: Train Ferry Carrying Heavy Artillery Equipment, c.1939, Dover Museum d43428.

In December 1947 the London to Paris 'Night Ferry' service was re-launched and the first return trip from Dunkirk was made. This meant that the ferry boats themselves were brought back into commercial use (The Dover Express and East Kent News, 19/12/1947, p. 4). A series of photographs show the Train Ferry Dock after the war (**Plates 7-14**).



Plate 7: *General View from the West of the Prince of Wales Pier, the Train Ferry Dock and Admiralty Pier, 1949, DHB.*



Plate 8: *General View from the West of the Prince of Wales Pier, the Train Ferry Dock and Admiralty Pier, 1949, DHB.*



Plate 9: *Western Docks: General View Overlooking the Inner Harbour at the Western Docks area, 1950, DHB.*

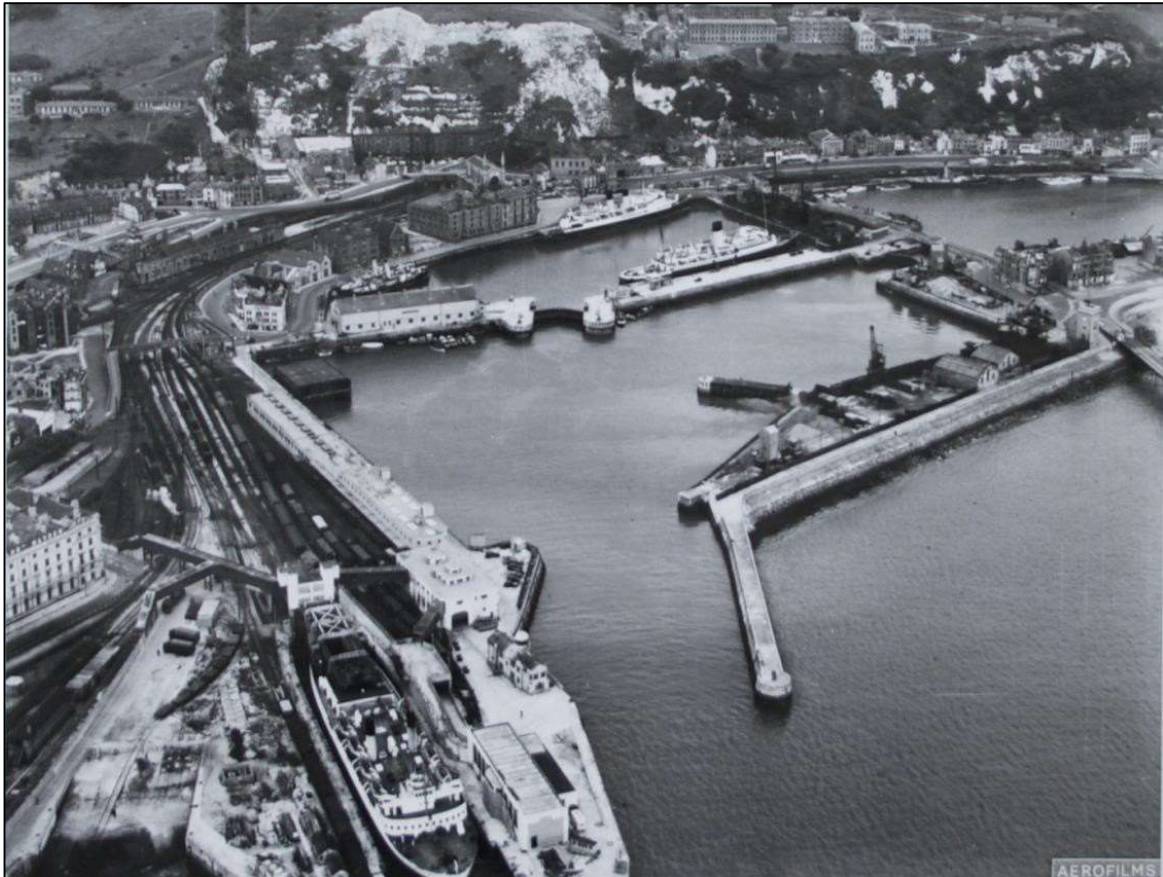


Plate 10: *Entrance to Western Docks, View of the Train Ferry Dock, Tidal Basin Entrance, The Granville and Waterloo Dock, 1950, DHB.*



Plate 11: *General View of the Admiralty Pier, Marine Station and the Train Ferry Berth, 1950, DHB.*

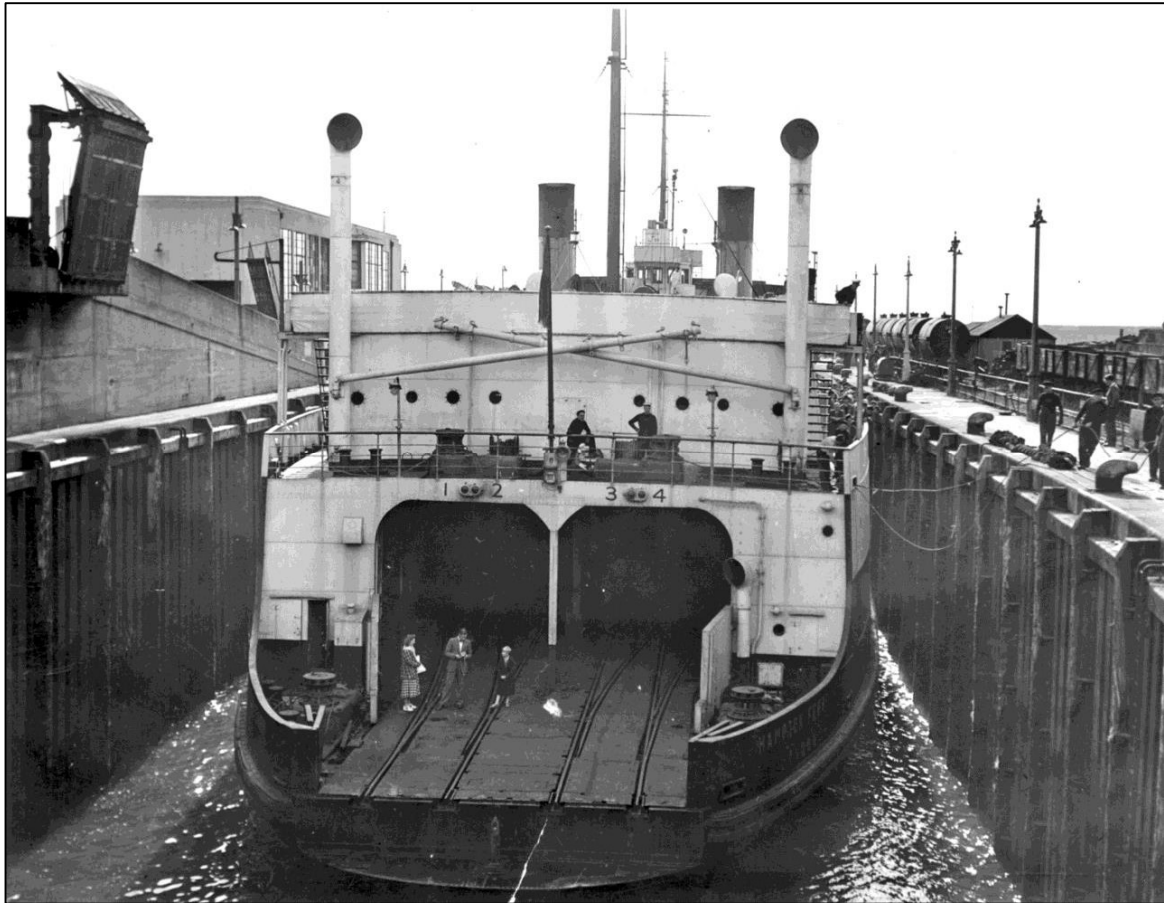


Plate 12: *British Railways, Hampton Train Ferry in the Dock at Dover, 1950, Dover Museum d43454.*

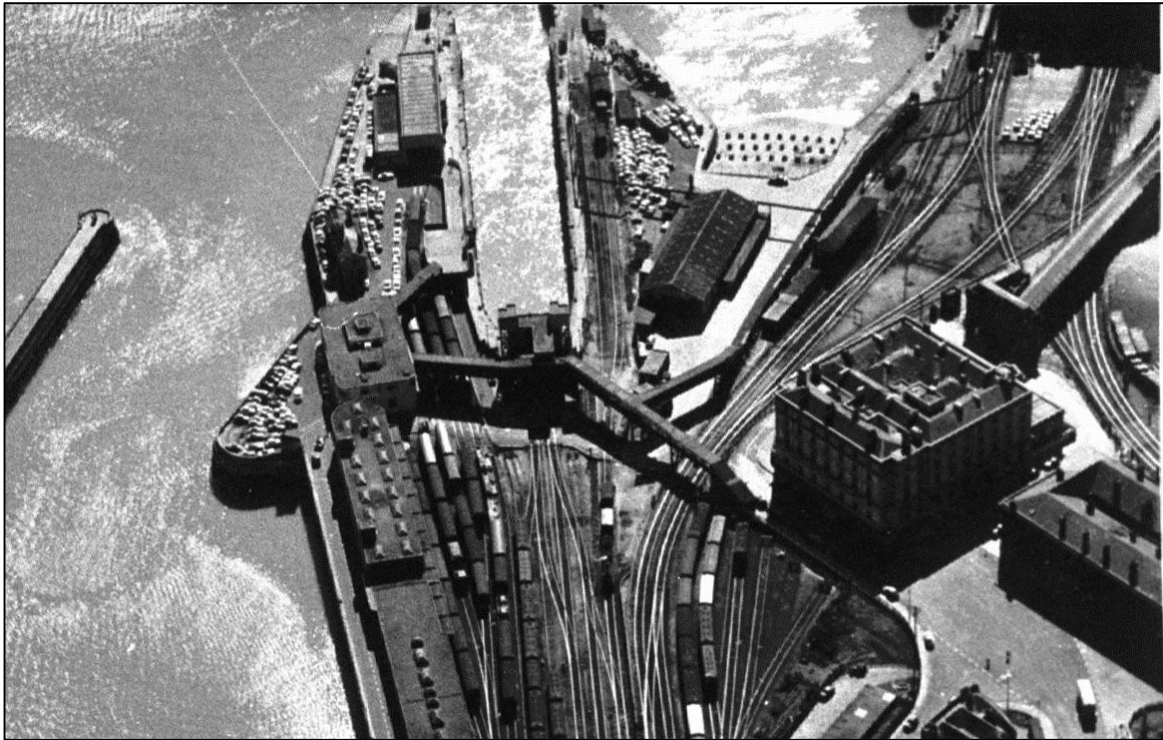


Plate 13: *Aerial View of Granville Dock and Pier District (detail from), Aug 1956, DHB.*

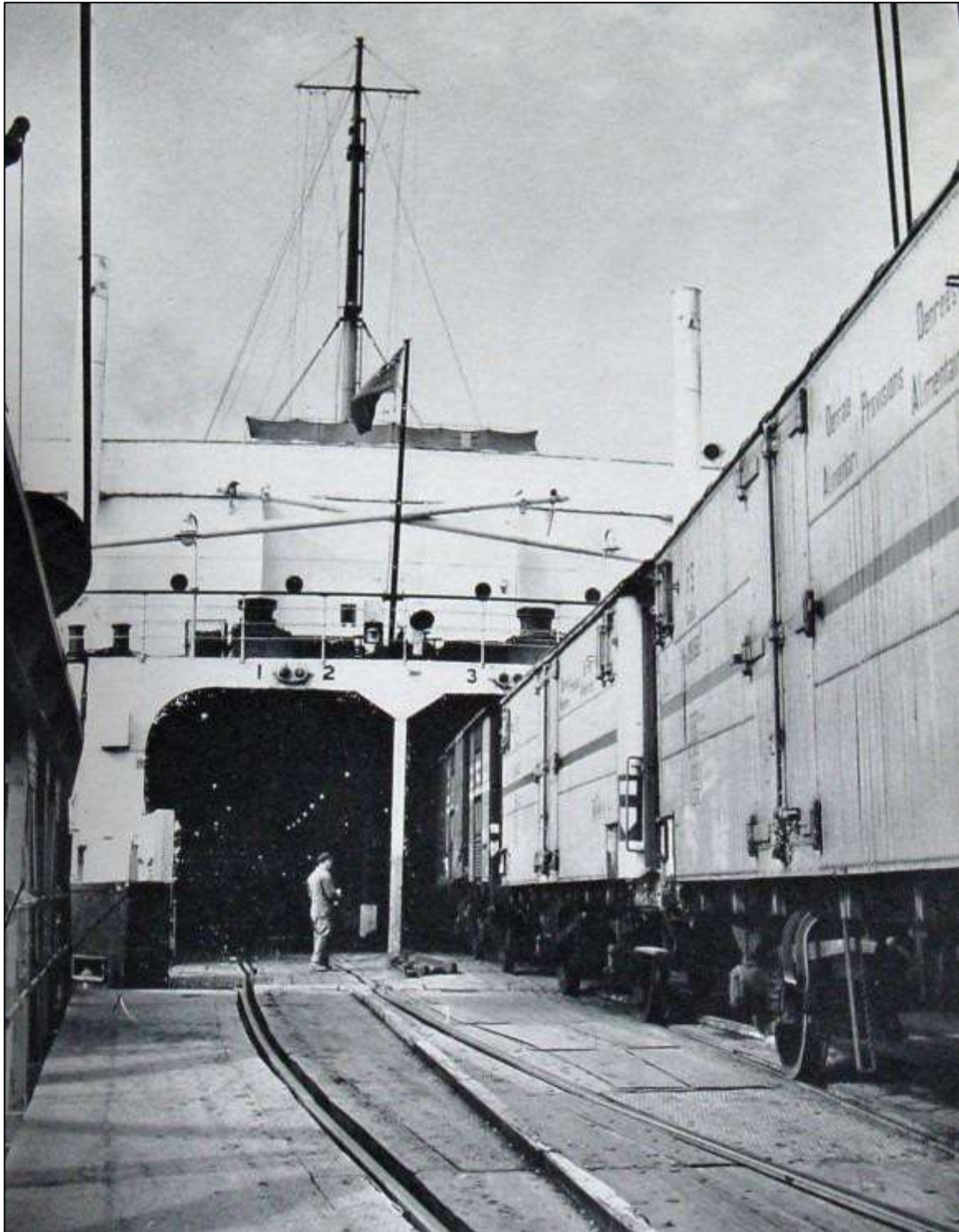


Plate 14: Train Ferry loading Goods Wagon, c.1960s, DHB.

The Dunkirk Jetty was widened in 1962, occurring alongside general harbour developments (DHB Drawings Office, 2006). The 'Night Ferry' service came to an end in October 1980 and the last train ferry service ran in May 1985. By this time it was considered outdated, old-fashioned in design and in need of considerable maintenance. The dock continued to be in limited use for freight services only (**Plate 15**).



Plate 15: 'Saint Germain' in the Train Ferry Dock, 04/05/1988, Dover Museum d47209.

In 1987 work began on establishing a new Train Ferry Dock on the Admiralty Pier itself, alongside the current site of Cruise Terminal 2. However, the introduction of the Channel Tunnel in 1994 meant these services were considered to be redundant only seven years later. The site of the original Train Ferry Dock was converted into an aggregates yard (DHB Drawings Office, 2006) (**Plate 16**). **Figure 30** in **Appendix 001** illustrates the site as built in 1993 before it was converted. When the site was converted the pump house and the car clearance shed were demolished. It is not known whether the below ground pump chambers, which allowed the water within the dock to be levelled, still survive (more information on the pump chambers can be found in section 5 of this study). No reports or drawings regarding the pump chambers have been located and this is an acknowledged gap in this record.



Plate 16: Wick Channel, Tidal Dock and Granville Dock looking north, c.2010, DHB.

5. Technical Operation of the Train Ferry Dock

An extensive description of the original technical operation of the dock can be found in The Dover Express and East Kent News, 16/10/1936. The following are extracts from this publication:

“Usually at ferry terminals where there is variation in the water level due to tidal action, a bridge of suitable length connects the ship with the shore, this bridge forming an inclined approach as the sea level varies with the state of the tide. At Dover the extreme variation between the highest and lowest water level is 25ft., and this would have necessitated that the length of such an inclined approach over which sleeping car trains could have passed would have been 500ft...

It was finally decided that the most suitable design would be to build an enclosed dock, the entrance to which could be opened or closed at will, in which to berth the ferry vessels.



Powerful pumps could then regulate the water level inside the dock so as to raise or lower the vessel to the requisite level in the shortest possible time...

The two most critical parts of the scheme were (1) the construction of the cill on which the dock gates were to be hinged, the foundations for which were 50ft. below high water level, and (2) the construction of the pump house, the foundations of the lowest floor of which were also about the same level as that of the cill foundations. For the formation of the dock cill, it was decided to construct and a specially designed steel pontoon of 1_1 shape, the two flap gates being hinged on either side of the lower horizontal base of the 1_1 pontoon and the gates, when in the vertical position, closing the open space between the two vertical sides of the 1_1. When in the horizontal position the gates lie flat on the dock bottom. The pontoon was built of steel plates and angles riveted together and very strongly braced. Over the vertical sides of the 1_1 there is a length of 91ft., a total height of 60ft., and a thickness of 29ft.: the whole of the interior of the pontoon was filled with concrete except for certain culverts and ducts, which were formed in the concrete for the accommodation of pipes and other gear. The pontoon was built on land in the vicinity and fitted with the massive cast steel gate hinges before being launched. It was then lowered into the sea, towed into its place and sunk between very carefully constructed guides to ensure that it would be finally in its exact position. So accurately was this work done that upon completion, although the pontoon weighed about 440 tons before being filled with concrete, it was within one-tenth of an inch of its correct position and level and no particular difficulties were encountered in placing the gates [each weighing some 300 tons] in their final positions in the hinges. It is needless to say that to accomplish such a feat, most precise engineering methods and careful surveying, as well as splendid work on the part of the steelworkers, and the divers who laid the foundations, were necessary...

