



SECTION DEPARTMENT  
23/12-74

**sea tank co**

*Key*

SIR ROBERT MC ALPINE & SONS, LTD.

**ELF NORGE A/S**

**FRIGG FIELD**

**TREATMENT PLATFOM N° 1**

**TP1**

**MONTHLY REPORT**

**N° 10**

**TP1 - A 205 - 9**

**SLF 004**

NOVEMBER 20 1974

ELF-NORGE FRIGG TREATMENT PLATFORM N°1  
CONTRACTOR'S MONTHLY REPORT N°10  
TO 20TH NOVEMBER 1974

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SECTION I - DESIGN PROGRESS REPORT

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## I - DESIGN PROGRESS REPORT

### A/ GENERAL REPORT

- . Slipforming first phase : built in items inside columns are to be checked for load capacity.
- . Slipforming second phase : internal walls and vaults were fully designed for the period. Design of columns in the same slip is still to be specified according to the most suitable prestressing arrangements and to built in items still unknown in this very section.. Top of walls has to be accomodated with roof shutters.
- . Columns : stressing levels, internal rings and openings at roof level were considered and need to be finalized according to the operation sequences. Two openings to be used as late access to the columns (watertight doors) are presently under study.
- . Roof design is in good progress and major fixings such as towing points or external clamp supports were specified. Pulling sheaves are still to be determined.
- . Dynamic stresses analysis is being studied and fatigue stresses analysis are proceeding.
- . Recent hydraulic tests showed a wave increase due to caisson and the resulting air gap below support frame is still to be checked.

### B/ STRUCTURE DRAWINGS

- . Slipforming first phase : built in items still subject to check and approval.
- . Slipforming second phase : general drawings completed and approved.
- . Column : current prestressing completed.
- . Miscellaneous : towing points . Penetrations of risers at roof level.

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I DESIGN PROGRESS REPORT (Cont'd)

C/ Temporary Works & Construction Facilities

Section of Work	Percentage Complete		Comments
	Engineering	Drafting	
<u>TEMPORARY WORKS</u>			
Items 1-15 now 100% Complete			
<u>CONSTRUCTION FACILITIES</u>			
20. Sheet Pile Sea Wall	100	100	
21. Basin Excavation	100	100	
22. Basin Well Pointing	100	100	
23. Tower Crane Erection	100	100	
24. Slipform Shutters to Caisson Walls	100	100	
25. Concrete Placing Booms	100	100	
26. Causeway to Floating Jetty	100	100	
27. Floating Jetty	100	100	
28. Offshore Moorings	95	95	
29. Sea Wall Removal & Dredging	100	100	
30. Tow Out and Moor	90	30	Remainder of Work by United Towing
31. Connect Services after Tow Out	100	100	
32. Slipform Shutters to Columns	85	90	
33. Construction Hoists to Columns	90	75	
34. Dismantle Tower Cranes	75	75	
35. Clear Platform for Tow	0	0	
36. Connect Tugs and Slip Moorings	0	0	

SECTION II - SITE PROGRESS REPORT

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ELF-NORGE FRIGG TREATMENT PLATFORM NO. 1

CONTRACTOR'S MONTHLY REPORT NO. 10

TO 20TH NOVEMBER, 1974

II SITE PROGRESS REPORT

(A) GENERAL REPORT

1. General Comment

The slipform started on the nightshift of 22nd/23rd October, and was forced to stop on the morning of Friday, 25th October, when the Steelfixers and Scaffolders went on unofficial strike. On Monday, 28th October, the Electricians, Plumbers, Pipefitters and Welders withdrew their labour.

2. Photographs

2 No. Photographs, taken on 19th November, 1974, are included at the end of this Report. One is an aerial photograph showing the Elf Platform from the East, and the other is a ground shot from the South corner.

3. Weather

Over the period of the slip the weather was good, but during November it has been unsettled, with some very heavy rain and high winds. It has been generally colder, and lately there have been some hard frosts.

4. Labour

Details of the effective Labour Strength are given in Part (C) of this Section.

On Friday, 25th October, the Steelfixers and Scaffolders withdrew their labour, and went on unofficial strike. On the same day telegrams were sent to the men involved, informing them of the termination of their employment. During the last ten days there has been a gradual build up of men returning to work, and it is hoped that the situation will return to normal in the near future.

