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SIR ROBERT MC ALPINE & SONS, LTD.

950 - 340 - E14

ELF NORGE A/S

FRIGG FIELD

TREATMENT PLATFORM N° 1

TP1

MONTHLY REPORT

N° 11

TP1-A-205-9-SCF 005

To 20TH December 1974

ELF NORGE FRIGG TREATMENT PLATFORM N°1
CONTRACTOR'S MONTHLY REPORT N°11
TO 20TH DECEMBER, 1974

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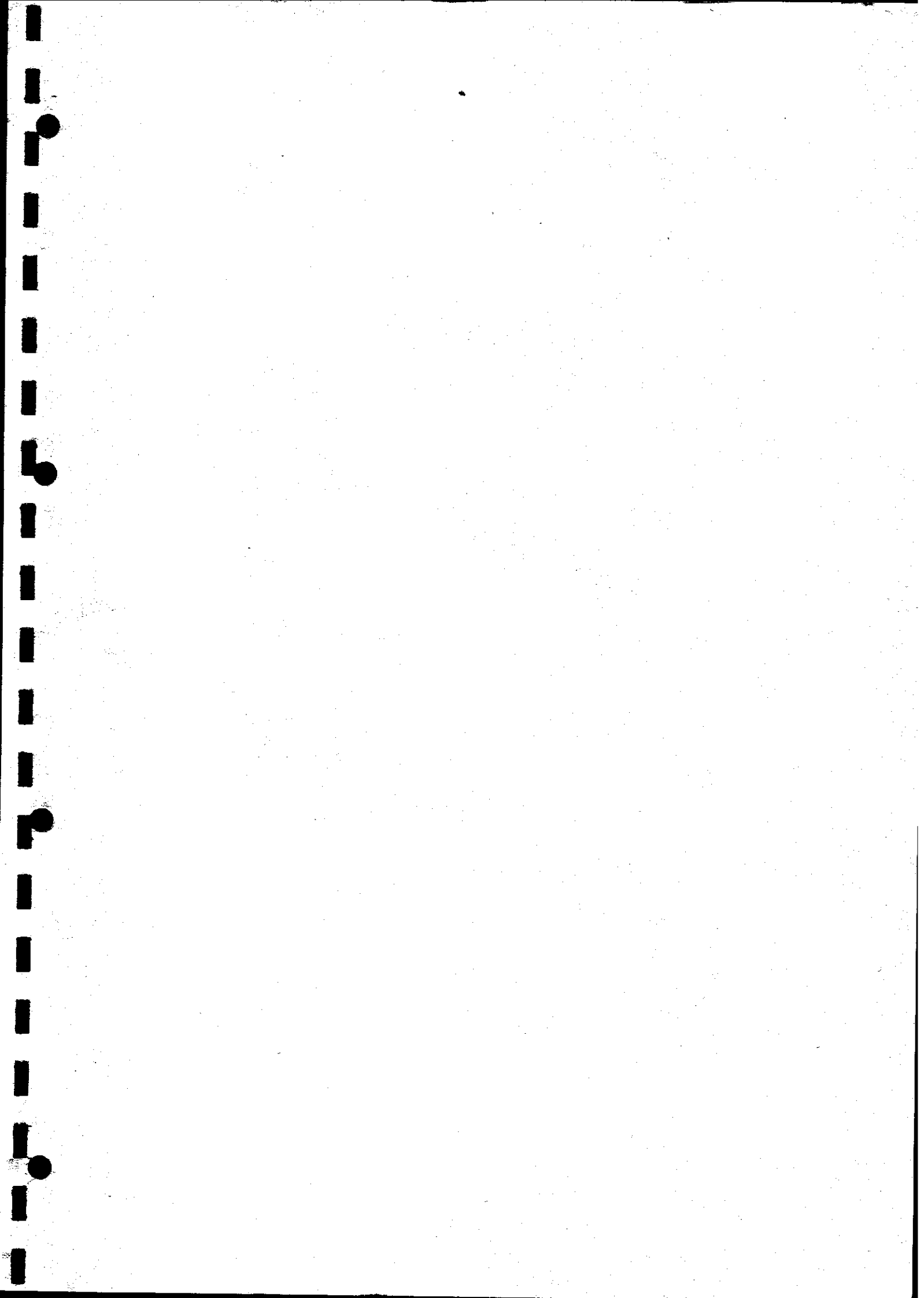
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SECTION I - DESIGN PROGRESS REPORT

I - DESIGN PROGRESS REPORT

A/ GENERAL REPORT

The overall design of the concrete structure was completed. Design second slip of specific points such as built in items in naval ship, fixings on roof and columns are pending on specification of procedures and methods to be adopted for risers erection and external fixings on top of columns.

A comprehensive programme drawn November 25th showed a completion date forbidding towing to site in the 1975 season. Consequently ELF asked STC to investigate the ability of the structure to be fitted with its support frame for towing to FRIGG at first opportunity in 1976.

B/ STRUCTURAL DRAWINGS

- As launched caisson completed and approved
- Top of caisson (36 m) completed and not approved (delete this affirmation in report n°10)
- Columns : main reinforcement and prestressing completed.
- Roof : 80 % completed

