FILE DISCUSSED AT COUNCIL/COMMITTEE MEETING

FILE REF: 91A 1789

MEETING	COMMENTS	NOTED IN DEV. CONTROL	NOTED BY
BELGARD H + P 20/12/91	Blass - Sensitive issue If alum gets into wrong place. Wants good security to prevent leakage etc How near is this to filtered waters C Keane Hopes this Doesn't give rise to increased alum levels in drinking waters M Muldoon - Knocklyon Community Council - concerned Wants vigilance		

BYE LAW APPLICATION FEES

REF. NO.: 91A/1789 CERTIFICATE NO.: 16803B

PROPOSAL: Installation of Storage Tanks + closing equipment

LOCATION: Stocking Lane Ballyboden D16

APPLICANT: Dublin Corporation

hos 12/11/91

	1	2	3	4	5	6	7
CLASS	DWELLINGS/AREA LENGTH/STRUCTURE	RATE	AMT. OF FEE REQUIRED	AMT. LODGED	BALANCE DUE	RED. FEE APPL.	AMT. OF RED. FEE
A	Dwelling (Houses/Flats)	@ £55					
B	Domestic Ext. (Improvement/ Alts.)	@ £30					
C	Building for office or other comm. purpose	@ £3.50 per M^2 or £70					
D	Building or other structure for purposes of agriculture	@ £1.00 per M^2 in excess of 300 M^2 Min. £70					
E	Petrol Filling Station	@ £200					
F	Dev. of prop. not coming within any of the forgoing classes	£70 or £9 per .1 hect. whichever is the greater	£70	£70	—		

Column 1 Certified: Signed: _____ Grade: _____ Date: _____

Column 1 Endorsed: Signed: _____ Grade: _____ Date: _____

Columns 2,3,4,5,6 & 7 Certified: Signed: [signature] Grade: S.O Date: 14/11/91

Columns 2,3,4,5,6 & 7 Endorsed: Signed: _____ Grade: _____ Date: _____

PLANNING APPLICATION FEES

Reg. Ref. 91A/1789 Cert. No. 27123

PROPOSAL... Installation of Liquid Alum. storage Tanks & DOSing equipment

LOCATION. Stocking Lane, Ballyroden D16

APPLICANT..... Dublin Corporation

CLASS	DWELLINGS/AREA LENGTH/STRUCT.	RATE	AMT. OF FEE REC.	AMOUNT LODGED	BALANCE DUE	BALANCE PAID
1	Dwellings	@£32				
2	Domestic,	@£16				
3	Agriculture	@50p per m2 in excess of 300m2. Min. £40				
4	Metres	@£1.75 per m2 or £40				
5	x .1 hect.	@£25 per .1 hect. or £250				
6	x .1 hect.	@£25 per .1 hect. or £40				
7	x .1 hect.	@£25 per .1 hect. or £100	£100	£100	—	
8		@£100				
9	x metres	@£10 per m2 or £40				
10	x 1,000m	@£25 per £1000m or £40				
11	x .1 hect.	@£5 per .1 hect. or £40				

Column 1 Certified:Signed:..... Grade..... Date.....

Column 1 Endorsed:Signed:..... Grade..... Date.....

Columns 2,3,4,5,6 & 7 Certified:Signed: Grade..... Date 14/11/91

Columns 2,3,4,5,6 & 7 Endorsed:Signed:..... Grade..... Date.....

LOCAL GOVERNMENT (PLANNING AND DEVELOPMENT) ACTS, 1963 TO 1982

ASSESSMENT OF FINANCIAL CONTRIBUTION

REG.REF.:

CONT. REG.:

SERVICES INVOLVED: WATER/FOUL SEWER SURFACE WATER

AREA OF SITE:

FLOOR AREA OF PRESENT PROPOSAL:

MEASURED BY:

CHECKED BY:

METHOD OF ASSESSMENT:

TOTAL ASSESSMENT:

MANAGER'S ORDER NO: P/ /
DATED

ENTERED IN CONTRIBUTION REGISTER:

DEVELOPMENT CONTROL ASSISTANT GRADE

Order No. P/5812/91

COMHAIRLE CHONTAE ÁTHA CLIATH

Record of Executive Business and Manager's Orders

Permission to install new liquid alum storage tanks and dosing equipment at its Water Treatment Works, Stocking Lane, Ballyboden, Dublin 16 for Dublin Corporation Waterworks Division.

Dublin Corporation Waterworks,
68-70 Marrowbone Lane,
Dublin 8.

Reg. Ref. 91A/1789
App. Recd: 12.11.1991
Floor Area: 75 sq. m.
Site Area: 56,413.27 sq. m.
Zoning: B

Report of the Dublin Planning Officer, dated 17 December 1991

This is an application for **PERMISSION.** The proposed development consists of the installation of new liquid alum storage tanks and dosing equipment at Water Treatment Works, Stocking Lane, Ballyboden, Dublin 16. The applicant is Dublin Corporation Waterworks division.

Under Reg. Ref. 89A/88 permission was granted by Dublin County Council for a proposed new chemical storage and dosing building on this site. (Decision Order P/1037/89 dated 22.3.89). This building which is located to the south east of the existing main building on the site has not been constructed to date.

The site is zoned 'B' in the 1983 Development Plan with the objective "to protect and provide for the development of agriculture".

In this application it is proposed to install 2 no. bounded storage tanks and one dosing tank. The storage tanks measure 2.4 metres in diameter and 4.2 metres in height (or 5.1 metres to the top of the safety handrail) and are located to the north east of the main building on a grassed area beside the access road.

It is proposed to construct a small timber shed 2.5 metres in height to house the pumps and electrical equipment beside the storage tanks. The dosing tanks is c. 2 metres in height (3 metres to the top of the safety handrail) and c. 1.8 metres ~~on~~ in DIAMETER

The Sanitary Services report dated 13th December, 1991, states that the Sanitary Services Department has no objection subject to certain requirements. Road report noted

I recommend that a decision to **GRANT PERMISSION** be made under the Local Government (Planning and Development) Acts, 1963-1990 subject to the following (5) conditions:-

Contd.../

Order No. P/5812/91

COMHAIRLE CHONTAE ÁTHA CLIATH

Record of Executive Business and Manager's Orders

Permission to install new liquid alum storage tanks and dosing equipment at its Water Treatment Works, Stocking Lane, Ballyboden, Dublin 16 for Dublin Corporation Waterworks Division.

CONDITIONS	REASONS FOR CONDITIONS
1. The development to be carried out in its entirety in accordance with the plans, particulars and specifications lodged with the application, save as may be required by the other conditions attached hereto.	1. To ensure that the development shall be in accordance with the permission and that effective control be maintained.
2. That before development commences, approval under the Building Bye-Laws be obtained, and all conditions of that approval be observed in the development.	2. In order to comply with the Sanitary Services Acts, 1878-1964.
3. That the requirements of the Chief Fire Officer be ascertained and strictly adhered to in the development.	3. In the interest of safety and the avoidance of fire hazard.
4. That the requirements of the Supervising Environmental Health Officer be ascertained and strictly adhered to in the development.	4. In the interest of health.
5. That the following requirements of the Sanitary Services Department are to be strictly adhered to in this development:-	5. In the interest of the proper planning and development of the area.
(i) the open drain adjacent to the proposed alum tanks is to be piped (minimum diameter 225 mm) and isolated from any potential spillage,	
(ii) the ~~building~~ Bunding arrangements is to offer 110% of the volume of the largest container and is to be fitted with a manual outlet valve to be connected to a foul drain.	

NOTE: The applicant should note that any ~~the~~ surface water run off from spillage areas is subject to the provisions of the Water Pollution Act.

Contd..../

Order No. P/5812/91

COMHAIRLE CHONTAE ÁTHA CLIATH

Record of Executive Business and Manager's Orders

Permission to install new liquid alum storage tanks and dosing equipment at its Water Treatment Works, Stocking Lane, Ballyboden, Dublin 16 for Dublin Corporation Waterworks Division.

(MOS/BB)

Endorsed:- _____ for Principal Officer

_____ For Dublin Planning Officer

Order:- A decision pursuant to Section 26(1) of the Local Government (Planning and Development) Acts, 1963-1990, to **GRANT PERMISSION** for the above proposal subject to the (5) conditions set out above is hereby made.

Dated: 20th December, 1991.

_____
ASSISTANT ~~CITY~~ & COUNTY MANAGER

to whom the appropriate powers have been delegated by Order of the Dublin City and County Manager, dated 10th December 1991.

marjorie O'Shea.

DUBLIN COUNTY COUNCIL

REG. REF: 91A/1789.

DEVELOPMENT: Storage Units.

LOCATION: Stocking Lane, Ballyboden.

APPLICANT: Dublin Corporation.

DATE LODGED: 12.11.91.

The proposal is for storage tanks at the Stocking Lane Waterworks.

The site has presently a very substandard access onto Stocking Lane. Vision is obscured by two high wing walls which extend close to the carriageway edge. There is also a hedge along the road boundary south of the access.

If permission is being granted it should be subject to:-

1. Applicant to submit a map showing a revised access and boundary treatment to provide vision splays at the access to the requirements of the Roads Department.

GC/BMcC
3.12.91.

SIGNED: _____ **ENDORSED:** [signature]

DATE: _____ **DATE:** 5/12/91

Marjorie O'Shea.

Register Reference : 91A/1789 Date : 15th November 1991

Development : Permission to install new liquid alum storage tanks and dosing equipment at its Water Treatment Works

LOCATION : Stocking Lane, Ballyboden, Dublin 16

Applicant : Dublin Corporation Waterworks

App. Type : PERMISSION/BUILDING BYE-LAW APPROVAL

Planning Officer : M.O'SHEE

Date Recd. : 12th November 1991

Attached is a copy of the application for the above development .Your report would be appreciated within the next 28 days.

Yours faithfully,

.....

for PRINCIPAL OFFICER

This section has no objections to these proposals.

Kathy Smyth Env. Health Officer
18/Dec/91.

PLANNING DEPT.
DEVELOPMENT CONTROL SECT
Date 02.01.92
Time 3.00

Sta Devine
for John O'Reilly
SUPER.ENVIRON. HEALTH OFFICER,
33 GARDINER PLACE,
DUBLIN 1.

18/12/91.

Marjorie O'Shea.

SS + CHO

Register Reference : 91A/1789 Date : 15th November 1991

Development : Permission to install new liquid alum storage tanks and dosing equipment at its Water Treatment Works

LOCATION : Stocking Lane, Ballyboden, Dublin 16

Applicant : Dublin Corporation Waterworks

App. Type : PERMISSION/BUILDING BYE-LAW APPROVAL

Planning Officer : M.O'SHEE

Date Recd. : 12th November 1991

Attached is a copy of the application for the above development .Your report would be appreciated within the next 28 days.

Yours faithfully,

DUBLIN Co. COUNCIL
25 NOV 1991
SAN SERVICES

DUBLIN CO. COUNCIL
SANITARY SERVICES
FOR PRINCIPAL OFFICER
16 DEC 1991
Returned

Date received in Sanitary Services .....

FOUL SEWER
No objection.

SURFACE WATER No objection subject to the following;

① The surface water run-off from spillage areas is subject to the provision of the Water Pollution Act.

② The open drain adjacent to the proposed alum tanks should be piped and isolated from any potential spillage, minimum diameter 225 m.m.

③ The bunding arrangement to offer 110% of the largest container. To be fitted with a manual outlet valve.

SENIOR ENGINEER,
SANITARY SERVICES DEPARTMENT,
46/49 UPPER O'CONNELL STREET,
DUBLIN 1

12.12.91

J.R. 13/12/1991

Register Reference : 91A/1789

Date : 15th November 1991

.....

ENDORSED _____ DATE _____

WATER SUPPLY ..... No objection .....

V O'Sullivan
27/11/91.

27/11/91

.....

ENDORSED _____ DATE 13/12/91

SS + CHO

Register Reference : 91A/1789 Date : 15th November 1991

Development : Permission to install new liquid alum storage tanks and dosing equipment at its Water Treatment Works

LOCATION : Stocking Lane, Ballyboden, Dublin 16

Applicant : Dublin corporation Waterworks

App. Type : PERMISSION/BUILDING BYE-LAW APPROVAL

Planning Officer : M.O'SHEE

Date Recd. : 12th November 1991

Attached is a copy of the application for the above development .Your report would be appreciated within the next 28 days.

Yours faithfully,

DUBLIN Co. COUNCIL
25 NOV 1991
SAN SERVICES

DUBLIN CO. COUNCIL
SANITARY SERVICES
1ST PRINCIPAL OFFICER
16 DEC 1991
Returned

Date received in Sanitary Services .....

FOUL SEWER

No objection.

SURFACE WATER No objection subject to the following;

① The surface water run-off from spillage areas is subject to the provision of the Water Pollution Act.

② The open drain adjacent to the proposed alum tanks should be piped and isolated from any potential spillages, minimum diameter 225 mm.

SENIOR ENGINEER,
SANITARY SERVICES DEPARTMENT,
46/49 UPPER O'CONNELL STREET,
DUBLIN 1

B. Mc Morris
12.12.91

③ The bunding arrangement to offer 110% of the largest container. To be fitted with a manual outlet valve.

J.Q. 13/12/1991

DUBLIN COUNTY COUNCIL

REG. REF: 91A/1789.

DEVELOPMENT: Storage Units.

LOCATION: Stocking Lane, Ballyboden.

APPLICANT: Dublin Corporation.

DATE LODGED: 12.11.91.

The proposal is for storage tanks at the Stocking Lane Waterworks.

The site has presently a very substandard access onto Stocking Lane. Vision is obscured by two high wing walls which extend close to the carriageway edge. There is also a hedge along the road boundary south of the access.

If permission is being granted it should be subject to:-

1. Applicant to submit a map showing a revised access and boundary treatment to provide vision splays at the access to the requirements of the Roads Department.

PLANNING DEPT.
DEVELOPMENT CONTROL SECT
Date 06.12.91
Time 9.00

PLANNING DEPT.
DEVELOPMENT CONTROL SECT
Date 5/12/91
Time 12.00

GC/BMcC
3.12.91.