5. Plant & Equipment

Details of the principle items of Plant on Site are included in Part (D) of this Section.

After initial problems with some of the concrete pumps and placing booms, one pump being replaced, the equipment operated well, and a slipping speed of 2" per hour had been attained before the slipform was forced to stop.

Batcher No. 2 is operational, although an extra bin is to be constructed for a possible alternate aggregate supply.

Cont'd/....

II SITE PROGRESS REPORT (Cont'd)

(A) GENERAL REPORT

5. Plant & Equipment (Cont'd)

The nest of nine silos have been erected but are not yet operational, and the ancilliary buildings require only general finishing work to be completed.

6. Temporary Works

(a) Access Roads

Concreting of the Site roads is well in hand, and a grader and a brush are being used to keep them clean.

(b) Services

The North of Scotland Hydro Electricity Board have connected their supply up to the substation, and the 11 kv. ring main will also be connected up when the Electricians return to work.

(c) Camp Accommodation

Phases I and II of the Camp are effectively complete, and 221 men are now resident. Phase III is in hand, with one dormitory block erected, and the foundations for the others being prepared. Extensions to Phases I and II are also in hand.

Work has started on the erection of a new Canteen opposite the Site Offices.

(d) Wharf

This is effectively complete, and the tie rods and fill to the extension to the permanent landing ramp are being completed. A second Wharf is being prepared on the centre strongpoint, and the dredger is dredging a channel in front of it.

7. Concrete Mixes

The 28 day results for the trial mixes at Batch No. 2 were satisfactory, and trial mixes have been carried out, using Pulverised Fuel Ash.

8. Construction Basin & Permanent Structure

Concreting of the slipformed walls in the Basin started at about mid-night of the 22nd/23rd October, 1974. After some initial problems, including the replacement of a concrete pump, things began to go well, and the shutters lifted off at about 11.0'clock on Wednesday morning, 23rd October. However, since the Steel-fixers and Scaffolders would only work a 40 hour week, the Slip-form was stopped on Friday, 25th October, at a level of +5.6m from the underside of the base. A waterbar was cast in around the outside walls and in the columns, and work on the gussets at the base of the external walls commenced. One section of gusset has been concreted. Some built in items have been positioned, and Alexander Findlays have been working on the tunnels and J-Tubes. It is hoped that the present labour situation will/



II SITE PROGRESS REPORT (Cont'd)

(A) GENERAL REPORT

8. Construction Basin & Permanent Structure (Cont'd)

be resolved soon, and that the slip will restart at the earliest possible opportunity.

9. Materials

Due to intermittent picketing by the Electricians, Plumbers, Pipefitters, and Welders at McInroy Point and the Site Gate, materials transported by road and ferry have arrived when possible. The ships bringing aggregate, sand and reinforcement have continued as normal.

10. Programmes

It is hoped that a fully detailed Construction Programme will be issued shortly.

CONTRACTOR'S MONTHLY REPORT NO. 10

TO 20TH NOVEMBER, 1974

II SITE PROGRESS REPORT (Cont'd)

(B) PROGRESS SCHEDULE

1. Temporary Works & Construction Facilities

Section of Work	Percentage Complete		Progress for Month (Percent -age)	Comments
	Programmed	Actual		
<u>TEMPORARY WORKS</u>				
1. Office Accommodation				
(a) McAlpine	100	100	-	
(b) Sea Tank	100	100	-	
(c) Shell	100	100	-	
2. Camp Accommodation	100	95	-	Covers Phase I & II of the Camp
3. Canteen	100	100	-	
4. Site Water Supply	100	98	-	Effectively operational
5. Electricity Supply to Site	-	60	10	
6. Telephones	-	-	-	25 No. lines are now in use on the Site. The G.P.O. are taking steps to make 50 lines available.
7. Site Foul Drainage	100	98	-	
8. Wharf	100	99	-	
9. Auxiliary Concrete Batcher	100	100	-	
10. Main Concrete Batcher	100	98	-	Operational
11. Concrete Mix Approval	100	100	-	
12. Reinforcement Yard	-	100	-	
13. Joiners Shop	-	100	-	
14. Fitters Shop	-	95	-	Heating outstanding
15. Prestressing Store	-	100	1	

