

MONNIER
FOR 812156

sea tank co

SIR ROBERT MC ALPINE & SONS, LTD.

950-340-E14

ELF NORGE A/S

FRIGG FIELD

TREATMENT PLATFORM N° 1

TP1

MONTHLY REPORT

N° 12

TP1-A-205-9 SCF 006

To 20th January 1975



ELF NORGE FRIGG TREATMENT PLATFORM N°1
CONTRACTOR'S MONTHLY REPORT N°12
TO 20TH JANUARY, 1975

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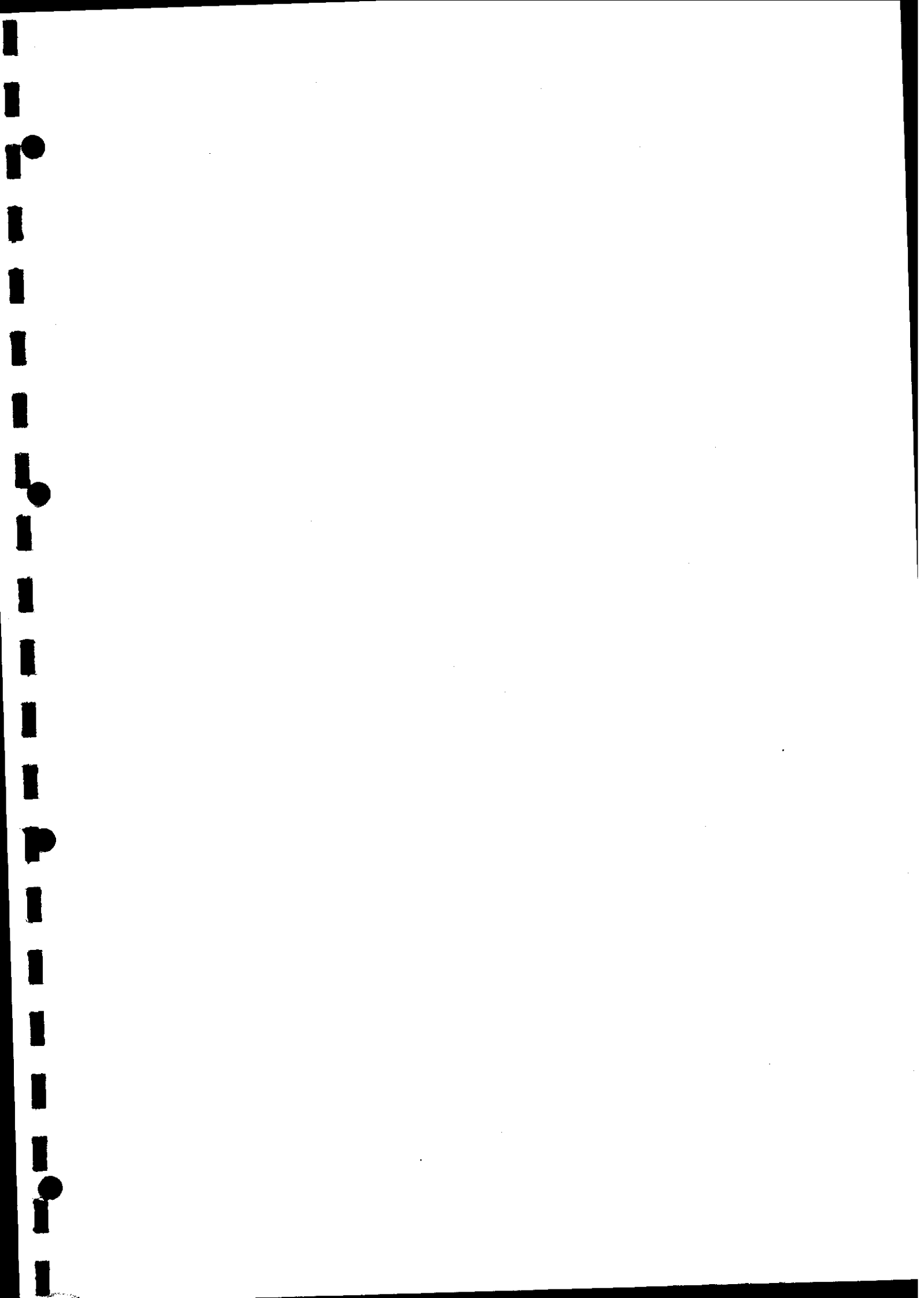
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SECTION I - DESIGN PROGRESS REPORT

I - DESIGN PROGRESS REPORT

A/ GENERAL REPORT

The overall design of the structure is completed within the scope of works, with the exception of detailed studies for fixings or risers erection still unknown. Approval had been given for as launched caisson in due time but is held for top of caisson and columns, pending of the alternative of raising the caisson to increase loads at the top (40 m caisson)

The overall design (36 m caisson) consists of :

- . as launched caisson
- . top of caisson
- . columns (reinforcement and prestressing)
- . roof
- . stability notes
- . dynamic stresses
- . fatigue stresses

During the period STC investigated the feasibility of loading the support frame on this side of the North Channel, according to December request from ELF. STC emitted favourable comments for 2500 T at top provided further dynamic studies and model tests to ascertain.