SIGNED: _____ ENDORSED: _____

DATE: _____ DATE: 5/12/91

DUBLIN COUNTY COUNCIL

Tel. 724755 (ext. 262/264)

PLANNING DEPARTMENT,
BLOCK 2,
IRISH LIFE CENTRE,
LR. ABBEY STREET,
DUBLIN 1.

Notification of Decision to Grant Permission/[redacted]

Local Government (Planning and Development) Acts, 1963-1983

To: Dublin Corporation Waterworks,
68-70 Marrowbone Lane,
Dublin 8.

Decision Order Number and Date: P/5812/91 - 20.12.1991

Register Reference No.: 91A/1189

Planning Control No.:

Application Received on: 12.11.1991

Applicant: Dublin Corporation Waterworks Division.

In pursuance of its functions under the above-mentioned Acts, the Dublin County Council, being the Planning Authority for the County Health District of Dublin, did by Order dated as above make a decision to grant Permission/[redacted] for:-

install new liquid alum storage tanks and dosing equipment at its Water Treatment Works, Stocking Lane, Ballyboden, Dublin 16.

SUBJECT TO THE FOLLOWING CONDITIONS

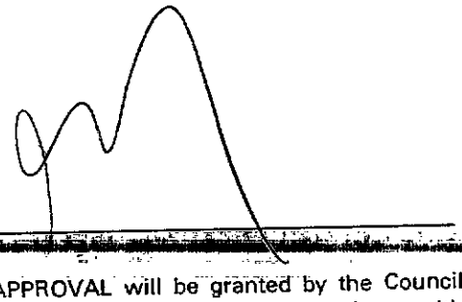
CONDITIONS	REASONS FOR CONDITIONS
1. The development to be carried out in its entirety in accordance with the plans, particulars and specifications lodged with the application, save as may be required by the other conditions attached hereto.	1. To ensure that the development shall be in accordance with the permission and that effective control be maintained.
2. That before development commences, approval under the Building Bye-Laws be obtained, and all conditions of that approval be observed in the development.	2. In order to comply with the Sanitary Services Acts, 1878-1964.
3. That the requirements of the Chief Fire Officer be ascertained and strictly adhered to in the development.	3. In the interest of safety and the avoidance of fire hazard.
4. That the requirements of the Supervising Environmental Health Officer be ascertained and strictly adhered to in the development.	4. In the interest of health.
Contd..../	

Signed on behalf of the Dublin County Council .....
For Principal Officer

Date: 20th December, 1991.

IMPORTANT: Turn overleaf for further information

CONDITIONS	REASONS FOR CONDITIONS
5. That the following requirements of the Sanitary Services Department are to be strictly adhered to in this development:- (i) the open drain adjacent to the proposed alum tanks is to be piped (minimum diameter 225 mm) and isolated from any potential spillage, (ii) the bunding arrangement is to offer 110% of the volume of the largest container and is to be fitted with a manual outlet valve to be connected to a foul drain. NOTE: The applicant should note that any surface water run off from spillage areas is subject to the provisions of the Water Pollution Act.	5. In the interest of the proper planning and development of the area.



NOTE:

If there is no appeal to An Bord Pleanala against this decision PERMISSION/APPROVAL will be granted by the Council as soon as may be after the expiration of the period for the taking of such appeal. If every appeal made in accordance with the Acts has been withdrawn, the Council will grant the PERMISSION/APPROVAL after the withdrawal.

An appeal against the decision may be made to An Bord Pleanala. The applicant may appeal within one month from the date of receipt by him of this notification. ANY OTHER PERSON may appeal within twenty-one days beginning on the date of the decision.

An appeal shall be in writing and shall state the subject matter and grounds of the appeal. It should be addressed to:— An Bord Pleanala, Blocks 6 and 7, Irish Life Centre, Lower Abbey Street, Dublin 1.

(1) An appeal lodged by an applicant or his agent with An Bord Pleanala will be invalid unless accompanied by a fee of £36 (Thirty-six Pounds). (2) A party to an appeal making a request to An Bord Pleanala for an Oral Hearing of an appeal must, *in addition* to (1) above, pay to An Bord Pleanala a fee of £36 (Thirty-six Pounds). (3) A person who is not a party to an appeal must pay a fee of £10 (Ten Pounds) to An Bord Pleanala when making submissions or observations to An Bord Pleanala in relation to an appeal.

Approval of the Council under Building Bye-Laws must be obtained and the terms of the approval must be complied with in the carrying out of the work before any development which may be permitted is commenced.

FUTURE PRINT LTD.

Dublin County Council Comhairle Chontae Atha Cliath **Planning Department**

Building Control Department,
Liffey House,
Tara Street,
Dublin 1.
Telephone:773066

Bloc 2, Ionad Bheatha na hEireann,
Block 2, Irish Life Centre,
Sraid na Mainistreach Iacht,
Lower Abbey Street,
Baile Atha Cliath 1.
Dublin 1.
Telephone. (01)724755
Fax. (01)724896

Register Reference : 91A/1789

Date : 13th November 1991

Our Ref.

Your Ref.

Date

LOCAL GOVERNMENT (PLANNING AND DEVELOPMENT) ACTS 1963 TO 1990

Dear Sir/Madam,

DEVELOPMENT : Permission to install new liquid alum storage tanks and dosing equipment at its Water Treatment Works

LOCATION : Stocking Lane, Ballyboden, Dublin 16

APPLICANT : Dublin Corporation Waterworks

APP. TYPE : PERMISSION/BUILDING BYE-LAW APPROVAL

With reference to the above, I acknowledge receipt of your application received on 12th November 1991.

Yours faithfully,

.....

for PRINCIPAL OFFICER

Dublin Corporation Waterworks
Division,
68-70 Marrowbone Lane,
Dublin 8

Dublin County Council
Comhairle Chontae Atha Cliath

Planning Application Form/ Bye - Law Application Form

PLEASE READ INSTRUCTIONS AT BACK BEFORE COMPLETING FORM. ALL QUESTIONS MUST BE ANSWERED.

1. Application for Permission ☑ Outline Permission ☐ Approval ☐ Place ✓ in appropriate box.
   Approval should be sought only where an outline permission was previously granted. Outline permission may not be sought for the retention of structures or continuances of uses.

2. Postal address of site or building DUBLIN CORPORATION WATER TREATMENT WORKS,
   (If none, give description sufficient to identify) STOCKING LANE, BALLYBODEN, DUBLIN 16.

3. Name of applicant (Principal not Agent) DUBLIN CORPORATION WATERWORKS DIVISION
   Address 68-70 MARROWBONE LANE, DUBLIN 8 Tel. No 543444

4. Name and address of person or firm responsible for preparation of drawings DESIGN & DEVELOPMENT DIVISION (WATERWORKS), 68-70 MARROWBONE LANE, DUBLIN 8. Tel. No 543444

5. Name and address to which notifications should be sent DUBLIN CORPORATION WATERWORKS DIVISION 68-70 MARROWBONE LANE, DUBLIN 8.

6. Brief description of proposed development INSTALLATION OF LIQUID ALUM STORAGE TANKS AND DOSING EQUIPMENT

7. Method of drainage /

8. Source of Water Supply /

9. In the case of any building or buildings to be retained on site, please state:-
   (a) Present use of each floor or use when last used. /
   (b) Proposed use of each floor /

COUNTY DUBLIN Dublin Corporation, Waterworks Division wishes to apply to Dublin County Council for permission to install new liquid alum storage tanks and dosing equipment at its Water Treatment Works, Stocking Lane, Ballyboden, Dublin 16.

10. Does the proposal involve demolition, partial demolition or change of use of any habitable house or part thereof? NO

Sent Rem 6/11/91

11. (a) Area of Site 56,413·27 Sq. m.
    (b) Floor area of proposed development 75 (approx.) Sq. m. £100
    (c) Floor area of buildings proposed to be retained within site 671 Sq. m.

12/11

12. State applicant's legal interest or estate in site (i.e. freehold, leasehold, etc.) FREEHOLD

N 51167

13. Are you now applying also for an approval under the Building Bye Laws?
    Yes ☑ No ☐ Place ✓ in appropriate box.

14. Please state the extent to which the Draft Building Regulations have been taken in account in your proposal:
    N/A

£70 N 50597

15. List of documents enclosed with application. SPECIFICATIONS AND DRAWINGS.

16. Gross floor space of proposed development (See back) / Sq. m.
    No of dwellings proposed (if any) / Class(es) of Development 7F
    Fee Payable £ 170 Basis of Calculation £100 + £70.
    If a reduced fee is tendered details of previous relevant payment should be given

12 NOV 91

Signature of Applicant (or his Agent) E. Meehan Date 24/10/91

FOR OFFICE USE ONLY

Application Type P/B
Register Reference 91A/1789
Amount Received £ 2.12.4
Receipt No 22-10
Date 22-14

RECEIVED
12 NOV 1991
P

LOCAL GOVERNMENT (PLANNING & DEVELOPMENT) REGULATIONS 1977 to 1984.

Outline of requirements for applications for permission or Approval under the Local Government (Planning & Development) Acts 1963 to 1983. The Planning Acts and Regulations made thereunder may be purchased from the Government Publications Sales Office, Sun Alliance House, Molesworth Street, Dublin 2.

1. Name and Address of applicant.

2. Particulars of the interest held in the land or structure, i.e. whether freehold, leasehold, etc.

3. The page of a newspaper, circulating in the area in which the land or structure is situate, containing the required statutory notice. The newspaper advertisement should state after the heading Co. Dublin.

   (a) The address of the structure or the location of the land.
   (b) The nature and extent of the development proposed. If retention of development is involved, the notice should be worded accordingly. Any demolition of habitable accommodation should be indicated.
   (c) The name of the applicant.

   NB. Applications must be received within 2 weeks from date of publication of the notice.

4. Four (4) sets of drawings to a stated scale must be submitted. Each set to include a layout or block plan, proposed and existing services to be shown on this drawing, location map, and drawings of relevant floor plans, elevations, sections, details of type and location of septic tank (if applicable) and such other particulars as are necessary to identify the land and to describe the works or structure to which the application relates (new work to be coloured or otherwise distinguished from any retained structures). Buildings, roads, boundaries and other features bounding the structure or other land to which the application relates shall be shown on site plans or layout plans. The location map should be of scale not less than 1: 2500 and should indicate the north point. The site of the proposed development must be outlined in red. Plans and drawings should indicate the name and address of the person by whom they were prepared. Any adjoining lands in which the applicant has an interest must be outlined in blue.

5. In the case of a proposed change of use of any structure or land, requirements in addition to 1, 2, & 3 are:
   (a) a statement of the existing use and the proposed use, or, where appropriate, the former use and the use proposed.

   (b) (i) Four (4) sets of the drawings to a stated scale must be submitted. Each set to consist of a plan or location map (marked or coloured in red so as to identify the structure or land to which the application relates) to a scale of not less than 1:2500 and to indicate the North point. Any adjoining lands in which the application has an interest must be outlined in blue.

   (ii) A layout and a survey plan of each floor of any structure to which the application relates.

   (c) Plans and drawings should indicate the name and address of the person by whom they were prepared.

6. Applications should be addressed to: Dublin County Council, Planning Department, Irish Life Centre, Lr. Abbey Street, Dublin 1, Tel. 724755.

SEPTIC TANK DRAINAGE: Where drainage by means of a septic tank is proposed, before a planning application is considered, the applicant may be required to arrange for a trial hole to be inspected and declared suitable for the satisfactory percolation of septic tank effluent. The trial hole to be dug seven feet deep at or about the site of the septic tank. Septic tanks are to be in accordence with I.I.R.S. S.R. 6:75.

INDUSTRIAL DEVELOPMENT:
The proposed use of an industrial premises should, where possible, be stated together with the estimated number of employees, (male and female). Details of trade effluents, if any, sho

Applicants to comply in full with the requirements of the Local Government (
in particular the licencing provisions of Sections 4 and 16.

New Charges
Effective 15/2/88

PLANNING APPLICATIONS

CLASS NO.	DESCRIPTION	FEE
1.	Provision of dwelling — House/Flat.	£32.00 each
2.	Domestic extensions/other improvements.	£16.00
3.	Provision of agricultural buildings (See Regs.)	£40.00 minimum
4.	Other buildings (i.e. offices, commercial, etc.)	£1.75 per sq. metre (Min. £40.00)
5.	Use of land (Mining, deposit or waste)	£25.00 per 0.1 ha (Min £250.00)
6.	Use of land (Camping, parking, storage)	£25.00 per 0.1 ha (Min. £40.00)
7.	Provision of plant/machinery/tank or other structure for storage purposes.	£25.00 per 0.1 ha (Min. £100.00)
8.	Petrol Filling Station.	£100.00
9.	Advertising Structures.	£10.00 per m^2 (min £40.00)
10.	Electricity transmission lines.	£25.00 per 1,000m (Min. £40.00)
11.	Any other development.	£5.00 per 0.1 ha (Min. £40.00)

BUILDING BYE-LAW AF

CLASS NO.	DESCRIPTION	
A	Dwelling (House/Flat)	A £55 each
B	Domestic Extension (improvement/alteration)	B £30 each
C	Building — Office/ Commercial Purposes	C £3.50 per m^2 (min. £70)
D	Agricultural Buildings/Structures	D £1.00 per m^2 in excess of 300 sq. metres (min. £70) (max. £300)
E	Petrol Filling Station	E £200
F	Development or Proposals not coming within any of the foregoing classes.	F £9.00 per 0.1 ha. (£70 min.)

Cheques etc. should be made payable to: Dublin County Council.

Min. Fee £30.00
Max. Fee £20,000

Gross Floor space is to be taken as the total floor space on each floor measured from the inside of the external walls

For full details of Fees and Exemptions see Local Government (Planning and Development) (Fees) Regulations 1984.

RECEIPT CODE

COMHAIRLE CHONTAE ÁTHA CLIATH

DUBLIN COUNTY COUNCIL
46/49 UPPER O'CONNELL STREET,
DUBLIN 1.

issue of this receipt is not an acknowledgement that the fee tendered is the prescribed application fee.