Coming to the construction of the pump-house, it should be stated that three sets of vertical spindle centrifugal pumps have been installed, each of capacity of 230-h.p., and capable together of dealing with a maximum of 130,000 gallons of water a minute. In order to secure the greatest possible efficiency it is necessary that the pumps should be situated well below the lowest water level, and this involved constructing the pump chamber, 102ft. long by 42ft. wide, with the lowest floor 40ft. below high water level. It was also necessary that this chamber, which is in the enclosed area, should be constructed under water...

The upper portion of the pump-house took the form of a steel-framed building with brick walls and a steel roof, and provides accommodation for the pump motors, the whole of the highly elaborate electrical gear controlling the operation of the main and auxiliary pumps, the valves and the special electrical generators supplying the motors for the dock gate winches...



From the jetty the vessel will be warped through the open gates, which will be lying flat on the bottom of the dock, into the berth, after which the gates will be closed and the water raised or lowered to the required level by the means of the pumps. When the vessel is at the required level connection will be made to it at the inner end of the dock by means of a bridge 70ft. long. This bridge will normally be approximately level, but as loading and unloading of the trains on to the vessel takes place there will, naturally, be some tilting both longitudinally and sideways of the vessel. The bridge is a completely articulated structure [by being constructed on a pivot], being so constructed in order to take up any difference in level caused by this tilting, and it can be raised clear of the vessel when necessary. A massive steel pin at the end of the vessel will enter a recess which has been formed in the bridge, thus securing it during the operation of loading and unloading...

Cars will be housed in transit in a large garage on the upper deck, into which they will be driven by way of an inclined approach road from the quay level..."

6. Current Condition

In 2012 Dover Harbour Board commissioned Atkins Limited to conduct an inspection and structural appraisal of the marina walls located in the Western Docks. The resulting Asset Management Structural Integrity Surveys (AMSIS) were completed in January 2014 and provide the most recent condition appraisal of all Western Dock marina walls. Information from the AMSIS reports (Atkins, 2014a, 2014b) has been combined with recent photographs and information collected during site visits by DHB staff to provide an overview of the nature and extent of the current structures and their overall condition.

Plates 17-38 demonstrate the current form of the Train Ferry Dock and Dunkirk Jetty through photographs from the AMSIS surveys (Atkins, 2014a, 2014b), photographs taken by DHB as part of the Level 1 Heritage Recording (Dover Harbour Board, 2016a, 2016b) and additional photographs taken by DHB for the purpose of this study. The location and direction from which these photographs have been taken can be found in **Figure 31** in **Appendix 001**. Atkins Limited also completed waterline video inspections in 2013 for the Train Ferry Dock and Dunkirk Jetty.

The AMSIS reports (Atkins, 2014a, 2014b) provide a detailed description of the construction details of the Train Ferry Dock and Dunkirk Jetty derived from site observations and archive drawings provided to Atkins by DHB. These drawings are included in **Appendix 001** as follows:



DHB Dwg No	Description	Author	Date	App 001 Fig No
3773	DOVER HARBOUR TRAIN FERRY DOCK PLAN	UNKNOWN	24.01.1934	12
3775	DOVER HARBOUR TRAIN FERRY DOCK SUGGESTED LAYOUT FOR TRAIN FERRY TRAFFIC	UNKNOWN	24.01.1934	13
3776	DOVER HARBOUR TRAIN FERRY DOCK PLAN OF PROPOSED WORKS	UNKNOWN	24.01.1934	14
3777	DOVER HARBOUR TRAIN FERRY DOCK PLAN	UNKNOWN	28.06.1933	15
3778	DOVER HARBOUR TRAIN FERRY DOCK PLAN	UNKNOWN	28.06.1933	16
3779	DOVER HARBOUR TRAIN FERRY DOCK DETAILED PLAN	UNKNOWN	08.09.1934	17
3780	DOVER HARBOUR TRAIN FERRY DOCK DETAILED PLAN	UNKNOWN	08.09.1934	18
4356	DOVER HARBOUR TRAIN FERRY DOCK GENERAL PLAN	UNKNOWN	XX.XX.1914	10
4357	DOVER HARBOUR TRAIN FERRY DOCK PLAN OF PROPOSED COFFERDAM	UNKNOWN	UNKNOWN	28
4358	DOVER HARBOUR TRAIN FERRY DOCK PLAN	UNKNOWN	24.01.1931	19
6836	DOVER HARBOUR TRAIN FERRY DOCK PLAN AND SECTIONS	UNKNOWN	24.01.1934	20
6837	DOVER HARBOUR TRAIN FERRY DOCK DETAILED PLAN	UNKNOWN	31.07.1934	22
9322	DOVER HARBOUR TRAIN FERRY DOCK DETAIL OF MODIFICATION TO PIERS	SOUTHERN RAILWAY	XX.05.1935	23
9323	DOVER HARBOUR TRAIN FERRY DOCK GENERAL DETAILS	SOUTHERN RAILWAY	XX.07.1935	24
9324	DOVER HARBOUR TRAIN FERRY DOCK ALTERATION TO JETTY FENDERING	SOUTHERN RAILWAY	XX.09.1935	25
9326	DOVER HARBOUR TRAIN FERRY DOCK STEELWORK AT WEST END	SOUTHERN RAILWAY	XX.09.1935	26
9327	DOVER HARBOUR TRAIN FERRY DOCK WEST END OF JETTY	SOUTHERN RAILWAY	XX.09.1935	27
9331	DOVER HARBOUR TRAIN FERRY DOCK AREA AVAILABLE FOR WAVE ABSORBER	UNKNOWN	29.06.1962	21
15841	DOVER HARBOUR TRAIN FERRY DOCK WAVE ABSORBING WALL	UNKNOWN	03.12.1975	32
24786	DOVER HARBOUR TRAIN FERRY DOCK AS BUILT SITE PLAN	READY MIX CONCRETE (UK) LTD	XX.07.1993	30



6.1 Dunkirk Jetty

Atkins (2014a: 6) describe the construction of Dunkirk Jetty as follows:

The structure consists of 16 mass concrete piers of steel sheet pile caisson construction. The piles were driven into the dredged seabed and tied at two levels. The caissons were then filled with mass concrete and mass concrete cells cast above. These cells in-turn support a reinforced concrete deck with in-situ edge beams on either side, forming 15 link bridges between supports. At the landward end of the structure, Pier 1 was constructed with three tied caissons whilst all other piers were formed with one.

In the spans between Piers 1 and 5 there is concrete encased bracing at two levels; beneath the soffit of the deck and at the top of the steel sheet piling. From Pier 5 to the seaward end, the structure was modified during construction; the volume of concrete in the cells was reduced by forming a recess in the centre of each pier and the bracing which is included between Piers 1 and 5 is no longer present.

There are horizontal precast concrete struts at two levels on both sides of the jetty which appear to have been used for a now redundant system of fenders. On the northern elevation there are a number of post-construction additions including a mono-pile with donut fender and three large fender panels.

General views of the jetty along the northern (**Plate 17**) and southern (**Plates 18 and 19**) sides are shown below.



Plate 17: General view of Dunkirk Jetty, 2014, Atkins 2014a: 3. The Train Ferry Dock is located to the rear of the picture between Dunkirk Jetty and South Pier.



Plate 18: Dunkirk Jetty from South Pier, looking south, 25/01/2016, DHB 2016a: 214.

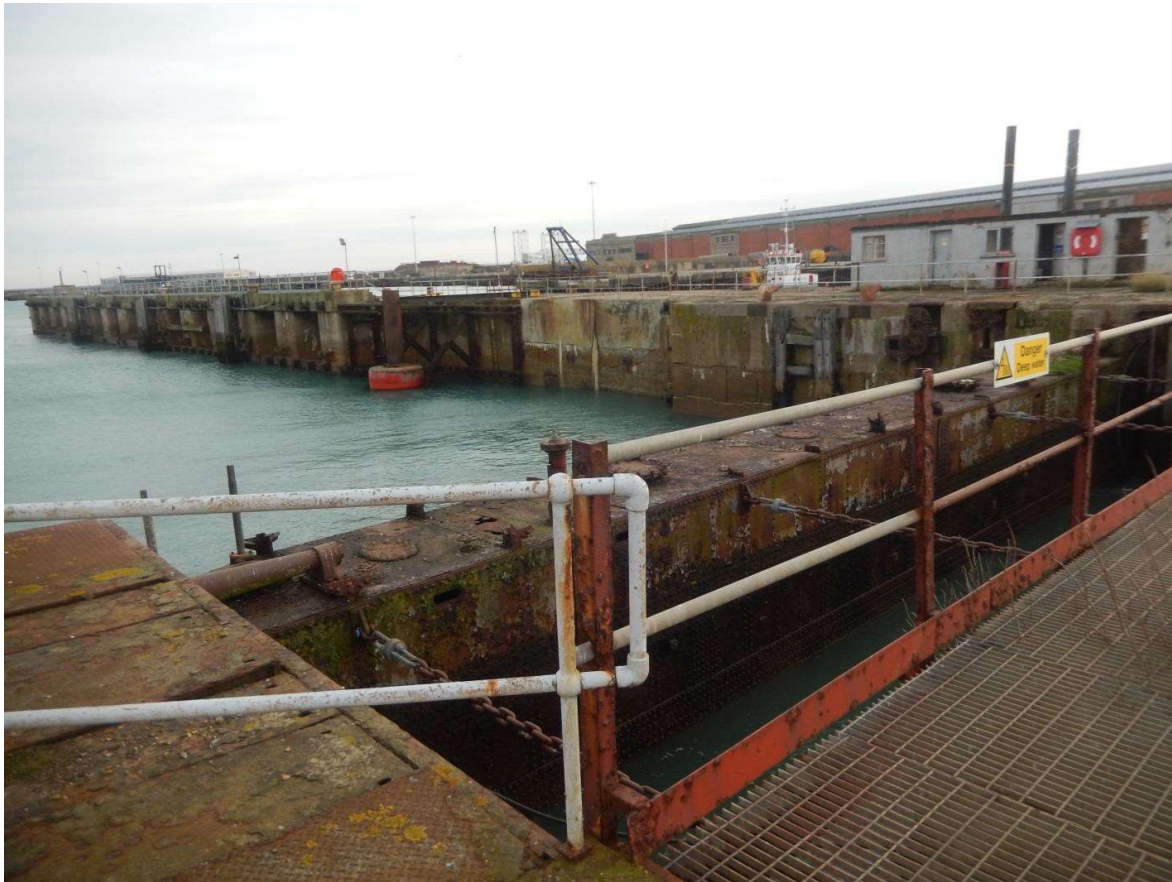


Plate 19: Dunkirk Jetty from Train Ferry Dock Gates, looking south, 16/11/2016, DHB.

The topside of the structure was found to be in generally fair condition with furniture on the structure (the bollards, handrails and safety ladders) also in fair condition (Atkins, 2014a) (**Plate 20**). The deck level is recorded at 10.47 to 10.62m above Chart Datum (ACD) (6.8m to 6.95m above Ordnance Datum (AOD)) and throughout most of the length of the jetty there is a disused railway set in the concrete deck (**Plate 20**). There is a modern brick building at the landward end of the jetty, adjacent to the Train Ferry Dock gates (**Plate 21** and **Plate 22**) and a further, small brick built structure with a rendered facade near the seaward end of the jetty (**Plate 23**).



Plate 20: Dunkirk Jetty looking west, 25/01/2016, DHB 2016a: 66.



Plate 21: Overall view of Dunkirk Jetty, looking north-east from aggregates yard, 25/01/2016, DHB 2016a: 182.



Plate 22: Building at landward end of jetty 25/01/2016, DHB 2016a: 160.



Plate 23: *Small building at end of jetty 25/01/2016, DHB 2016a: 41.*

Above the waterline, the elevations of the structure are in generally fair condition (2014a). At the landward end of the jetty the structure is of block work quay wall construction but this changes c. 3m along to steel sheet piles with mass concrete (**Plate 24** and **Plate 25**). Steel beams fixed to the quay wall form part of a partially removed steel framework (**Plate 26**). The end of the jetty and southern side are shown in **Plate 27** and **Plate 28**.



Plate 24: *Change in construction at landward end of jetty (northern side), 2014, Atkins 2014a: 17.*



Plate 25: *Change in construction at landward end of jetty (southern side), 2014, Atkins 2014a: 27.*



Plate 26: *Ladder and partially removed steel framework 23/11/15, DHB 2016a: 3.*

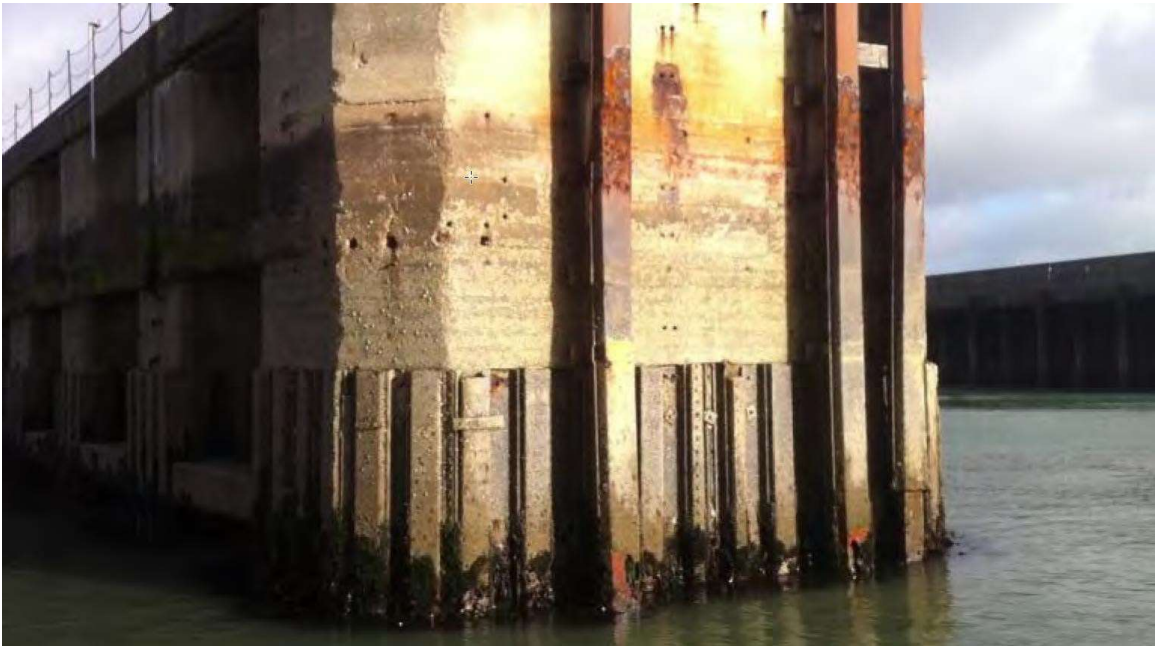


Plate 27: *End of jetty at the waterline, looking north west, 2014, Atkins 2014a: 21.*



Plate 28: Southern side of the jetty, looking west, 2014, Atkins 2014a: 22.

6.2 Train Ferry Dock

The Train Ferry Dock consists of a typical stepped inside face and vertical outside face (**Plate 29**) which formed part of the working dock area. The AMSIS report notes that initially the blocks are keyed and after a change in orientation the blocks are plain (**Plate 30**) (Atkins, 2014b). The dock has subsequently been infilled and the site has since been in use by a third party as an aggregates yard. When the site was infilled the dock gates were left raised *in situ*.

The topside of the structure (i.e. at the landward end of Dunkirk Jetty) was found to be in generally fair condition (Atkins, 2014b) with furniture on the structure (bollards, handrails and safety ladders) also seen to be in fair condition. The cope level of the concrete block is recorded at 10.3 metres ACD (6.63 metres AOD).



Plate 29: South site, external vertical wall of the Train Ferry Dock with 'wavebreaker toe' to the rear, looking west, 2014, Atkins 2014b: 3.



Plate 30: South site, external vertical wall of the Train Ferry Dock at change in orientation and change from keyed to plain blocks, 2014, Atkins 2014b: 16.

Between the concrete block wall and Admiralty Pier there is the concrete slipway known as Wavebreaker Toe consisting of an inclined slab with wave breaker units fixed to the surface (**Plate 31**) (Atkins, 2014b). These correspond to the wave breakers or anti-tank 'pimples' described in **Section 4** above and shown on plans of the dock (**Figure 21** in **Appendix 001**).

The report records widespread damage to the concrete slab of the wave breaker slipway, predominately in the intertidal zone (Atkins, 2014b). The height of the slipway is recorded as 7.4m ACD (3.73 m AOD) at the position of Highest Astronomical Tide and 0.2m ACD (-3.47m AOD).

The Train Ferry Dock gates are not recorded in the AMSIS report but the structure is shown in photographs acquired by DHB as part of the Level 1 Heritage Recording (Dover Harbour Board, 2016a). A selection of these photographs has been included as **Plates 32** to **Plate 37**.



Plate 31: Wavebreaker Toe concrete slipway, with wave breaker units or anti-tank 'pimples', 2014, Atkins 2014b: 21.



Plate 32: Train Ferry Dock Gates, looking north-east, 25/01/2016, DHB 2016a: 197.



Plate 33: *Detail of Train Ferry Dock Gates, looking north, 25/01/2016, DHB 2016a: 198.*



Plate 34: *Detail of Train Ferry Dock Gates, looking east, 25/01/2016, DHB 2016a: 200.*



Plate 35: *Detail of Train Ferry Dock Gates, looking south-west, 25/01/2016, DHB 2016a: 206.*



Plate 36: *Train Ferry Dock Gates, looking west, 23/11/2015, DHB 2016b: 75.*



Plate 37: *Detail of Train Ferry Dock Gates, looking west, 23/11/2015, DHB 2016b: 72.*



Plate 38: View of Train Ferry Dock Gates from Dunkirk Jetty, looking west, 16/11/2016, DHB.

7. Conclusions and Recommendations

This desktop study details the development of this area known as the Train Ferry Dock and Dunkirk jetty from its earliest origins in the sixteenth century to the present day. This provides a detailed historic record ahead of planned reclamation and demolition works. Although these structures are of historic importance they are not under any statutory listing designation, and the works do not require Listed Buildings consent.