ELF-NORGE FRIGG TREATMENT PLATFORM NO. 1

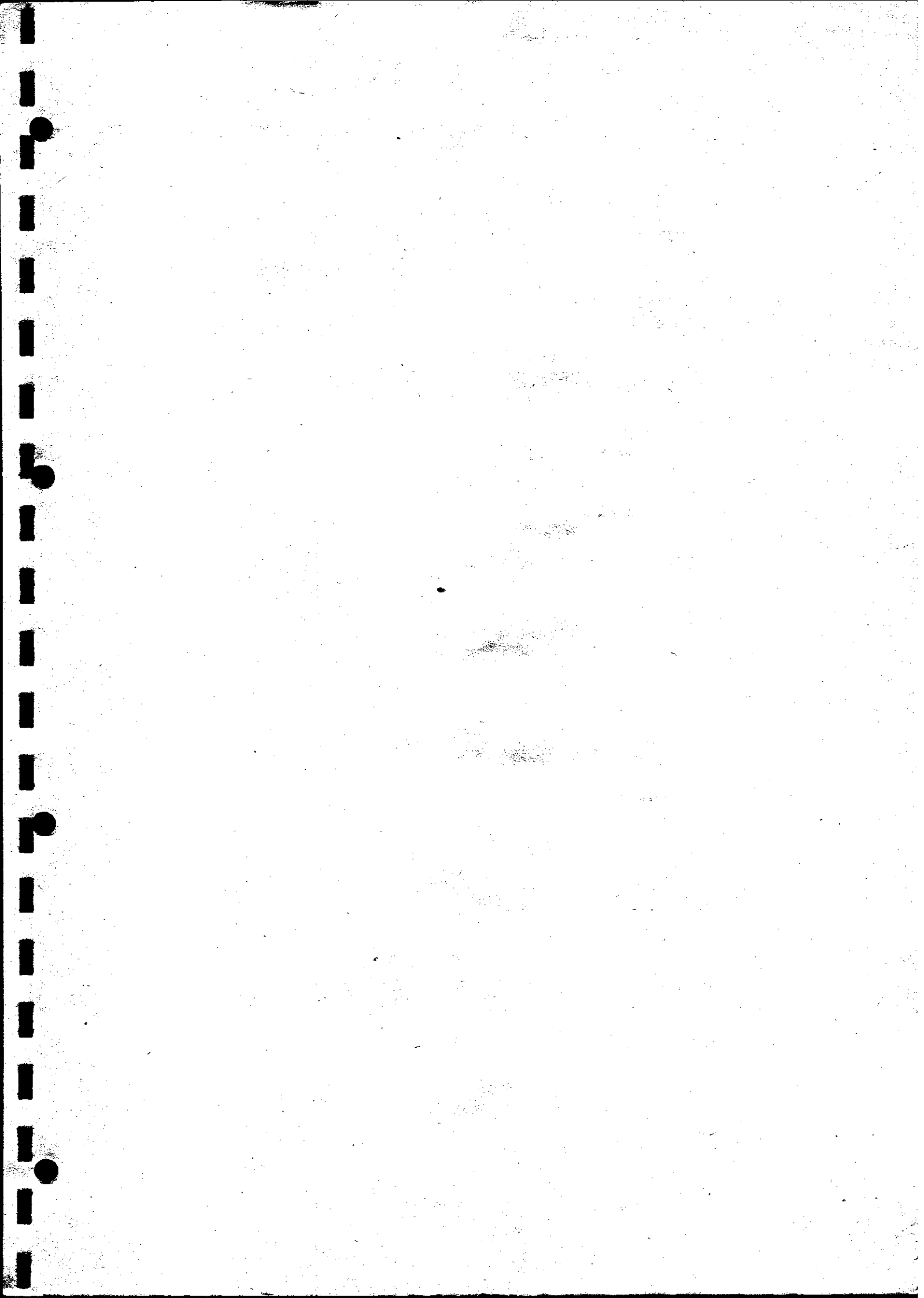
CONTRACTOR'S MONTHLY REPORT NO. 11

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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	90	90	
33. Construction Hoists to Columns	93	80	
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

ELF-NORGE FRIGG TREATMENT PLATFORM NO. 1

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II SITE PROGRESS REPORT

(A) GENERAL REPORT

1. General Comment

Construction of the platform has been considerably retarded during the past month due to the Electricians, Plumbers, Pipefitters and Welders being on strike.

Some additional reinforcement has been fixed in the caisson walls but further slip forming of the walls has not been possible.

Concreting of the gussets at the bottom of the external walls has been substantially completed and work has proceeded on the infill to the tunnels.

Cleaning out of the cells is proceeding.

Work in preparation for flooding the basin is also in progress.

2. Photographs

An aerial photograph taken on 17th December, 1974, showing the Elf Platform from the West, is included at the end of the Report.

3. Weather

During the period covered by this Report the weather has been particularly bad with a considerable amount of rain and gale force winds. There have been few fine days.

4. Labour

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

Contrary to expectations the Electricians, Plumbers, Pipefitters and Welders have not returned to work since withdrawing their labour on 28th October, 1974.

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.

Cont'd/....

II SITE PROGRESS REPORT (Cont'd)

(A) GENERAL REPORT

5. Cont'd

At Batchers No. 2 the ancillary buildings are substantially complete and some are already in use.

The additional bin for the alternative supply of aggregate has been completed and a quantity of 'Furnace' type aggregate taken into store there.

Work is continuing on the nine additional cement storage silos.

6. Temporary Works

(a) Access Roads

Work has progressed on the Site roads and these are now approximately 90% complete. A grader and brush are being used to keep them clean.

(b) Services

Work on the services has been virtually at a standstill during the past month due to the Electricians, Plumbers, Pipefitters and Welders being on strike.

(c) Camp Accommodation

Foundations have been completed for 6 out of the total of 10 No. dormitory blocks in Phase III.

Erection of the buildings, however, is held up pending installation of the under floor services.

50% of the foundations for the extension to the Camp Canteen have been completed.

(d) Wharf

Part of the slab on the extension to the permanent landing ramp has been completed and bollards cast in.

The slab on the second Wharf at the centre strong point has been completed and concreting of the road to it is in progress.

(e) Additional Canteen Opposite the Main Site Office

The carcass of this building has been erected and external paved areas substantially completed.

Work is proceeding on installation of the internal fittings and equipment.

II. SITE PROGRESS REPORT (Cont'd)

(A) GENERAL REPORT

7. Concrete Mixes

Tests carried out on 28 day old cubes incorporating Pulverised Fuel Ash have proved satisfactory.

Further tests will be carried out on 56 day old cubes made from the same mix.

Tests at 7 days on cubes made from concrete incorporating 'Furnace' aggregate have also proved satisfactory.

8. Construction Basin & Permanent Structure

No further slip forming of the caisson walls has been possible due to the Electricians and Pipefitters being on strike but fixing of reinforcement in the caisson walls has been completed up to the limits governed by the slipform shutter.

The gussets at the bottom of the external walls, except for those sections which cannot be done until the thickening to the floor slab has been poured, have been concreted. Some 75% of the reinforcement has been fixed in the Tunnel infills.

Cleaning out of the cells is in progress.

Installation of the 18" dia. syphon pipe for filling the basin with sea-water is in progress and approximately 50% complete.

9. Materials

Picketing by the Electricians, Plumbers, Pipefitters and Welders has continued intermittently at McInroy Point and at the Site Gate. Consequently materials being transported by road and ferry have arrived when possible.

Deliveries of aggregates and reinforcement by ship have not been affected.

10. Programmes

A revised detailed Construction Programme was issued on 21st November, 1974.