N 51167

D BY —

CASH
CHEQUE ✓
M.O.
B.L.
I.T.

£100.00

Received this 12th day of November 19...

from Dublin Corporation

the sum of one hundred Pounds

Pence being fee for

planning application at Stocking Lane

Nolan Deane Cashier

S. CAREY Principal Officer

East 4

RECEIPT CODE

[illegible]HAIRLE CHONTAE ATHA CLIATH

DUBLIN COUNTY COUNCIL
46/49 UPPER O'CONNELL STREET,
DUBLIN 1.

CASH
CHEQUE
P.O.

Bye Law Application

No. N 50597

£70.00

Received this 12th day of [illegible] 19[illegible]

from Dublin Corporation

the sum of seventy Pounds

Pence, being [illegible]

bye law application at [illegible]

[illegible] Cashier

S. CAREY
Principal Officer

Dublin Corporation
Bárdas Átha Cliath
Roinn Innealtóirachta
Engineering Department
Floor 3, Block 1,
Civic Offices,
Fishamble Street,
Dublin 8.
Tel.: 6796111 Ext.
Fax: 6793054

11th November, 1991.

Mr. Albert Smith,
Principal Officer,
Dublin County Council,
Planning Department,
Irish Life Centre,
Lr. Abbey Street,
Dublin 1.

Re: Proposed Liquid Alum Plant at Ballyboden Water Treatment Works.

Dear Sir,

I enclose herewith the following in connection with Dublin Corporation's planning application for the above development:-

1. Completed planning application form.
2. 4 No. sets of contract documents plus drawings No. W.W. 3365/1 W.W.3365/2 & W.W 3365/3
3. Planning application fee.
4. Planning application notice displayed in the Irish Press dated Wednesday, 6th November, 1991.

Yours faithfully,

B. Meehan
ACTING PRINCIPAL OFFICER

DUBLIN CORPORATION

WATERWORKS, MARROWBONE LANE

CONTRACT No.100

PROPOSED LIQUID ALUM PLANT AT

BALLYBODEN WATER TREATMENT WORKS

CONTRACT DOCUMENTS

J. Fenwick
Dublin Chief Engineer
Engineering Services

CORPORATION OF DUBLIN

WATERWORKS DIVISION

PROJECT

PROPOSED LIQUID ALUM PLANT AT BALLYBODEN WATER TREATMENT WORKS

CONTRACT NO. 100

CONTRACT DOCUMENTS

J. Fenwick, M.E.,
C.Eng., M.I.E.I., M.I.W.E.M.,
Dublin Chief Engineer,
Engineering Services,
Civic Offices,
Fishamble Street,
DUBLIN 8.

M. Murphy, B.E.,
C.Eng., M.I.E.I., M.I.W.E.M.,
Divisional Engineer,
Design and Developement,
(Waterworks),
68/70 Marrowbone Lane,
DUBLIN 8.

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LIST OF DRAWINGS

PROPOSED LIQUID ALUM PLANT

AT BALLYBODEN WATER TREATMENT WORKS

	Title	Drawing Number
(i)	Location Plan	W.W. 3365/1
(ii)	Proposed Layout	W.W. 3365/2
(iii)	Proposed Electrical Layout	W.W. 3365/3

P A R T 1

INSTRUCTIONS TO TENDERERS

PART 1

INSTRUCTIONS TO TENDERERS

The following instructions should be carefully noted by Tenderers tendering as failure to comply with them may invalidate the Tender.

1. Tenders must be on the official Form of Tender and accompanied by the priced Bill of Quantities, which includes a priced Dayworks Bill.

2. The Tenderer is at liberty to add any details and conditions that he may deem desirable, and in the event of his so doing must show the same added to the Specification or General Conditions returned by him, but such additions will not be binding on the Employer unless they are approved by him and incorporated in the Contract.

   Where in special circumstances the Tenderer deems it advisable to provide for the non-disclosure of drawings and information of a confidential nature furnished with his Tender, he should include in the Tender, or covering letters a stipulation to this effect. If the Tender embodying such a stipulation is accepted it should be incorporated in any subsequent formal agreement.

   Should any doubt exist as to the meaning of any clauses, description or dimension in the Bill of Quantities, Specification or Form of Tender or as to anything shown or described in the Drawings, the Tenderer should refer same in writing to the Engineer not later than 14 days before the latest day for submission of Tenders. All such queries received, together with an official ruling on the points raised, will be circulated to all Tenderers.

3. The undertaking on Page 20 of the Form of Tender must be signed by the Sureties or an Authorised Representative of the Insurance Company or Bank (as the case may be) BEFORE the Tender is lodged. The special attention of the Tenderer is drawn to the Regulation that the Tenderer must nominate two Sureties or an approved Insurance Company or Bank as Surety/Sureties for the due performance of the Contract.

4. Before the Tender is submitted, the Bill of Quantities must be filled in by the Tenderer in INK with the rates of charge and amount of each item and the total amount of the Tender properly shown therein, and must be in Pounds Irish (IR£).

5. Rates and Prices are to be exclusive of Value Added Tax but the Tenderer is to insert the percentage charge for V.A.T. in the space provided in the summary of the Bills of

Quantities.

6. Where Tenders contain imported items, these materials must be listed at the end of the Bill of Quantities together with the date of quotation and the currency conversion rate on which the quotation is based. The Central Bank of Ireland shall be the source used for Currency Rates.

7. The Bill of Quantities, properly priced in detail and the Summary of which must be signed by the Tenderer, are to be enclosed in a separate envelope which should be sealed and endorsed with the Tenderer's name and forwarded at the same time as the Tender.

8. Circular Letters

If, during the period of tendering, the Engineer issues any circular letters to the Tenderers in order to set forth the interpretation to be placed on a part of the Contract Documents or to make any change in them, such circular letters will form part of the Contract and the Tenderer shall be deemed to have taken account of them in preparing his Tender. The Tenderer shall promptly acknowledge any circular letters he may receive. No circular letters shall be issued within one week of the official closing date for delivery of Tenders unless it contains a postponement of that date. A copy of any circular letters shall be endorsed by the Tenderer and submitted with his Tender.

9. Attention is particularly drawn to the fact that omission to (a) sign the Form of Tender or to insert therein the total amount of the Tender as shown at the end of the Summary in the Bills of Quantities or the making of any alterations or additions whatsoever in the text of the Bills of Quantities or Form of Tender as prepared by the Employer or (b) any omission of the Surety/Sureties to sign the Form of Undertaking referred to in instruction no. 3 above may cause the Tender to be rejected. Any alteration or addition will not be recognised by the Employer. (See instruction no. 2 above)

Where the Contractor tendering is a registered Company, and the Form of Tender and the Summary in the Bills of Quantities do not bear the seal of the Company, they must be signed either by a Director of the Company or by a person duly authorised by the Company whose authorisation to sign must be stated.

10. Tenders in sealed envelopes without the Contractor's name written thereon endorsed " **Contract No. 100. Proposed Liquid Alum Plant at Ballyboden Water Treatment Works.**" addressed to **Dublin Corporation, Engineering Department, Civic**

Offices, Fishamble Street, Dublin 8, Ireland, and the Bills of Quantities must be delivered not later than 12 noon on the date specified in the public advertisement. If either the Tender or the Bills of Quantities are received after the appointed time, it will not be considered, nor will it qualify for a refund of deposit paid.

11. The Corporation does not bind itself to accept the lowest or any Tender nor will the cost of preparing and submitting any Tender be paid by the Corporation.

12. Tax Clearance Certificate

The successful Tenderer shall promptly furnish the Employer with a tax clearance certificate (unless he has a sub-contractor's C2 Certificate which shall be provided instead). In the case of a non-resident, a statement from the Revenue Commissioners will be required. Under Clause Nos. 4 and 34 of the approved Conditions of Contract, no sub-Contractor shall be appointed without the written permission of the Engineer. Approval to the appointment of all domestic sub-Contractors including labour only sub-Contractors shall be granted only if the sub-Contractor can produce a valid tax clearance Certificate or a C2 Certificate without delay to the Employer and except in the case of an individual Contractor who is self employed, if in addition the sub-Contractor can produce evidence (in the form of receipts for payment made in respect of each employee) of membership of the Construction Federation Pension/Sick Pay Scheme.

13 Language

The Tenderer shall prepare his tender in the English language. All contract documents, negotiations and correspondence during the tender stage and execution of the contract shall be prepared and conducted in the English language.

P A R T 2

CONDITIONS OF CONTRACT

PART 2

General Conditions of Contract

The Conditions of Contract shall be the Model Form of GENERAL CONDITIONS OF CONTRACT 'A' recommended by the Institution of Mechanical Engineers, the Institution of Electrical Engineers and the Association of Consulting Engineers for use in connection with Home Contracts with Erection 1976 (including September 1978 and August 1982 amendments) and the National Water Council and Trade Associations' Form G WATER AUTHORITY PLANT CONTRACTS STANDARD AMENDMENTS AND ADDITIONS (excluding clauses 39 and 40) as amended by the list of amendments included herewith.

List of Amendments to the General Conditions of Contract 'A'.

Clause 1: Include the following definitions of terms:-

The 'Purchaser' means the Right Honourable the Lord Mayor, Aldermen and Burgesses of Dublin, being the Corporation of Dublin, and shall include their successors and assigns.

The 'Completion Date' shall be that date obtained by the addition of the Erection Period to the date of notification to the Contractor to commence erection.

Unless otherwise agreed, the 'Contract Period' shall be deemed to be that period between the date of order and the date of issue of the Taking Over Certificate.

'Designated Date' shall be deemed to be that date ten days before the published date for the submission of tenders or any formal extension of same.

'Date of Order' shall be deemed to be that date on which written instructions to proceed with the Works are issued by the Engineer after approval of detailed drawings.

The 'Delivery Period' shall mean the time required by the Contractor for the delivery of the entire Plant to the Site from the date of approval of outline working drawings.

The 'Erection Period' shall mean the time required

by the Contractor for the erection and commissioning of the entire plant on Site.

The 'Engineer' means Mr. J. Fenwick, Dublin Chief Engineer, Engineering Services, or any other Engineer appointed from time to time and notified in writing to the Contractor to act as Engineer for the purpose of the Contract in place of the said Mr. J. Fenwick.

Clause 2. Clause 2 shall be deleted and the following clause substituted:-

(i) The Contractor shall be deemed to have examined the Site and to have satisfied himself as to the nature thereof, and to have examined the Conditions of Contract, Specification, Schedules, Drawings and Plans.

(ii) The Contractor shall be deemed to have satisfied himself as to the whole nature of the work to be carried out.

Clause 3. Delete Sub-Clause (i) and substitute the following new Sub-Clause (i).

(i) The Contractor shall obtain the Guarantee of an approved Irish Insurance Company to be jointly and severally bound with the Contractor in a sum equal to Twenty-Five percent of the Contract sum for the due performance of the Contract. The Terms and Form of the said Bond shall be such as shall be approved by the Purchaser.

Delete from Sub-Clause (ii) the words 'guarantee or other security' and insert the words 'Contract Bond'

Delete Sub-Clause (iii) and substitute the following.

(iii) The obtaining of such guarantee and the cost of the Bond to be so entered into, and to be maintained in force for the duration of the Contract, shall be at the expense in all respects of the Contractor".

Clause 7. Delete from Sub-Clause (i) the words 'United Kingdom' and insert the words 'Republic of Ireland'.

Clause 17. Add new Sub-Clause (viii) as follows:-

The Contractor shall provide proof to right of title to materials on site prior to any payment for said materials being made by the Purchaser.

Clause 18. Insert on lines 1, 2 and 4 Sub-Clause (v) the words 'or Resident Engineer' after 'Clerk of Works'.

Clause 21. Delete the figure of £100,000 in Sub-Clause (vii) and substitute £2,000,000.

Add new Sub-Clause (ix) as follows:-

(ix) Before commencing work the Contractor shall take out and maintain a public liability insurance policy to ensure against any damage loss or injury to any person or property (including the Purchasers structure where the Plant is being installed) in accordance with the foregoing sub-clause.

The minimum amount of such insurance shall be IR£2,000,000 for any one accident but unlimited in any one period of insurance.

Add new Sub-Clause (x) as follows:-

The Contractor's insurances (both third party and Contractor's liability) shall not include excess clauses or if included the excess shall be zero Punts.

Clause 34. Delete paragraphs (a), (b) and (c) of Sub-Clause (i) and substitute new paragraphs (a), (b) and (c) as follows:

(a) Within fourteen days from the presentation of the Engineers certificate of delivery to site of all plant a sum equal to 70% of the Contract Price adjusted as aforesaid, subject to expiry of the Delivery Date prior to the Engineers certification.

(b) Within fourteen days from the date certified in the Engineers taking-over certificate a sum equal to 95% of the Contract price adjusted as aforesaid.

(c) The balance of the Contract price adjusted as aforesaid within fourteen days from the expiry of the maintenance period and the presentation of the final certificate.

Delete sub-Clause (iii) of this Clause.

Clause 35 — Delete from Sub-Clause (i) the words 'United Kingdom' and insert the words 'Republic of Ireland'.

Clause 37 — Delete from Sub-Clause (i) the words 'named in the Appendix' and insert the words 'of Engineers of Ireland'.

Clause 38 — Delete the word 'English' and insert the word 'Irish', and delete the words 'sterling money' and insert the words 'Irish Punts.'

Clause 39 — Insert (i) before the wording of the existing clause. Delete the words "Acts of Parliament" and insert the words "Act of the Oireachtas" in the existing clause. Insert new sub-clauses (ii) and (iii).

Clause 39 (ii) Variations in the cost of the plant and labour shall be calculated using the BEAMA Contract Price Adjustment Supplementary Clause and Formulae for use with Home Contracts (including erection) with amendments (set out hereunder) using CPA indices.

