



10th September 1996

Director of Housing & Planning Services
Council Offices
Priory Road
SPALDING, PE11 2XE.

Dear Sirs,

Planning Application on behalf of Independent Power Generators Ltd for an Offloading Wharf.

We recently submitted a planning application which was accompanied by copies of "Consultative Document describing the Offloading Wharf." We also sent sets of A1 drawings.

You may find it more convenient to use A3 drawings: I therefore enclose four sets of these.

Yours faithfully,

PP MBS

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Independent Power
Generators Limited

**Sutton Bridge Power
Station**

Consultative Document
describing the
Offloading Wharf

SOUTH HOLLAND DC
HOUSING & PLANNING

-9 SEP 1996

Ref:

0847/96

Ove Arup & Partners
Consulting Engineers

Independent Power Generators Limited

Sutton Bridge Power Station

Consultative Document describing the
Offloading Wharf

August 1996

This Consultative Document has been prepared by Ove
Arup and Partners on behalf of Independent Power
Generators Ltd.

This Consultative Document accompanies the Planning
Application Submission. It is provided for information
only and does not form part of the planning submission.

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Job number 51367

Job title Sutton Bridge Power Station

Job number 51367

Document title Consultative Document describing the Offloading Wharf

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Signed

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3/9/96

Checked by

Andy Horton

Signed

Date

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3/9/96

Approved by

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Signed

Date

J. Hamilton
3/9/96

Revision record

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1. INTRODUCTION

1.1 Background

Independent Power Generators Limited (IPG) intend to construct a 700MW combined cycle gas turbine power station at a site adjacent to the River Nene at Sutton Bridge, South Holland, Lincolnshire. A wharf is proposed in the River Nene adjacent to the power station site. This is to be used for the offloading of several items of large plant and equipment during the power station construction period and also for the possible replacement of large items of equipment during the plant operation period. A haul road will be provided along which the large plant and equipment can be trailered onto site. The road will be constructed to serve as a permanent rear access between the wharf and site, to be used by emergency vehicles, if necessary.

While producing the design and drawings for the wharf, Ove Arup and Partners (Arup) have considered in detail the operations involved for plant offloading using sea and river going coasters or barges. Since the wharf will only be used intermittently, the primary objectives have been to minimise visual and environmental impact and to produce a low cost, low maintenance solution which allows the greatest flexibility of vessel types and size.

1.2 Planning and Consultation

IPG are keen that all residents and other interested parties should understand the scale and nature of the proposed offloading wharf as fully as possible.

This Consultative Document has therefore been prepared to give explanatory and supplementary information to support the planning application lodged with South Holland District Council. The Consultative Document is provided for information only and does not form part of the planning application. This document will be available for inspection at the Council Offices together with the application forms and drawings. The proposals described in the Consultative Document may be amended as a result of any comments received.

1.3 Limitations of Use

The use of the wharf will be limited purely to offloading large items of plant and equipment during construction and operation of the power station.

The wharf is not intended to be used for the offloading of any fuel for the power station.

2. DESIGN AND OPERATIONAL CRITERIA

2.1 Introduction

The facility has been designed for offloading the large items of plant and equipment required for the power station such as the turbines and transformers which weigh up to 300te and are up to 5m wide. Offloading direct at the site will avoid major disruption to the roads and traffic in the area.

2.2 Site Conditions

The River Nene runs from Wisbech through Sutton Bridge and north to the Wash. The proposed site for the offloading wharf is approximately 900m upstream (south-west) of the Cross Keys swing bridge at Sutton Bridge (Drawing WGA001).

The river is tidal with a spring range of 6.1m and high flood and ebb flows. The neap tide range is 3.2m. The river carries a high sediment load and is prone to siltation at sheltered locations.

Following the floods of 1953 the river bank defences were raised to withstand any future surges of similar proportions. As a result the river is canalised between flood banks at the site with a top berm level adjacent to the site of approximately +6.7mOD.

In order to gain access to the proposed wharf, suitable vessels are required to pass through the Cross Keys swing bridge. The minimum width at high water is 20m. There are no height restrictions at present.