TO 20TH DECEMBER, 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	100	5	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	-	
6. Telephones	-	-	-	27 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	98	-	Operational
11. Concrete Mix Approval	100	100	-	
12. Reinforcement Yard	-	100	-	
13. Joiners Shop	-	100	-	
14. Fitters Shop	-	97	2	
15. Prestressing Store	-	100	-	

ELF-NORGE FRIGG TREATMENT PLATFORM NO. 1

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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	-	40	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 DECEMBER, 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	-	
5. Grouting Pipework	-	8	-	
6. Piezometer Pipework	-	8	-	
7. J-Tubes	-	20	9	
8. Sea Bed Risers	-	30	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	25	-	
12. Complete Fillet	100	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	-	-	-	

TO 20TH DECEMBER, 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)	25	28
Joiners (including Joiner's Labourers)	23	50
General Labourers	33	150
Other Trades	<u>37</u>	<u>305</u>
	<u>118</u>	<u>533</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	16
Tyers Welding	1
Sterling Construction	15
Colebrand	7
Terrapin	13
Millars Wellpoint	4
Findlays	4
Wimpey	8
Brown & Roote	<u>8</u>
	<u>76</u>

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TO 20TH DECEMBER, 1974

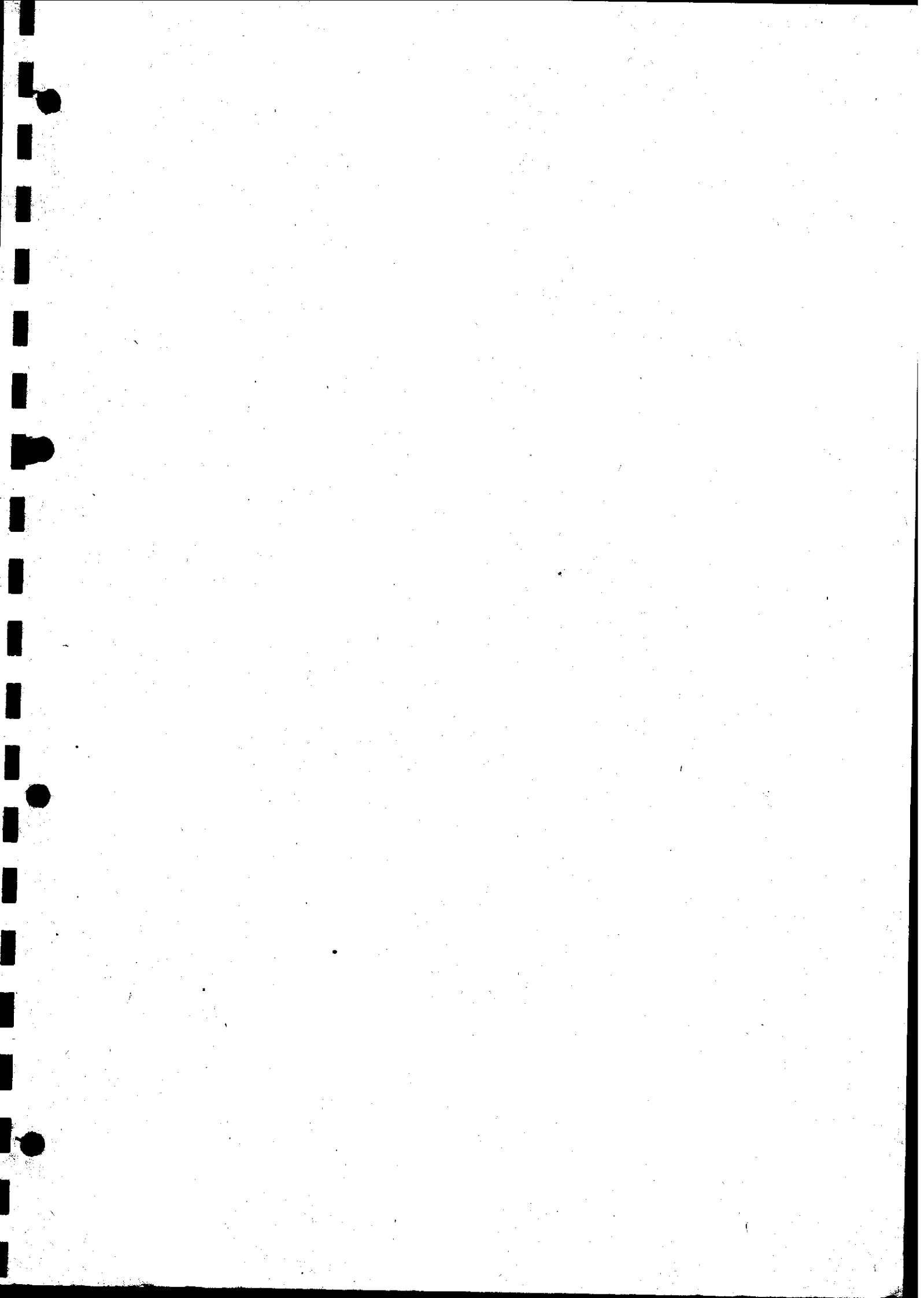
II SITE PROGRESS REPORT

(D) PLANT REPORT

Plant Return for major items of equipment in effective use.

<u>Crawler Cranes/Excavators</u>	3 No. NCK 605 2 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. 1cy. " "
<u>Crawler Tractor/Dozers</u>	7 No.
<u>Tracked Shovel Loaders</u>	6 No.
<u>Wheeled Tractors</u>	3 No.
<u>Wheeled Shovel/Excavators</u>	4 No.
<u>Dumptrucks</u>	19 No.
<u>Mobile Cranes</u>	1 No.
<u>Truckconetes</u>	8 No.
<u>Dumpers</u>	11 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 TRIGG TREATMENT PLATFORM NO. 1

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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	67750 tonnes	59175 tonnes	7865 tonnes	See Note 1
Concrete Sand	15/1/74	45180 tonnes	26820 tonnes	680 tonnes	See Note 1
Cement	7/1/74	5100 tonnes	5100 tonnes	50 tonnes	See Note 2
Reinforcement		5900 tonnes	6070 tonnes	645 tonnes	

NOTES :

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

TO 20TH DECEMBER, 1974

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	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/....