ELF-NORGE FRIGG TREATMENT PLATFORM NO. 1

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TO 20TH NOVEMBER, 1974

II SITE PROGRESS REPORT (Cont'd)

(B) PROGRESS SCHEDULE

1. Temporary Works & Construction Facilities (Cont'd)

Section of Work	Percentage Complete		Progress for (Percent -age)	Comments
	Programmed	Actual		
<u>CONSTRUCTION FACILITIES</u>				
20. Sheet Pile Sea Wall	100	100	-	
21. Basin Excavation	100	100	-	
22. Basin Well Pointing	100	100	-	
23. Tower Crane Erection	100	100	-	
24. Slipform Shutters to Caisson Walls	100	100	-	
25. Concrete Placing Booms	100	100	-	
26. Prepare Floating Jetty	-	50	-	
27. Prepare Offshore Moorings	-	35	5	
28. Sea Wall Removal & Dredging	-	-	-	
29. Tow Out and Moor	-	-	-	
30. Connect Services after Tow Out	-	-	-	
31. Slipform Shutters to Columns	-	-	-	
32. Construction Hoists to Columns	-	-	-	
33. Dismantle Tower Cranes	-	-	-	
34. Clear Platform for Tow	-	-	-	
35. Connect Tugs & Slip Moorings	-	-	-	

TO 20TH NOVEMBER, 1974

II SITE PROGRESS REPORT (Cont'd)

(B) PROGRESS SCHEDULE

2. Permanent Structure

Section of Work	Percentage Complete		Progress for Month (Percent -age)	Comments
	Programmed	Actual		
1. Precast Skirt Sections				
(a) Make	100	100	-	
(b) Place	100	100	-	
2. Caisson Base Slab 0.50m	100	100	-	
3. Prestress Base Slab	100	100	-	
4. Vent Pipework	-	31	11	
5. Grouting Pipework	-	8	3	
6. Piezometer Pipework	-	8	3	
7. J-Tubes	-	11	2	
8. Sea Bed Risers	-	-	-	
9. Immersion Pipework	-	-	-	28 No. sleeves & 4 No. receiver bottles cast in
10. Caisson Dwarf Walls	100	100	-	
11. Caisson Walls in Basin	100	25	25	
12. Caisson Walls at Moorings	-	-	-	
13. Complete Base Slab & Fillet	-	-	-	
14. Caisson Ballast Concrete	-	-	-	
15. Construct Columns (2 No.)	-	-	-	
16. Prestress & Grout Columns	-	-	-	
17. Caisson Roofs	-	-	-	
18. Immersion Module & Cabling	-	-	-	

ELF-NORGE FRIGG TREATMENT PLATFORM NO. 1

CONTRACTOR'S MONTHLY REPORT NO. 10

TO 20TH NOVEMBER, 1974

II SITE PROGRESS REPORT

(C) LABOUR REPORT

The average effective Labour strength, taken as the average of the totals on each Wednesday of the month is as follows:-

McAlpine Labour

	<u>Elf</u>	<u>Ardyne Point</u>
Steelfixers (Including S/Fixer Labourers)	21	16
Joiners (Including Joiner's Labourers)	42	48
General Labourers	63	147
Other Trades	<u>37</u>	<u>278</u>
	<u>163</u>	<u>489</u>

NOTE :

1. Elf numbers are averages of men employed on the Construction of the Elf Platform.
2. Ardyne Point numbers are averages of men engaged upon completing, running and maintaining the Site facilities for the benefit of all Platforms under construction at Ardyne Point.

Sub-Contractor's Labour on Site at the 20th of the month

Kockum	15 No.
Westminster Dredging	75 No.
Tyers Welding	1 No.
Sterling Construction	10 No.
West Sea Diving	3 No.
Colebrand	7 No.
Terrapin	13 No.
Millars Wellpoint	4 No.
Findlays	12 No.
Wimpey	11 No.
Brown & Roote	<u>8 No.</u>
	<u>159 No.</u>

ELF-NORGE FRIGG TREATMENT PLATFORM NO. 1

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II SITE PROGRESS REPORT

(D) PLANT REPORT

Plant Return for major items of equipment in effective use.