B/ STRUCTURAL DRAWINGS

	<u>Progress</u>	<u>Approval</u>
As launched caisson	100 %	100 %
Top of caisson (36 m caisson)	100 %	'
Built in items in top of caisson roof	50 %	'
Roof	100 %	'
Built in items on roof	70 %	'
Columns up to + 16 m level	100 %	'
Built in items in columns	10 %	'
Built in items outside columns	'	'
Columns (+ 16 to + 19)	70 %	'
Built in items outside top of columns	'	'
Slots and openings in columns	100 %	'

C/ MODEL TESTS

A new series of model tests were ordered to NSMB in order to check the behaviour of the structure with 2500 T at top, with various metacentric heights. These tests will occur by end of next month.

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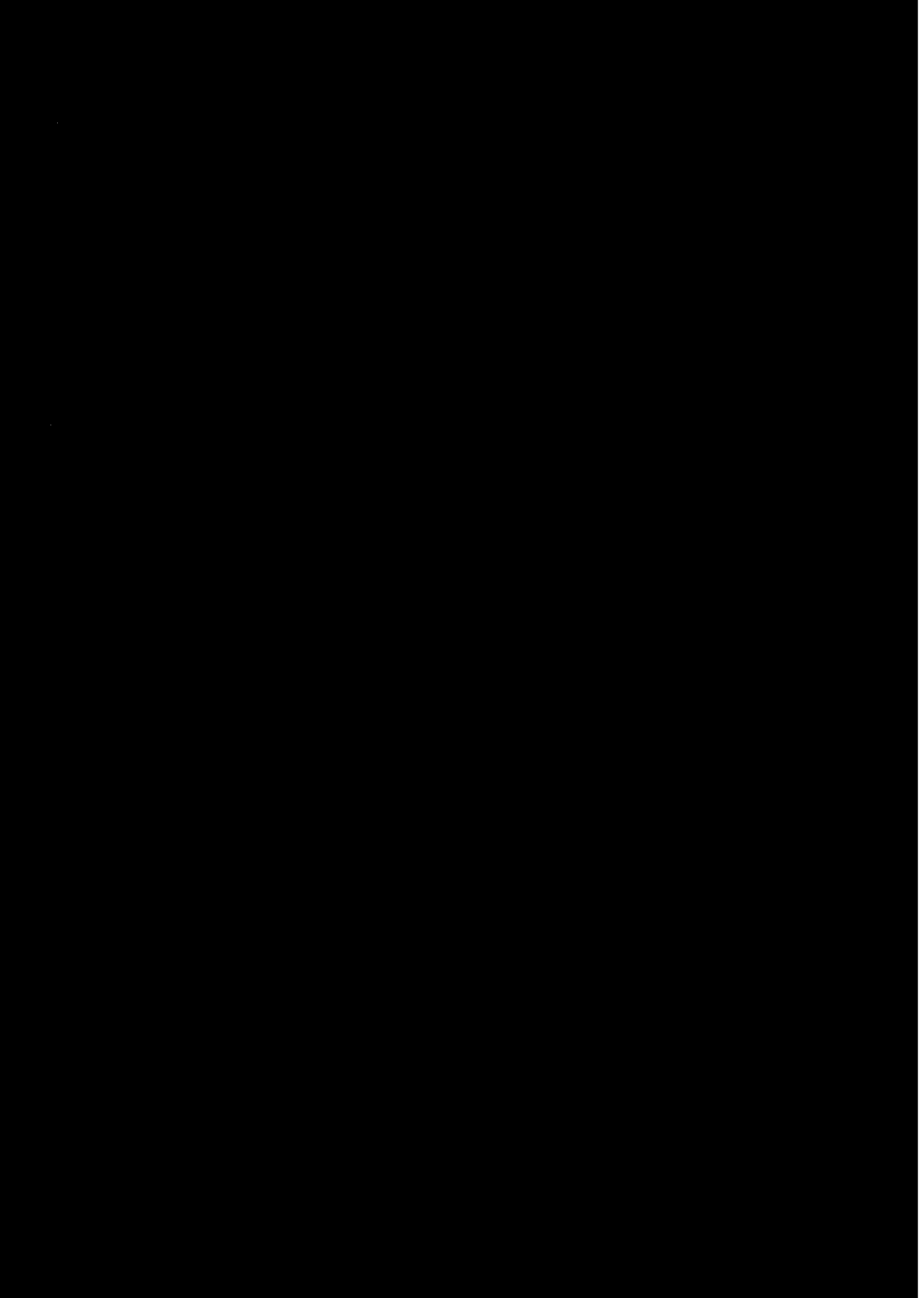
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I DESIGN PROGRESS REPORT (Cont'd)

(D) 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	Mini Box Anchor being tested
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	100	100	
33. Construction Hoists to Columns	95	85	
34. Dismantle Tower Cranes	75	75	
35. Clear Platform for Tow	0	0	
36. Connect Tags and Slip Moorings	0	0	



SECTION II - SITE PROGRESS REPORT

ELF-NORGE TREATMENT PLATFORM NO. 1

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II SITE PROGRESS REPORT

(A) GENERAL REPORT

1. General Comment

As during the previous month work on the platform has been considerably retarded through the continued strike of the Electricians, Pipefitters and Welders.

These men did not return to work until Friday, 17 January, 1975.