In December 2009 the decision was made by English Heritage to not list the South Pier, Dunkirk Jetty and associated structures. The structures were not recommended for statutory designation for the following reasons:

- Although a pier in the approximate position of South Pier is shown on historic



- maps from 1595 onwards the present structure is entirely encased in concrete or wooden piles dating from 1908 and later and has lost its end lighthouse.
- The concrete 1930s Train Ferry Dock with cast iron sides has some historical interest as the first international passenger sleeper service in Britain started here in 1936 but it does not demonstrate technological innovation.
 - The 1930s train ferry jetty, later called Dunkirk Jetty is a concrete structure which does not demonstrate technological innovation.
 - The concrete wave breakers are similar to Second World War tank traps but not as impressive as the best of these (English Heritage Advice Report, Case UID: 168464, 24/12/2009).

Based upon the significance of the structures as set out in the listing recommendations, the level of existing information as presented through this desktop study is expected to be sufficient to provide a record of the impacted structures prior to the commencement of works. In order to provide a further visual record, physical demarcation of the outline of historic structures, such as the Prince of Wales Pier and the infilled historic docks, has been considered in the design planning for DWDR (**Figure 33 in Appendix 001**).

The Heritage Steering Group has been consulted in the completion of this study and their recommendations included. Ultimately this Desktop Study will form part of the DWDR archive and will be made publically available.



8. References

Archaeological Data Service (2016). Defence of Britain Archive. Site reference: S0009252.

[Online] available at:

http://archaeologydataservice.ac.uk/archives/view/dob/ai_full_r.cfm?refno=9252 [Accessed 01 October. 2016].

Atkins (2014a). Dover Harbour Board Asset Management Structural Integrity Surveys. Dunkirk Jetty - PIER10. Unpublished report reference: 5116154/072/DG/154.

Atkins (2014b). Dover Harbour Board Asset Management Structural Integrity Surveys. Train Ferry Dock, Including Wavebreaker Toe - QUAY044, DOCK05. Unpublished report reference: 5116154/072/DG/160.

CIfA (2014). Standard and Guidance for the archaeological investigation and recording of standing buildings or structures. [Online] available at:

www.archaeologists.net/sites/default/files/CIfAS&GBuildings_1.pdf [Accessed 19 May. 2016].

Dover Harbour Board Drawings Office (2006). Reclamation History of the Western Docks. [Accessed 5 Feb. 2016].

Dover Harbour Board (2016a). TFD & Dunkirk Jetty Heritage Recording Level 1 Report. Appendix 005 -TFD & DJ Heritage Recording Photograph Zones 000-004. Unpublished report.

Dover Harbour Board (2016b). Wick Channel Heritage Recording Level 1 Report. Appendix 004 – Wick Channel Heritage Recording Photograph Photo Sets 001-008. Unpublished report.

Elson, G. (1937). Train Ferry Dock. *Journal of Institute of Civil Engineers vol. 7*.

English Heritage Advice Report, Case UID: 168464, 24/12/2009.

English Heritage (2006). Understanding Historic Buildings: A guide to good recording practice (updated 2016) [Online] available at: <https://content.historicengland.org.uk/images-books/publications/understanding-historic-buildings/heag099-understanding-historic-buildings.pdf> [Accessed 27 May. 2016].

Hasenson, A. (1980). The History of Dover Harbour. London: Aurum Special Editions.

Historic England (2016). Train Ferry Berth. [Online] available at: <https://historicengland.org.uk/listing/the-list/list-entry/1187897> [Accessed 8 Jun. 2016].

Leach, D. (2006). Dover Harbour Royal Gateway. Dover: Riverdale Publications.



Royal Haskoning DHV (2015) Dover Western Docks Revival: Combined Written Scheme of Investigation for Programme of Archaeological Investigation Works. Unpublished report reference: PB1552/R/304408/Lond.

The Dover Express and East Kent News, 04/08/1933.

The Dover Express and East Kent News, 06/10/1933.

The Dover Express and East Kent News, 24/01/1936.

The Dover Express and East Kent News, 03/07/1936.

The Dover Express and East Kent News, 16/10/1936.

The Dover Express and East Kent News, 11/05/1945.

The Dover Express and East Kent News, 19/12/1947.

Whiteside, T. (1962). The Tunnel Under the Channel. New York: Simon & Schuster.

9. Appendices

9.1 Appendix 001 – Figures

APPENDIX 001 – FIGURES

**This document is to be read in conjunction with the Train Ferry
Dock and Dunkirk Jetty Desktop Study**

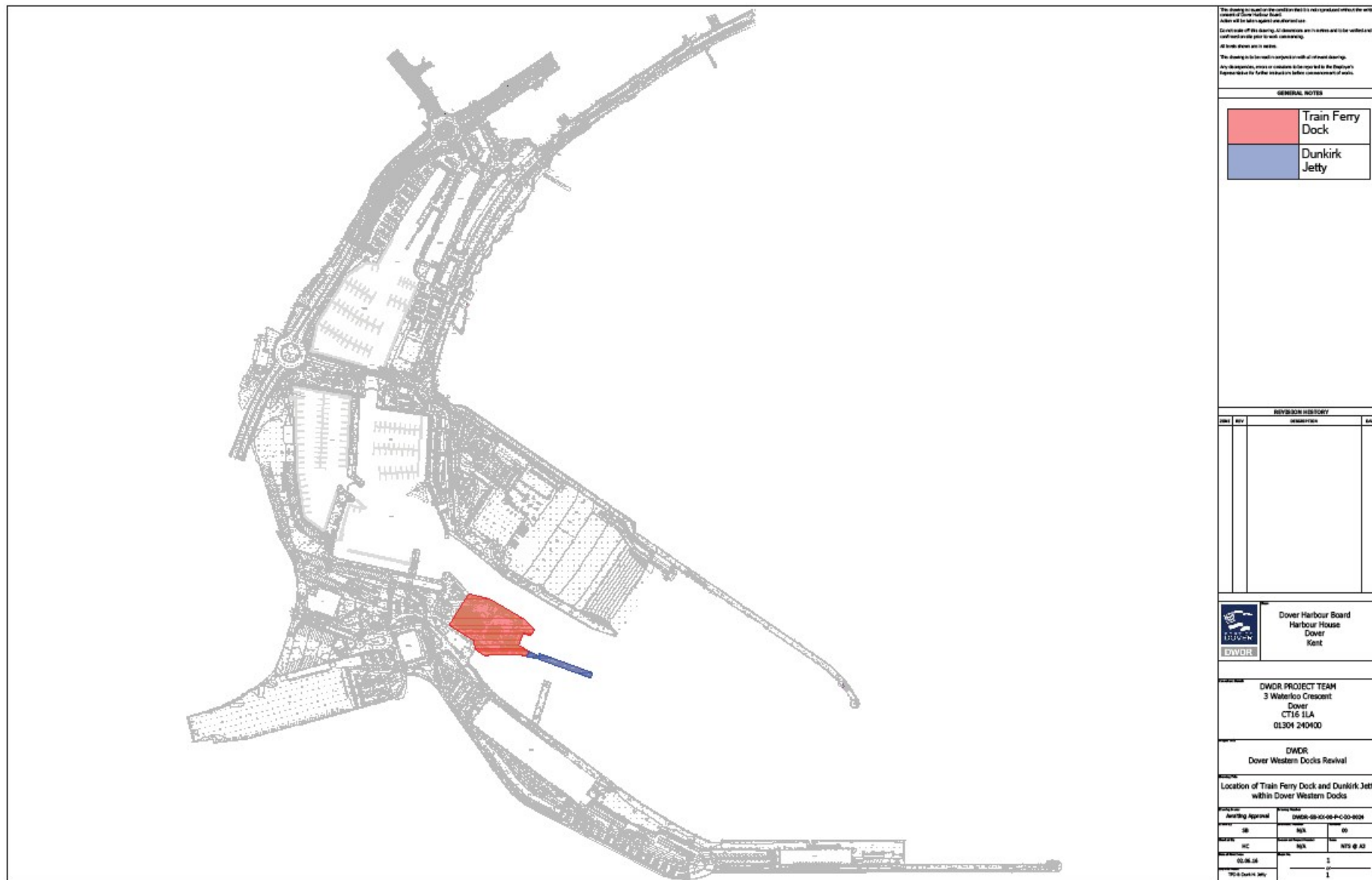


Figure 1: Location of the Train Ferry Dock (red) and Dunkirk Jetty (blue), 2016, DWDR.

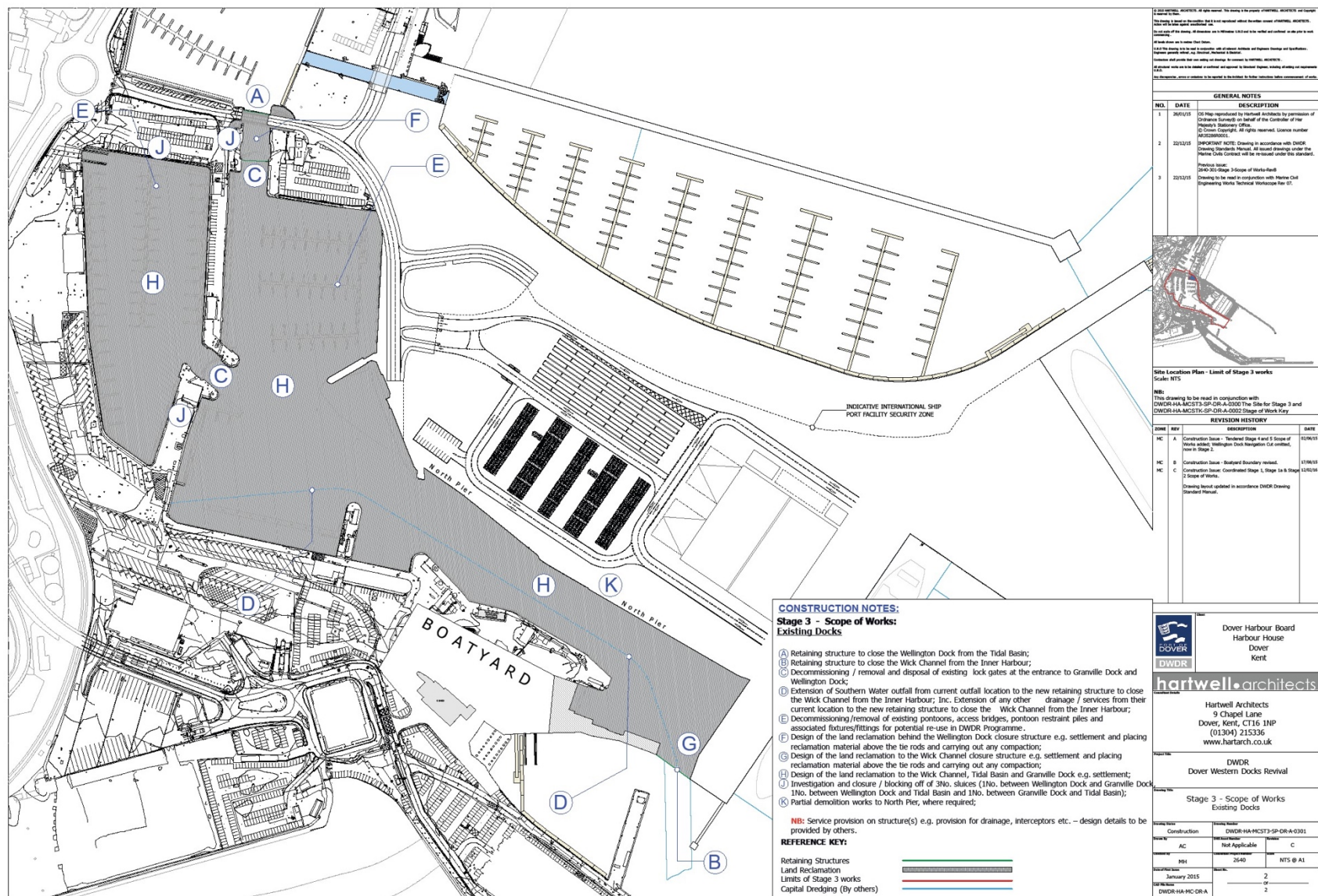
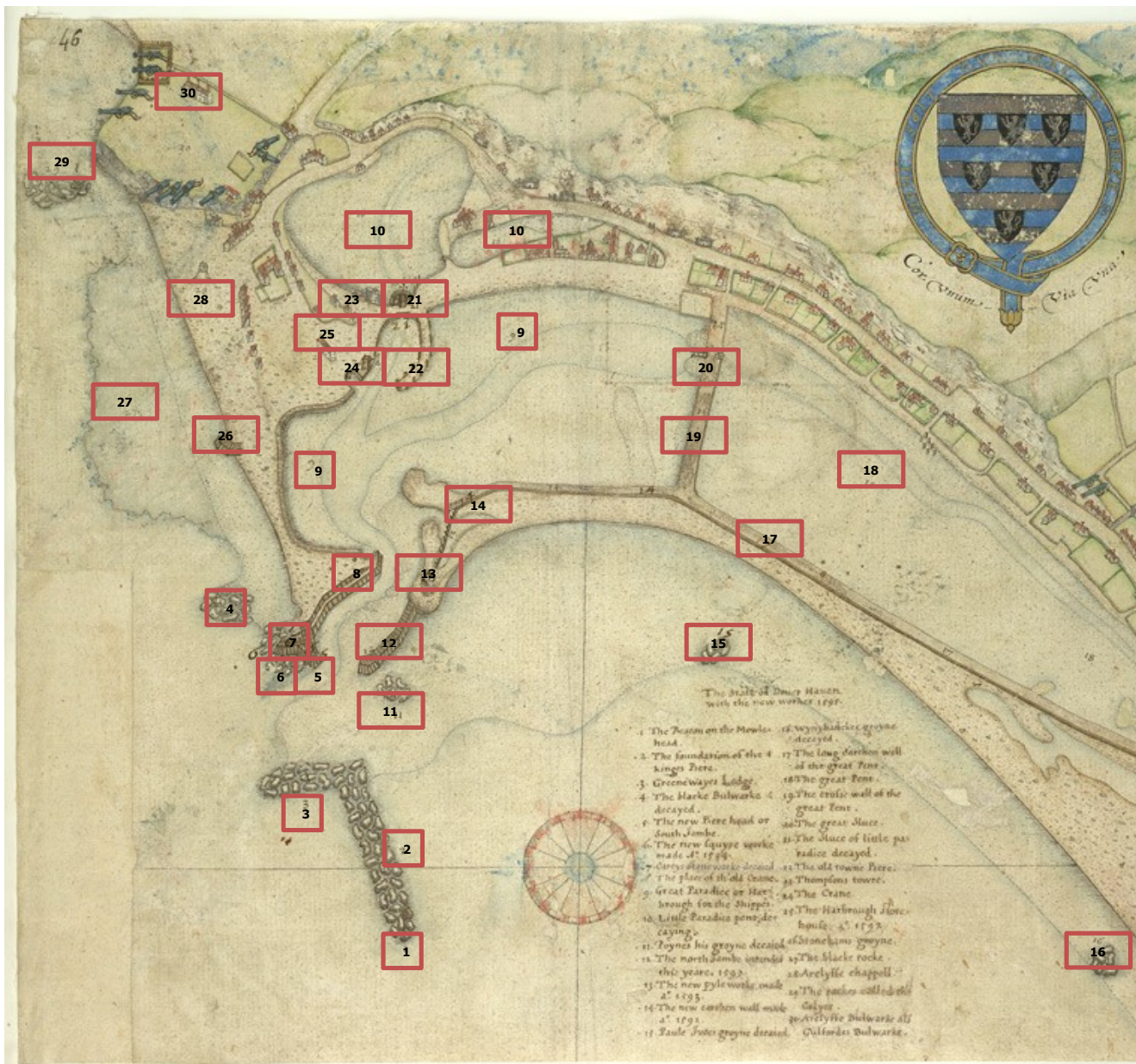


Figure 3: Scope of Works for DWDR Stage Three, 2015, DWDR.



Figure 4: State of Dover Haven by Thomas Digges, 1595, © The British Library Board, Cotton Augustus I.i, f.4.



The State of Dover Haven with the new works 1595

1. The Beacon on the Mowles head
2. The foundation of the Kinges Piere
3. Greenwayes Lodge
4. The black Bulwarke decayed
5. The new Piere head or South Jambe
6. The new Squyre worke made anno 1594
7. Careys stoneworke decayed
8. The place of th'old Crane
9. Great Paradiſe or Har-brough for the Shippes
10. Little Paradiſe pent, de-caying
11. Poynes his groyne decayed
12. The north jambe intended this yeare, 1593
13. The new pyle worke made anno 1593
14. The new earthern wall made anno 1593
15. Paule Ives groyne decayed
16. Wynybarickes groyne decayed
17. The Long earther wall of the great Pent
18. The great Pent
19. The crosse wall of the great Pent
20. The great Sluce
21. The Sluce of the little paradiſe decayed
22. The old towne Piere
23. Thompſons Towre
24. The Crane
25. The Harbrough ſtore houſe anno 1592
26. Stonehams groyne
27. The blacke rocke
28. Arclyffe chappell
29. The rockes called the Colyer
30. Arclyffe Bulwarke ats Gulfordes Bulwarke

Figure 4 (annotated).



Figure 5: *The Haven of Dover by Vincent the King's Painter (detail from), c.1520-1530, Kent History and Library Centre DHB/P141/1.*



Figure 6: The Platt of Dover Castel Towne and Harbor by William Eldred, 1641, DHB Historical Drawings Archive.