(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 ³ / ₂ " & 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

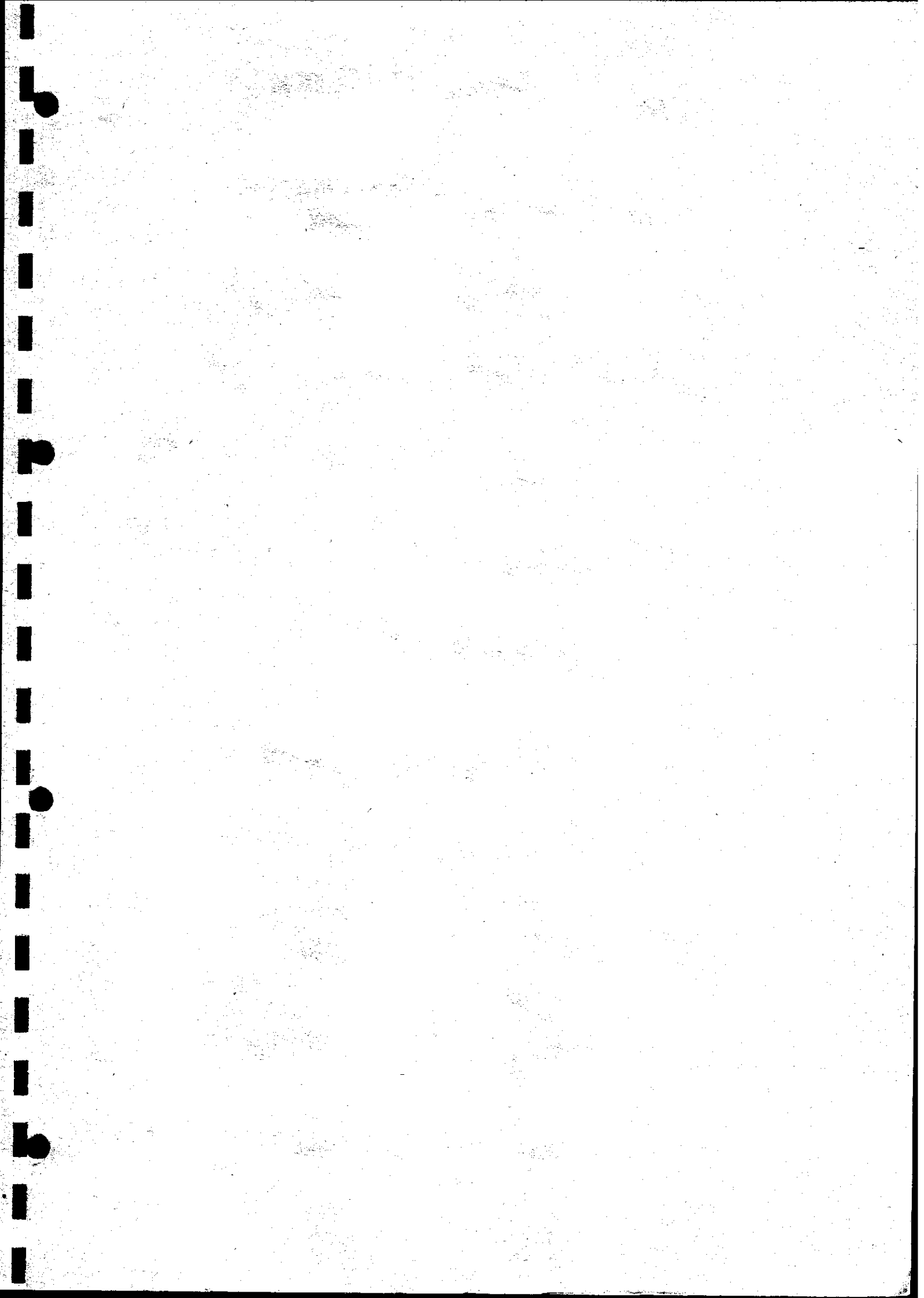
(B) FABRICATED AND BOUGHT-IN ITEMS

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 Co. Ltd. Sunderland	Mid Nov.		
Type (1)					
Type (2)	26/9/74	"	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 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 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