<u>Crawler Cranes/Excavators</u>	1 No. Manitowoc 4000
	3 No. NCK 605
	3 No. Priestman Lion
	1 No. NCK Andes C41B
	2 No. NCK Rapier
<u>Back Actor Excavators</u>	2 No. $\frac{5}{8}$ cy. Hydraulic Excavators
	1 No. $1\frac{1}{4}$ cy. " "
	1 No. 1 cy. " "
<u>Crawler Tractor/Dozers</u>	3 No.
<u>Tracked Shovel Loaders</u>	6 No.
<u>Wheeled Tractors</u>	5 No.
<u>Wheeled Shovel/Excavators</u>	5 No.
<u>Dumptrucks</u>	20 No.
<u>Mobile Cranes</u>	1 No.
<u>Truckcretes</u>	8 No.
<u>Dumpers</u>	10 No.
<u>Concrete Batcher</u>	1 No. Winget 2x2cy. (Batcher No. 1)
	1 No. Winget 2x1cy. (Batcher No. 2)
<u>Tower Cranes</u>	1 No. Record 646E (Reinf. Yard)
	4 No. Record 764CDM (Elf Basin)

Also, Generators, Welding Sets, Lighting Sets, Concrete Vibrators, Mobile Concrete Mixers, Pumps, Transport Vehicles, Air Compressors, Piling Hammers and Extractors, Fuel and Water Bowers, Chainsaws, Saw Benches, Boilers, Transformers, Battery Charger, Grabs, Rollers, Reinforcement Cutting and Bending Machines, Storage Tanks, Aggregate Screening Plant, Mobile Toilets, Boats, Aggregate Hoppers, Coaches, Pontoons, Cement Silos, Concrete Pumps, Concrete Placing Booms, Cement Tankers.

SECTION III - PROCUREMENT PROGRESS REPORT

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ELF-NORGE FRIGG TREATMENT PLATFORM NO. 1

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TO 20TH NOVEMBER, 1974

III PROCUREMENT PROGRESS REPORT

(A) BULK ITEMS

MATERIAL	ORDER PLACED	TOTAL QUANTITIES DELIVERED		QUANTITY DELIVERED FOR MONTH	COMMENTS
		SCHEDULED	ACTUAL		
Concrete Aggregates	15/1/74	61500 tonnes	51310 tonnes	4810 tonnes	See Note 1
Concrete Sand	15/1/74	41000 tonnes	26140 tonnes	1140 tonnes	See Note 1
Cement	7/1/74	5050 tonnes	5050 tonnes	605 tonnes	See Note 2
Reinforcement		5900 tonnes	5425 tonnes	194 tonnes	

NOTES

1. Scheduled Aggregate & Sand deliveries are monitored against the original delivery programme.
2. Cement called forward to suit consumption and storage space.



ELF-NORGE FRIGG TREATMENT PLATFORM NO. 1CONTRACTOR'S MONTHLY REPORT NO. 10TO 20TH NOVEMBER, 1974III PROCUREMENT PROGRESS REPORT (Cont'd)(B) FABRICATED AND BOUGHT-IN ITEMS

Item	Order Placed	Fabrication	Delivery Due	Delivery Made	Comments
1. <u>Precast Skirts</u>					
(a) Lifting Anchorages	7/3/74 (3016/ M/A)		13/3/74	Yes	Complete
2. <u>Caisson Base Slab 0.50m</u>					
(a) Grout Directional Steelwork	5/3/74 (3016/ B/303)				Complete
(b) Seabed Grout Pipework	4/3/74 (3016/ B/302)	B.S.C.	22/7/74		Complete
Diffusors for Ditto	-	-	4/3/74	Yes.	Complete
(c) Seabed Vent Pipes					Complete
3"	4/3/74 (3016/ B/302)	B.S.C.	22/7/74		
5"	"	B.S.C.	22/7/74	11/4/74	126/200
10"	12/3/74 (3016/ B/304)	B.S.C.	August	13/9/74	580/1000
Plugs for Ditto	-	-	4/3/74	Yes	Complete
(d) Piezometer Pipework	4/3/74 (3016/ B/302)	B.S.C.	22/7/74		Complete
Plugs for Ditto	-	-	4/3/74	Yes	Complete
(e) Tower Crane Fixings			12/4/74	3/4/74	Complete
(f) Prestressing Equipment Strand	21/2/74 (3016/ B/300)	Bridon Wire	25% by 1/5/74	Complete	
Sheathing	27/2/74	C.C.L.	1/4/74	8/4/74	Complete
Grout Exit Couplers	27/2/74 (3016/ B/301)	C.C.L.	1/4/74	8/4/74	Complete

Cont'd/....