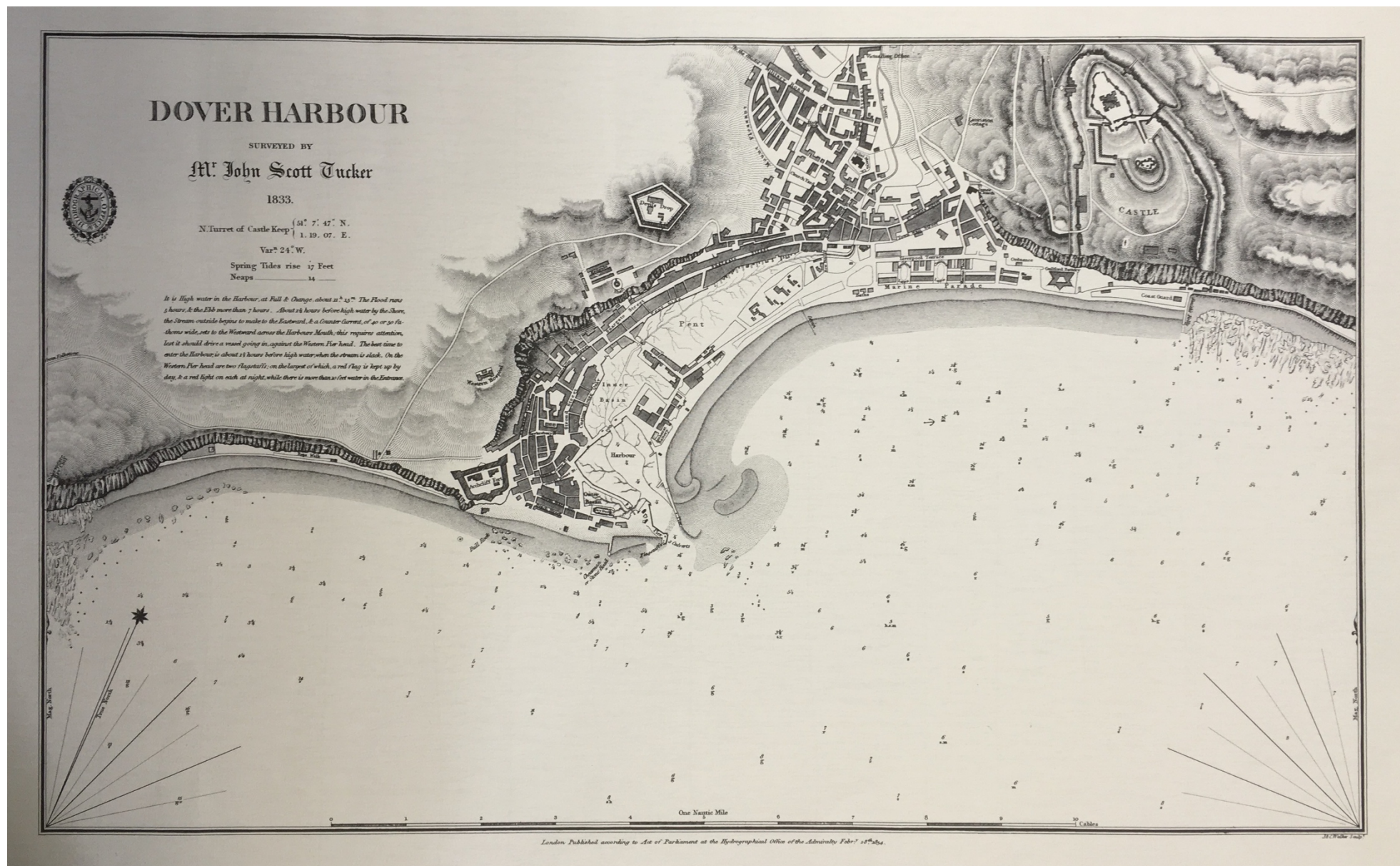


Figure 7: Dover Harbour Surveyed by Mr John Scott Tucker, 1833, DHB Historical Drawings Archive.

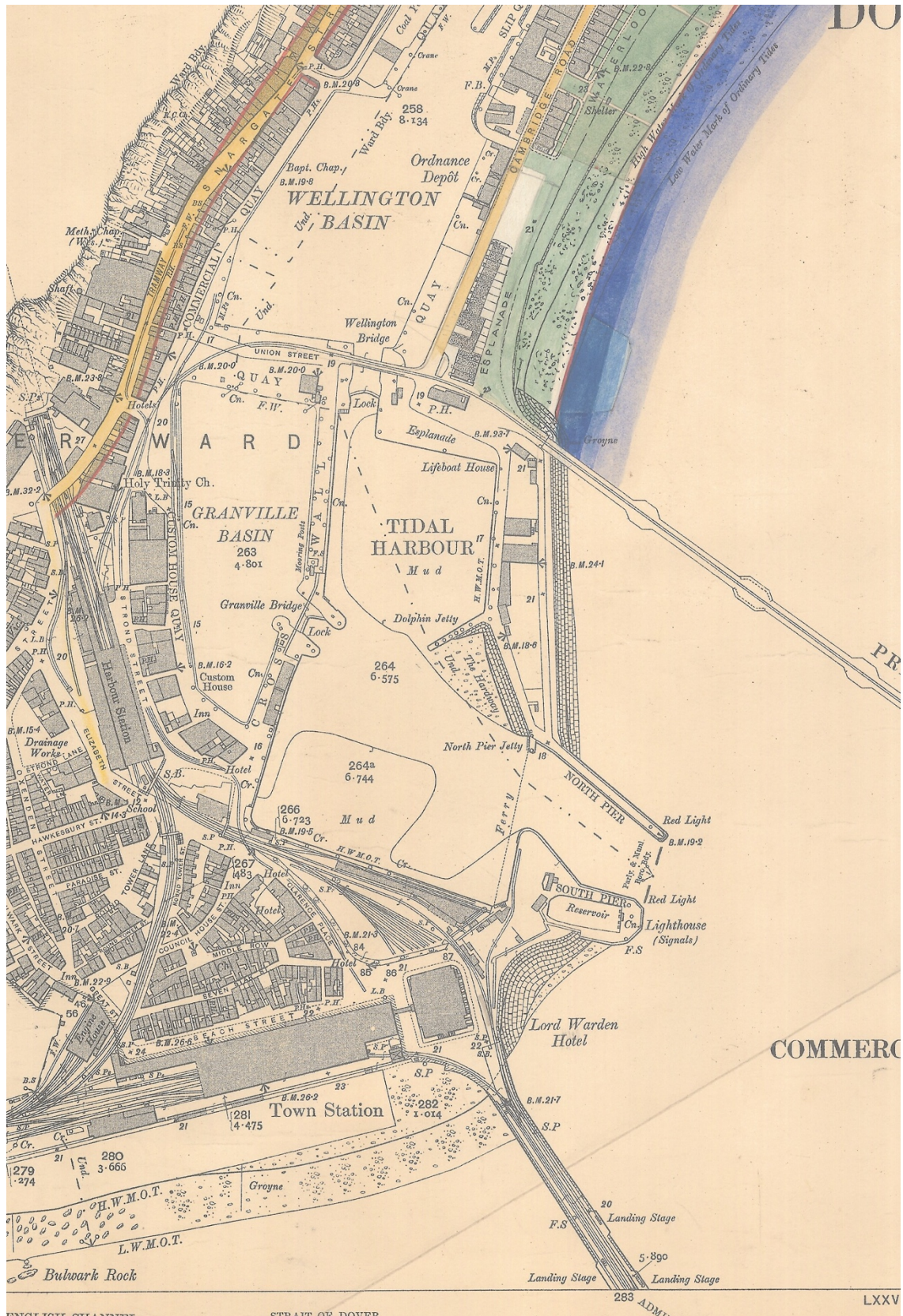


Figure 8: Dover Division Ordnance Survey Map Surveyed 1858, revised 1906, 1907 (detail from), DHB Historical Drawings Archive.

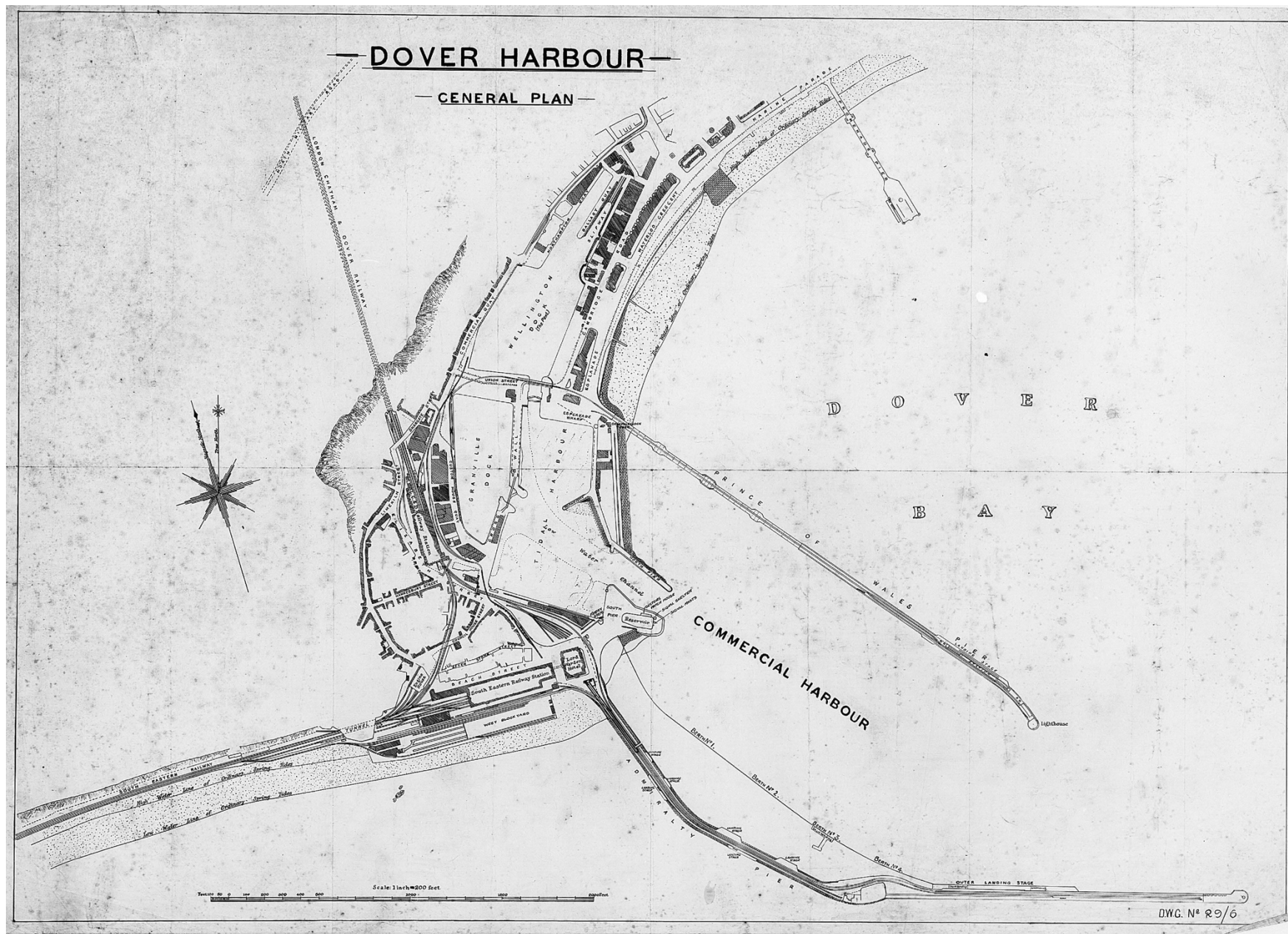


Figure 10: Dover Harbour Western Docks General Plan, 1914, DHB Historical Drawings Archive Ref: 4356).

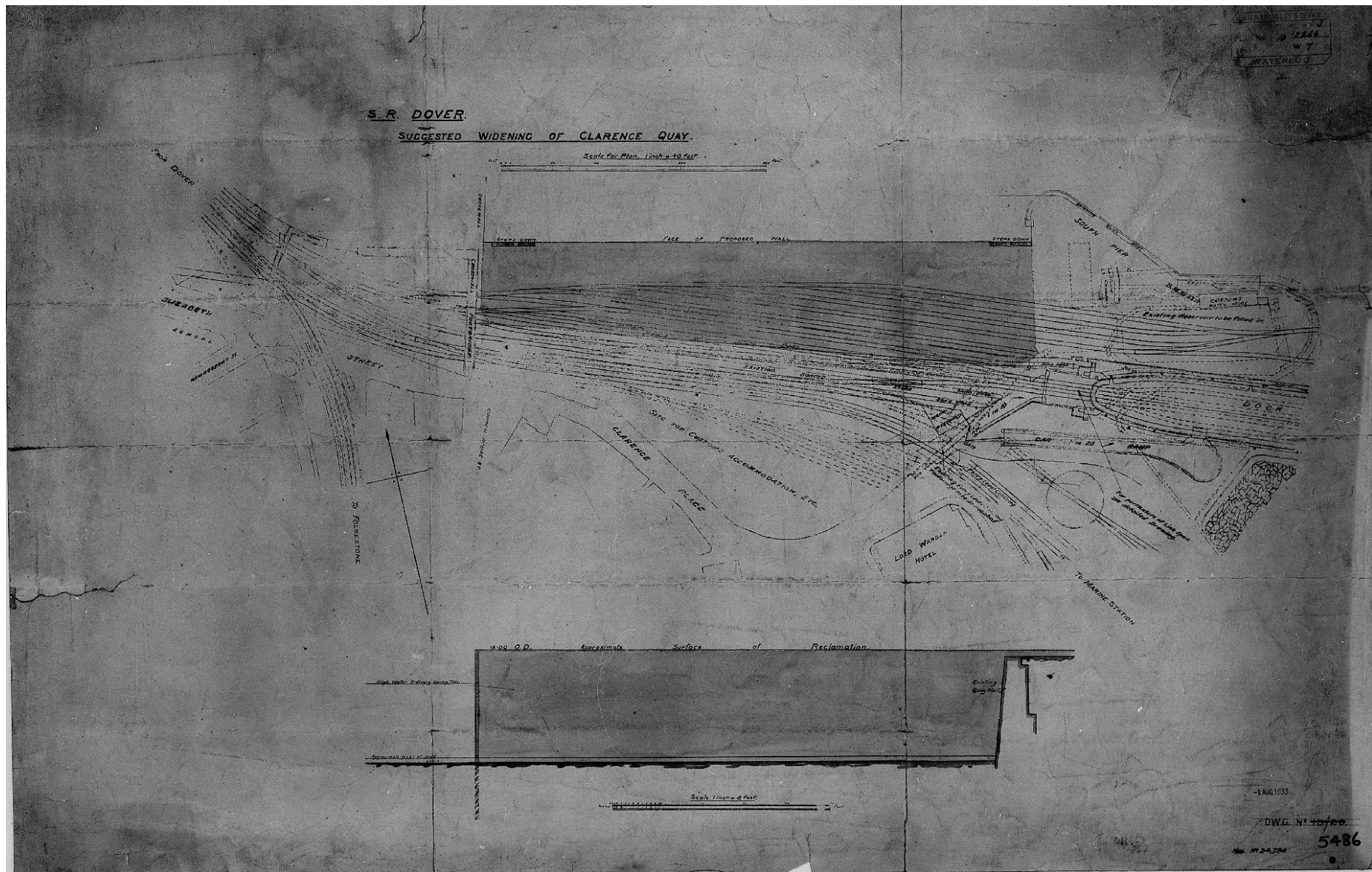


Figure 11: S.R. Dover Suggested Widening of Clarence Quay, 01/08/1933, DHB Historical Drawings Archive Ref:5486.

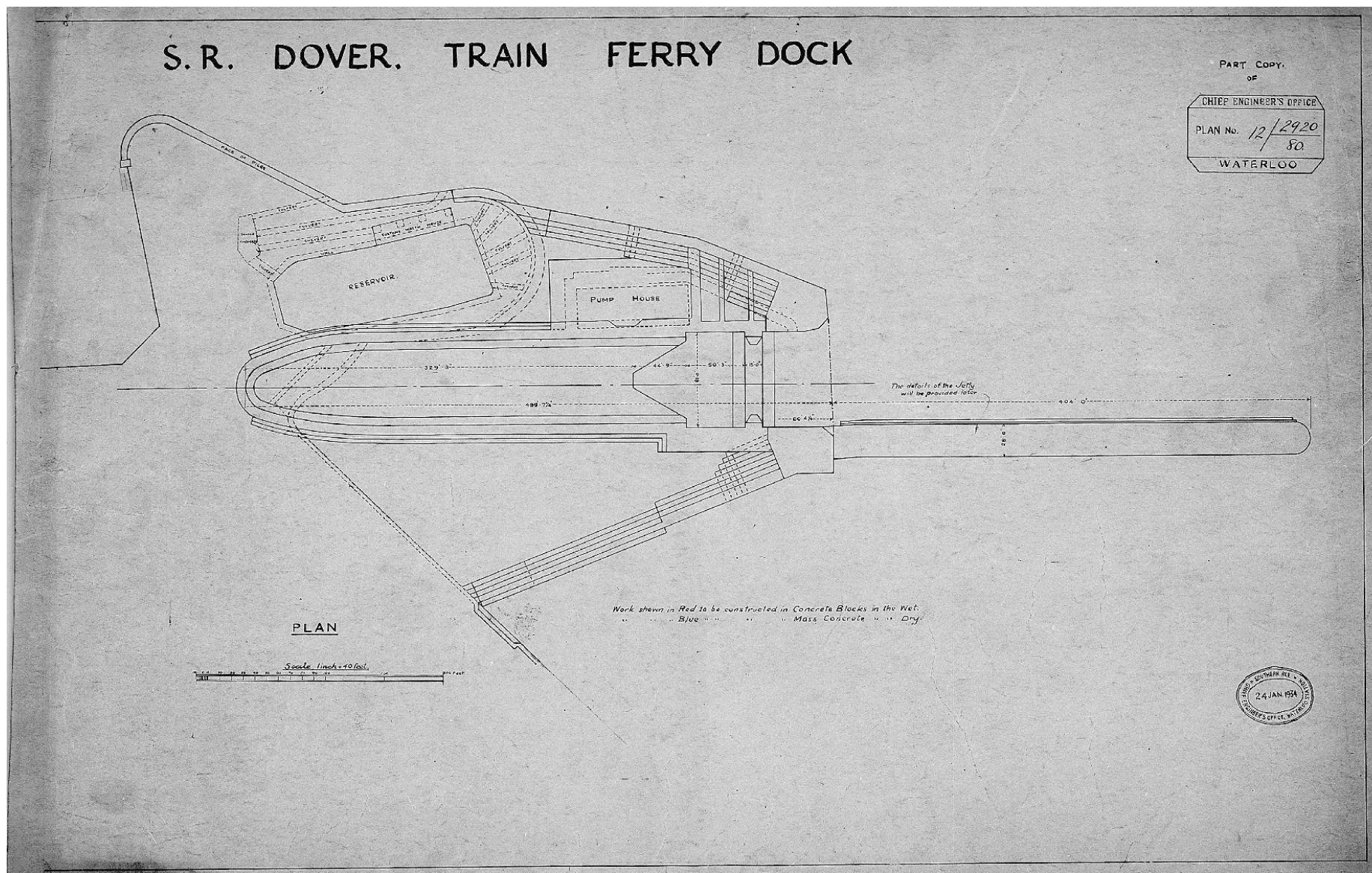


Figure 12: S.R. Dover Train Ferry Dock, 24/01/1934 (DHB Historical Drawings Archive Ref: 3773).