Slip forming of the caisson walls was re-started at 10.00 p.m. on Sunday, 19 January, 1975.

2. Photographs

An aerial photograph of the basin from the South-West and a ground shot of the platform from the West, both taken on 16 January, 1975, are included at the end of the Report.

3. Weather

Since our last Report on 20 December, 1974, the weather has been mainly wet and windy.

4. Labour

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

The strike by the Electricians, Plumbers, Pipefitters and Welders has been resolved and the men returned to work on Friday, 17 January, 1975. Progress since then has been good.

5. Plant & Equipment

Details of the principle items of Plant being used on construction of the Elf Platform and its associated works are included in Part (D) of this Section.

At Batcher No. 2 work has continued on the nine additional cement storage silos.

6. Temporary Works

(a) Access Roads

Because of the exceptional amount of inclement weather during the month further road construction has been almost at a stand-still.

Cont'd/....

II SITE PROGRESS REPORT (Cont'd)

(A) GENERAL REPORT

6. (a) Access Roads (Cont'd)

Cleaning of the roads by grader and brush has continued.

(b) Services

Due to the continued strike of the Electricians, Plumbers, Pipefitters and Welders there has been no work carried out on the Services during the month.

(c) Camp Accommodation

Work has continued, as weather permitted, on further excavation and preparation of land for Phase III of the Camp. However, no further work was possible on construction of foundations for the dormitory blocks and erection of the buildings is still held up pending installation of the under floor services.

The foundations for the extension to the Camp Canteen have been completed.

(d) Wharf

Further sections of slab have been cast on the extension to the permanent landing ramp, which is now approximately 70% complete.

Some progress has also been made with respect to construction of the access road to the second Wharf at the centre strong point.

(e) Additional Canteen Opposite the Main Site Office

Work has continued on the installation of partitions and flooring. Further areas round the building have been paved.

7. Concrete Mixes

Tests carried out on 56 day old cubes incorporating Pulverised Fuel Ash and on 28 day old cubes made from concrete incorporating 'Furnace' aggregate have both proved satisfactory.

8. Construction Basin & Permanent Structure

Work carried out on the platform during the month consisted of concreting in the Tunnel Riser Sleeves, applying epoxy coating to the joints in the caisson walls and completing preparations for further slip forming of the caisson walls. Concreting of the walls re-commenced at 10.00 p.m. on Sunday, 19 January, 1975, and by midnight on 20 January, 1 metre height of wall had been poured.

Cleaning out of the cells has continued.

Installation of the 18" dia. syphon pipe for filling the basin with sea-water has also progressed satisfactorily and is approximately 80% complete.

II SITE PROGRESS REPORT (Cont'd)

(A) GENERAL REPORT

9. Materials

Delivery - satisfactory.

10. Programme

This will be updated as soon as concreting of the caisson walls within the basin has been completed.

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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				
(a) Phases I & II	100	100	-	
(b) Phase III	100	25	25	
3. (a) Canteen	100	100	-	
(b) New Main Site Canteen	100	80	5	
(c) Extension to Camp Canteen	100	5	5	
4. Site Water Supply	100	98	-	Effectively Operational
5. Electricity Supply to Site	-	60	-	
6. Telephones	-	-	-	33 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	100	-	
8. Wharf	100	99	-	
9. Auxiliary Concrete Batcher	100	100	-	
10. Main Concrete Batcher	100	100	2	
11. Concrete Mix Approval	100	100	-	
12. Reinforcement Yard	-	100	-	
13. Joiners Shop	-	100	-	
14. Fitters Shop	-	98	1	
15. Prestressing Store	-	100	-	

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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	-	55	15	
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	-	-	-	

ELF-NORGE FRIGG TREATMENT PLATFORM NO. 1

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TO 20TH JANUARY, 1975

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	-	
5. Grouting Pipework	-	8	-	
6. Piezometer Pipework	-	8	-	
7. J-Tubes	-	69	49	
8. Sea Bed Risers	-	30	-	
9. Immersion Pipework	-	-	-	28 No. Sleeves & 4 No. Receiver Bottles Cast In
10. Caisson Dwarf Walls	100	100	-	
11. Caisson Walls in Basin	100	35	10	
12. Complete Fillet	100	100	-	
13. Caisson Walls at Moorings	-	-	-	
14. Complete Base Slab	-	-	-	
15. Caisson Ballast Concrete	-	-	-	
16. Construct Columns (2 No.)	-	-	-	
17. Prestress & Grout Columns	-	-	-	
18. Caisson Roofs	-	-	-	
19. Immersion Module & Cabling	-	-	-	

ELF-NORGE FRIGG TREATMENT PLATFORM NO. 1

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II SITE PROGRESS REPORT

(c) LABOUR REPORT

The effective Labour strength, taken as the average of the totals on Tuesday, 24th December, 1974, and the 2 Wednesdays, 8th and 15th January, 1975, is as follows:-

McAlpine Labour

	<u>Elf</u>	<u>Ardyne Point</u>
Steelfixers (including S/Fixer Labourers)	13	20
Joiners (including Joiner's Labourers)	6	38
General Labourers	9	126
Other Trades	<u>16</u>	<u>270</u>
	<u>44</u>	<u>454</u>

NOTES :

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.