The swing bridge is computer controlled by the Harbour Authorities at Port Sutton Bridge and river traffic has priority over road traffic on the bridge. The bridge and pilotage facilities are operational 24 hours per day. At present approximately 80 vessels per year pass through the bridge to access the Port of Wisbech.

Local conditions and the flat topography means that high winds can be a problem and negotiating the bridge may be suspended in adverse conditions. Fog may also close the bridge to river traffic. On average 4 or 5 tides per year are lost because of bad visibility.

2.3 Site Restrictions

At the proposed site the river is approximately 70m wide between high water lines. The banks are gently sloping at approximately 1 in 4. The Environmental Agency have carried out remedial armourstone works to stabilise the banks and prevent erosion. The Environmental Agency require that the bank flood protection berms are not compromised and the protection level is maintained.

Fenland District Council are the Harbour Authority responsible for all aspects of navigation in the River Nene. They have stipulated that the new structure should encroach as little as possible into the navigable channel.

The maximum draught available at the wharf location is taken as 4.0m. This allows passage of vessels for the majority of the year gives the greatest flexibility in terms of type and size of vessel able to access the facility. The Harbour Master has specified that vessels up to 60m overall length should maintain a 1.0m underkeel clearance and vessels over 60m, a 1.3m underkeel clearance while negotiating the River.

A variety of heavy lift vessels, coasters and barges have been investigated with an overall length of around 100m.

The swinging basin at Port Sutton Bridge can turn vessels up to 100m overall length. Vessels could be swung, then reversed 1500m up the River Nene and berthed at the offloading wharf. The disadvantage of this is the need to reverse through Sutton Bridge. The bridge is on a slight bend in the river and the tidal and river currents can make manoeuvring difficult, especially in adverse weather conditions. A tug may be required to assist the vessels. Pilotage is compulsory. Discussions with vessel operators have indicated that this operation can be safely carried out in the highly manoeuvrable modern vessels proposed to service the wharf. Many are equipped with bow and stern thrusters and the crews are experienced with movements of this nature on other rivers and canals.

The Harbour Authority operate and maintain an alternative swinging basin at the Port of Wisbech. This facility can swing vessels up to 82.5m. The basin is regularly dredged to clear silt build up. The turning basin is, however, located 9½km south of the proposed wharf facility and would entail approximately a 1½ hour round trip to turn the vessel and return to the wharf.

There is also the potential to swing smaller vessels in the river itself at certain states of the tides. Care would be needed to avoid damage to the flood protection banks.

2.4 Offloading Large Plant and Equipment

The initial proposal for the delivery of large items of plant was to offload at the existing wharf at Port Sutton Bridge on the west bank of the River Nene. Extensive strengthening and dredging works would be required at the Port to enable the vessels to berth and offload safely. This proposal was further complicated since the Cross Keys swing bridge does not have the width or load capacity to carry the large loads to cross the river to the power station site on the east bank. They would therefore have had to be transferred by road south to Wisbech to cross the river and then return north to the site. This would have caused major congestion and delays to the surrounding road network.

The proposed offloading quay has therefore been designed to allow the large items of plant and equipment to be offloaded directly at the site. The Harbour Master has confirmed that the proposed vessels could navigate the River Nene in good weather. These vessels would swing in the turning bay at Port Sutton Bridge and then reverse through the Cross Keys bridge up to new wharf.

The layout of the wharf has been designed to allow the proposed vessels to berth side on to unload. Additional moorings will be provided to ensure the vessel is held rigidly while the items of plant and equipment are transferred from the stern of the vessel to a multi-wheeled trailer on the quay, by crane. The wharf will be designed to safely carry the high loads involved.

3. THE WHARF SCHEME

3.1 General Arrangement

The proposed wharf consists of a steel sheet pile river wall cut into the river bank as shown on drawings WGA002, WGA003 and WGA004. The profiled sheet pile wall will be approximately 70m long and be capped with a concrete edge beam. Sheet piled return walls will run back from the main quay edge and, together with some rock armouring works, these will maintain the bank stability. Mooring bollards or rings will be provided on top of the capping beam. Independent strong points will be provided along the banks to pick up the bow and stern lines from the vessels.

The wharf is set away from the centre line of the navigable channel, so that berthed vessels will create less obstruction to other passing vessels.