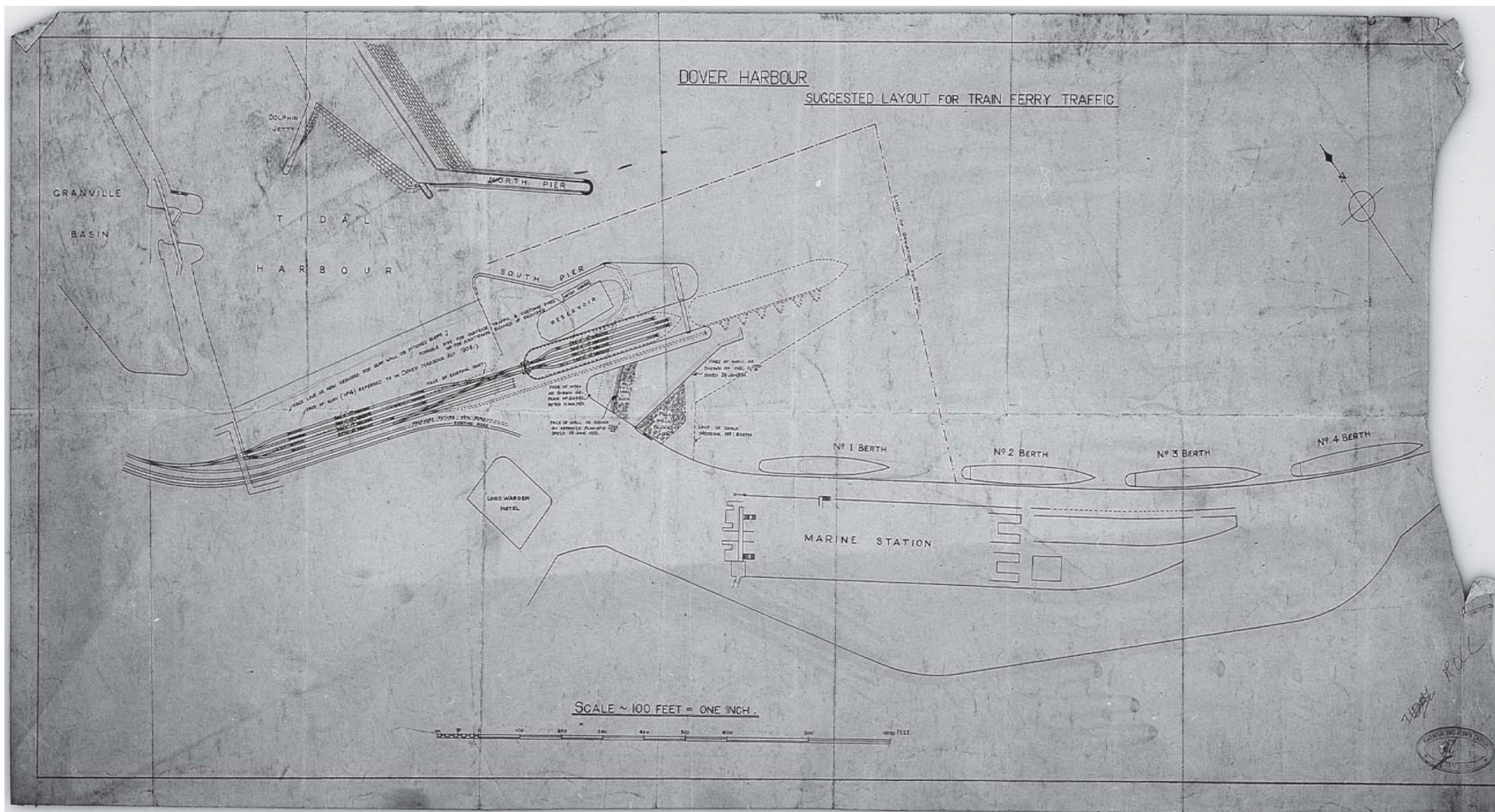


Figure 13: Dover Harbour Train Ferry Dock Suggested Layout for Train Ferry Traffic, c.1933, DHB Historical Drawings Archive Ref: 3775.

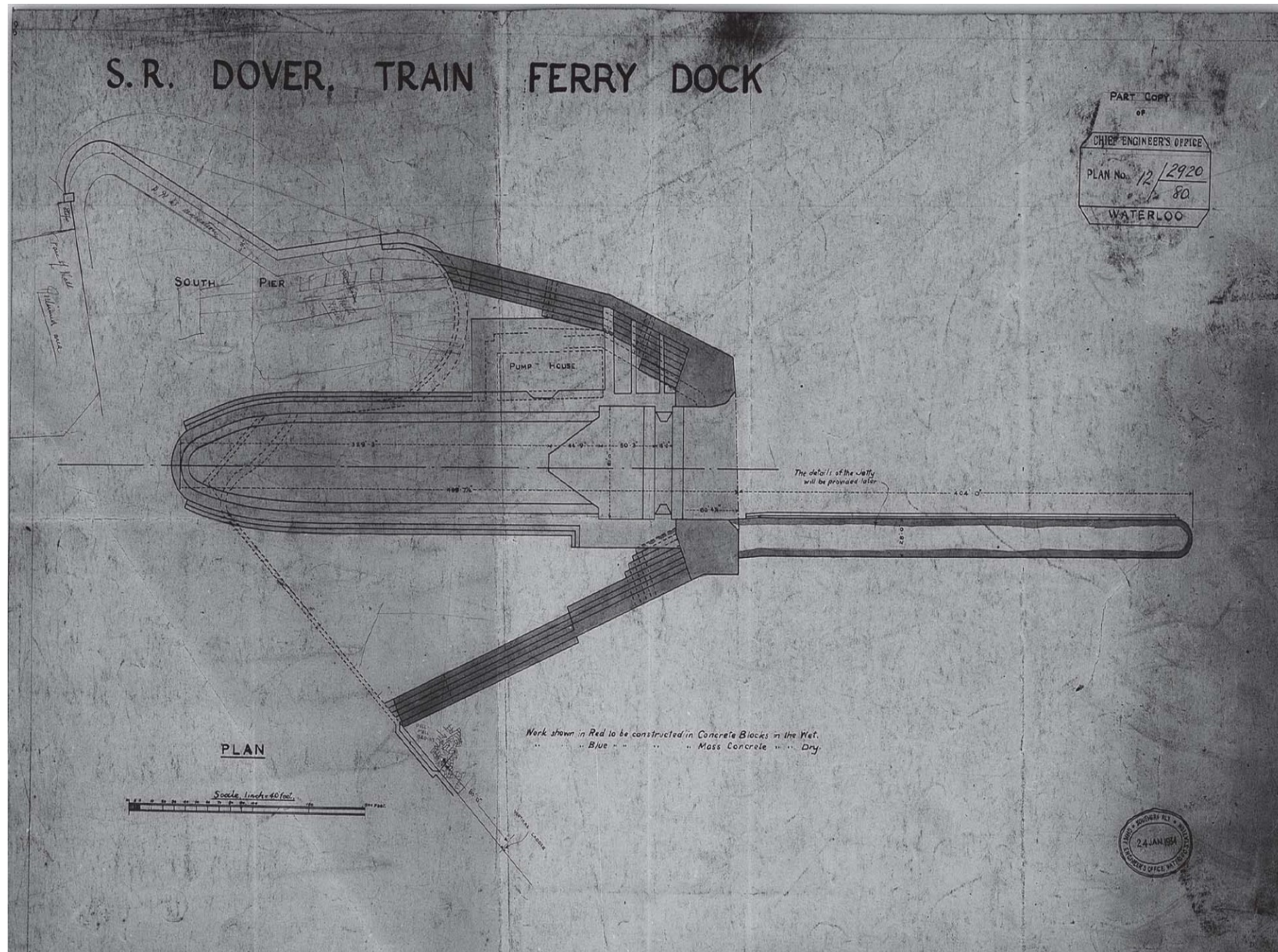


Figure 14: S.R. Dover Train Ferry Dock, 24/01/1934, DHB Historical Drawings Archive Ref: 3776.

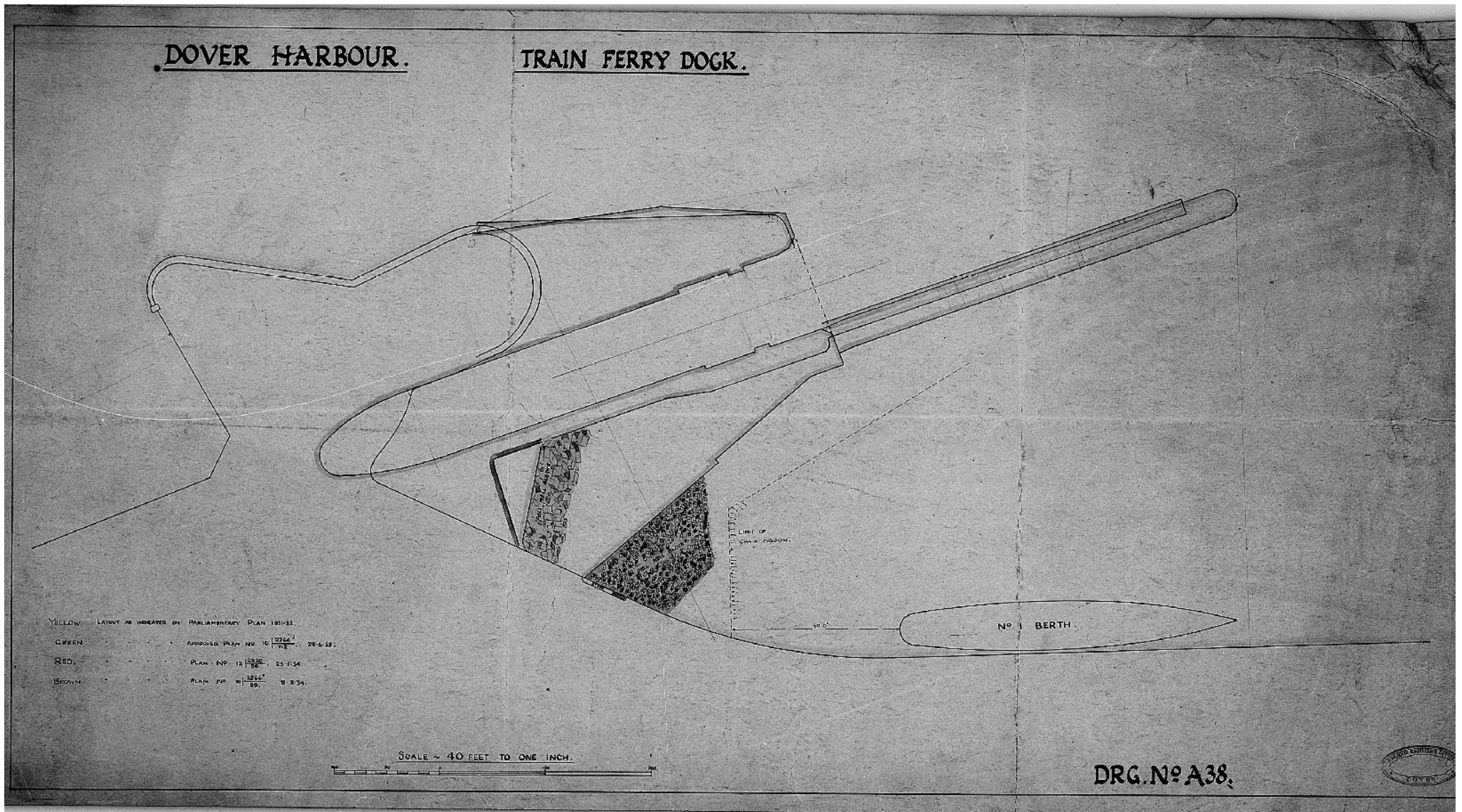


Figure 15: Dover Harbour Train Ferry Dock, 28/06/1933, DHB Historical Drawings Archive Ref: 3777.

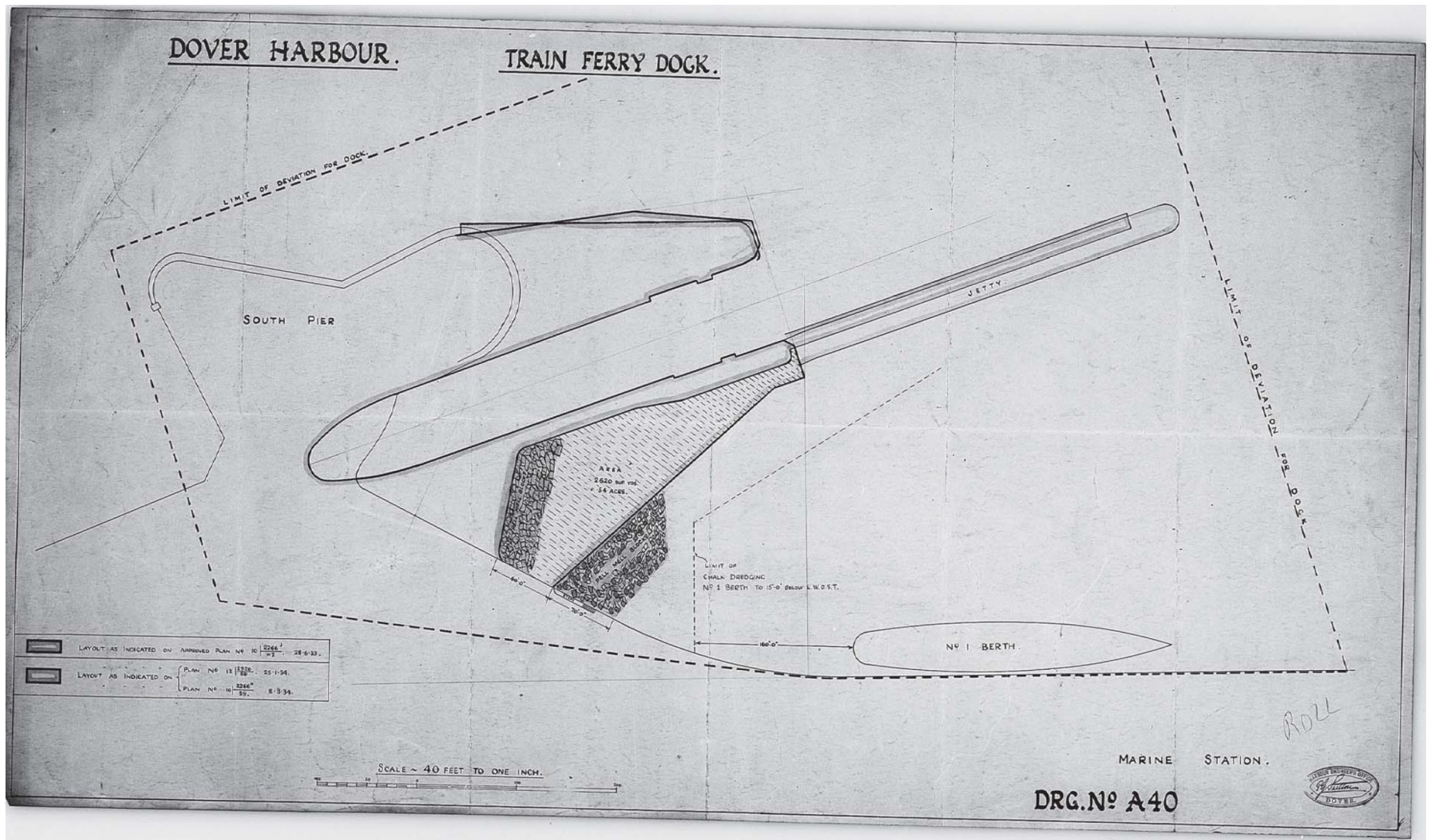


Figure 16: Dover Harbour Train Ferry Dock, 28/06/1933, DHB Historical Drawings Archive Ref: 3778.