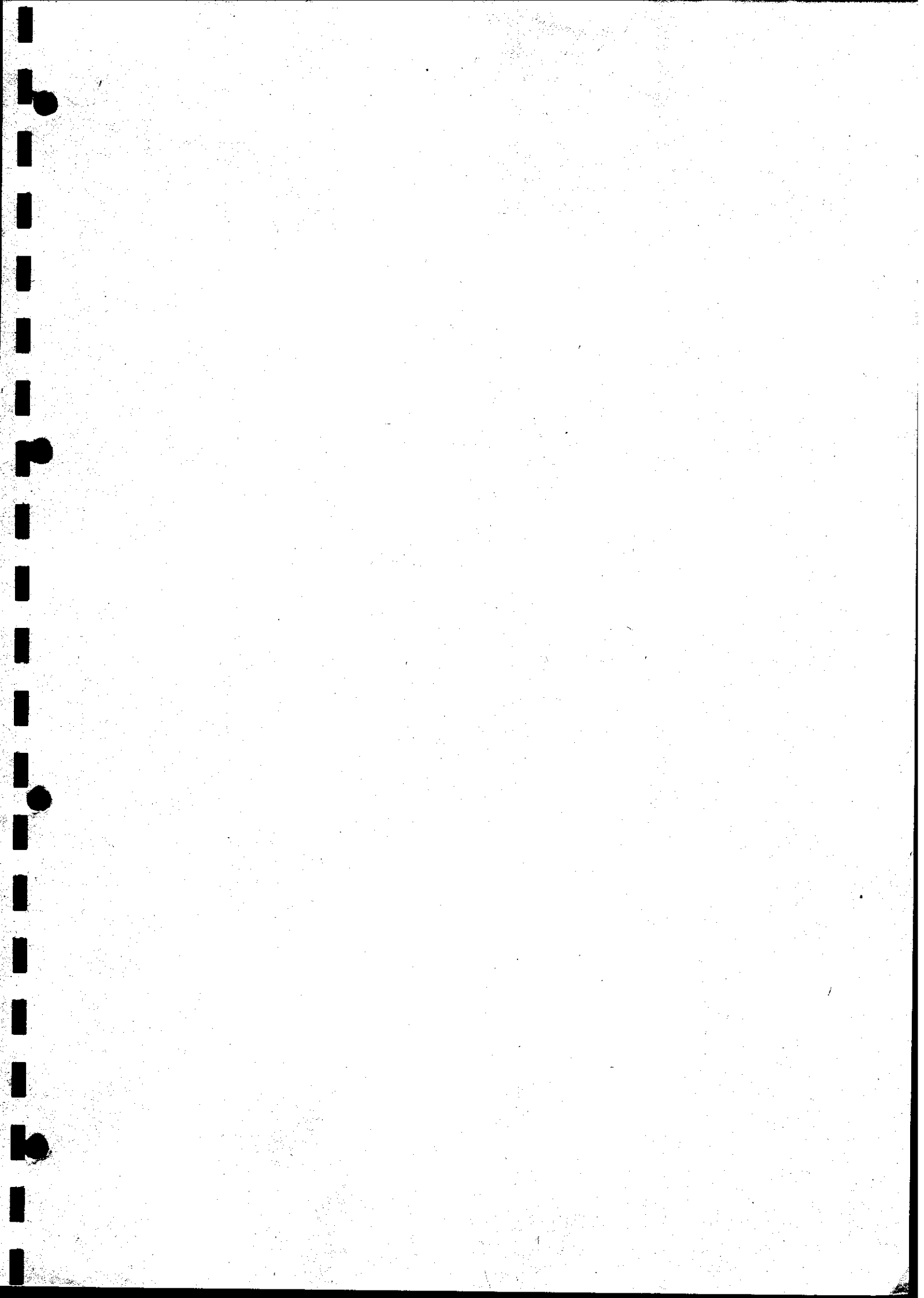
- Design

The overall design was completed. Miscellaneous items such as guiding system and fixings along the columns are to be finalized.

- Fabrication

Support frame and steel cap	40 %
Tie in can	30 %
Miscellaneous	15 %

Site installation i.e. erection hall, facilities, ground improvement, concrete foundations and assembly benchings proceeded to suit for progress of prefabricated components.



SECTION V - IMMERSION EQUIPMENT

V - IMMERSION EQUIPMENT

- Design Progress

Hydraulic devices	90 %
Electric "	85 %
Electronics	75 %
Piping	100 %

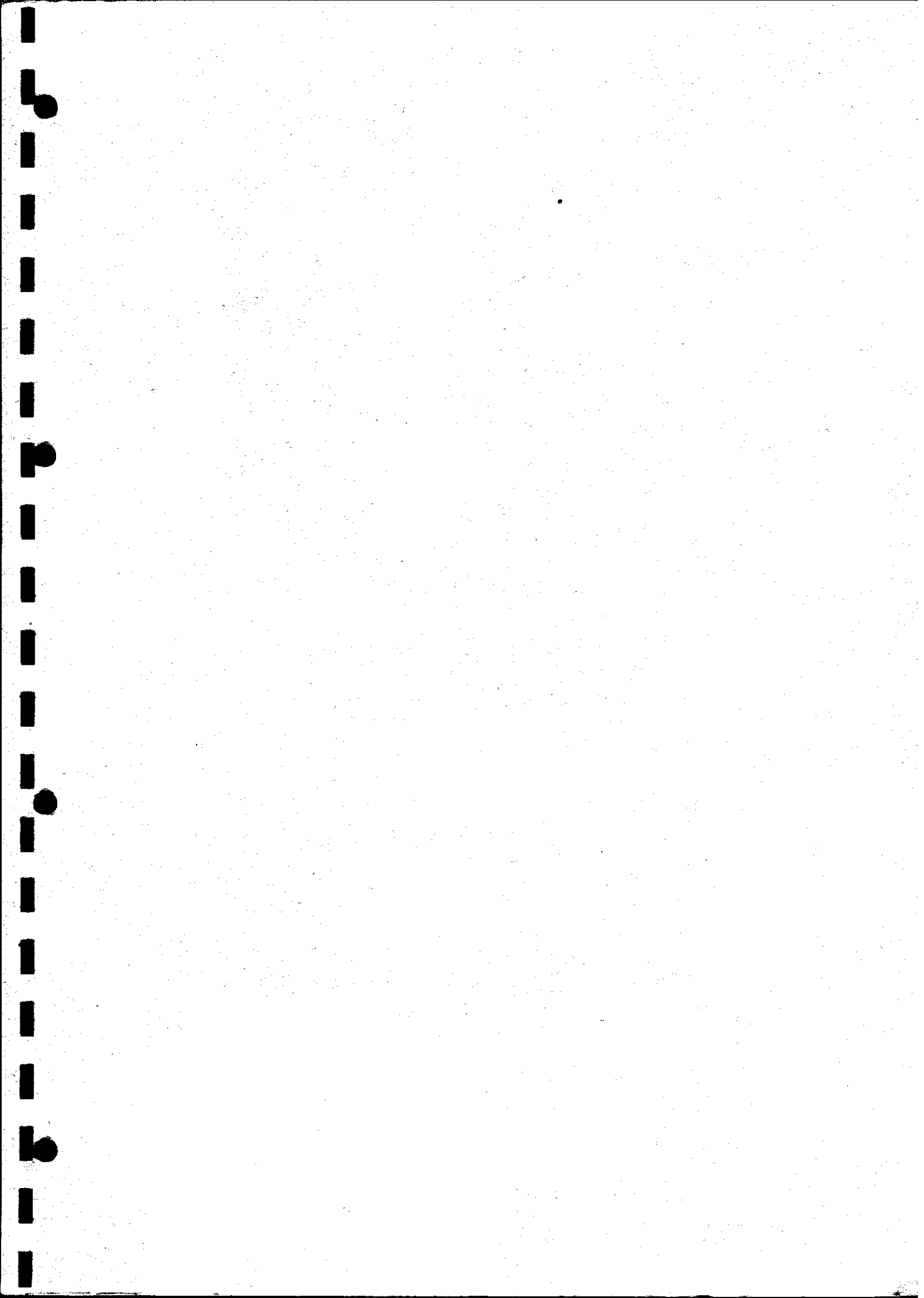
Design of temporary immersion bridge had to be held until full specifications of methods can be adapted to the most probable support frame's towering.

Procedures for deep temporary immersion and maintenance will have to be reviewed according to the new schedule.

- Fabrication

Erection of immersion module started at Sandouville but had to be held in order to adjust piping to non consistent position of pump flanges and dimensions of valves.