A bed of chalk or other suitable fill will be placed alongside the wharf to provide a level surface for vessels to ground during low tides. The flow in the river will ensure that little siltation occurs on the chalk bed although some deposition can be expected on the slopes at either end of the wharf.

The backfilled platform created behind the sheet piles will provide a level working area. The area will also provide access and turning space for maintenance and emergency vehicles.

This type of fixed structure requires little long term maintenance.

3.2 Mooring and Fenders

The wharf structure will be provided with mooring bollards and rings at suitable intervals to allow the proposed types of vessels to berth alongside the facility. Strong points will be provided upstream and downstream to take the bow and stern lines. These will be either piles or alternatively, a mass concrete anchor block could be provided. Both will be designed to resist the berthing and mooring forces likely from the maximum size of vessel anticipated, without comprising the overall stability of the bank or the structure.

Suitable fenders would be provided along the sheet pile wall to prevent damage to the vessels and structure and to absorb the impact forces during berthing operations.

In accordance with the Act of Parliament 1 June 1829, access to the public right of way along the towpath will be unrestricted except during limited offloading periods.

3.3 Access and Traffic Generated

An access road will be required between the wharf and the power station site for the transfer of the large items of plant and equipment offloaded during construction and operation, as shown on drawing WGA005.

The alignment and gradients of the access road have been based on the large multiwheeled hydraulic trailers which will be used to carry the large equipment loads. This layout will provide a suitable entrance and turning area for vehicles delivering offloading equipment.

The wharf will normally be unmanned. The access road to the wharf will be unused and the gates to the power station site locked, although they will be of the "burst-open" type for use in the event of an emergency. The traffic generated during these periods will therefore be insignificant.

3.4 Security and Safety

It is not proposed to provide security fencing to prevent unauthorised access to the wharf.

All river edge areas will be provided with suitable safety handrails and chained access points. Life saving equipment will also be provided.

3.5 Mechanical, Electrical and Control Systems

Procedures will be set up by the Power Station staff to control arrivals and departures from the facility. Contact with the river pilots will be made and controlled by the vessel crew.

Navigation signs will be provided to the requirements of the Navigation Authority. Safety and warning signs will be displayed permanently, with additional signs during offloading operations, in accordance with the statutory requirements.

Navigation lights will be provided to the requirements of the Harbour Master and Navigation Authority. Temporary floodlighting may also be required to ensure that 24 hour working can be carried out to accommodate the timings of high tides. High pressure sodium discharge lamps will be provided at suitable intervals along the wharf structure. These will be directed so as not to blind river going traffic.

3.6 Drainage

The general surface water drainage will be collected and discharged into the river or the existing drainage systems.