CONTRACT PRICE ADJUSTMENT SUPPLEMENTARY CLAUSE AND FORMULAE FOR USE WITH HOME CONTRACTS (Including Erection)

MECHANICAL PLANT; (for which there is no other specific Formula)

If the cost to the Contractor of performing his obligations under the Contract shall be increased or reduced by reason of any rise or fall in labour costs or in the cost of material or transport above or below such rates and costs ruling at the date of tender, by reason of the making or amendment after the date of tender of any law or of any order, regulation, or bye-law having the force of law in the Republic of Ireland that shall affect the Contractor in the performance of his obligations under the Contract, the amount of such increase or reduction shall be added to or deducted from the Contract Price as the case may be provided that no account shall be taken of any amount by which any cost incurred by the Contractor has been increased by the default or negligence of the Contractor. For the purposes of this clause 'the cost of material' shall be construed as including any duty or tax by whomsoever payable which is payable under or by virtue of any Act of the Oireachtas on the import, purchase, sale, appropriation, processing or use of such material.

The operation of this Clause is without prejudice to the effect if any which the imposition of Value Added Tax or any tax of a like nature may have upon the supply of goods or services under the Contract.

Variations in the cost of materials and labour shall be calculated in accordance with the following Formula:-

(A) Labour

The Contract Price shall be adjusted at the rate of 0.475 per cent of the Contract Price per 1.0 per cent difference between the BEAMA Labour Cost Index for Mechanical Engineering published for the month in which the tender date falls and the average of the Index Figures published for the last two-thirds of the contract period, this difference being expressed as a percentage of the former Index Figure.

(B) Materials

The Contract Price shall be adjusted at the rate of 0.475 per cent of the Contract Price per 1.0 per cent difference between the Table 1 Producer Price Index Numbers of materials and fuel purchased 1980 SIC 32 Mechanical Engineering last published in the Government Journal "British Business" before the date of tender and the average of the Index Figures commencing with the Index last published before the two-fifths point of the Contract Period and ending with the Index last published before the four-fifths point of the Contract Period, this difference being expressed as a percentage of the former Index Figure.

For the purpose of these Formula:-

(a) The Contract period shall be that period between the date of order and the date ("the completion date") when the Plant or any portion thereof is taken over, or is ready for commercial use, whichever is the earlier, or such shorter period (ending with the completion date) corresponding to the manufacturing cycle of the Plant or such portion and the time required for erection thereof as may be agreed in the Contract.

(b) The Plant shall be deemed to be ready for commercial use even though certain minor matters which do not affect the use for which the plant is intended remain to be completed.

(c) Where any index figure is stated to be provisional or is subsequently amended, the figure shall apply as ultimately confirmed, or amended.

(d) INTERIM CPA PROCEDURES

Payments on account of CPA shall apply where the Contract is subject to progress or interim terms of payment.

All such claims will be calculated in an identical manner to the final CPA claim except that the contract completion date for this purpose will be the date to which the progress and/or interim payment is calculated and the contract value will be the cumulative total of progress and/or interim payments claimable to date less the cumulative total of progress and/or interim payments claimed up to and including the previous valuation.

Clause 39 (iii) The Contractor shall state in the appendix to the Bill of Quantities the exchange rate current on the designated date this being the exchange rate on which his tender is calculated. Cost

variation due to currency exchange rate fluctuations shall be calculated on the basis of the difference in the exchange rates current on the designated date and payment date of the plant item or items. Payment will only be made on the production of invoices and evidence of date of payment.

The source of currency exchange rates shall be the Central Bank of Ireland.

Clause 40 Add the following clause

The Tender shall be deemed to remain open for acceptance for a period of six months from the latest date for receipt of tenders.

Clause 41(i) Add the following clause

In the execution of this Contract the Contractor shall pay rates of wages and observe hours of labour and conditions of employment not less than the minimum standard rate of wages from time to time payable in the District where they are so employed, and shall observe the hours and conditions of employment from time to time recognised there.

The Contractor shall be responsible to the Purchaser for the due observance by all Sub-Contractors of the provisions of this Clause.

Clause 41(ii) The Contractor shall cause a copy of the proceeding sub-clause to be prominently exhibited for the information of his work-people on the premises where work is being executed under this Contract.

Clause 41(iii) The Contractor shall keep proper wages book and time sheets showing the wages paid and the time worked by the work-people in his employ in and about the execution of this Contract and such wages books and time sheets shall be produced whenever required for the inspection of any person authorised by the Purchaser.

Clause 41(iv) The Contractor shall pay to the workmen employed in or about the Works all wages and sums of money which shall be due and payable to them and in no instance shall the Contractor allow more than one (1) month's wages to be in arrear or unpaid and shall if required to do so in writing by the Purchaser within five (5) working days after the receipt of such request submit to the Purchaser a

statement showing the amount of wages due at the date of such request to each workman then employed in or about the Works.

Clause 41(v) In the event of any infringement of the above sub-clause (1) to (4) the Purchaser shall have power (without prejudice to any rights of the Purchaser under any other conditions of this Contract) by notice in writing given to the Contractor to terminate this Contract provided that the Purchaser first gives notice to the Contractor to rectify such infringement and the Contractor has failed to do so within ten (10) working days of the receipt of such notice. The Contractor shall not be entitled to any compensation in consequence of such termination.

Clause 41(vi) Should any question arise as to the observance by the Contractor of the above sub-clause (1) to (4) hereof the matter shall be referred to the Engineer who shall state his decision in writing and give notice of same to the Purchaser and Contractor.

Clause 41(vii) The Contractor shall recognise the freedom of his work people to be members of Trade Unions.

Clause 41(viii) Whenever the Contractor shall require to employ labour, other than men sent from his works for any purpose connected with this Contract, he shall in respect of such labour observe the following conditions of employment.

None but regular tradesmen shall be employed to perform tradesmen's work.

Clause 42 Add the following clause:-

The Contractor shall commence the Works within 21 days after receipt by him of an order in writing to this effect from the Engineer. Thereafter the Contractor shall proceed with the Works with due expedition and without delay in accordance with the Contract.

P A R T 3

FORM OF TENDER

CORPORATION OF DUBLIN

Contract No.100, Proposed Liquid Alum Plant, Ballyboden.

FORM OF TENDER

(Note: The Appendix forms part of the Tender).

TO THE RIGHT HONOURABLE LORD MAYOR, ALDERMEN AND BURGESSES OF DUBLIN
GENTLEMEN,

We .....

.....

having examined the drawings, Conditions of Contract, Specification and Bill of Quantities for the construction of the above-named works, we offer to construct, complete and maintain the whole of the said Works in conformity with the said Drawings, Conditions of Contract, Specification and Bill of Quantities for the sum of

.....

.....

or such other sum as may be ascertained in accordance with the said Conditions. This Tender sum is nett of Value Added Tax. The Tender sum with Value Added Tax (Calculated at) included amounts to

.....

.....

We undertake to complete and deliver the whole of the Works comprised in the Contract within the time stated in the Appendix hereto.

If our Tender is accepted we will, when required, provide two good and sufficient sureties or Insurance Company or Bank (to be approved by you) and to be jointly and severally bound with us in a sum equal to twenty-five per cent of the above-named sum for the due performance of the Contract and we beg to name

.....

as such sureties/surety.

Unless and until a formal agreement is prepared and executed, this tender, together with your written acceptance thereof, shall constitute a binding Contract between us.

We understand that you are not bound to accept the lowest or any Tender you may receive.

And in consideration of the sum of £1.00 which the Employer agrees to pay to us on the expiration of six calendar months from official closing date for receipt of Tenders we undertake and agree not to withdraw our tender or seek to alter or modify same in any respect without the written consent of the Employer before the said Tender shall have been considered for Acceptance or Rejection by the Employer on any date prior to the expiration of six calendar months from date thereof.

We further undertake within three months of the Acceptance of our Tender to enter into a Sealed Contract with the Employer for the execution of the several Works and to execute the necessary Bond when prepared by the Employer.

Signature: ..... Date: .....

APPENDIX

	Clause	
(a) Delivery period	1	.....
(b) Erection period	1	.....
(c) Designated date	1	.....
Amount of Bond	3	25% of Nett Tender Sum
Minimum of Third Party Insurance	21	£2,000,000 in respect of any one accident and unlimited for any one period of insurance.
Time of completion.	25	2 month
Delay in Completion		
(a) Percentage of Contract Value to be deducted as damages	26	0.25% per week
(b) Maximum percentage of Contract Value which the deduction may not exceed		10%
Period of Maintenance	30	12 months
Percentage adjustment for P.C. Sums	32	
Percentage Retention	34	5%
Minimum Amount of Interim Certificates	34	£5,000
Time within which payment to be made after Certificates	34	14 days

We are, Gentlemen,

Yours faithfully,

Signature .....

Address .....

.....

Telephone No. .....

Date .....

Proposed Liquid Alum Plant, Ballyboden.

TO THE RIGHT HONOURABLE LORD MAYOR ALDERMEN

AND BURGESSES OF DUBLIN

In consideration of the acceptance by you of the above Tender.

1/We ..... of .....

in the ..... of .....

and ..... of .....

in the ..... of .....

do hereby jointly and severally agree to bind ourselves to the correct performance of the above proposal in the sum of twenty-five per cent of the nett tender sum and we do further undertake that in the event of the Employer accepting the enclosed tender, we will, if called upon within three months of the acceptance of said Tender, execute our joint and several bond, or other form of security that may be required for the due fulfilment of the contract by the above.

Dated ..... day of ..... 19 ....

Genuine signature of Sureties (.....

or of

Authorised Representative of (.....
Insurance Company.

Company Seal

P A R T 4

SCOPE OF CONTRACT

PART 4

SCOPE OF CONTRACT

This contract provides for the supply, installation, commisioning and defect maintainance for a period of 12 months the following equipment at Dublin Corporation's Water Treatment Works at Ballyboden, Co. Dublin:-

4.1 Alum storage and dosing tanks

4.2 Alum dosing and pumping equipment, including pumps, pump-houses, pipes, fittings, etc.

4.3 All switchgear, cabling, panels, controls, alarms, etc. necessary for the safe operation, control and monitoring of the system.

A suggested layout for the plant is contained in these documents, however, the tenderer is at liberty to provide an alternative layout in addition to this which must be approved by the Engineer.

Should the tenderer wish to visit the site during the tender period, he may do so by appointment with Mr. Jack O' Sullivan, Ballyboden Water Treatment Works, Tel: (01) 932263.

P A R T 5

SPECIFICATION

SPECIFICATION: TABLE OF CONTENTS

Section 1 DESCRIPTION OF WORKS

1.1 Existing Works.

Ballyboden Water Treatment Works which was commissioned in 1960, produces on average 17mld. of treated water. The treated water is mixed with 9mld. of water piped from Ballymore Eustace Waterworks and is then delivered to an open reservoir on the site before entering the South Dublin City and County distribution system.

The treatment process employed is a combination of chemical pre- and post-treatment, upward flow sedimentation and rapid gravity filtration. The existing layout of the works are shown on drawing nos. WW 3335/2 and 3 (enclosed).

Table 1 : Design Chemical Dosing Rates at Ballyboden.

Chemical	Design Dose (mg\l) High	Low
Alum	50	40
Poly	0.09	0.11
Lime	13	11
Chlorine	0.75	0.73
Flouride	1.0	0.8

1.2 Alum Dosing.

Currently the Aluminium Sulphate (Alum) solution used in the flocculation process is made up by dissolving solid blocks of alum in water. The solution is then pumped to a high level storage tank from where it is dosed by gravity to the raw water via a constant head feeder tank.

In recent years this system has proved unsatisfactory. The protective lining on the mixing and storage tanks has been attacked by the alum solution, and the tanks have been seriously corroded, exposing steel in parts.

The alum solution in the day tank does not remain at a constant strength but tends to "layer out" in levels of different concentration. This variation in solution strength can seriously affect the stability of the floc blanket in the Sedimentation Tanks.

Section 2 DESCRIPTION OF PROPOSED WORK

2.1 Alum

It is proposed to replace the existing Alum preparation and dosing plant with one using liquid Alum. Liquid Alum will be delivered at a strength of 8% (measured as Al_2O_3 & 64^{o} Twaddel, 1.32 S.G. and shall be stored in new tanks located outdoors. From these tanks the liquid Alum shall be transferred to an Alum dosing tank and from there shall be dosed into a dilution/carrier water pipeline. The diluted solution will then be dosed into the inlet water channel downstream of the flume.

A suggested layout for the Alum Storage area and pump rooms is given in drg. no. WW 3365/2. The tenderer may if he wishes provide an alternative layout for consideration together with the the proposed layout in WW 3365/2, but shall include the latter under his main submission; the alternative being provided as an variation to this.

It is anticipated that approximately $1.23m^3$ of alum will be required per day, therefore the suggested layout will give a minimum of 33 days storage when the storage and dosing tanks are full.

This layout is intended to facilitate future construction work in the area South of the existing building.

Alum tanks and pumps shall be supported by suitable concrete plinths, reinforced where required by a steel mesh, size B1131 laid with 50mm cover.

Any alternative pipework layout should provide for an adequate number of fixing points, and disconnecting unions to enable sections of the pipework to be disconnected for cleaning. The layout drawings to be submitted under 3.3 of this Specification shall show the position of the proposed disconnecting unions.

2.2 Equipment to be Provided

The Contractor shall supply, install, commission and maintain free from defects for a period of 12 months the following equipment:-

2.2.1 Storage and Dosing Tanks

(i) **2. No. liquid Alum storage tanks, total storage capacity 37 cubic meters approx. - Nominal tank dimensions 2.5m diameter, 4m height, 18.5m^3 volume.**

The storage tanks shall be bunded by the manufacturer with tanks of a larger diameter and 19m^3 volume. The height of the bund wall should not exceed 1.5m (see drg. WW 3365/2). The tanks shall be supplied with an access ladder, including a safety cage and a safety railing around the top of each tank to facilitate inspection. Each tank shall have a closed top and shall be firmly secured to ensure against overturning when the tank is empty. The tank manufacturer shall ensure that the inlet and outlet pipework passing through the bund wall shall be properly sealed and secured to allow proper performance of the bund.
The tanks shall also be supplied with the following fittings;-

1 no. access manhole with cover
1 no. 75mm inlet connection (high level)
1 no. 50mm outlet connection
1 no. ventilator (150mm minimum)
1 no. overflow (high level) brought to ground level inside the bunded area
1 no. visual level indicator together with audible fill and low-level alarm
1 no. heating unit with thermostat control which shall maintain the Alum at a temperature greater than 2^0 C.
1 no. drain valve (25mm minimum)

Pipe trace heating and lagging shall be fitted on pipes above ground level and shall be approved by the Engineer.