Subcontractor's Labour on Site at the 20th of the month

Kockum	15
Tyers Welding	1
Sterling Construction	27
Colebrand	6
Terrapin	13
Millars Wellpoint	4
H.G.S. Ltd.	<u>2</u>
	<u>68</u>

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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>	2 No. NCK 605
	2 No. Priestman Lion
	1 No. NCK Andes C41B
	1 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>	7 No.
<u>Tracked Shovel Loaders</u>	6 No.
<u>Wheeled Tractors</u>	5 No.
<u>Wheeled Shovel/Excavators/Loaders</u>	9 No.
<u>Dumptrucks</u>	24 No.
<u>Mobile Cranes</u>	1 No.
<u>Truckcretes</u>	8 No.
<u>Dumpers</u>	9 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 764 CDM (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

ELF-NORGE FRIGG TREATMENT PLATFORM NO. 1

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TO 20TH JANUARY, 1975.

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	74360 tonnes	62201 tonnes	3026 tonnes	See Note 1
Concrete Sand	15/1/74	49680 tonnes	27440 tonnes	620 tonnes	See Note 1
Cement	7/1/74	tonnes	tonnes	tonnes	See Notes 2 and 3
Reinforcement		5900 tonnes	6070 tonnes	NIL	Delivery Complete

NOTES :

1. Scheduled Aggregate & Sand deliveries are monitored against the original delivery programme.
2. Cement called forward to suit consumption and storage space.
3. It has not been possible to obtain details of the total amount of cement delivered for this Platform during the month due to staff commitments with respect to the slipforming operation.

TO 20TH JANUARY, 1975

III 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					
3"	4/3/74 (3016/ B/302)	B.S.C.	22/7/74		Complete
5"	"	B.S.C.	22/7/74	Yes	Complete
10"	12/3/74 (3016/ B/304)	B.S.C.	August	Yes	Complete
Plugs for Ditto	-	-	4/3/74	Yes	Complete
(d) Piezometer Pipework	4/3/74	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	Yes	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/....

(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" Instrumentation 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 Concreting Boom					Complete
(b) 7 No. Steelplates, reference electronics	26/6/74	A. Findlay	End July		Complete
(c) Plates for cableway and hydraulic pipes	9/9/74	F. & E. Metals	End Sept.		Complete
(d) Plates for pulling 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 landings		Covallien Eng. Ltd.	Mid-Oct.	11/10/74	Complete
(i) Sockets Type C for access landings		"	Mid-Oct. 1st Week Oct.	11/10/74	Complete
(j) Plates for Ventfixings	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)		Co. Ltd.	8th Oct.	17/10/74	Complete
Type (2)	26/9/74	Sunderland	8th Oct.	17/10/74	Complete
Type (3)	26/9/74	"	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 Date	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 cableway	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
(p) Steelplates for Watertight Doors		F & E Metals Glasgow		4/11/74 112 No.	Complete
(q) 1½" Galv. Conduit for Strainstall		Gledston & Co. Ltd.		18/11/74 250 lm	Complete
(t) Junction boxes for Strainstall		Gledston & Co. Ltd.		18/11/74 8 No.	Complete



SECTION IV - SUPPORT FRAME

IV - SUPPORT FRAME

. Design.

Progress 95 %.

Addition of welding platforms, lifting eyes, manholes in central tank etc..

Holes in the tie in can's base are still on hold.

. Fabrication

Progress - support frame and steel cap	50 %
- tie in can	40 %
- miscellaneous	20 %

The erection yard and erection hall are near completion and sheet piling and dredging for the load out basin proceeded.

Mani stresses are being erected and their progress reaches 50 %. Steel cap's rings were assembled on yard.

Prefabrication of central tank, tie in can and cover plates is achieved in Dunkirk and Haumont, for transport to site.



SECTION V - IMMERSION EQUIPMENT

V - IMMERSION EQUIPMENT

. Design progress

hydraulic devices	95 %
electric devices	85 %
electronics devices	80 %
pipng	100 %

- . Design of temporary bridge is still on holds, pending for methods of erection and removal, with the probable towering of the support frame
- . Procedures for deep immersion in Loch Fyne and maintenance will have to be reviewed according to the new schedule.
- . Fabrication
 - Immersion module was assembled but is still waiting for the return of main and control valves from check at the facturer's shop
 - Furthermore a watertighness test for main valves will be conducted with similar tests for the QP Platform.
 - Wiring and testing of the teleprocessing pannels are currently being done in MATRA's workshop.