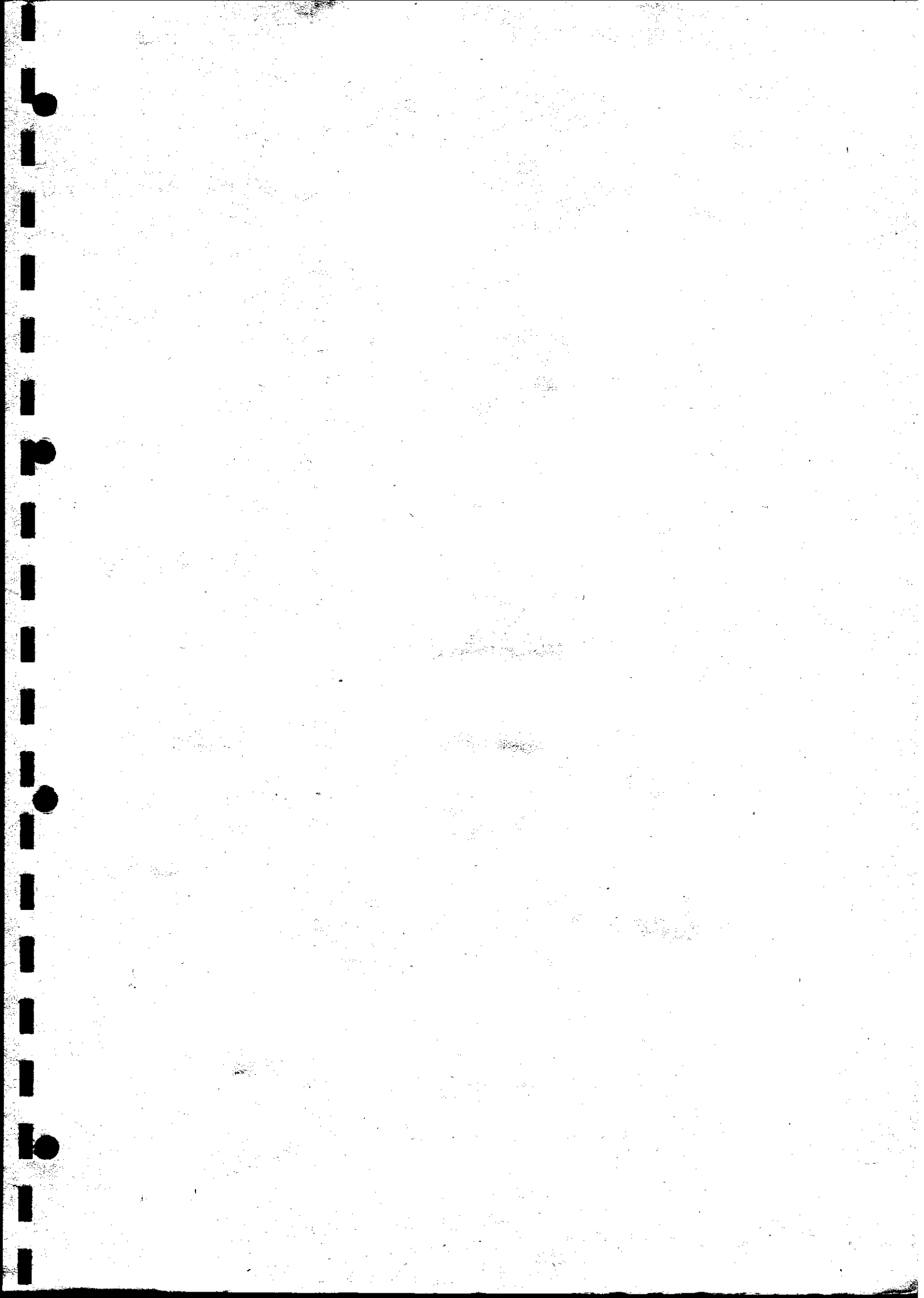
Auxiliary power sets (Diesel 7 and 9 KVA) were delivered to MATRA who is proceeding with wiring and testing of the pannel controls, and with reception tests of sonnoïd valves.



SECTION VI - RISERS AND J TUBES

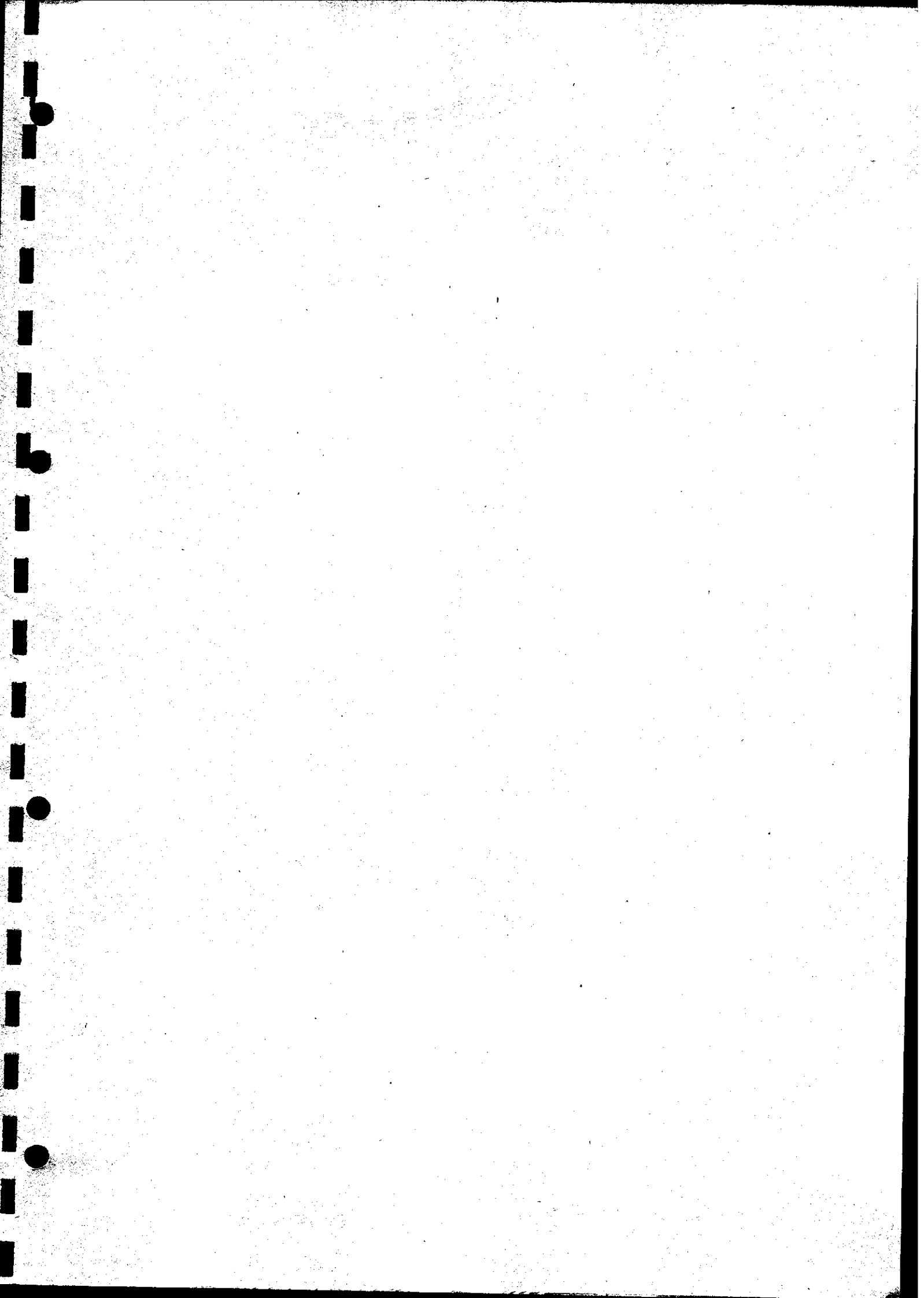
VI - RISERS AND J TUBES

Following a comprehensive schedule drawn November 25th BROWN AND ROOT/
WIMPEY are investigating other procedures for pipe erection inside
the columns.