(ii) **1. No. liquid Alum dosing tank , total storage capacity 4.5m^3 approx. - Nominal tank dimensions 1.8m diameter, 1.9m height, 4.5m^3 volume.**

The tank shall be supplied with access ladder & safety railing. The ladder shall be supported on a concrete step to ensure against subsidence. The tank shall also have a closed top, shall be secured against overturning when the tank is empty and shall be supplied with the following fittings;

1 no. access manhole with cover
1 no. 50mm inlet connection (high level)
1 no. 25mm outlet connection
1 no. ventilator (150mm minimum)
1 no. overflow (high level) brought to bund on storage tank
1 no. visual level indicator
1 no. heating unit with thermostat control which shall maintain the Alum at a temperature greater than 2^0 C.
1 no. drain valve (25mm minimum)
1 no. high-level probe to shut off the transfer pumps
1 no. high-level probe to activate an audible overflow alarm
1 no. mid-level probe to activate the transfer pumps
1 no. low-level probe to shut off the dosing pumps
1 no. low-level probe to activate an audible low-level alarm

The 50mm diameter overflow shall be brought to and properly secured to the bund on the storage tank as indicated on drg. WW 3365/2.

Pipe trace heating and lagging shall be fitted on pipes above ground level and shall be approved by the Engineer.

All tanks shall be vertical cylindrical in shape and should be designed to resist corrosion, internal pressures and external wind loads.

Tanks shall be constructed of Black H.D. Polyethylene (Hoechst Hostelen GM 5010 T2) helically wound

or black polypropylene
or other approved material resistant to Alum corrosion and weathering.

The Tenderer must supply a minimum 15 year guarantee against tank failure.

All pipework, valves and fittings shall be constructed of PVC, ABS or other approved chemical resistant material.

2.2.2 Alum Storage Tanks Equipment

(i) 1 set inlet pipework including :

2 no. connecting flanges (B.S. 3in Table 'D' flange) & flange cover,
2 no. inlet valves with locks,

(ii) 1 set outlet pipework including :

2 no. tank and line isolation valves,

(iii) 2 no alum duty/standby transfer pumps ;

each capable of delivering 3 1/sec of 64° Twaddel Aluminium Sulphate solution against a pressure of 3m. Pumps shall be chemically resistant and shall be of an approved type.

(iv) 1 set pump pipework including :

2 no. each pump inlet and outlet valves,
1 no. drain valve,
1 no. rotameter type, variable area, flowmeter together with 2 no. isolation valves - the flowmeter shall be fitted with an audible/visual no-flow alarm.

The inlet pipework to the transfer pumps shall be properly secured to the concrete plinth at intervals of a maximum of 2m.

All bends, tees, tapers fittings and supports to ensure a neat and secure layout.

All pipework, valves and fittings shall be constructed of PVC, ABS or other approved chemical resistant material.

2.2.3 Alum Dosing Tank and Metering Equipment

(i) 1 set inlet and outlet pipework including :

2 no. tank and line isolation valves,

(ii) 2 no alum metering/dosing pumps ;

each capable of delivering 50 l/hr of 64° Twaddel Aluminium Sulphate against a back pressure of 1 bar when pump set at 70 % of its operating range. Pumps shall be chemically resistant and shall be of the diaphragm type (Prominent Electronic or similar approved).
The pumps shall be equiped with an electronic controller to accept a 4 to 20 mA signal from a raw water flowmeter to provide flow proportional dose control.
The pumps shall be accurate to $\pm 2^1/_2$ % of the stated dose.

(iii) 1 set pump pipework including :

1 no. pressure sustaining valve and damper, if required,
2 no. each pump inlet and outlet valves,
1 no. rotameter, type variable area, flowmeter together with 2 no. isolation valves - the flowmeter shall be fitted with an audible/visual no-flow alarm and a graduated cylinder for calibrating the pumps - 2.5l volume and 50mm diameter, clearly and accurately marked with 50mm graduations and accurate to $\pm 2^1/_2$ % and complete with isolating valve,
1 no. drain valve,
1 no. non-return valve.

(iv) 2 no. duty/standby carrier water pumps, each capable of delivering $3m^3/hr$. of water against a head of 1 bar. Pumps shall be of an approved type.

(v) 1 set of pump pipework including;
1 no. 75mm connection from the inlet channel to the inlet pipeline including isolating valve,
2 no. each inlet and outlet valves,
2 no. sediment strainers,
1 no. rotameter, type variable area, flowmeter together with 2 no. isolation valves - the flowmeter shall be fitted with an audible/visual no-flow alarm.
1 no. drain valve
1 no. non-return valve

(vi) 1 no. carrier water pipeline nominal 25mm diameter and fittings on the inlet flume. The pipeline shall include:
1 no. isolating valve
1 no. detachable perforated dosing pipe with isolating valve.

All bends, tees, tapers fittings and supports to ensure a neat and secure layout.

All pipework, valves and fittings shall be constructed of PVC, ABS or other approved chemical resistant material.

2.2.4 Electrical Equipment

All switchgear, cabling, starter panels, controls, alarms, etc. necessary for the safe operation, control and monitoring of the system shall be provided under the contract.

2.2.5 Housing of the Pumping Equipment

The Dosing Shed (marked on drg. WW 3365/2) shall be used for housing the alum metering/dosing pumps and associated equipment. The roof of the shed shall be repaired, sealed and made good with Tritorch 180 roofing membrane with suitable finish or similarly approved. The shed shall be equiped with adequate lighting and power requirements shall be provided for.

The Alum transfer pumps and electrical cabinet (Item 2, Bill No. 3) shall be housed in a small wooden shed, dimensions approx. (2.5 * 2.0) m^2, to be provided, installed and properly secured to the concrete plinth, by the contractor.

All opes required for pipework shall be provided and included in the tender rates.

2.2.6 Operation of Alum Plant

Liquid Alum shall be delivered by road tanker in 20,000 l batches and shall be pumped into the requisite storage tank.

The temperature of the stored Alum shall be maintained above 2^0 C using the thermostatically controlled heating unit. The heating unit shall be acid resistant and shall be easily removed for cleaning/servicing purposes.

The dosing pumps shall deliver the liquid alum into a carrier water pipeline. The Alum shall be dosed into the raw water downstream of the measuring flume.

The Contractor shall take the 75mm inlet pipeline from the inlet channel marked on drg. WW 3365/2. The Contractor shall satisfy himself that the diameter chosen for the pipeline is sufficient for delivering a minimum quantity of 3 m^3/hr. alum/water mixture to the dosing point. The dosing point shall be formed by fixing a suitably perforated section of pipeline over the flume. An isolation valve shall be fitted to facilitate the removal of the dosing section for inspection and cleaning. The pipeline shall be adequately secured to the Engineer's satisfaction.

2.2.7 Precautions

The Tenderer should note the existence of an overhead electrical cable in the vicinity of the proposed alum storage tanks, which should not be interfered with.

The Contractor's attention is drawn to the fact that it is not necessary to come in contact with E.S.B. lines in order to cause flashover and the clearance advised by the E.S.B. should be maintained for the different voltages..

As these clearances apply under all conditions of wind and temperature, additional margins should also be allowed. Any machine which has been cleared to operate under any 220 kV, 110 kV, or 38 kV line while the line is still alive must be suitably and adequately earthed.

No interferance with the operation of the Water Treatment Works shall be allowed without the prior written agreement of the Engineer. Where interferance with the operation of the Water Treatment Works will occur it will be kept to a minimum and be agreed with the superintedent.

All Dublin Corporation buildings on site shall be off-limits to Contractor's personnel except where there is a requirement under the contract to work in a building.

2.3 Excavation, Pipework, Backfilling and Reinstatement

2.3.1 Excavation

The contractor shall carry out his operations in such a manner as to avoid damage to, or deterioration of, the final surfaces of excavations.

If the Contractor encounters ground at formation level which he considers unsuitable, or if the formation level is damaged or allowed to deteriorate, the Engineer shall be promptly informed.

No excavated material suitable for re-use in the Works shall be removed from the Site except on the direction, or the permission of the Engineer.

The trenches shall be excavated true to line and gradient and later trimmed carefully by hand to ensure uniform bedding of the pipes. The width of the trench shall not be more than is necessary for the laying of the pipes and should be dug to the width as specified in the drawings. These widths must be maintained at the formation level. The depth of the trench shall not be more than is necessary for the laying of the pipes at an invert level of 750mm.

In the roadway, the paved surface shall be carefully cut with a roadsaw to a minimum depth of 100mm along straight and parallel lines demarking the bounds of the proposed excavations. The roadway to be excavated shall be broken out and disposed of.

2.3.2 Pipelaying

All pipes and pipe fittings shall be to metric dimensions. Where it is necessary to connect to existing pipework which have the Imperial dimensions, it will be necessary to use special change pieces to accommodate same.

All pipes, upon arrival on site, shall be checked to make sure that their dimensions are within the manufacturers tolerances and any pipe failing to meet this standard shall be sent back.

No protection cap, disc, or other appliance on the end of a pipe or fitting shall be removed permanently until the pipe or fitting that it protects is about to be jointed. Pipes and fittings, including any lining or sheathing, shall be examined for damage and the joint surfaces and components shall be cleaned immediately before laying.

Suitable measures shall be taken to prevent soil or other material from entering pipes, and to anchor each pipe to prevent flotation or other movement before the Works are complete.

Alum in pipework above ground level shall be maintained at a temperature above $2^{0}C$ with strip heating.

2.3.3 Pipe-Jointing

Pipe Jointing surfaces and components shall be kept clean and free from extraneous matter until the joints have been made or assembled.

Great care shall be exercised at all times to ensure that the pipe, when finally laid and jointed, is central in the trench. The correct depth and space between the pipe and the trench sides shall be maintained in all places so that the pipe support material may be correctly placed under and beside the pipe as specified.

2.3.4 Cutting Pipes

Whenever it may be necessary to cut any pipe, it shall be cut in such a manner as to make a clean even cut at right angles to the longitudinal axis of the pipe. Where these cuts are made, the edge of the cut is then to be chamfered, and in the case of Ductile Iron Pipes these shall then be painted with an approved bitumen paint. Where lined pipes are used care shall be excercised to ensure that the lining is not damaged during the cutting operation. Any such damage which may occur shall be made good by the Contractor at his own expense.

2.3.5 Jointing of Pipes

Joints shall be made strictly in accordance with the manufacturer's instruction. The Contractor shall make use of the technical advisory services offered by the manufacturer for instructing jointers in the methods of assembling.

2.3.6 Cleansing of Pipelines

On completion of construction, and before any sterilisation, internal surfaces of pipelines shall be cleaned thoroughly in such a way as to remove all oil, grit and all other deleterious matter.

2.3.7 Testing Pressure Pipelines

Pipelines shall be tested hydraulically in sections during the course of construction. The final test shall be applied in the presence of and be approved by the Engineer. This shall consist of the following;
(i) The pipeline shall be filled with water to a pressure of WORKING PRESSURE PLUS 3 bar (the test pressure).
(ii) After 24 hours water shall be pumped into the main to raise the pressure back to the test pressure.
(iii) Tests shall be carried out to ensure that the test pressure is reached.

The Contractor shall provide all pumps, gauges, jacks, struts, and all apparatus necessary for carrying out the tests and shall keep them in good order. The gauges shall be tested to the satisfaction of the Engineer.

Prior to testing the pipeline the Contractor shall ensure that all debris has been removed from the pipeline and he shall thoroughly swab the pipeline in sections as directed by the Engineer with foam swabs. Swabbing shall continue until the washwater runs clear.

Water required for filling the main shall be obtained from an approved source. When testing, the pipeline shall be charged with water and all air released.

Pipelines whose function it is to carry potable water shall undergo a final test with water having a minimum concentration of 50 mg/l of free available chlorine and the test pressure shall be as directed by the Engineer. Chlorine gas shall not be injected directly into the main from a cylinder other than an approved chlorinator and care shall be taken to ensure that there is no flow back into previous sections of the main. The treated water shall be left in the main for a period as directed by the Engineer but not exceeding 24 hours and all valves in the system shall be operated at least once during this period. Chlorine residual tests shall be taken at the end of the main furthest from the point of injection. The sterilisation process shall be repeated until the chlorine residual is not less than 10 mg/l. On completion of this test, the pipeline shall be refilled with clean water.

The Contractor shall ensure that no pollution, erosion or silting occurs in watercourses from the discharge of test and sterilisation water.

2.3.8 Pipe Support Material

All pipe work in trenches shall be laid at an invert level of 750mm and bedded and protected with sand to a depth of 150mm all round. The sand shall be compacted and the trench backfilled with the best of the excavated material compacted in layers 300 mm thick. Topsoil shall be replaced in the top 150 mm below ground level.

Where pipes are being laid under existing concrete surfaces the concrete shall be cut neatly with a concrete saw to the same width as the proposed trench width.

2.3.9 Backfilling and Reinstatement

Backfilling shall, wherever practicable, be undertaken immediately after the specified operations proceeding it have been completed. The backfilling material over the pipework in the road area shall be granular material to cl. 2.3.10 of this specification. The excavated material shall be used for backfilling elsewhere.
Reinstatement of permanent surface dressing shall be 200mm of grade C30 concrete.

2.3.10 Granular Material

Granular material shall consist of well graded crushed rock or graded gravel and the material shall lie within the following limit determined in accordance with the requirements of B.S. 1377.

TABLE 2.3: Granular Material

B.S. Sieve Size	Range of Grading % age by weight passing
75 mm	100
37.5 mm	85 - 100
10 mm	40 - 70
5 mm	25 - 45
600 microns	8 - 22
75 microns	0 - 10

The material passing the 25 micron sieve when tested in accordance with B.S. 1377 shall be non-plastic.