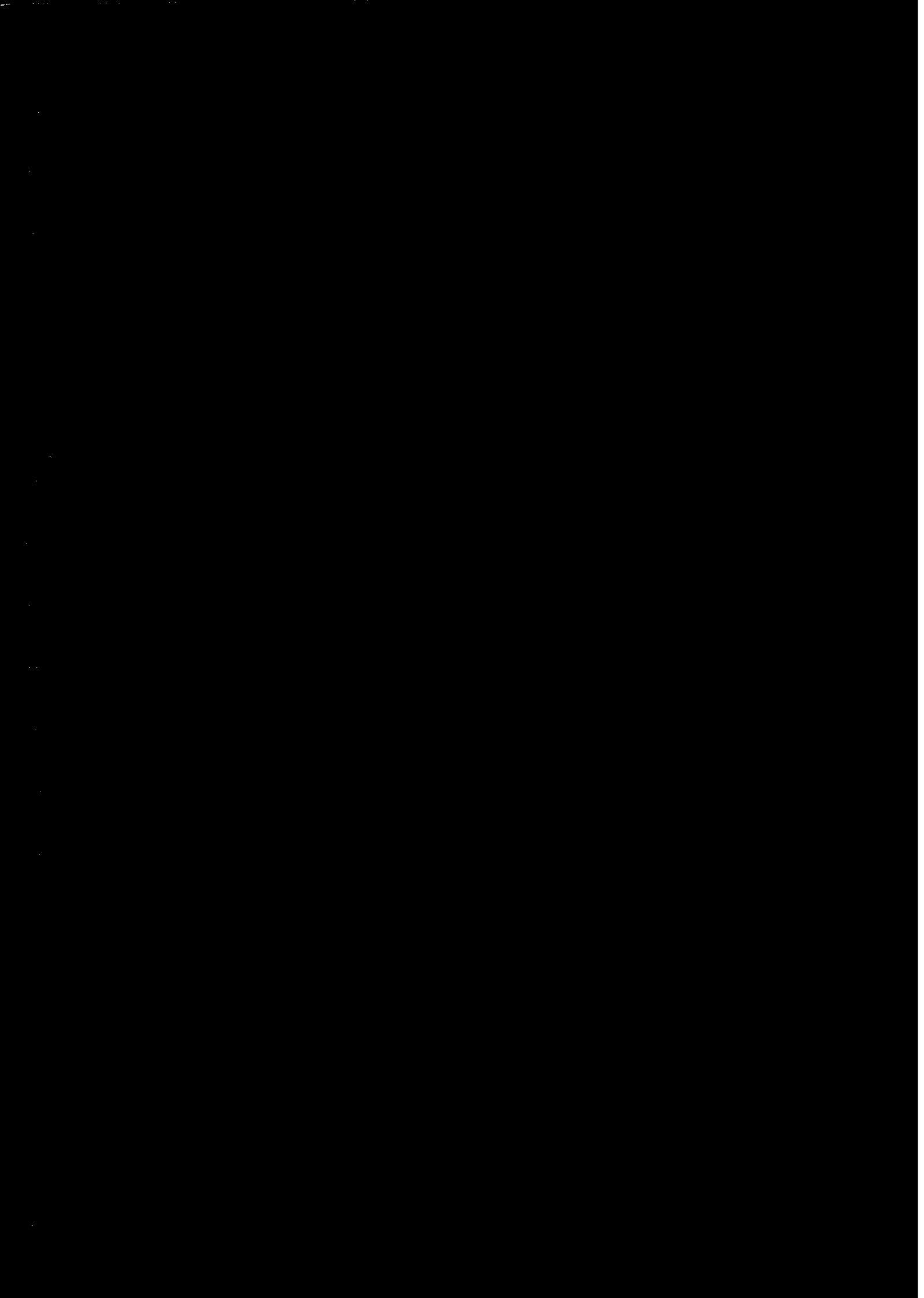


SECTION VI - RISERS AND J TUBES

VI - RISERS AND J TUBES

STC gave to ELF unfavourable comments to the n°3 procedure from BROWN AND ROOT/WIMPEY, using large vertical slots in columns above roof level. Final procedure is expected to provide for fixings to the embedded in the second stage slipform and roof.

Tunnel approach to pull in risers and end sections of tunnels (part of them recently amended) are expected on site. Packers are available on site, ready for incorporation within tunnels.