SECTION VII - GROUTING

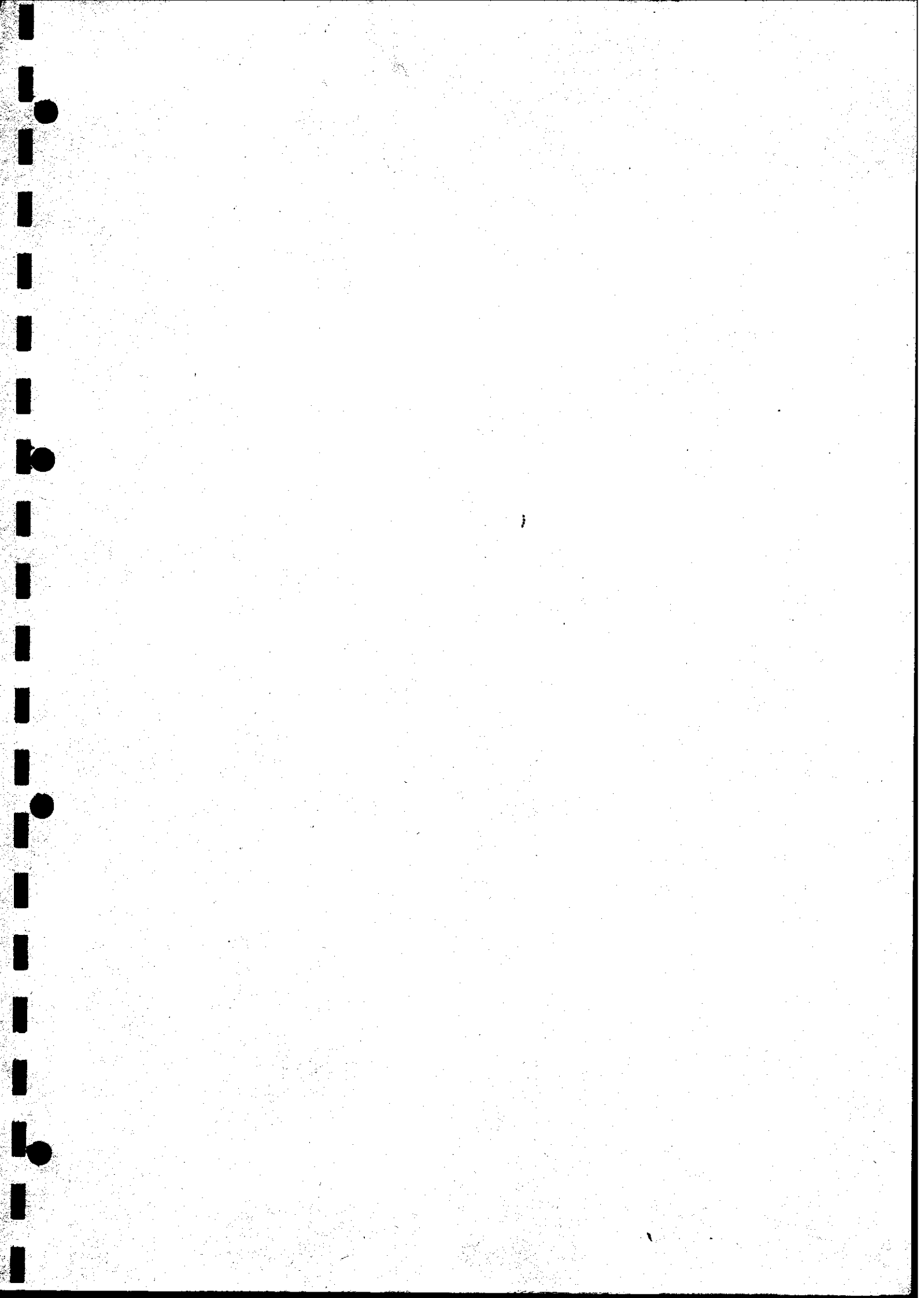
VII - GROUTING



SECTION VIII - MARINE OPERATIONS

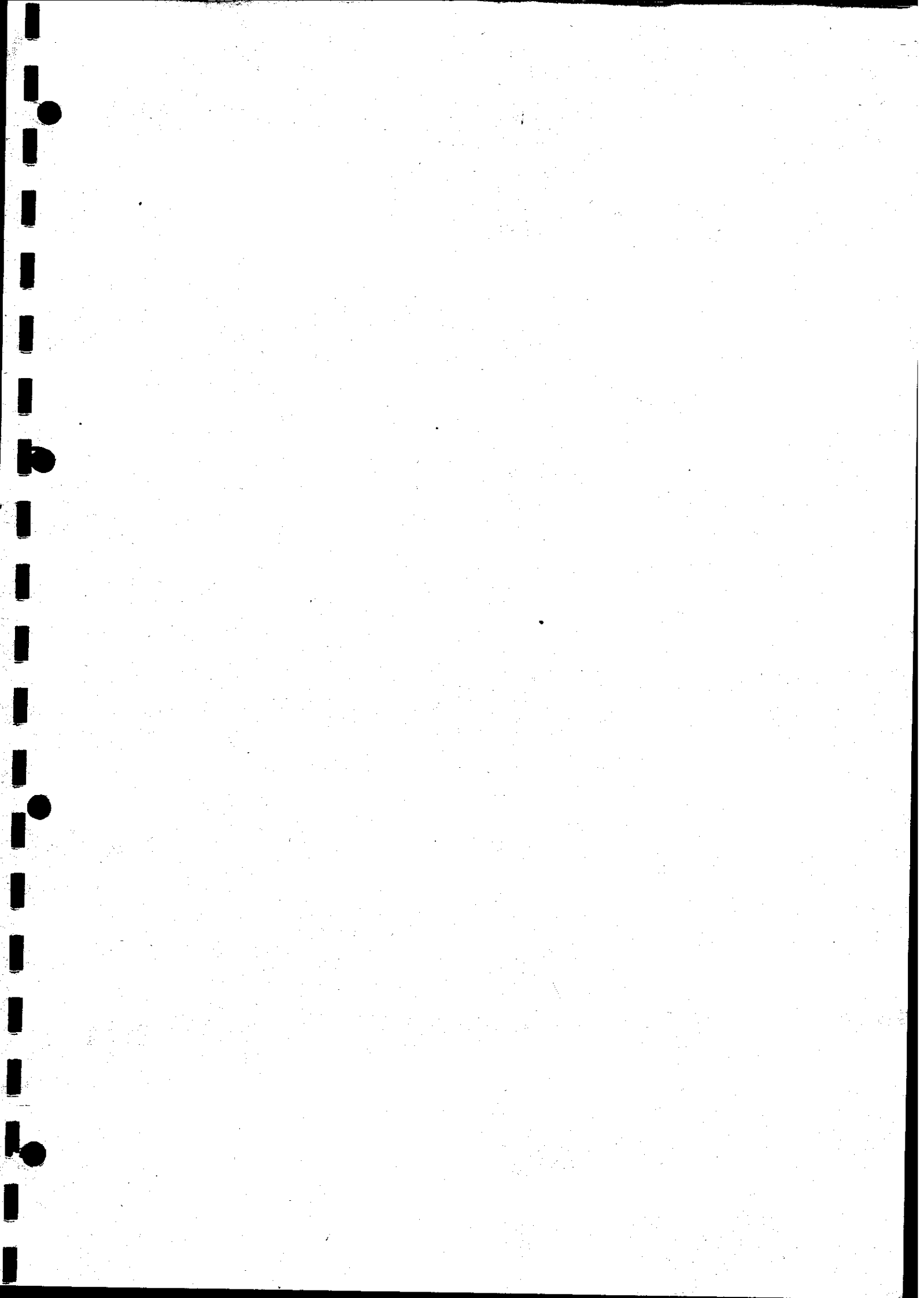
VIII - MARINE OPERATIONS

- Procedures for tow out of dry dock were elaborated by STC/M^CA and submitted to NOBLE DENTON and Associates. Mooring and floating jetty are still to be specified.