2.3.11 Compaction Requirements for Granular Material

TABLE 2.4: Compaction Requirements for Granular Material

Type of Compaction Plant	Category	Number of Passes	
		Not greater than 150mm layer (loose)	Not greater than 225mm layer (loose)
Vibrating Roller	Mass per metre width of vibrating roll:		
	1300 kg. - 1800 kg.	16	Unsuitable
	1800 kg. - 2300 kg.	6	10
	2300 kg. - 2900 kg.	5	9
	2900 kg. - 3600 kg.	5	8
	3600 kg. - 4300 kg.	4	7
	4300 kg. - 5000 kg.	4	6
	over 5000 kg.	3	5
Vibrating Plate Compactor	Mass per unit area of base plate		
	1800 kg./m.^{2} - 2100 kg./m.^{2}	8	Unsuitable
	over 2100 kg./m.^{2}	6	10

2.3.12 Defect Maintenance

The Contractor shall include for the remedying of defects, at his own expense, for a period of 12 calender months from and after the certified date of completion. This date shall occur following the completion of satisfactory tests.

2.4 Concrete

2.4.1 Concrete Mix Design

The maximum size aggregate, the cement to aggregate ratio and the other properties and characteristics of the concrete mixes are as shown in the Schedule of Mixes.(Clause 2.4.24 of this spec.).

The actual ratio of sand to coarse aggregate and the exact proportions of combined aggregate and water to cement for each particular mix shall be determined on site by the Engineer from the results of sieve analysis of aggregates and from test mixes. The Contractor must allow in his rates for concrete work for providing all labour, plant, equipment and materials for the making of the tests. He shall carry these tests out on site or with the approval of the Engineer, at the ready mix concrete plant under the general direction of the Engineer, or his representatives.

The water content of all concrete shall be rigidly controlled and kept to the minimum required to obtain a concrete of quality and consistency as specified. In measuring the water for each batch, allowance must be made for water carried by the aggregates.

While taking the other requirements of the specification into account the cement content per cubic metre of finished concrete shall not be less than specified.

2.4.2 Cement

Portland cement used in concrete, concrete products and other cement based products shall either be certified as complying with the Irish Stand Specification I.S.1 : 1963 in accordance with the Irish Standard Mark Licensing Scheme run by the National Standard Authority of Ireland on behalf of Eolas and shall bear the Irish Standard Mark, or the Cement must be certified to an International Standard of another Member State of the European Community which provides an equivalent guarantee of safety and suitability. Manufacturers' or suppliers' certificates of compliance with the Standard shall be provided when requested by the Engineer.

Unless otherwise specified, the cement shall be normal setting and normal hardening cement. The Contractor shall, on request, provide the invoices of the various consignment for the inspection of the Engineer or Resident Engineer. The Engineer shall be permitted to take samples of the cement from time to time and have

the same tested at a laboratory chosen by him.

The cement shall be stored at the site of the Works in dry water-tight sheds with the floor raised at least 150 mm. above ground level. Any cement which has deteriorated or has been damaged shall be immediately removed from the site.

2.4.3 Aggregates

The coarse and fine aggregates from natural sources used in the production of concrete shall comply with I.S. : 5 for concrete aggregates and building sands.

They shall be clean, hard, strong, sound and durable and shall be free from clay, slit, loam, shells, mica, shale, organic matter and adherent coatings. It shall contain no deleterious matter in sufficient quantity to reduce the strength, durability or impermeability of the concrete, or to attack the steel reinforcement. Particles shall break into cubes, aggregate containing laminated flat or elongated particles shall not be used. Fine and coarse aggregates shall be kept in separate stock piles for at least 12 hours before using. They shall be batched with cement and water in the proportions specified, or from time to time as directed by the Engineer, or his Representative.

Fine Aggregate shall be sharp natural pit sand or fresh water sand, and all of it shall pass through a sieve of square mesh 5 mm. wide in the clear and shall be graded uniformly from 5 mm. to the maximum size specified to the satisfaction of the Engineer. Between forty-five per cent and seventy-five per cent by weight of the total aggregate (coarse and fine) shall pass through a sieve of aperture size equal to half the maximum size of aggregate. Water absorbed by a representative dry sample shall not exceed ten per cent by weight after 24 hours immersion. Invoices of the various consignments shall be produced on request.

2.4.4 Grading of Aggregates

The grading of the fine and coarse aggregates shall be such that, when they are mixed in the proportions decided for each class of concrete, the grading of the mixed aggregate shall be suitable for making a dense concrete of appropriate workability with the proportions of cement and water with which the aggregates are to be used. The proportions of fine aggregate to coarse to be used in each class of concrete shall be decided by the Engineer.

2.4.5 Water

Water used in making concrete shall be free from deleterious amounts of acids, alkalis and organic materials, reasonably clean and from a source approved by the Engineer.

2.4.6 Admixtures

No additives of any kind nor cement containing additives shall be used without the prior permission in writing of the Engineer.

2.4.7 Mixing

Concrete shall be thoroughly mixed in a concrete mixer of a type approved by the Engineer. It shall be a batch type mixer having a minimum capacity of one bag. The concrete shall be mixed continuously for not less than two minutes after all materials are in the drum. The entire contents of the drum shall be discharged before recharging. The mixers shall be maintained in a first class condition at all times and any mixer or plant which is faulty in any respect shall not be used. On ceasing mixing for any considerable length of time the drum shall be thoroughly cleaned by flushing with water.

2.4.8 Transporting of Concrete

Concrete, if transported from the point of mixing to the point of placing, shall be discharged directly into, hauled and deposited directly from clean efficient vehicles. In taking on, transporting and depositing concrete every precaution shall be taken to the satisfaction of the Engineer to prevent segregation, loss or accumulation of water and partial setting.

2.4.9 Ready-mix Concrete

If the Contractor proposes to use Ready-Mix Concrete the provision of such concrete shall comply with B.S. 5328 and may be used subject to the prior approval of the Engineer according to the following procedure:-

The Contractor shall first apply in writing to the Engineer for permission to use ready mixed concrete and state the firm from whom it is proposed to obtain the concrete.

First approval having been given, the Contractor shall confirm in writing to the Engineer that a copy of this Concrete Specification has been given to the supplier.

The concrete shall be carried in purpose made agitators, operating continuously, or in truck mixers. The concrete shall be compacted into place in its final position within two hours of the introduction of the cement to the aggregates, unless a longer time has been previously agreed by the Engineer.

No ready mixed concrete shall be placed in the works unless there is a thermostatically controlled curing tank for the test cubes on site.

The concrete as supplied shall conform to B.S. 5328 : 1981 "Methods for Specifying Concrete including Ready Mix Concrete" and to the requirements of this Specification.

The supplier shall make available to the Engineer records of all tests of materials and concrete as itemised in B.S. 5328 and as may be required by the Engineer.

The Contractor shall arrange for not less than one cubic metre of each mix proposed for use in the works to be delivered on site in time for such tests of workability as are considered necessary by the Engineer and for carrying out of the Preliminary Test Procedure set out in this Specification.

The actual batched weights of cement and coarse and fine aggregates shall be declared on each delivery ticket by the supplier, together with time of adding water to mix. These delivery dockets shall be kept at the site and made available for inspection by the Engineer.

All mixing water shall be added at the Depot and no further water shall be added without the prior approval of the Engineer. After the addition of mixing water, the concrete shall be supplied in purpose made agitators in accordance with B.S. 5328. The agitation will continue until the batch is fully discharged. The time from the addition of the water to the complete discharge of the drum shall not exceed 2 hours. The time of discharge to the time of placing in its final position in the works shall not exceed 30 minutes.

2.4.10 Placing and Compacting Concrete

The Contractor shall give at least 24 hours notice in writing to the Engineer of his intention to place

concrete; and the Contractor shall obtain the approval of the Engineer for his proposed arrangements before commencing concreting. All placing and compacting of concrete shall be carried out under the direct supervision of a competent member of the Contractor's staff. The Contractor shall regard the compacting of the concrete as work of fundamental importance, the object of which will be the production of concrete of a maximum density and strength.

Concrete shall be handled from the place of mixing to the place of final deposit as rapidly as practicable by the methods which will prevent the segregation or loss of the ingredients.

It shall be deposited as nearly as practicable in its final position to avoid rehandling, or flowing. Concrete shall be placed before the initial set has commenced. Concrete which has partially set before placing shall not be used on the works.

Mechanical vibrators shall be of a design approved by the Engineer. Concrete shall not be subjected to vibration either directly or indirectly between four and twenty-four hours after compaction has taken place. Immediately after compaction the concrete shall have a temperature of not less than $5^{o}C$. and not greater than $32^{o}C$.

Concrete shall be thoroughly compacted during the operation of placing and shall be thoroughly worked around the reinforcement and any embedded fixtures and into corners of the formworks and moulds. Before placing commences all formwork and reinforcement contained in it shall be clean and free from standing water, snow, or ice.

All structural concrete shall be thoroughly compacted by mechanical vibration, generally by poker type immersion vibrators of ample size and power. A competent steel fixer shall be in attendance to adjust and correct the positions of any reinforcement which may be displaced.

Concrete shall be placed in the forms in layers not exceeding 300 mm. deep, each layer shall be thoroughly compacted before the placing of the next layer. Vibrators shall not be used to push or move the concrete within the form.

Concrete shall not be thrown or dropped from a height exceeding 1.5 m.

2.4.11 Curing of Concrete

Concrete curing shall comply with the requirements of B.S.8110: Part 1, Section 6.6, on curing, and the methods of curing proposed shall be subject to the approval of the Engineer. Curing shall continue for at least 5 days from the time of casting, or for a longer period if required by the Engineer's Representative, by methods that shall ensure that cracking, distortion and efflorescence are minimised.

No walking, wheeling, traffic or shocks shall be allowed on the concrete until it has reached its 7 days works cube strength.

In cold weather, when the temperature of freshly placed concrete may approach $0^{o}C.$, water curing shall not be employed.

The cost of curing and protection shall be taken as covered by the Contractor's rates for concrete.

2.4.12 Cold Weather Concreting

No concrete of any kind may be laid during a falling temperature of $3^{o}C.$ or less, nor until after the rising temperature exceeds $1^{o}C.$ A continuous daily record of the maximum and minimum air temperatures shall be maintained in an approved manner on the site. The Contractor shall supply a U shaped maximum / minimum thermometer for the Resident Engineer's use.
Concreting at ambient temperatures below $2^{o}C$ may be carried out only if the following conditions are met:-

(a) The aggregates and water used in the mix shall be free from snow , ice and frost.

(b) Before placing concrete, the formwork, reinforcement and any surface with which the fresh concrete will be in contact shall be free from snow, ice and frost and shall be at a temperature above $0^{o}C.$

(c) The initial temperature of the concrete at the time of placing shall be at least $5^{o}C.$

(d) The temperature at the surface of the concrete in the most unfavourable position shall be maintained at not less than $5^{o}C.$ until the concrete reaches a strength of $5N./mm.^{2}$ as confirmed by tests on cubes matured under similar conditions.

The Contractor shall take precautions to prevent the temperature of any concrete falling to 0°C. during the first five days after placing.

2.4.13 Concrete Temperature

The resultant temperature of the combined materials in any batch of concrete at the point and time of delivery to the Works shall not exceed 6°C. above the prevailing shade temperature when the latter is over 21°C.

The Contractor shall not permit any cement to come into contact with water at a temperature greater than 60°C.

Where the temperature of the fresh concrete is likely to exceed 32°C., concreting shall not be permitted unless measures are taken to keep the temperature below that level.

2.4.14 Records of Concreting

The Contractor shall keep up-to-date records of the dates and times when concreting is carried out and of the weather and temperature conditions at the time. These records shall be available for inspection by the Engineer.

2.4.15 Formwork and Shuttering

The design, erection and removal of formwork shall be the responsibility of the Contractor.

All formwork shall be inspected and approved by the Engineer's Representative prior to the commencement of concreting.

Formwork shall be so constructed and of sufficient strength and adequately braced, strutted and supported so as to prevent any loss of material from the concrete or displacement under constructional loads and to secure plane surfaces true to line and level. It shall be removed in such a manner as not to damage or overload the concrete structure.

Shuttering for surfaces shall be made of plywood, or of T.& G. well seasoned timber or of approved steel.

2.4.16 Preparation of Formwork

The inside surface of formwork shall be thoroughly

cleaned between uses and coated with an approved release agent which shall be used in accordance with the manufacturers instructions. The release agent shall be applied before the reinforcement is placed on the shuttering so as to avoid its coming into contact with the reinforcement. Only one type of release agent shall be used throughout the course of the contract except with the Engineer's prior approval.

2.4.17 Striking of Formwork

Times at which formwork should be struck and precautions to be taken during this operation shall be as detailed in B.S. Code of Practice 8110: Part 1: 1985 Clause 6.9.3 and Table 6.6 .

2.4.18 Surface Finish

All concrete surfaces are to be smooth plane and free from honeycombing. Immediately after the stripping of the concrete all surface fins and projections are to be removed and honeycombing made good.

All concrete which is to remain exposed in the finished work shall be fair faced. Immediately after stripping of shuttering of fair faced concrete all fins and projections are to be removed and the whole of the surface brushed and rubbed over with a neat cement grout so as to leave a smooth and even finish completely free from pitting, joint marks and other imperfections.

The cost of all such finishings of concrete shall be taken to be included in the Contractor's rates for concrete in the appropriate items in the Bill of Quantities.

2.4.19 General Construction

All structures will be carefully set out in accordance with the details shown on the Drawings. No concreting will commence until the Engineer's Representative has been notified that the structures are ready for inspection and approval is given by the Engineer to commence work.

2.4.20 Workability and Slump Tests

Workability of fresh concrete shall be such that the concrete can be handled and placed without segregation and, after compaction, shall completely fill the

formwork and surround all reinforcement and ducts.

The quantity of water used shall not exceed that required to produce a concrete with appropriate workability to be placed and compacted in the required location.