III PROCUREMENT PROGRESS REPORT (Cont'd)

(B) FABRICATED AND BOUGHT-IN ITEMS

Item	Order Placed	Fabrication	Delivery Due	Delivery Made	Comments
2. (f) (Cont'd) Plain Couplers	27/2/74 (3016/ B/301)	C.C.L.	1/4/74	8/4/74	Complete
Tube Units	"	C.C.L.	1/4/74	29/4/74	Complete
Bearing Plates and Grips	"	C.C.L.	1/5/74	-	Complete
Dummy Barrels	"	C.C.L.	1/5/74	-	Complete
(g) 3" Instrument- ation Pipe	C37/27	B.S.C./ Inshaw	9/4/74 18/4/74	24/4/74	Complete
(h) Echo Sounding Reservations					U.I.E. Complete
3. <u>Caisson Base Dwarf Walls</u>					
(a) Ground Bottom Switch Plates	C37/26	-	12/4/74	Yes	McA. Supply Complete
(b) Sleeves for Cables, Sounders & Contacts	-	-		2/5/74	U.I.E. Complete
(c) Immersion Pipe- work Outlets	-	-		2/5/74	U.I.E. Complete
(d) Risers Anchors	-	Brown & Root		Yes	10/14
(e) Risers Tubes 24" 26" 32"	-				Brown & Root
(f) Risers Supports					Brown & Root
(g) J-Tubes 10 $\frac{3}{4}$ " & 18"	9/4/74 (3016/ B/305)	A. Findlay		On Site	5 No. pieces for stage 1 'B' Elements
(h) Tunnels 38" 44"		A. Findlay			6m length through 'B' Elem- ents
(i) Mooring Points		A.K.D.			Item 2 Drg. 192
(m) Towing Points					Complete

(B) FABRICATED AND BOUGHT-IN ITEMS

Item	Order Placed	Fabrication	Delivery Due	Delivery Made	Comments
4. <u>Caisson Walls in the Basin</u>					
(a) Fixing Bolts for temporary Con- creting Boom					Complete
(b) 7 No. Steelplates, reference electronics	26/6/74	A. Findlay	End July		Complete
(c) Plates for cable- way and hydraulic pipes	9/9/74	F. & E. Metals	End Sept.		Complete
(d) Plates for pull- ing Module	9/9/74	F. & E. Metals	End Oct.		Complete
(e) Towing Point Type D (Sockets)					Complete
(f) Towing Point Type E (Sockets)					Complete
(g) Mooring Sockets for Pontoon (Type A)		Taylor & Palister Newcastle	1st week Oct.	70 No.	150 No. Total
(h) Sockets Type B for access land- ings		Covallien Eng. Ltd.	Mid-Oct.	11/10/74	Complete
(i) Sockets Type C for access land- ings		"	Mid-Oct. 1st Week Oct.	11/10/74	Complete
(j) Plates for Ventfix- ings	12/8/74	F. & E. Metals Newcastle	25% End Sept. 75% Mid Nov.		Complete
(k) Waterbars in walls for joint between 1st & 2nd stage slip					Complete
(l) Sockets for padeyes	26/9/74	South Dock Ironworks	Mid Nov.		
Type (1)					
Type (2)	26/9/74	Co. Ltd.	8th Oct.	17/10/74	Complete
Type (3)	26/9/74	Sunderland	8th Oct.	17/10/74	Complete
Type (4)	26/9/74	"	8th Oct.	17/10/74	Complete
Type (5)	26/9/74	"	8th Oct.	17/10/74	Complete
Type (6)	26/9/74	"	8th Oct.	17/10/74	Complete
Type (8)	26/9/74	"	8th Oct.	17/10/74	Complete
Type (9)	10/10/74	"	28/10/74	18/10/74	Complete

III PROCUREMENT PROGRESS REPORT (Cont'd)