SECTION VII - GROUTING

VII - GROUTING

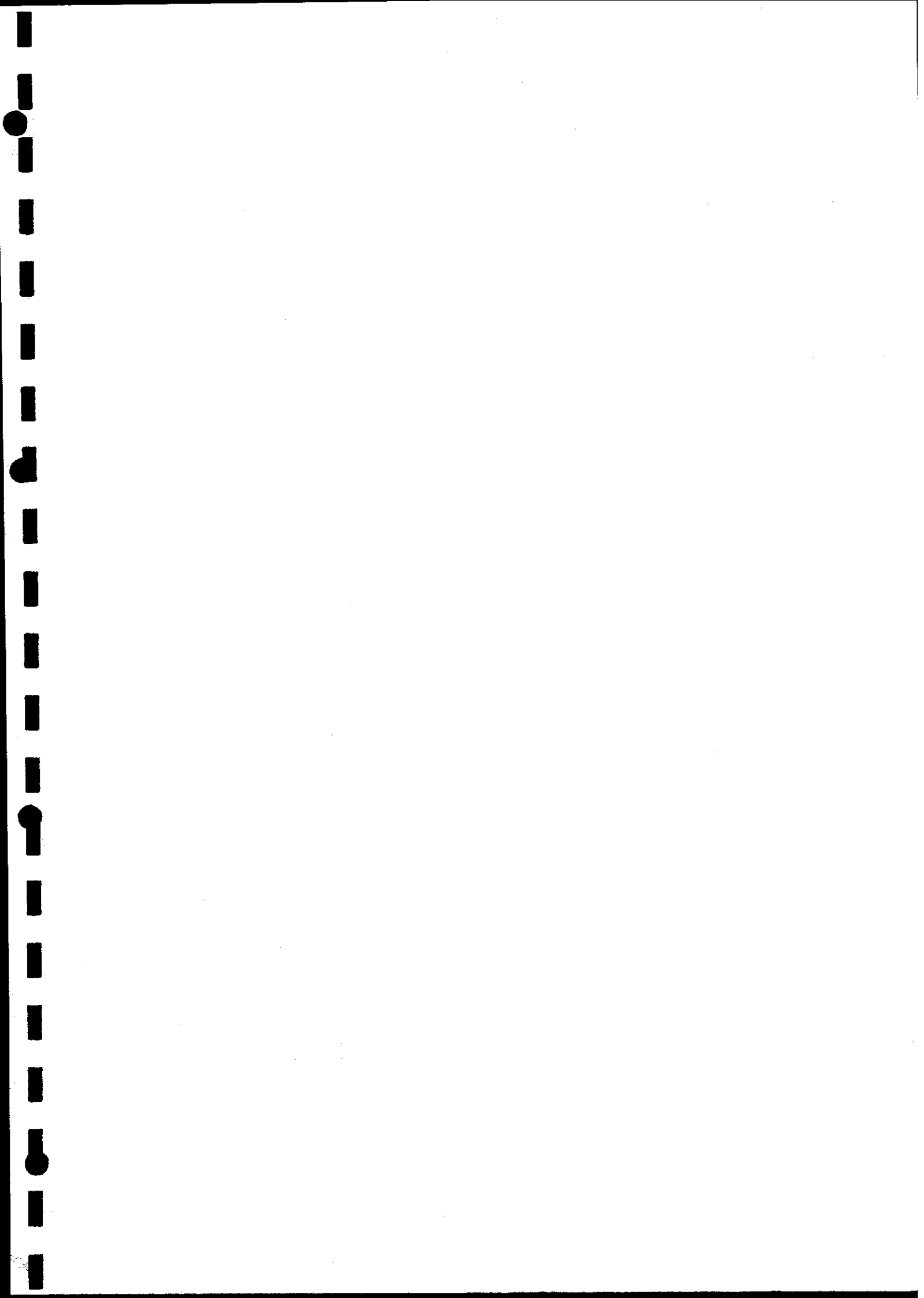
Specifications and procedures were elaborated with SOLMARINE and will be transmitted shortly.

- Proposed grout
 - 1000 l of seawater
 - 250 kg of cement (CLK 325)
 - 35 l of silicate 3,21

Setting time \pm 18 H strength (28 d) \geq 5 bars.

Density 1,16 to 1,22

- Grouting plant is being designed for $2 \times 30 \text{ m}^3/\text{H}$ capacity as well as storage of cement, in order to be able to pump continuously 1400 m^3 of grout into the larger compartment within skirts.