- NOBLE DENTON and Associated issued general recommendations for protection of the structure afloat.
- Mooring in Loch Fyne deep waters is to be investigated for support frame's loading according to ELF's request.

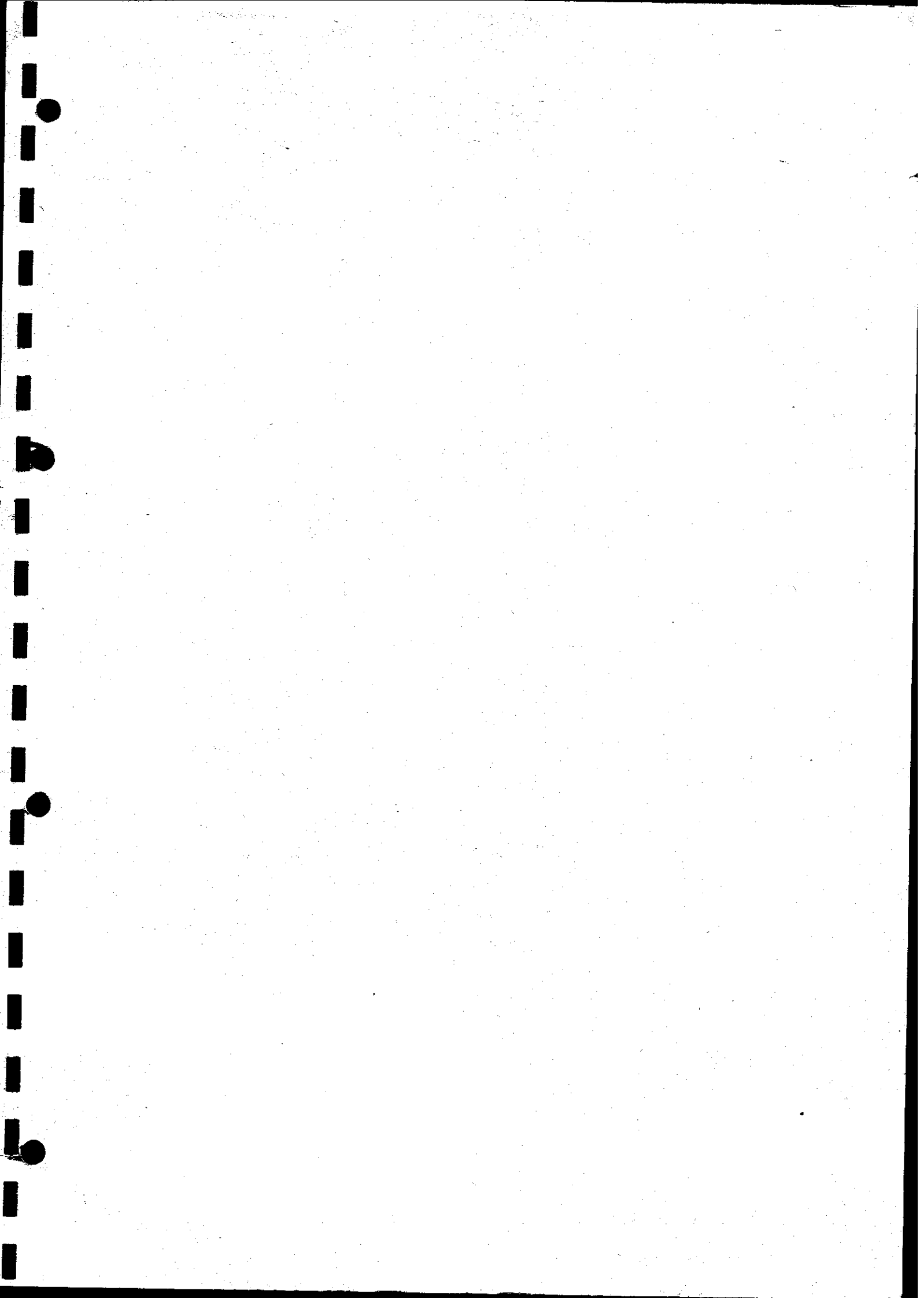


SECTION IX - ANTISCOURING

IX - ANTISCOURING



SECTION X - CRITICAL PATH ANALYSIS



SECTION XI - PHOTOGRAPHS



74/839/9

ELF WEST

17.12.74