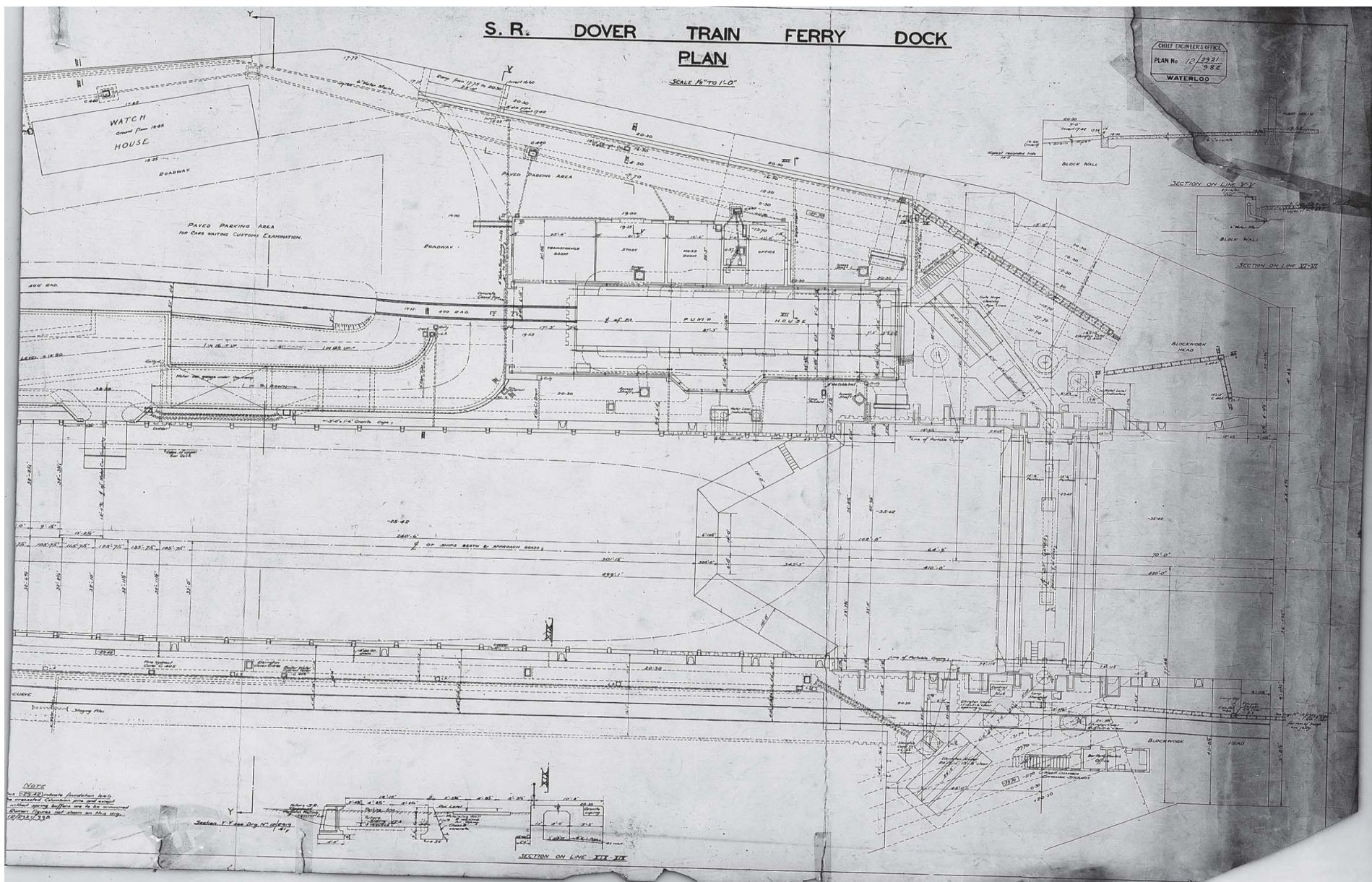


Figure 17: S.R. Dover Train Ferry Dock Plan, c.1933, DHB Historical Drawings Archive Ref: 3779.

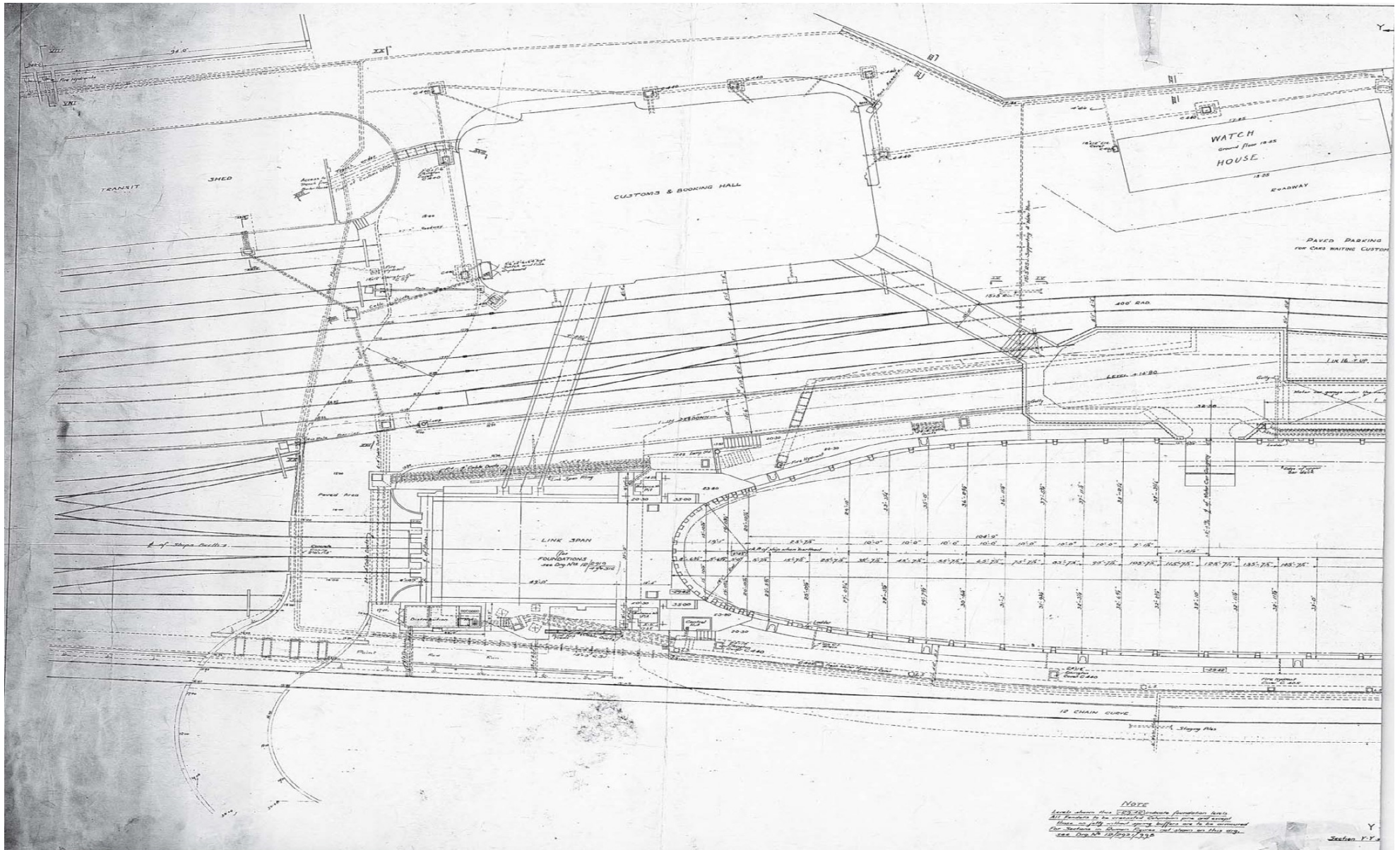


Figure 18: S.R. Dover Train Ferry Dock Plan, c.1933, DHB Historical Drawings Archive Ref: 3780.

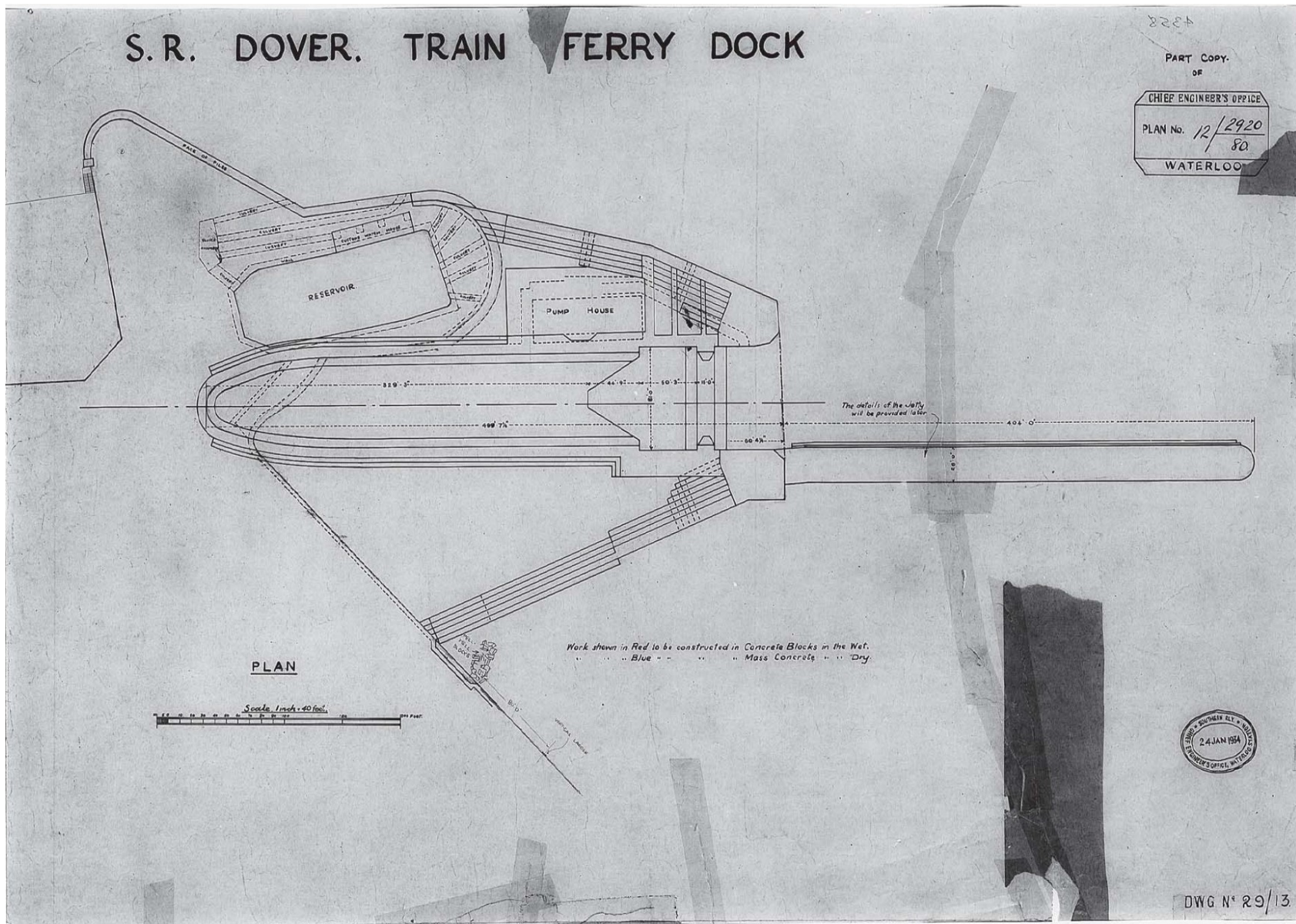


Figure 19: S.R. Dover Train Ferry Dock Plan, 24/01/1934, DHB Historical Drawings Archive Ref: 4358.

The image displays three cross-sectional views of the Waterloo Lock, labeled SECTION N-N, SECTION E-E, and SECTION H-H. Each section shows the internal structure, including the block wall, sea chamber, and raising mechanism. Dimensions are provided for various components, and labels indicate the location of the block wall, sea chamber, and raising. A scale bar for the H-H section indicates 1 inch = 8 feet. A circular stamp is visible in the bottom right corner.

Desktop Study: Train Ferry Dock and Dunkirk Jetty Appendix 001

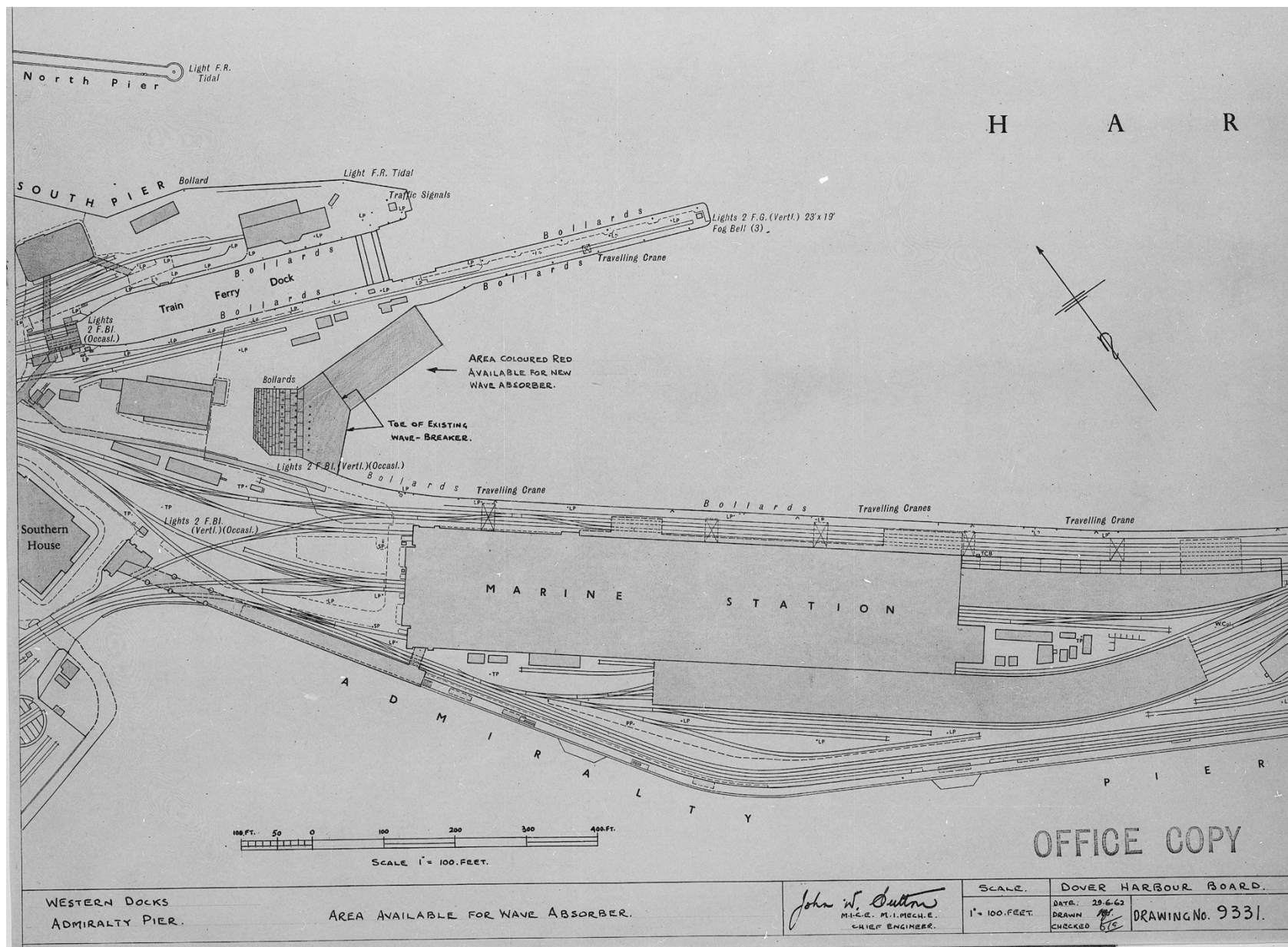


Figure 21: Admiralty Pier Area Available for Wave Absorber, 29/06/1962, DHB Historical Drawings Archive Ref: 9331.

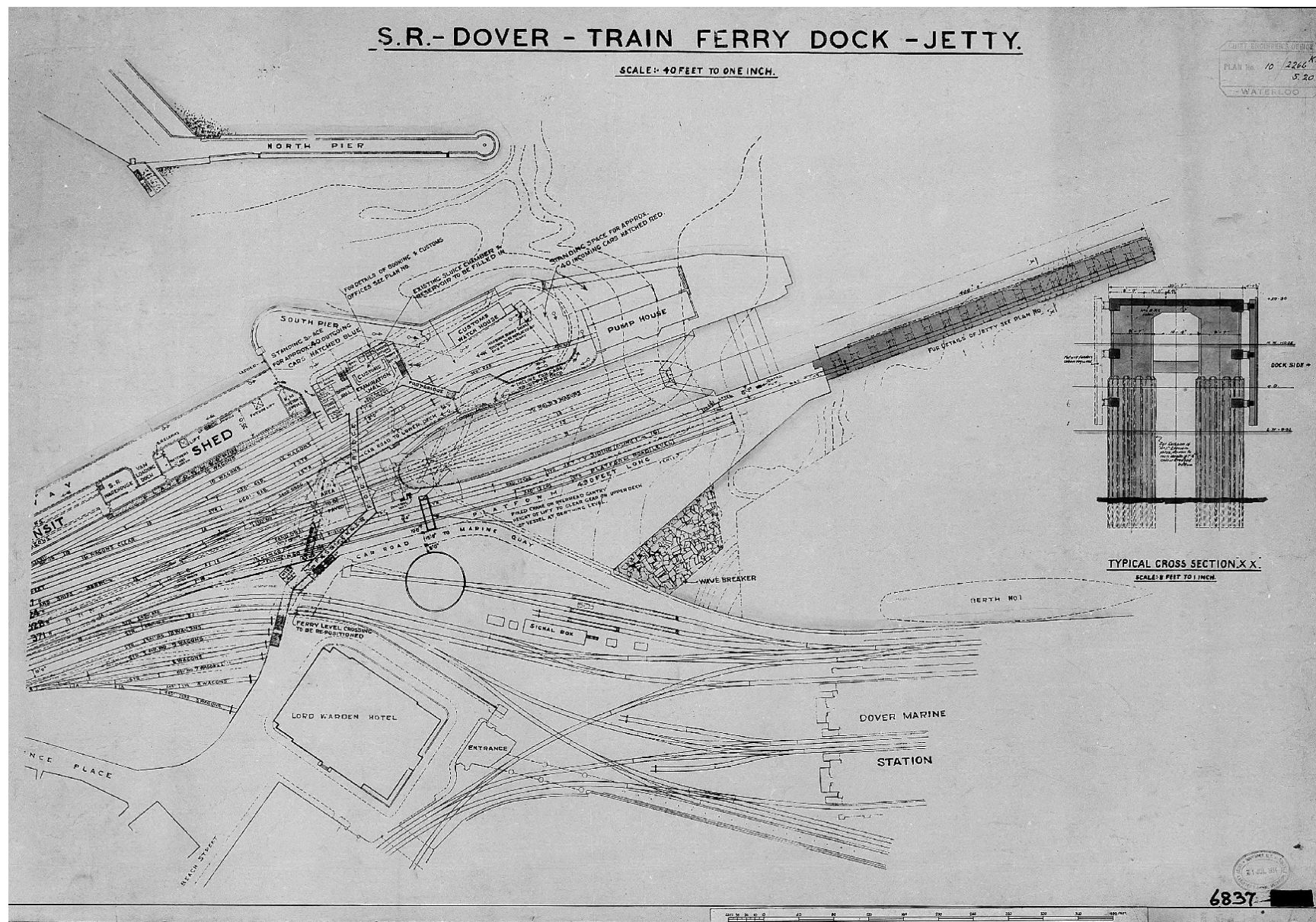


Figure 22: S.R. Dover Train Ferry Dock Jetty, 31/07/1934, DHB Historical Drawings Archive Ref:6837.