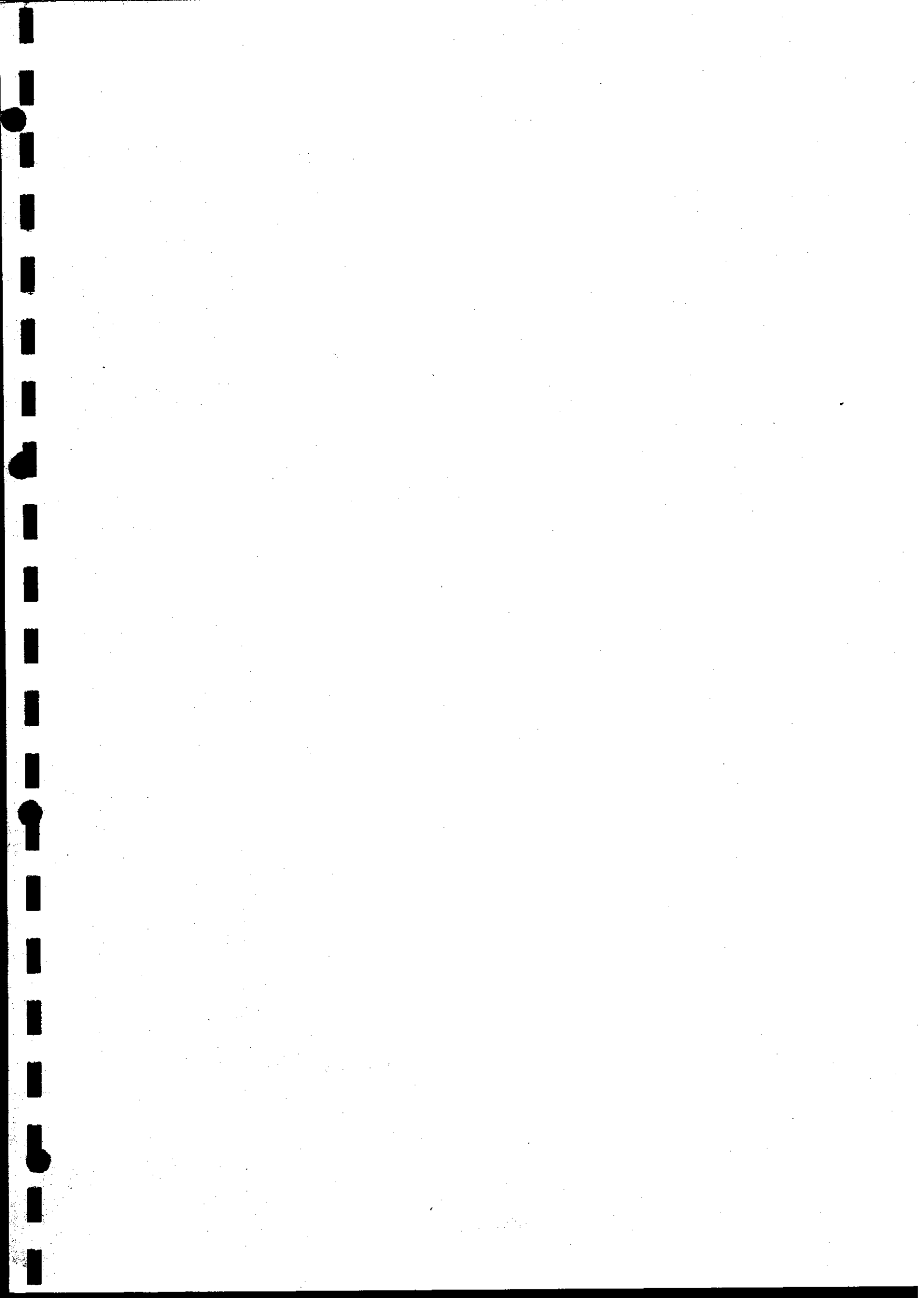
SECTION VIII - MARINE OPERATIONS

VIII - MARINE OPERATIONS

Besides completion of tow out procedures (from dry dock) by McALPINE/UNITED TOWING in order to comply with NDA recommendations, particular interest was taken in the North Channel survey and the search for a deep water mooring in Loch Fyne, to suit the alternative of loading the support frame on this side of the Clyde.

- . North Channel survey was being carried out for other structures and had to stop due to adverse weather. It will resume in early spring 1975 in order to complete records of depth and tidal currents.
- . Loch Fyne mooring permission is presently requested from local authorities. Besides, anchoring conditions were investigated (depth and core collection) and are now under consideration by SMIT INTERNATIONAL in charge of the mooring design.

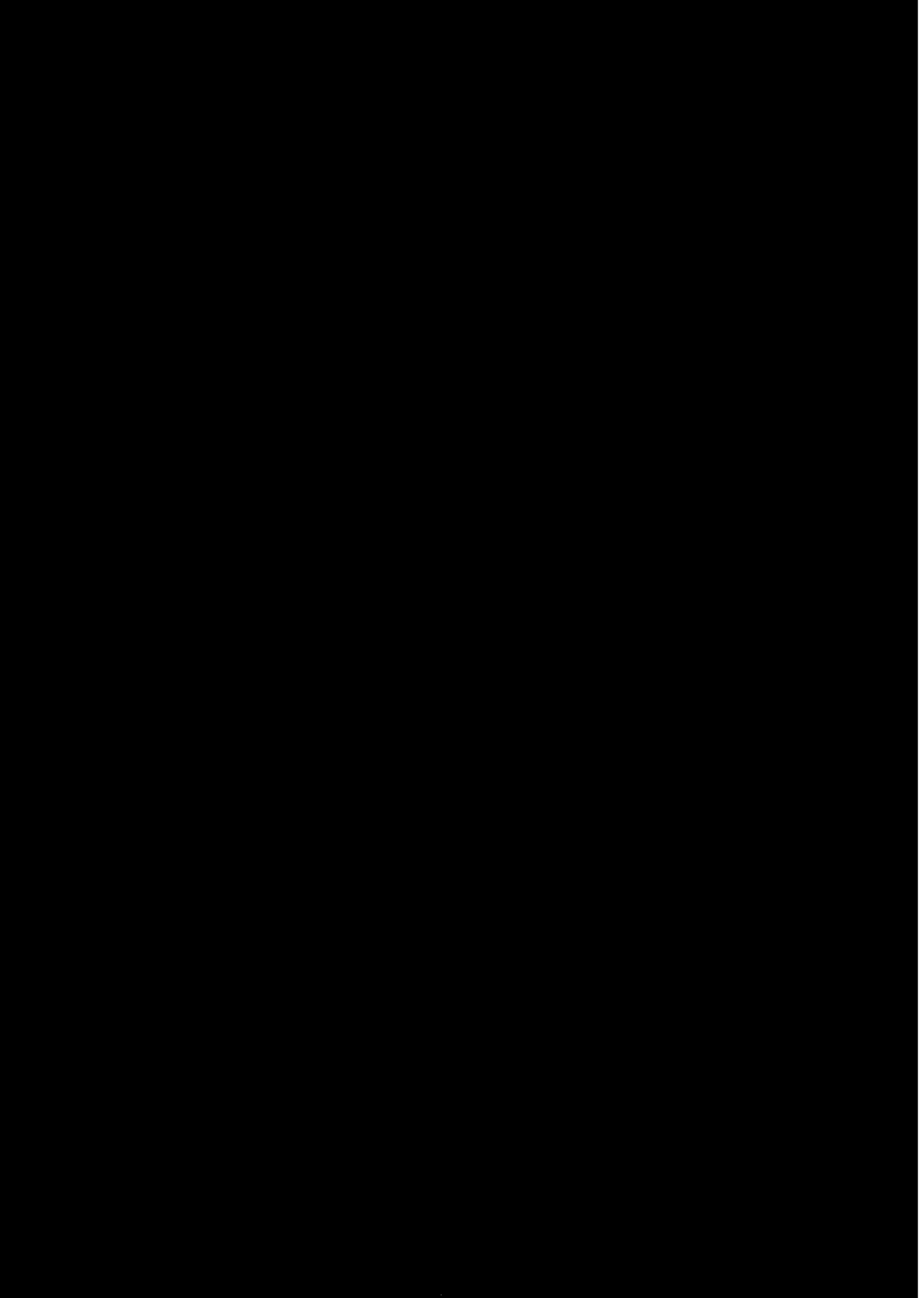
Procurement of mooring chains was thoroughly investigated in order to meet the alternative schedule.