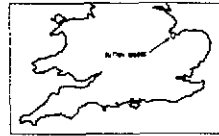
Independent Power
Generators Limited

**Sutton Bridge Power
Station**

Consultative Document
describing the
Offloading Wharf -
Drawings

Ove Arup & Partners
Consulting Engineers

A1



SITE LOCATION

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0847/96

POWER STATION

PROPOSED
OFFLOADING WHARF

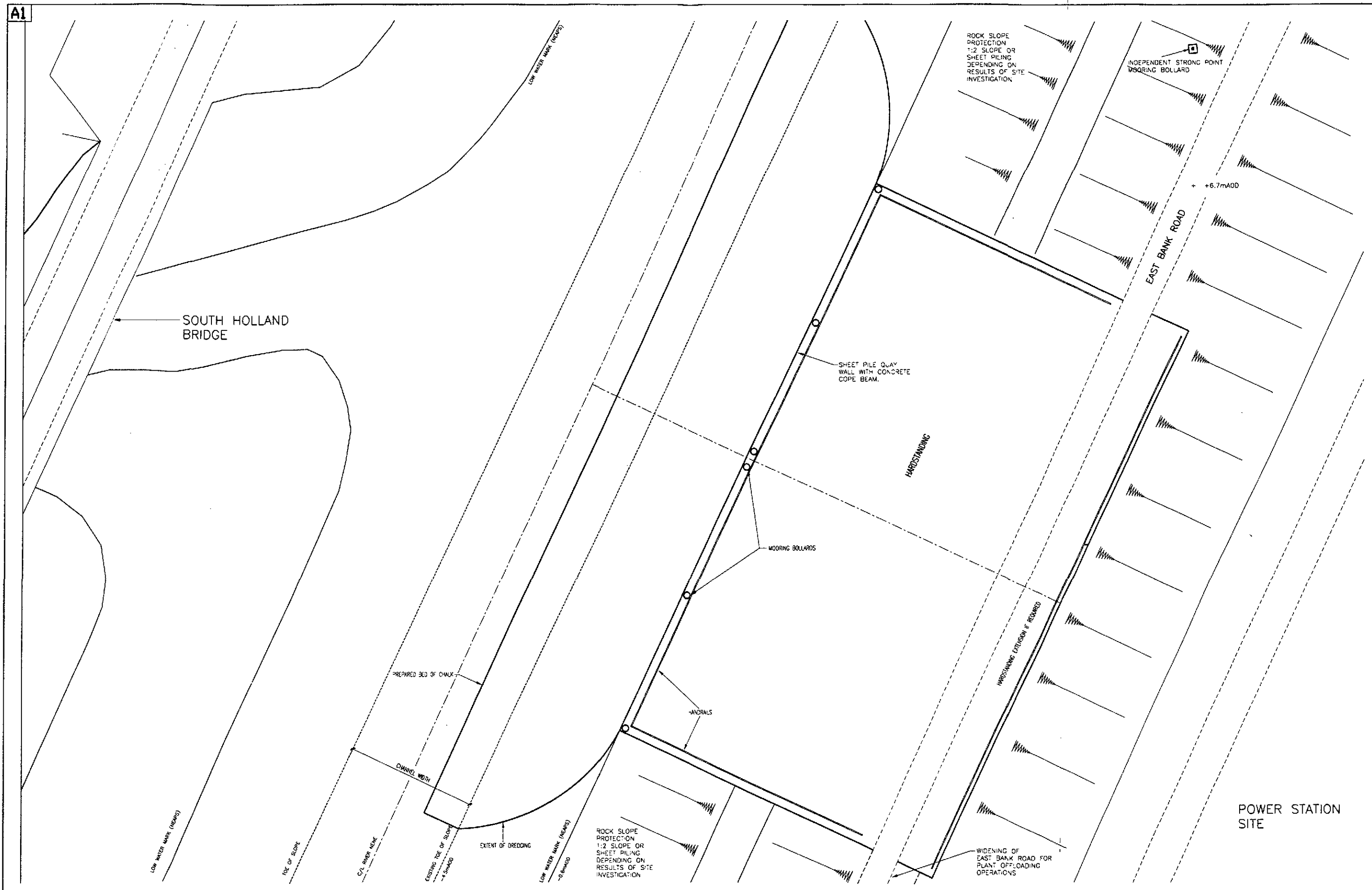
1	08/08/96	M.T.	PLANNING APPLICATION
2			
3			
4			

SUTTON BRIDGE
POWER STATION
OFFLOADING WHARF

Wharf Location Plan
Scale 1:5000
On M.T. Date 28/08/96
Drawing No. 51367
Planning Application

ARUP Ove Arup & Partners
15 Finsbury Square, London EC2A 3BH
Tel: 07-536 7321 Fax: 07-536 7004
Scale 1:5000
On M.T. Date 28/08/96
Drawing No. 51367
Job No. WGA001
Rev. 1