(B) FABRICATED AND BOUGHT-IN ITEMS

Item	Order Placed	Fabrication	Delivery Due	Delivery Made	Comments
4. Cont'd					
(m) Sockets for Divers Platform	26/9/74	South Dock Ironworks Co. Ltd., Sunderland	8/10/74	9/10/74	Complete
(n) Sleeves for cable-way	9/9/74	F. & E. Metals	End Sept.	9/10/74	Complete
(o) Plates for Working Platforms		Kettering	8/10/74	8/10/74	Complete

SECTION IV - SUPPORT FRAME

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#### IV - SUPPORT FRAME

##### A/ DESIGN

- . Permanent and temporary holes through the steel cap's cover plates were specified by Mac DERMOTT HUDSON to CMP but stiffeners are still on "hold" on drawings 120 rev. 4 and 121 rev. 2.
- . First issues of drawings related to barge bumpers were delivered.
- . MDH was given preliminary informations related to the temporary immersion bridge and the grouting deck to be erected on the support frame.
- . MDH/OCEANIC will design a proper guiding system for the tie in can erection.
- . Tolerances were once more considered and STC confirmed  $\pm 4$ " being a maximum between centerlines of columns : this is to be further investigated to reach  $\pm 3$ " acceptable to MDH. Relative positioning of bars and holes in the tie in can's base plate is also to be investigated.

##### B/ PROCUREMENT

Local procurements 56%.

##### C/ FABRICATION

Progress support frame	32%
steel cap	26%
miscellaneous	15%

CMP pointed out the need of specification of cover plates' stiffeners.  
CMP intends to subcontract miscellaneous equipments such as boat fenders and sump caisson to STEGG (Rouen) and LEFORT (Dunkerque).

SECTION V - IMMERSION EQUIPMENTS

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V - IMMERSION EQUIPMENTS

. Design progress hydraulic devices	90%
electric	80%
electronics	70%
piping	100%

. Temporary immersion bridge design is in good progress although all the equipments and modules to be located on this bridge have to be fully specified. Winches for self lifting of the bridge and handling of towing cables were ordered i.e. 4 x 12 T pull hydraulic winches with 2 x 90 cv power sets.



SECTION VI - RISERS AND J TUBES

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VI - RISERS AND J TUBES

- . B & R/WIMPEY issued a new procedure and submitted it to STC/McA comments. However the corresponding time schedule has not been delivered yet. This procedure asks for a shortening of two tunnels which has to be checked with MDH.
- . Complete list of all built in items in the caisson height is now to be established, locations and loads to be determined.

SECTION VII - GROUTING

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VII - GROUTING

- . A preliminary sketch of SOLETANCHE deck (700 t) was issued to MDH to verify loading sequences of the support frame. Handling devices for cement hoses are to be designed.
- . The contractor pointed out the need of a direct access from quarters on QP1 to TP1 for a smooth two shifts operation.

SECTION VIII - MARINE OPERATIONS

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## VIII - MARINE OPERATIONS

- . McA is proceeding with a 6 points procedure for towing out of the basin.
- . The main towing contract is still pending on a completion date for the platform.
- . Noble Denton gave approval to towing gears and immersion procedure with pontoons. Furthermore they recommended the tow master to be accomodated on the platform with navigational aids, along with 9 men for survey, mechanical assistance, handlings etc...
- . Preliminary sketch of the temporary immersion bridge was given to NB. Emergency escape is to be investigated. Approval was given by NB to order winches for handling of towing cable.

SECTION IX - ANTISCOURING

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IX - ANTISCOURING

- . DELFT HYDRAULIC LABORATORY is investigating the need of a filter layer below the antiscouring protection.  
Preliminary procedure was transmitted to ELF. This procedure does not include the control of the behaviour of antiscouring materials.



SECTION X - CRITICAL PATH ANALYSIS

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X - CRITICAL PATH ANALYSIS

A detailed revised Construction Programme dated 21.10.1974 was issued.

A revised bar chart of structure operations was delivered to ELF (21.11.74) and BROWN AND ROOT.

SECTION X - PHOTOGRAPHS

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74/766/3

ELF SOUTH

19.11.74



74/766/6

ELF PLATFORM

19.11.74