SECTION IX - ANTISCOURING

IX - ANTISCOURING

General procedure had been submitted to all parties concerned and no more progress was done for the period.

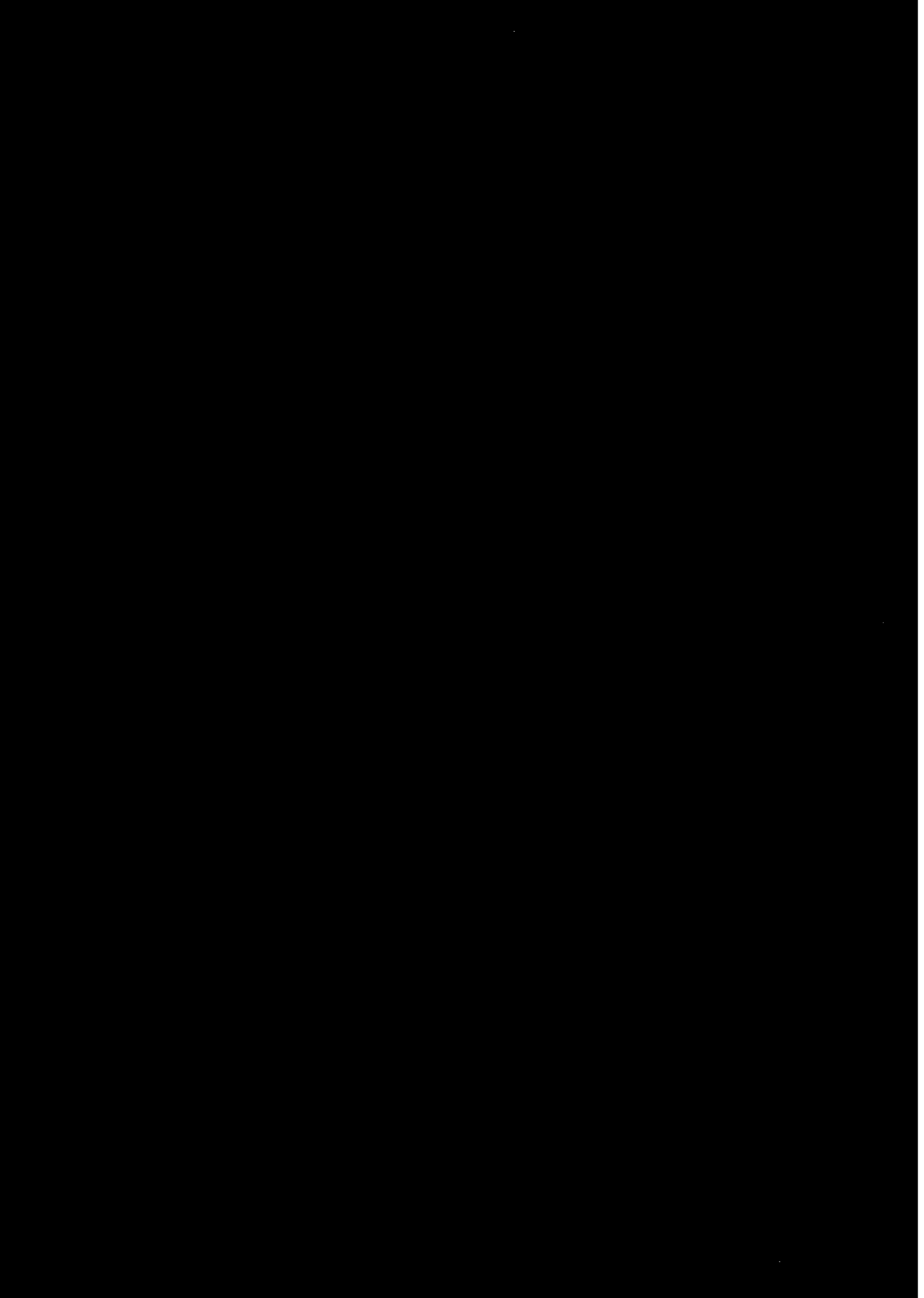


SECTION X - PROGRAMMES

X - PROGRAMMES

Programme for the structure erection has to be reviewed from the end of the strike.

So has the joint programme (structure + risers) and a new riser's erection procedure will be issued by BROWN AND ROOT to shorten the overall completion time.



SECTION X - PHOTOGRAPHS



75/30/2

ELF BASIN SOUTH WEST

16.1.75



75/30/14

ELF BASIN WEST

16.1.75