The slump of the concrete on delivery to site shall be 50 mm. plus or minus 25 mm. as determined by a standard slump cone.

Slump tests shall be frequently carried out by the Engineer's Representative during concreting. The method of testing shall be in accordance with B.S. 1881 and the slump value measured shall not exceed 50 mm. for Grade C30 concrete (see also Clause 6.5.23).

2.4.21 Strength Tests and Samples

The minimum seven day and twenty-eight day cube strengths of the various classes of concrete as made on site shall be as specified in the Schedule of Concrete Mixes. All test cubes shall be made and cured as laid down in B.S. 1881 and in the presence of the Engineer's Representative. The Contractor shall provide storage space for cubes, with heating as necessary, to maintain the temperature required.

All cubes shall be tested by EOLAS, The Irish Science and Technology Agency or an approved laboratory. The care of the cubes from the time they are manufactured until they are tested shall be in accordance with the relevant requirements of B.S. 1881.

Copies of the report on the testing of cubes shall be sent directly by the Testing Laboratory to the Engineer's office and to the Resident Engineer. Reports shall clearly show the mix class and the location of the concrete in the works from which the cubes were taken.

Cube tests shall be made as the Engineer may direct. Not less than three cubes shall be made from any batch. One cube shall be tested at seven days and two cubes at twenty-eight days, unless directed otherwise by the Engineer.

Prior to the commencement of concreting the Contractor shall supply samples of aggregates to an approved laboratory for test, the amount of such samples to be directed by the Engineer. The method of sampling shall be in accordance with I.S.: 5 .

Alternatively, if the Contractor proposes to use ready-

mix concrete for the works, he shall arrange for the ready-mix concrete supplier to forward 3 No. 150 mm. cubes for each grade of concrete to an approved laboratory for test, four weeks prior to the commencement of concreting. During the course of the works, the Contractor shall supply such further samples as the Engineer may require.

Tests shall be carried out by the Engineer's Representative on site during the course of concreting and the Contractor shall provide attendance and shall provide the following test apparatus prior to the commencement of concreting:-

A. One standard slump cone, base plate and rod complying with B.S. 1881.

B. Six standard cube moulds and base plates and one standard tamping bar, complying with B.S. 1881, at all times, and such further moulds as may be required from time to time.

2.4.22 Measuring Cement and Aggregates

Cement shall be proportioned by weight and in such a manner as to prevent loss of cement as it is loaded into the mixer.

Water added at the mixer shall be measured by volume by a semi-automatic flow meter, or other type of gauge approved by the Engineer, capable of an accuracy of plus or minus 2%.

All weighing and water dispensing mechanisms shall be maintained in good order at all times and their accuracy shall be maintained within the tolerances set down in B.S. 1305 and checked against accurate weights when required by the Engineer.

The weights of cement and each size of aggregate as indicated by the mechanisms employed shall be within a tolerance of +2% and -0% of the respective weights per batch agreed by the Engineer.

2.4.23 Concrete Density

The minimum density for compacted Grade C 30 concrete shall be 2400 kg./m.^{3}

2.4.24 Schedule of Concrete Mixes

The following mixes shall be used in the work.

Grade	Minimum Cement Content of Concrete in Place k gs./m.^{3}	Minimum Works Cube Strength N./mm^2		Application
		7 Day	28 Day	
C 30	370	20.0	30.0	Roadway and Tank & Pump Plinths.
C 20	250	13.3	20.0	Blinding Concrete

The consistency of each batch will be related to the final location of the concrete and the difficulties of placing but in no case shall the water/cement ratio exceed

0.5 for Grade C 30
0.65 for Grade C 20

Mixes designed to meet the above grade shall be tested to comply with the requirements of B.S. 5328:1981 Methods for specifying concrete including ready-mixed concrete.

2.4.25 Removal of Defective Concrete

Concrete which has failed to meet the standard of acceptance and which fails to meet the requirements of such further tests as the Engineer may direct shall be removed and replaced by the Contractor. The cost of such removal and replacement of defective concrete, together with the replacement of any associated reinforcement which cannot be re-used, shall be borne entirely by the Contractor.

2.4.26 Steel Reinforcement

Steel fabric reinforcement shall be welded at the intersections and, unless otherwise required by the Contract, shall be delivered to the Site in flat sheets and shall comply with BS4483.

All steel for reinforcement shall be free from loose mill scale, loose rust, oil and grease, or other harmful matter, immediately before placing the concrete. Reinforcement shall be stored on racks above ground.

All reinforcement shall be placed and maintained accurately and rigidly in position in accordance with the structural drawings. Concrete shall not be placed until reinforcement is free from any substance which might adversely affect the steel or concrete chemically or reduce the bond.

Section 3 GENERAL PROVISIONS

3.1 Works to be kept operational

The Contractor shall make provision at his own expense for any temporary works necessary to ensure the continued operation of the works during the period of this contract.

3.2 Sufficiency of Tender/Attendance

3.2.1 The Tenderer shall visit the existing works at Ballyboden and satisfy himself as to the sufficiency of his tender to cover all contingencies. The site (see site location Plan) may be visited during office hours after prior arrangement with the Plant Engineer. (Tel. No. 01 - 932263)

3.2.2 Please note that no unskilled attendance will be provided by the client and the Tenderer's Contractors rates will be deemed to include all materials, labour and plant included in delivery, off loading, erection etc.

3.3 Proceedings after Award of Contract

The successful Tenderer will be required to submit to the Corporation within 2 weeks after notification of the award of the contract, 6 copies of drawings showing the layout of the equipment offered together with any proposed alterations to the existing works and also circuit diagrams and wiring diagrams for all electrical control panels and electrical equipment.

The Contractor shall give the Corporation's Waterworks Dept. at least 3 full weeks notice before commencing operation and shall supply programme of work with this notice.

3.4 Equipment necessary for Tests

The Contractor shall provide without extra charge all labour and equipment required by the Engineer for testing or measuring, proving or testing the strength or quality of the materials, or testing the efficiency of any portion or portions of thecompleted works.

3.5 Medical Certification

The Contractor shall provide Dublin Corporation with medical certification for each person working on the contract stating that the person is not a carrier of certain waterborne diseases as determined by the Dublin Medical Officer, Eastern Health Board from time to time. The Engineer may also insist on th examination of personnel returning from sick leave.

3.6 Communications

The Contractor shall ensure that the Engineer is able to contact the Contractor's Site Representative during and after working hours. Before work commences a list of names, addresses and telephone numbers shall be submitted to the Engineer by the Contractor and at least one representative must be available at all times to deal with emergencies. Failure to provide standby cover shall render the Contractor liable to the Corporation for full costs of attending such emergency.

3.7 Disposal Grounds

The Contractor must not dispose of surplus excavation, spoil, rubbish, scrap or other surplus or waste materials on any of the lands of easements of the Corporation unless such disposal is specifically permitted and he must, as aforesaid, make his own arrangements for the disposal of any such waste or surplus, and the Contractor hereby indemnifies the Corporation against all claims by owners or occupiers of other persons which may now or hereafter be made by reason of his entry upon any lands for the disposal of spoil or any other purpose.

3.8 Work Outside Ordinary Hours

No work shall be carried out under this contract outside ordinary hours, i.e. night, Saturdays, Sundays, Public or Bank Holidays. Should the Contractor wish to work at night or on Saturdays, Sundays, Public or Bank Holidays he shall first obtain permission in writing from the Engineer. The Contractor shall give at least one clear day's notice in writing requesting permission to work during these times. The Engineer may grant or withhold permission or he may impose such conditions or restrictions of the type of work to be done as he considers desirable. The standard rates in the Schedule of Rates shall apply to all such work outside ordinary hours.

3.9 Resident Engineer

The Corporation shall appoint a Resident Engineer, whose duty it will be to supervise the works on behalf of the Engineer.

3.10 Standards

Nothing stated in this Specification is to be construed as discriminating against products and materials manufactured in any of the Member States of the European Community.

Where items to an Irish Standard Specification, a British Standard Specification, or other standard specification of a Member State of the European Community are called for, this requirement shall be read as including items to a relevant international standard, or the relevant national standard of any Member State of the European Community, which provides an equivalent guarantee of safety and suitability.

Where items certified by the National Standards Authority of Ireland as complying with an Irish Standard are called for, the provisions of Circular Letter BM2/87 shall apply, i.e. the requirement shall be read as either certified by the National Standards Authority of Ireland as complying with the Irish Standard, or shall be certified as complying with a relevant international standard of another Member State of the European Community, which provides an equivalent guarantee of safety and suitability.

3.11 Repair of Damaged Property

The Contractor shall make good any damage to the bunds, pipe housing or anything else that has been damaged through drilling or other operations either deliberate or accidental .

Section 4 MATERIALS

4.1 Proprietary Names

In every case where, in the Specification, materials, appliances or fittings of special design, manufacture of description, patented or otherwise, are described or the names of manufacturers or agents are given, it is to be clearly understood that such references are only inserted for the guidance of Tenderers with regard to the nature and quality of the articles and services required which must, in all cases be subject to the approval of the Engineer.

4.2 General

All materials supplied shall be new and of the highest quality and shall conform to the appropriate Irish Standards or British Standards. These standards should be referred to by the Contractor in his proposal.

In particular all mechanical equipment including pipework, valves, etc. shall be corrosion resistant to a high standard to the Engineer's approval. The contractor shall submit written confirmation from the equipment manufacturer that the materials used are suitable for the duties required.

All electrical equipment and electrical plant mounted outdoors shall be protected to IP55 with additional approved weatherproof housings.

All pipes and pipe fittings shall be to metric dimensions.

4.3 Ductile Iron Pipes and Fittings

Ductile iron pipes, fittings and joints shall comply with the relevant requirements of BS 4622 and BS4772. Flanges on pipes and fittings shall comply with BS 4504 and be rated PN 16. Coating applied shall be hot applied bitumen conforming to BS4147. Ductile iron pipes used for the delivery of alum shall be rubber lined.

4.4 P.V.C. Pressure Pipes

P.V.C. Pressure pipes shall comply with IS 123 subject to variations approved by the Minister for the Department of the Environment and be approved class. Fittings shall be of approved type and class. Handling and installation shall comply with IS SR3.

4.5 A.B.S. Pressure Pipes

A.B.S. pressure pipes shall comply with BS 5391 and be of approved class. Fittings shall be of approved type and class and shall comply with BS 5392.

4.6 Steel Pipes

Steel pipes and joints shall comply with the requirements of BS 534 and in addition spiral fusion welded steel pipes shall comply with BS 4504:1969.

4.7 Solvents

Solvents used in jointing PVC of ABS pipes shall be resistant to the chemical transported in the pipes.

Section 5 ELECTRICAL WORKS

5.1 Electrical Supply

The electrical supply into the Works is at 380/220 volts, 50Hz, 4 wire from a pole mounted transformer. Space shall be made available on the existing main switchboard in the chemical dosing building for the outgoing supply fuse switches. The switches shall be provided and connected as part of the contract.
The existing main switchboard comprises of iron clad switchgear mounted onto a steel framework and is located on the upper floor of the chemical dosing building.

5.2 Electric Motors

Electric motors shall be of the TEFC type and continuously rated for the duty envisaged. Motors mounted outdoors shall be protected to a minimum of IP55 and shall also be fitted with motor heaters.

All motors of 3 KW rating and above shall be assisted start.

5.3 Motor Starters

Motor starter gear shall consist of a contactor or contactors in association with high breaking capacity fuse links together with means of isolating the main and secondary circuits from their incoming supplies.

Each starter shall be provided with local start and stop control switches, signal lamps, hours counter, ammeter, protection, all necessary control and interlock relays, control and selector switches, alarm equipment and provision for remote control, indication and alarm. All central switches shall be key operated with the key being removable in all positions.

Separate fusing shall be provided for control and indication.

5.4 Panels

Control panels, instrument and alarm panels together with the associated equipment shall be provided to record and monitor the operation of the plant.

Remote indication of controls, indications and alarms shall be at extra low voltage.

5.5 Cables and Cable Glands

Power cables shall be 600/1000 volt copper conductor, PVC insulated single wire armour with overall PVC sheath.

Auxiliary multicore cables shall be thermoplastic PVC insulated and sheathed, armoured type with overall PVC sheath.

Cable glands for PVC armoured cables shall be brass bodied type with inner seal and where utilised outdoors shall be with both inner and outer seals. All glands shall be complete with PVC shroud and brass earth tag.

Provision and installation of all electric cabling together with necessary cable traywork and all fixings and accessories shall be included in the contract.

5.6 Electrical Standards

All electrical work shall conform to the best principals of modern practice and shall be carried out by fully competent tradesmen who shall be members of a recognised electrical trade union.

The complete electrical installation shall comply with the requirements and recommendations of the latest edition of the National Rules for Electrical Installations as issued by the Electro-Technical Council of Ireland, together with the regulations laid down by the Electricity Authority.

Section 6 ITEMS TO BE PROVIDED BY CONTRACTOR ON COMPLETION OF CONTRACT

6.1 Tools

The Contractor shall supply 2 complete sets of spanners and any special tools necessary for the maintenance of the equipment.

6.2 Record Drawings and Operating Instructions

The Contract shall provide one set of "as constructed" wiring and control drawings on polyester together with 5 no. copies of full operating and maintenance instructions for all equipment and control systems installed - suitably bound. All drawings shall be in metric units. The names and addresses of all suppliers of any sub-contract item shall be included. **Photocopies of operating and maintenance manuals submitted in place of the manufacturer's originals will NOT be accepted.**

6.3 List of Spares

The Contractor shall supply 4 copies of a recommended list of spares together with the name and address of the supplier and manufacturer (both mechanical and electrical) which may reasonably be expected to be adequate to cover any one years operation of the plant.

6.4 On-Site Training

The Contractor shall include for the on site training of operators and maintenance personnel in the operation and maintenance of the proposed liquid alum plant for a period of 1 weeks after it's commissioning. The said service shall be available for not less than 8 hours per day for a period of 1 weeks.