A1



SUTTON BRIDGE
POWER STATION
OFFLOADING WHARF

PLAN

PLANNING APPLICATION

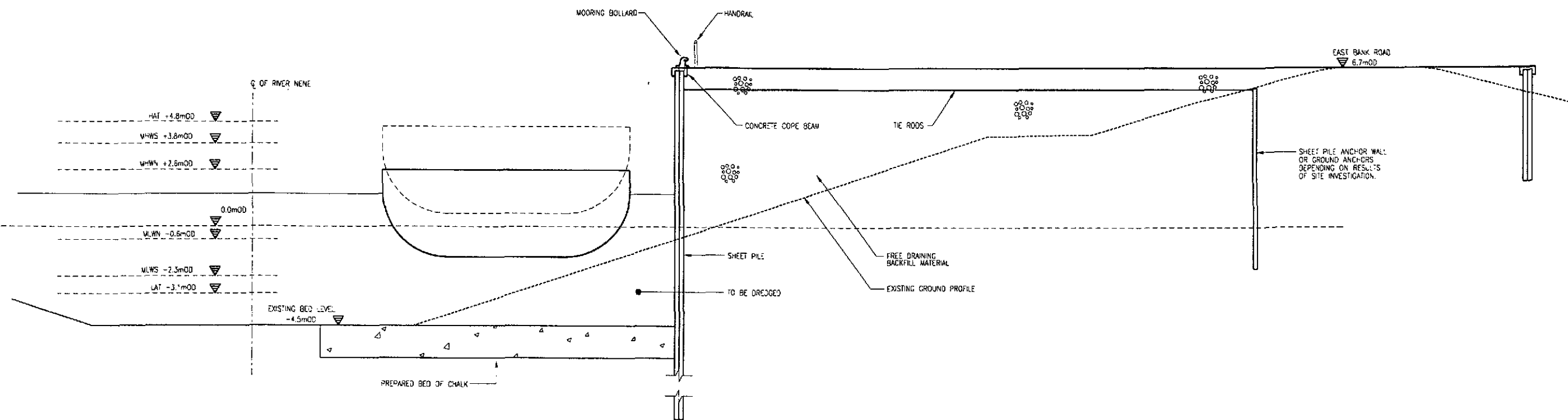
ARUP Ove Arup & Partners
11 Finsbury Street, London EC2A 3BH
Tel: 020 7551 3531 Fax: 020 7551 3504

Scale 1:200
Date 28/08/96
Drawn A.P.H. Checked J.R.H.