CHIEF ENGINEER'S OFFICE
PLAN No 12/2910
113A
WATERLOO

Technical drawing of a mechanical assembly, likely a pump or engine component, showing a top view and a side view. The drawing includes dimensions and labels such as "To details of Handrail Standards on Dwg No 12/1922", "Old Rail 160/1000", and "110 dia. To next". The drawing is oriented vertically on the page.

Any Precast Cross Struts that have been made may be used up in this position, but new ones are not to be made.

Precast Strut.

Precast Strut.

Fig. 1789
Fig. 1790

9' 7"

Fig. 1789 is a technical drawing of a building facade. It features a central door with a pediment and two windows on either side. The drawing is labeled 'Fig. 1789' and 'Fig. 1790'. A dimension line indicates a width of '9' 7"'. The drawing is oriented vertically, with the top of the facade at the top of the page.

Note
The construction of the Jetty is to be generally in accordance with Drawg No 12/2313/200, 270, 28, 500 + 630 but the piers are to be modified as shown on this drawing

NEG. No. 28098

Desktop Study: Train Ferry Dock and Dunkirk Jetty Appendix 001

S.R.-DOVER TRAIN FERRY - JETTY - GENERAL DETAILS.

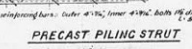
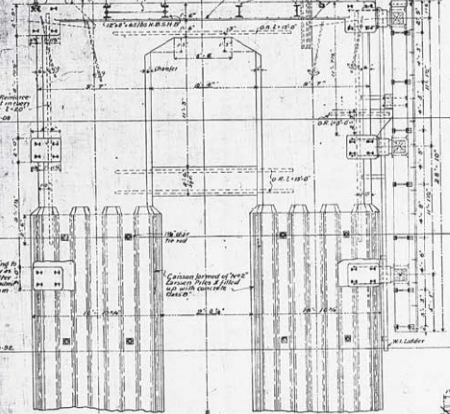
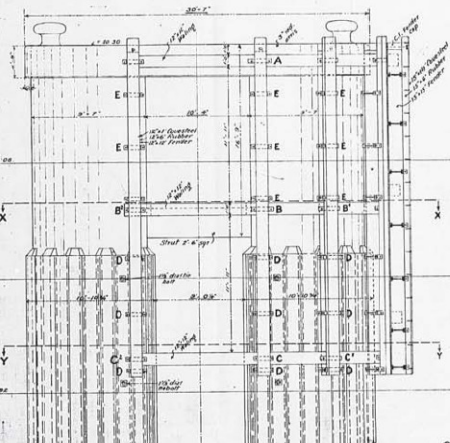
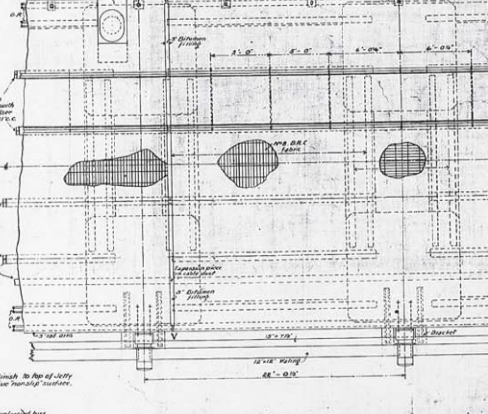
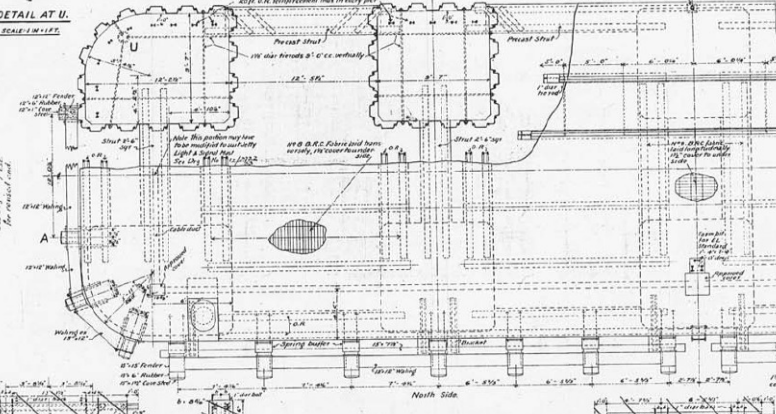
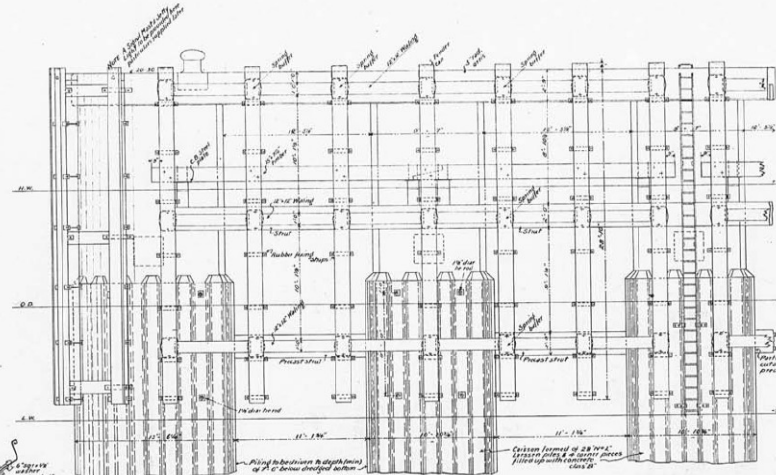
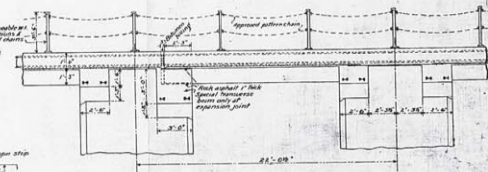
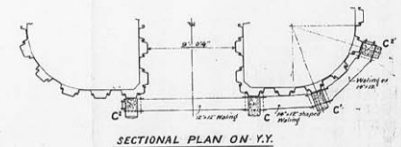
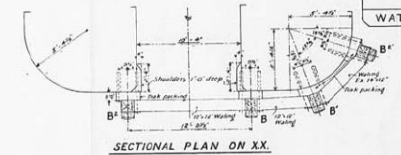
DRAWING NO.

SCALE: 1/4 IN. TO 1 FOOT.

NOTE: Dimensions underlined thus 10'-0" are not to scale.

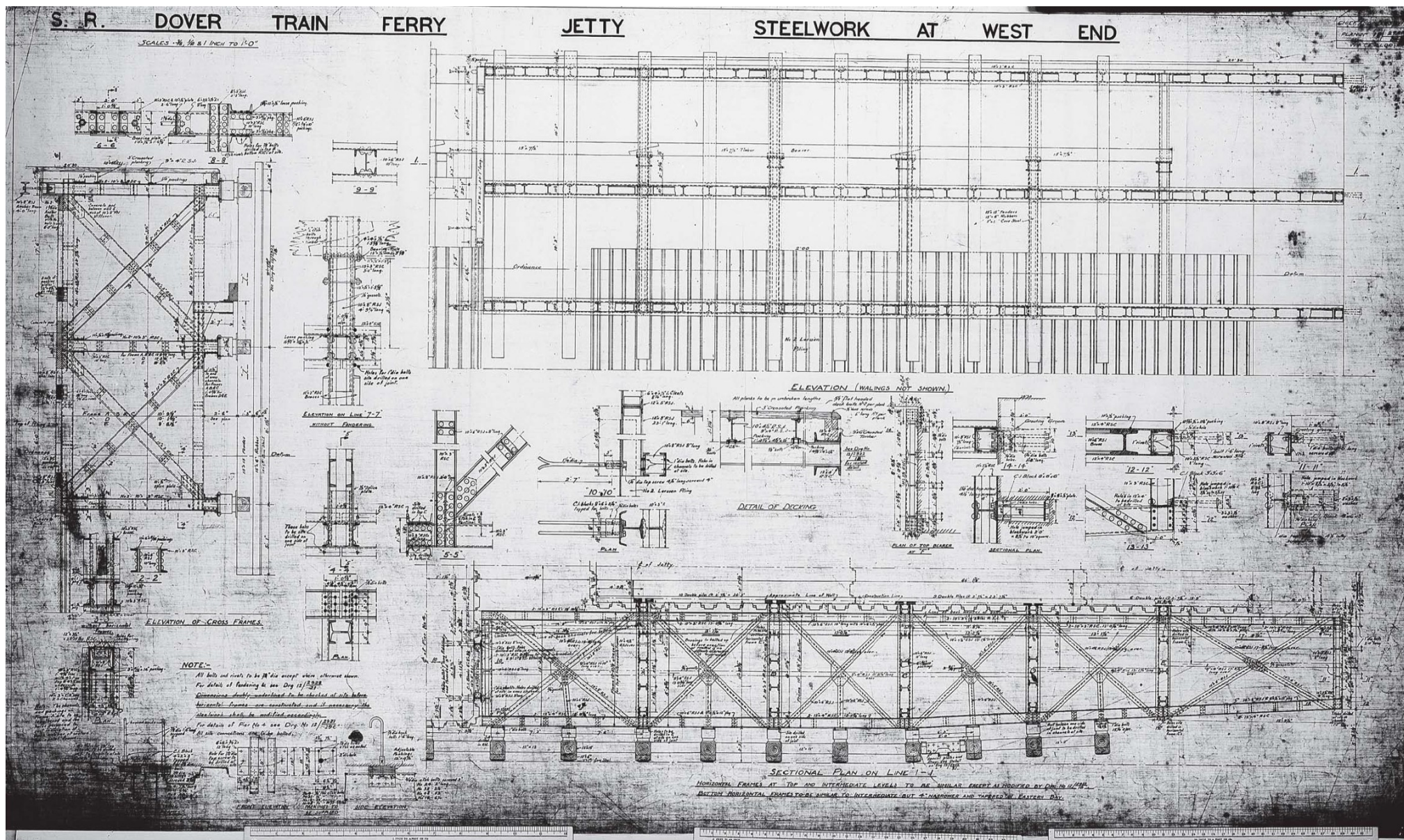
Partly superseded by Dwg No. 12/230, 12/231 and 12/232/10, 21, 22 & 23

CHIEF ENGINEER'S OFFICE
PLAN NO. 12/230
WATERLOO.



S.R. WATERLOO STATION
ENGINEERING OFFICE.
DESIGNED BY J. H. B. 12/230
CHECKED BY J. H. B. 12/230
APPROVED BY J. H. B. 12/230

Figure 24: S.R. Dover Train Ferry Dock Jetty General Details, July 1935, DHB Historical Drawings Archive Ref: 9323.



CHIEF ENGINEER'S OFFICE
PLAN N° 12/2921
298
WATERLOO



Desktop Study: Train Ferry Dock and Dunkirk Jetty Appendix 001

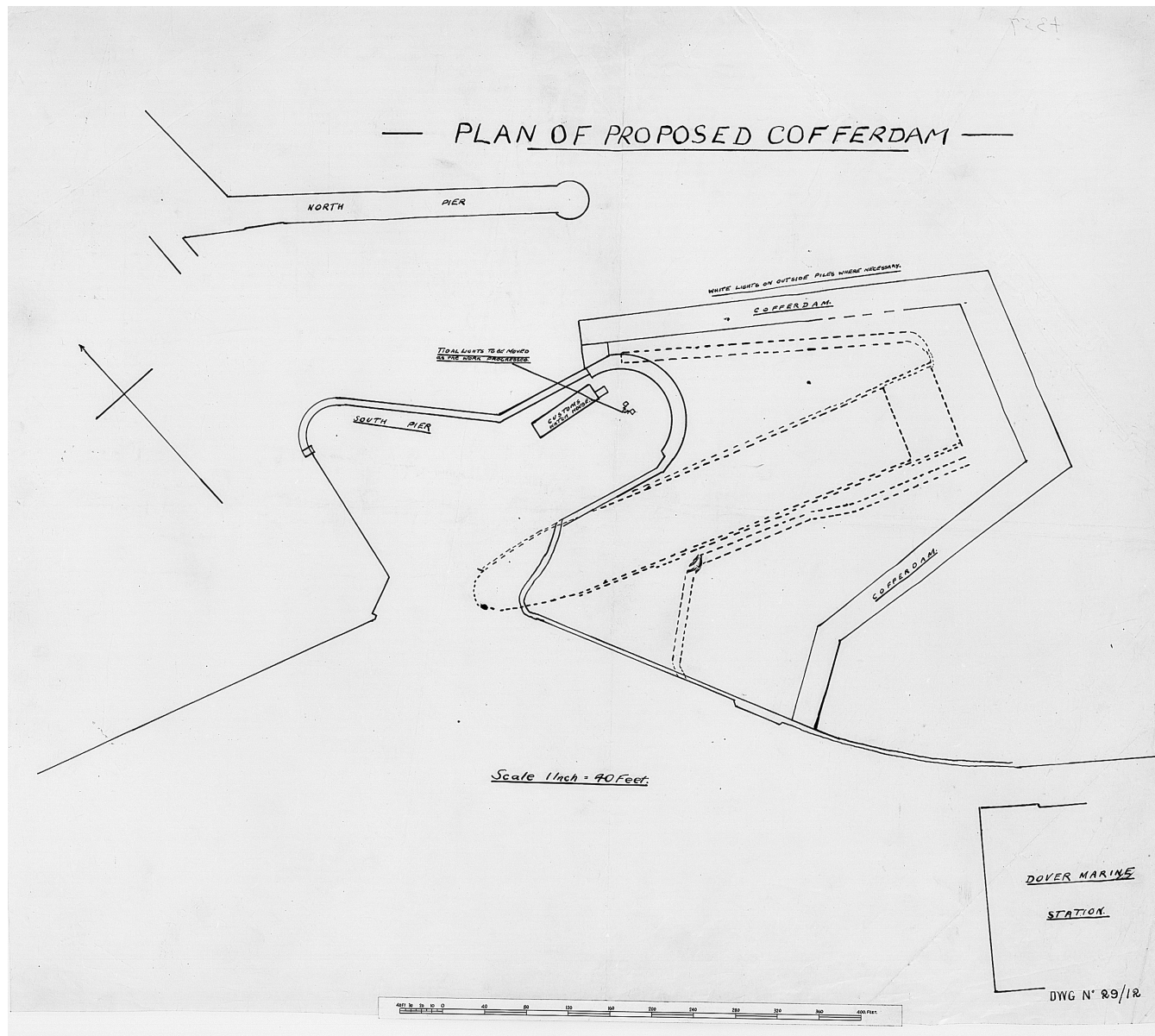


Figure 28: Train Ferry Dock Plan of Proposed Cofferdam, date unknown, DHB Historical Drawings Archive Ref: 9327.



Figure 29: Dover Division Ordnance Survey Map Surveyed 1858, revised 1937-1938 (detail from), 1945, DHB Historical Drawings Archive.

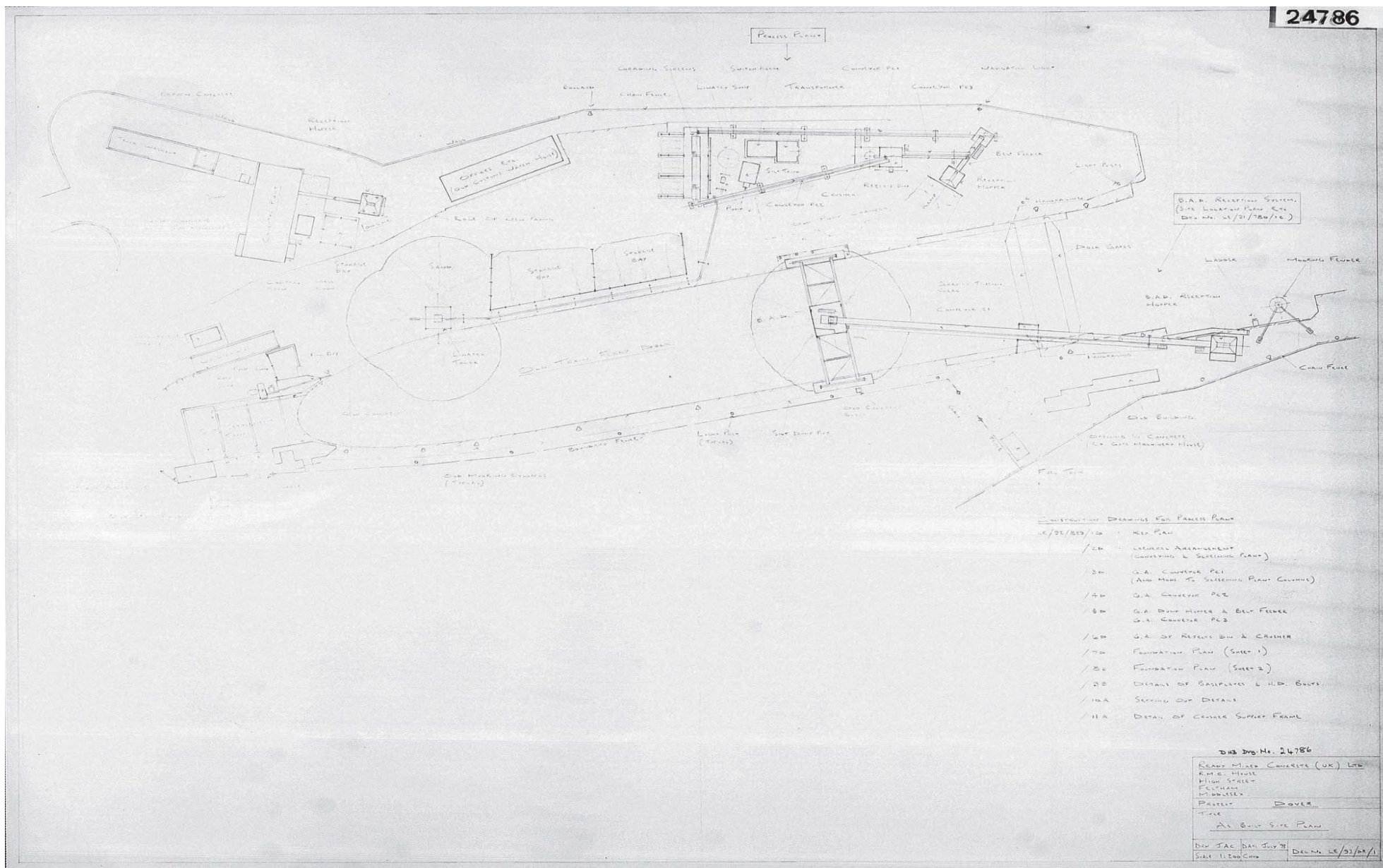


Figure 30: Dover Harbour Train Ferry Dock as Built Site Plan, July 1993, DHB Historical Drawings Archive Ref: 24786.

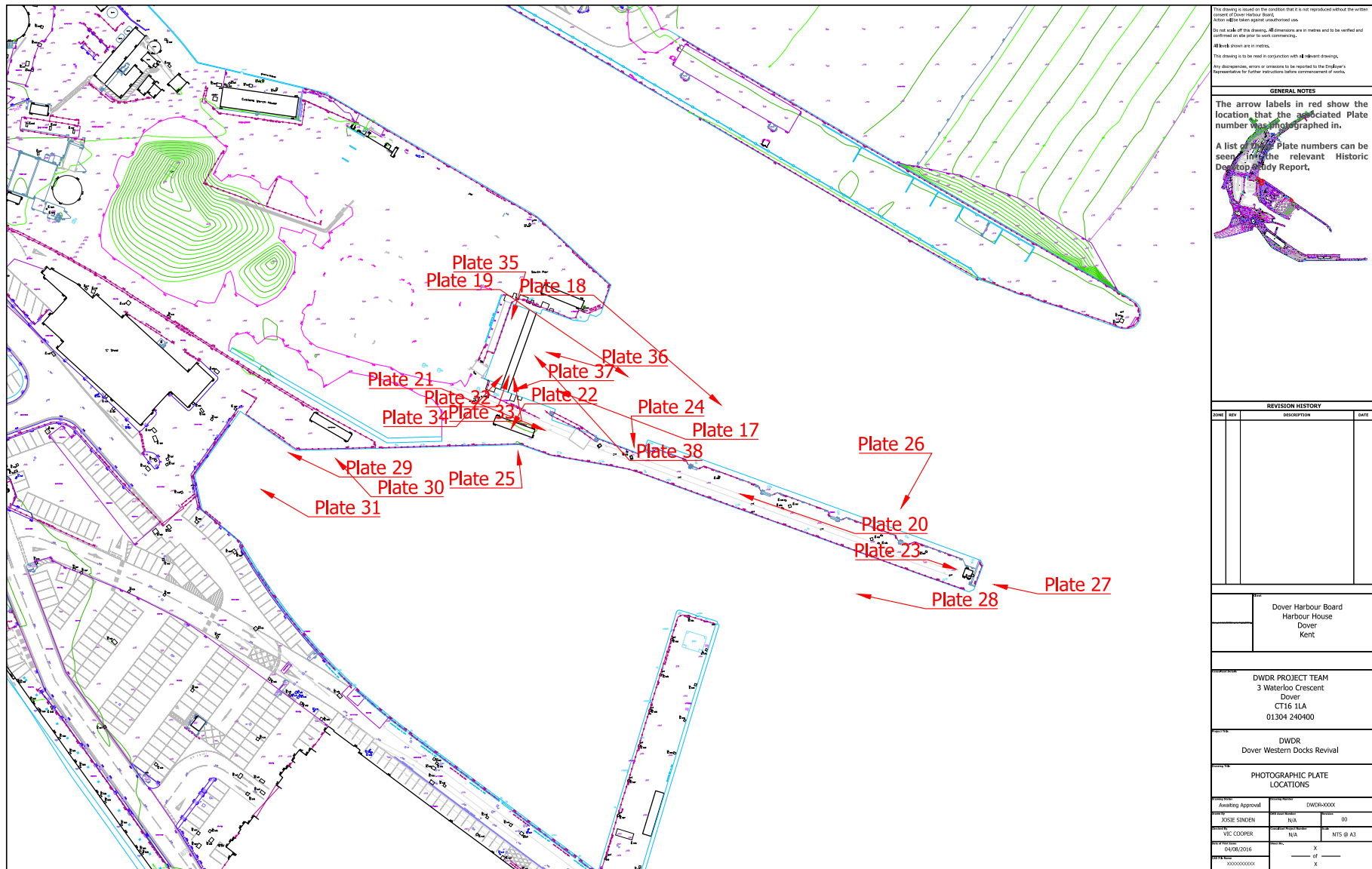


Figure 31: Current Photographic Plate Locations, 2016, DWDR.

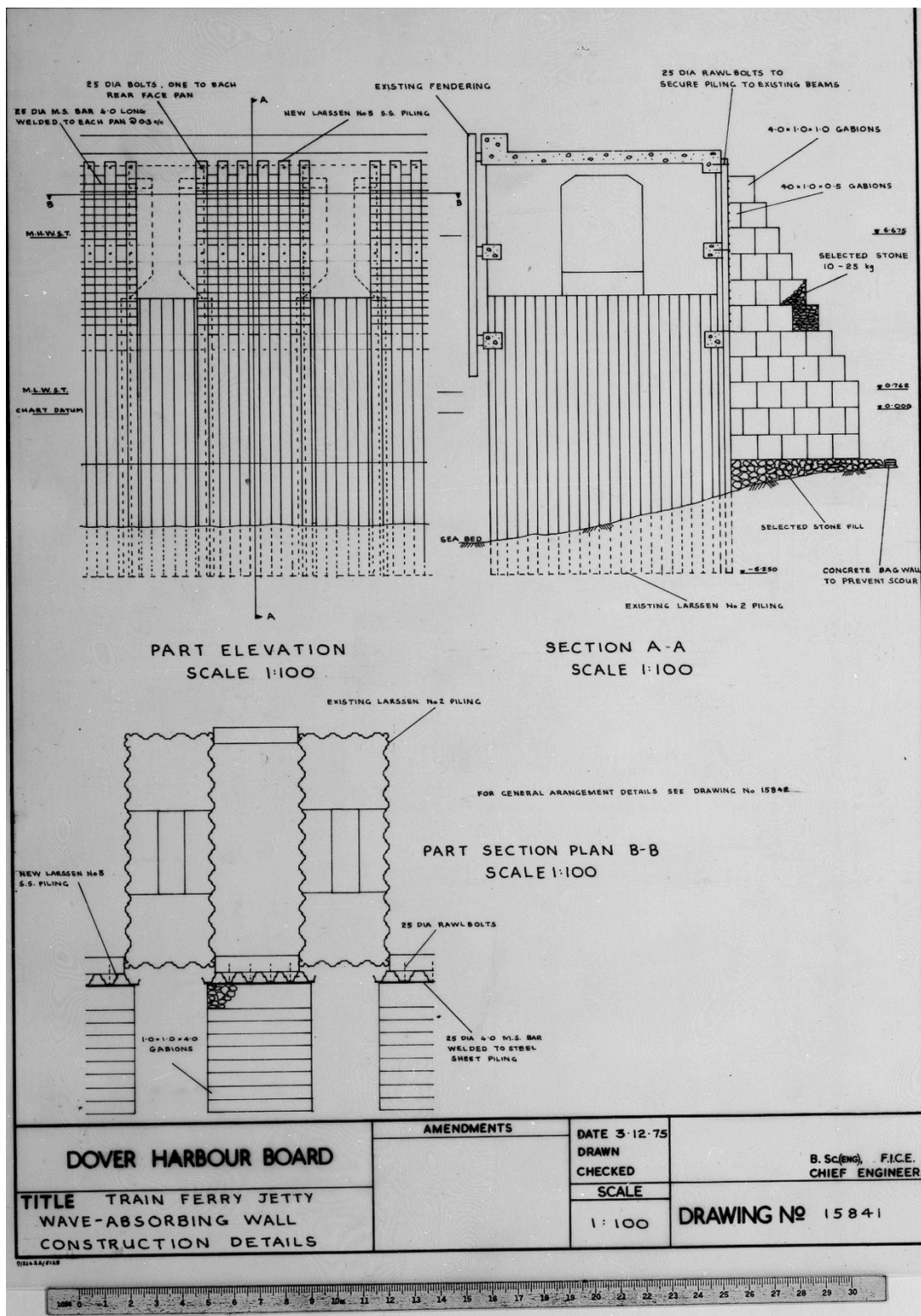


Figure 32: Train Ferry Jetty Wave Absorbing Wall Construction Details, 05/12/1972, DHB Historical Drawings Archive Ref: 15841.

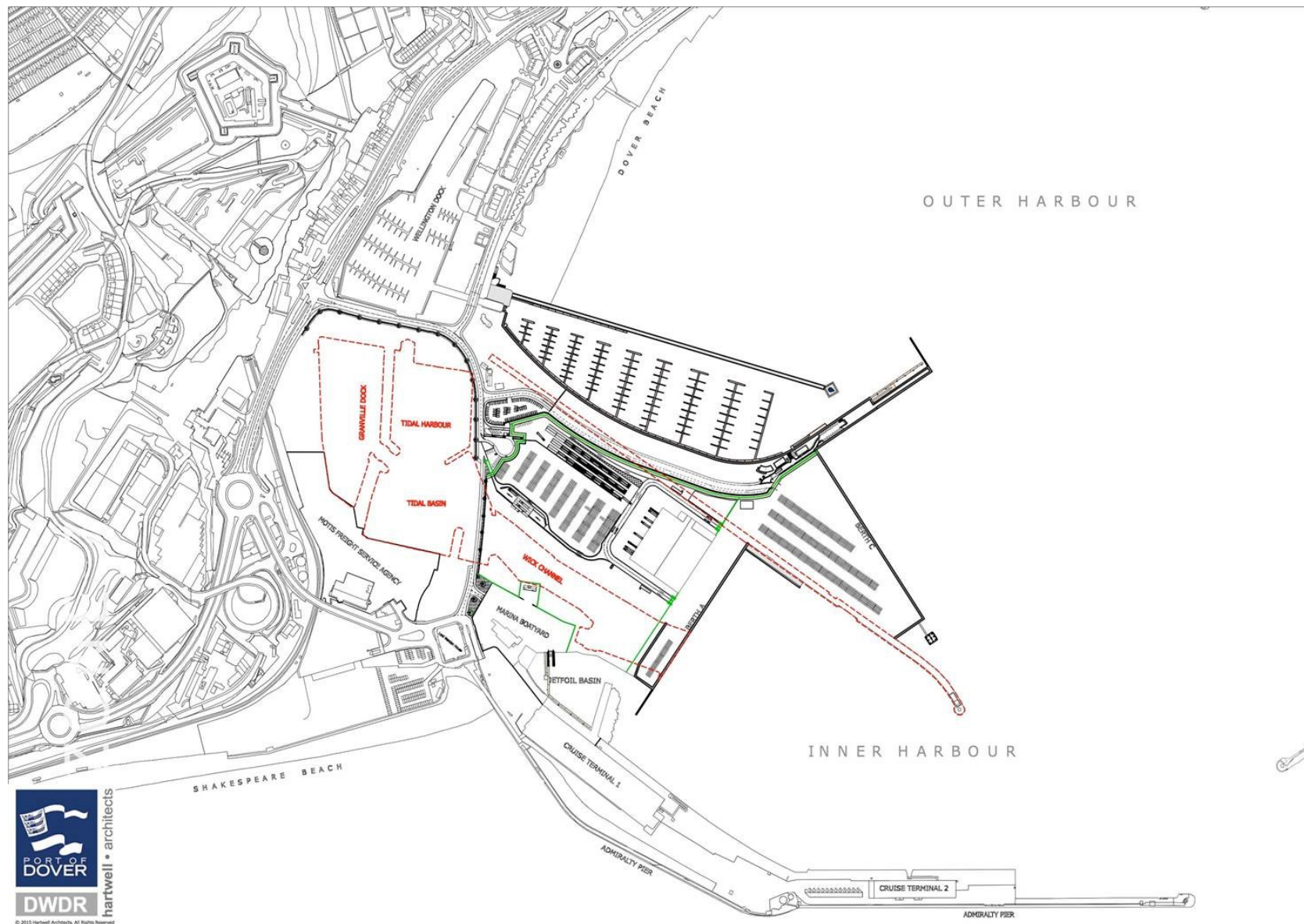


Figure 33: DWDR Stage 3 Site Plan showing Demarcation Lines for POWP and Existing Docks, 2016, DWDR.



APPENDIX 002 – DRAWINGS FROM INSTITUTION OF CIVIL ENGINEERS

**This document is to be read in conjunction with the Train
Ferry Dock and Dunkirk Jetty Desktop Study**

DOVER TRAIN-FERRY DOCK.

PLATE 1.
DOVER TRAIN-FERRY DOCK.

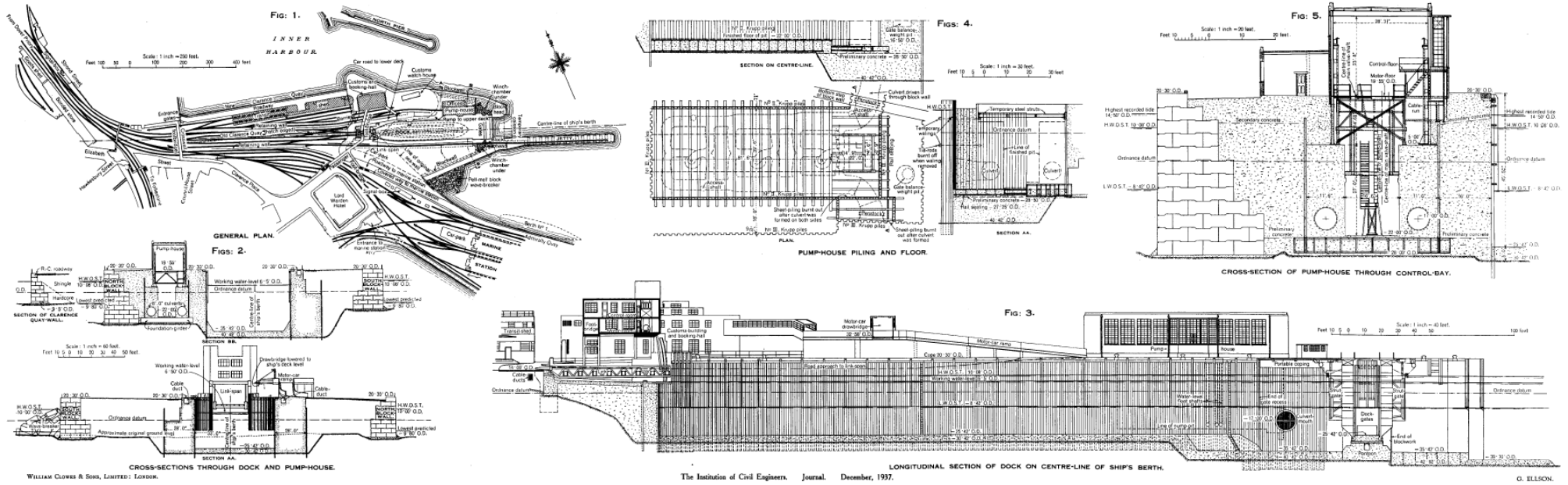


Figure 1: Dover Train-Ferry Dock, G Elson, 1937, William Clowes and Sons Ltd, Courtesy of The Institution of Civil Engineers ©.

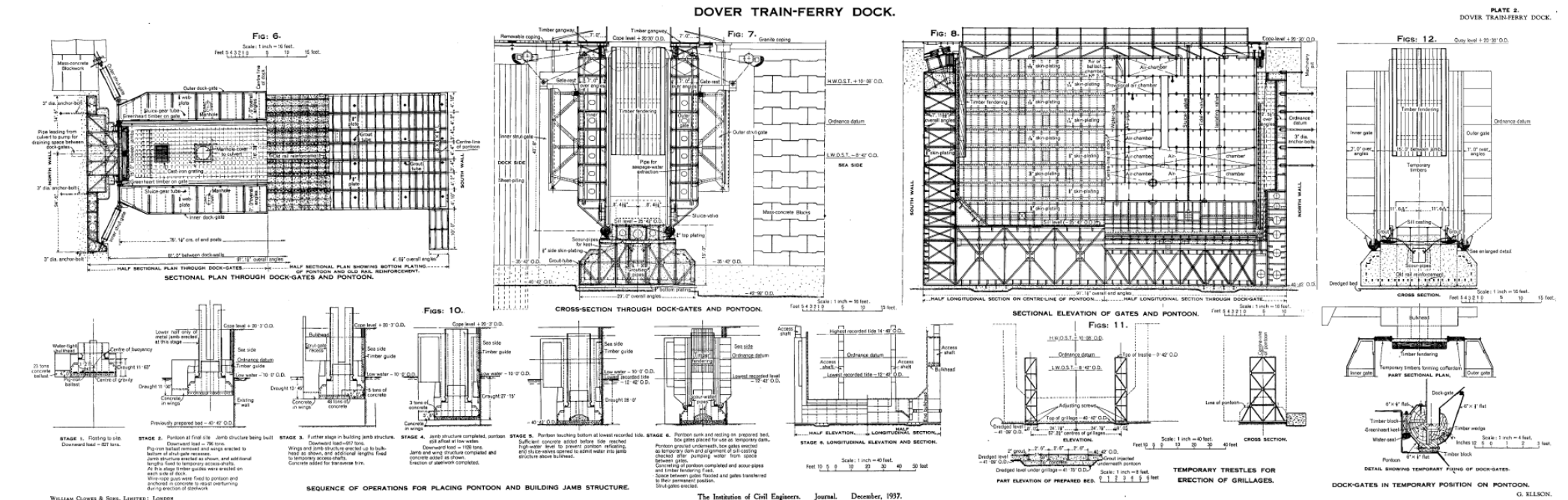


Figure 2: Dover Train-Ferry Dock showing the gates structure, G Elson, 1937, William Clowes and Sons Ltd, Curtesy of The Institution of Civil Engineers ©.