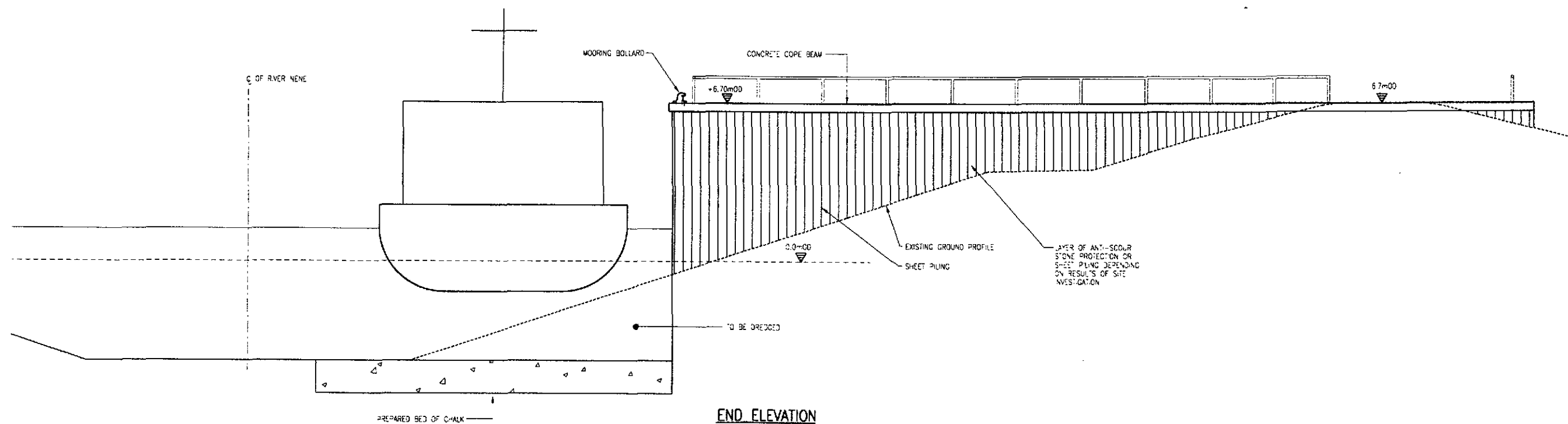
Job No. 51367
Drawing No. VGA002
Rev. 1

Rev.	Date	By	For
1			PLANNING APPLICATION

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TYPICAL SECTION



END ELEVATION

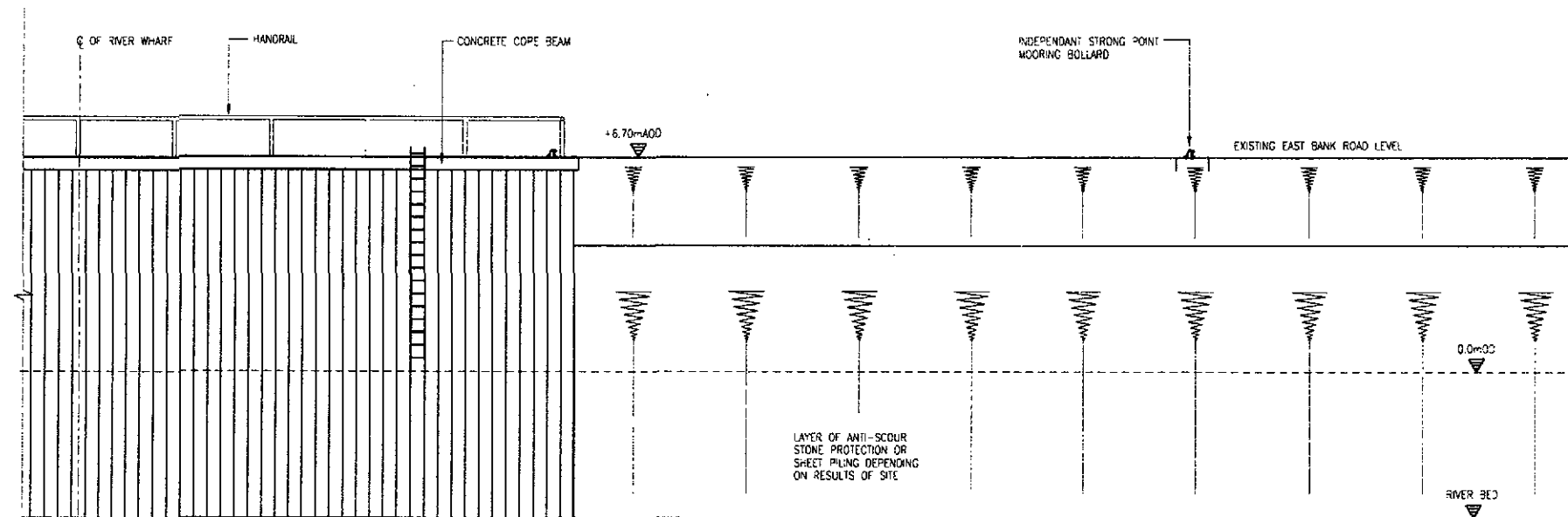
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Rev	Rev	By	Rev

SUTTON BRIDGE
POWER STATION
OFFLOADING WHARF

Typical Section and
End Elevation

PLANNING APPLICATION

ARUP		Ove Arup & Partners	
15 Park Street, London W1P 8BU		Tel: 071-438 1551 Fax: 071-580 8074	
Scale: 1:100	Drawn: M.T.	Date: 28/06/96	Checked: A.P.H.
51367	WGA003	1	

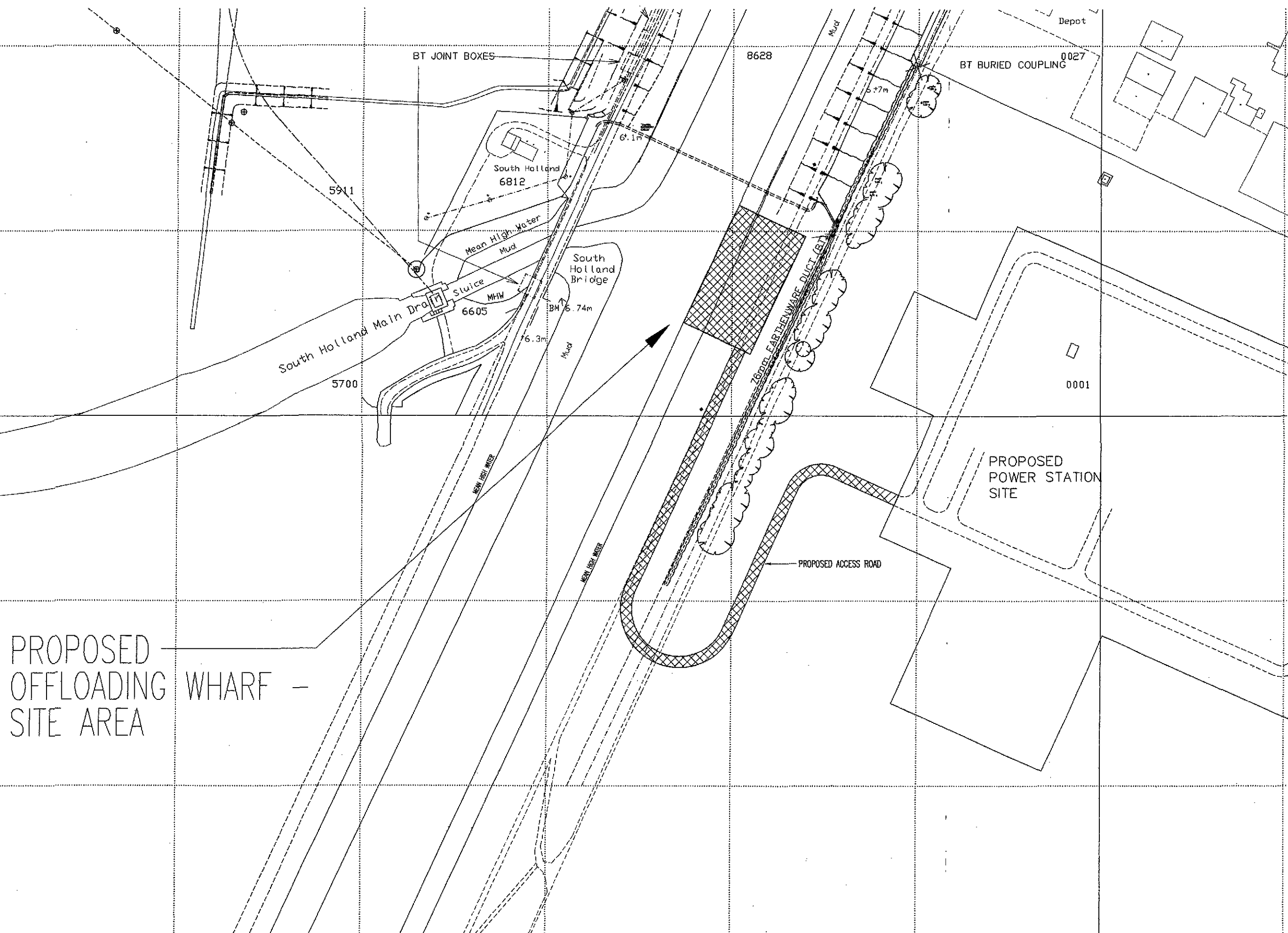
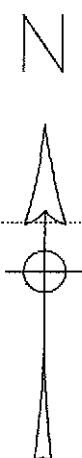


FRONT ELEVATION

Rev	Date	By	Rev
1	26/08/96	M.T.	PLANNING APPLICATION

SUTTON BRIDGE POWER STATION OFFLOADING WHARF	Drawing Title FRONT ELEVATION	ARUP One Arup & Partners 11 Finsbury Street, London EC2A 3DU Tel: 020 7462 1531 Fax: 020 7462 2024	
	Drawing Status PLANNING APPLICATION		Scale 1:100
	Job No. 51367		Drawing No. WGA004

A1



1	25/06/95	M.T.	PLANNING APPLICATION
Mort	Note	By	Rev.

Job Title
SUTTON BRIDGE
POWER STATION
OFFLOADING WHARF

Drawing Title
WHARF & ACCESS ROAD AREA

Drawing Scale
PLANNING APPLICATION

		Ove Arup & Partners 15 Finsbury Street London W1P 6BQ Tel: 071-636 1331 Fax: 071-580 3924	
Scales £:100			
Des. M.T.	Date 28/08/96	Out. A.P.H.	Printed J.R.H.
Job No. 51367	Drawing No. WGA005	Rev. 1	