P A R T 6

BILL OF QUANTITIES

PART 6

BILL OF QUANTITIES

Preamble to the Bill of Quantities

1 The Tenderer is deemed to have read and examined the General Conditions, Specification, Drawings and all other relevant documents and to have inspected the site before completing the Bill of Quantities.

2 Tenders are to be submitted on the special tender forms supplied and shall be accompanied by the sealed Bill of Quantities (bound copy) priced and fully extended in ink and enclosed in the special envelope supplied. These shall be delivered on or before the dead-line specified in the advertisement inviting tenders. The copy of the Specification and all plans furnished shall be returned to the Corporation when submitting the tender.

3 The Tenderer should note that permanent works will be measured. Unless the Bill of Quantities specifically indicates to the contrary constructional plant and temporary works are not measured.

4 All skilled and unskilled labour should be recruited through the local offices of the Department of Social Welfare, from applicants for unemployment and other persons registered at the office.

5 The rates and prices quoted in the priced Bill of Quantities shall include for supervision by the Tenderer and his staff, and shall be in Irish Pounds.

6 A rate or price is to be inserted against each item in the Bill of Quantities. Items against which a price has not been inserted will be deemed to be covered by other prices and rates in the Bill.

7 The prices and rates to be inserted in the Bill of Quantities shall be the full inclusive value of the work described under the items including all costs and expenses which may be required in and for the completions and maintenance of the works described together with all general risks, liabilities and obligations set forth or implied in the documents on which the tender is based. Where special risks, liabilities and obligations cannot be dealt with as above, then the price is to be separately stated where listed in the bill of quantities.

8 The Tenderer shall refer to the Drawings, Specification and Conditions of Contract for full descriptions of the quality of materials and workmanship involved. Descriptions including references to clauses in the Specification in the Bill of Quantities are brief and intended only to identify the work covered by the respective items and nothing contained herein or omitted shall relieve the Tenderer from his obligations to carry out the works in accordance with the true intent and meaning of the Drawings, Specification and Conditions of Contract.

9 All items are measured nett and no allowance will be made for the bulking of materials, for waste or for cutting.

10 All quantities shown in the Bill of Quantities, whether marked provisional or not, are approximate only and the Tenderer shall ascertain the actual quantities of materials required before placing orders for the same.

11 The schedules shall be fully completed. The prices inserted by the Tenderer in the schedules shall form the basis of valuation of such work including additional work which may be ordered by the Engineer and the same prices shall be inserted in the sub-bills where applicable to form the basis of tender.

12 The total quantities included in the final valuation for each item will be measured to the nearest unit relative to that item except in the case of schedules where fractions may be measured and expressed as decimals.

13 Except in so far as it is otherwise stated, the rates and prices set out in the prices Bill of Quantities shall include for the supply and building in or fixing as the case may be, of all materials for the due and proper completion of the works. The prices of all work shall include for fixing where this is not repugnant to the text.

14 P.C. shall mean the prime cost of an article delivered to the site by the most economical means. The price is to be exclusive of V.A.T. but inclusive of all other charges.

15 When goods are delivered to site the original invoices are to be submitted to the Resident Engineer for checking.

16 For the evaluation of extra works or alterations in the designs from those specified and shown on the Drawings, the Bill of Quantities as priced by the Tenderer will be deemed to act as a schedule of rates and the Engineer will be at liberty to select such unit rates as appear to him reasonable and applicable to the work.

17 All claims for extras governed by the 'Price Variation Clause' or for extra works ordered in writing by the Engineer, must be furnished within one month of the date on which the extras were incurred. The Tenderer's attention is drawn to the requirements of the Specification and General Conditions of Contract regarding the submission of time sheets and weekly wages sheets and other documentation where wage increases or extra works are involved.

18 The quantities set out in the Bill of Quantities are estimates only provided for the guidance of the Tenderer. Every precaution has been taken to ensure that they are reasonably accurate but final payment will be made on the basis of the measured work only. The quantities shall not be taken to determine the minimum or maximum amount of work to be done or materials to be supplied.

19 The Tenderer's attention is drawn to the Conditions of Contract whereby increases under the price variation clause will cease at the end of the contract period, including any extensions of time made to it in accordance with the contract, by formal certificate of the authorised contract officer.

20 Where errors occur in the extension of the rates and or the summation of the Bill of Quantities, the rates will stand and the corrections made on the basis of the rates shall be used. The Tenderer will be informed of the effect of such adjustments on the Tender sum and shall unconditionally accept in writing the adjustments or withdraw the tender.

21 The Tenderer shall note that this Bill of Quantities has not been prepared in accordance with CESSM2, the Civil Engineering Standard Method of Measuerment.

BILL No. 1

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT £	AMOUNT p
	GENERAL PROVISIONS					
1.	Provide for and maintain contract bond during Contract Period.	Item				
2.	Provide for all insurance required under the contract.	Item				
3.	Provide for protection of material and works from damage or injury during the execution of the works.	Item				
4.	Provide for any temporary works necessary to ensure continued operation of the existing plant during the period of this contract.	Item				
5.	Provide the sum of £3,500.00 (three thousand, five hundred pounds) to be at the engineers disposal for any contingencies that may arise during the progress of the works.	Item			3.500	00
6.	Test and commission plant installed under this Contract	Item				
7.	Make good any damage to properties caused in the execution of this Contract	Item				
	Bill No. 1			Bill 1 total to Summary		

BILL No. 2

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT £ p
	NOTE 1: Rates are deemed to include for all materials, labour and plant. Unskilled attendance will not be supplied by Dublin Corporation. 2: An itemised price list must be supplied for the equipment offered.				
	ALUM PLANT				
	TANKS				
1.	Supply and install 2 no. 18.5m^3 storage tanks - including all valves and fittings as per cl. 2.2.1 of this Specification.	Item			
2.	Supply and install 1 no. 4.5m^3 dosing tank - including all valves and fittings as per cl. 2.2.1 of this Specification.	Item			
	PUMPS				
3.	Supply and install duty/standby dosing pumps as per cl. 2.2.3 (ii) of this Spec.	Item			
4.	Supply and install duty/standby alum transfer pumps as per cl. 2.2.2 (iii) of this Spec.	Item			
5.	Supply and install duty/standby carrier water pumps as per cl. 2.2.3 (iv) of this Spec.	Item			

BILL No. 2

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT £	AMOUNT p
	VALVES AND FITTINGS All valves to have BSP threaded sockets All fittings to have threaded union adaptors. Supply and deliver to site the following PVC, ABS or similar, as per Spec. valves and fittings;					
6.	75mm inlet valve with lock	2	Nr.			
7.	75mm isolating valve	1	Nr.			
8.	50mm isolating valves	10	Nr.			
9.	50mm rotometer type flowmeter	1	Nr.			
10.	50mm drain valve	1	Nr.			
11.	25mm isolating valves	12	Nr.			
12.	2.5l graduated cylinder as per cl. 2.2.3 (iii) of this Specification	1	Nr.			
13.	25mm drain valve	1	Nr.			
14.	25mm non-return valve	1	Nr.			
15.	25mm rotometer type flowmeter	1	Nr.			
16.	25mm detachable perforated dosing pipe	1	Nr.			
17.	75mm sediment strainers	2	Nr.			
18.	12mm isolating valves	3	Nr.			
19.	12mm flowmeter	1	Nr.			
20.	12mm drain valve	1	Nr.			
21.	12mm non-return valve	1	Nr.			
	Page 2 Bill No. 2			Page total to summary		

BILL No. 2

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT £	AMOUNT p
22.	75mm diam. 90^0 bends	Nr.	8			
23.	50mm diam. 90^0 bends	Nr.	16			
24.	25mm diam. 90^0 bends	Nr.	20			
25.	12mm diam. 90^0 bends	Nr.	4			
26.	50mm diam. 45^0 bends	Nr.	1			
27.	75mm to 25mm reducer	Nr.	1			
28.	50mm off 50mm tee	Nr.	3			
29.	25mm off 25mm tee	Nr.	4			
30.	12mm off 25mm tee	Nr.	1			
31.	12mm off 12mm tee	Nr.	2			
32.	50mm off 50mm Y-connector	Nr.	1			
	Supply and deliver to site, trace heating elements and lagging for;					
33.	75mm diam pipe	m	7			
34.	50mm diam pipe	m	12			
35.	25mm diam pipe	m	20			

Page total to summary

BILL No. 2

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT £	AMOUNT p
	PIPEWORK					
	Supply and deliver to site the following PVC, ABS or similar pipework as per Spec.					
36.	75mm diam pipework	m	12			
37.	50mm diam pipework	m	150			
38.	25m diam pipework	m	22			
39.	12mm diam pipework	m	1			
40.	Lay, joint & lag as pe cl.'s 2.2.2 (i) and 2.3 of this Spec. and as per drg. WW 3365/2, PVC, ABS or similarly approved 75mm pipes valves and fittings as inlet pipework to storage tanks incl trace heating, tees & bends etc.	m	7			
41.	Lay, joint, lag and secure to concrete plinth as per cl.'s 2.2.2 (ii) and 2.3 of this Spec. and as per drg. WW 3365/2, PVC, ABS or similarly approved 50mm pipes valves and fittings as outlet pipework from storage tanks transfer pumps incl. trace heating, tees & bends etc.	m	9			
42.	Lay,joint & lag as per cl.'s 2.2.2 (ii) and 2.3 of this Spec. and as per drg. WW 3365/2, PVC, ABS or similarly approved 50mm pipes valves and fittings as outlet pipework from transfer pumps to dosing tank incl. trace heating, tees & bends etc.	m	5			
43.	Excavate for, lay, joint and backfill with excavated material as per cl.'s 2.2.2 (iv) & 2.3 of this Spec. and as per drg. WW 3365/2, PVC, ABS or similarly approved 50mm pipes, valves and fittings, from transfer pumps to dosing tank, incl. tees & bends etc.	m	60			

Page total to summary

BILL No. 2

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT £	AMOUNT p
44.	Excavate for, lay, joint, backfill with granular material and reinstate with 200mm of grade C30 concrete as per cl.'s 2.2.2 (iv), 2.3 & 2.4 of this Spec. and as per drg. WW 3365/2 50mm PVC, ABS or similarly approved pipes valves and fittings from transfer pumps to dosing tank, incl. tees & bends etc.	m	5			
45.	Lay, joint & lag as per cl.'s 2.2.3 (iii) and 2.3 of this Spec. and as per drg. WW 3365/2, PVC, ABS or similarly approved 25mm pipes, valves and fittings as outlet pipework from dosing tanks to dosing pumps, incl. trace heating, tees & bends etc.	m	2			
46.	Excavate for, lay, joint &. backfill with excavated material as per cl.'s 2.2.3 (iii) and 2.3 of this Spec. and as per drg. WW 3365/2, PVC, ABS or similarly approved 25mm pipes valves and fittings as outlet pipework from dosing tanks to dosing pumps incl. tees & bends etc.	m	2			
47.	Lay, joint & lag as per cl.'s 2.2.3 (iii) and 2.3 of this Spec. and as per drg. WW 3365/2, PVC, ABS or similarly approved 12mm pipes and fittings as outlet pipework from dosing pumps to inlet line incl. trace heating, tees & bends etc.	m	1			
48.	Lay, joint & lag as per cl.'s 2.2.3 (v) and 2.3 of this Spec. and as per drg. WW 3365/2, PVC, ABS or similarly approved 75mm pipes and fittings as inlet pipework to carrier water pumps from the inlet channel, incl. tees & bends etc.	m	5			
	Page 5 Bill No. 2		Page total to summary			

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT £	AMOUNT p
49.	Lay, joint & lag as per cl.'s 2.2.3 (vi) and 2.3 of this Spec. and as per drg. WW3365/2, 25mm PVC, ABS or similarly approved pipes and fittings as inlet line to inlet channel incl. trace heating, tees & bends etc.	m	18			
50.	Excavate for, lay, joint & backfill with excavated material as per cl.'s 2.2.1 (ii) and 2.3 of this Spec. and as per drg. 3365/2, 50mm PVC, ABS or similarly approved pipes and fittings as overflow from dosing tank to bund of storage tank.	m	2			
51.	Lay & joint in trench with feed-line in roadway and grassland as per cl.'s 2.2.1 (ii) and 2.3 of this Spec. and as per drg. 3365/2, 50mm PVC, ABS or similarly approved pipes and fittings as overflow from dosing tank to bund of storage tank.	m	65			
52.	Lay & joint as per cl.'s 2.2.1 (ii) and 2.3 of this Spec. and as per drg. 3365/2, 50mm PVC, ABS or similarly approved pipes and fittings as overflow from dosing tank to bund of storage tank.	m	4			
53.	Excavate for, shutter, provide, place compact and reinforce with size B1131 steel mesh , grade C30 concrete slabs 200mm thick, on grade C15 concrete blinding 50mm thick, nom. agg. size 20mm as plinth for alum storage tank, and transfer pumps on 150mm of granular material as per cl. 2.4 of this Spec. The plinths should be raised a furthur 100mm to support the transfer pumps.	Item				
54.	Allow for 300*300 m^2 cable trench in concrete slab, complete with chequered aluminium covering as shown in drg. 3365/2.	m	1			

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT £	AMOUNT p
55.	Excavate for, shutter, provide, place compact and reinforce with size B1131 steel mesh , as per cl. 2.4 of this Spec. grade C30 concrete slabs 150mm thick, on grade C15 concrete blinding 50mm thick, nom. agg. size 20mm as plinths for alum dosing tanks on 150mm granular material.	Item				
56.	Shutter, provide, place & compact grade C30 concrete, 100mm thick as plinths for carrier water pumps and dosing pumps as per cl. 2.4 of this Spec.	Item				
57.	Supply and install timber shed to house transfer pumps and electrical cabinet as per cl. 2.2.5 of this Spec.	Item				
58.	Repair, seal and make good, roof of storage shed as per cl. 2.2.5 of this Spec.	Item				
59.	Supply and install 4 Nr. 100mm PVC cable ducts under roadway and grass verge as shown in drg. 3365/2.	m	6			
60.	Supply and install 2 Nr. 100mm PVC cable ducts under concrete slab between electrical cabinet and grass verge as shown on drg. 3365/2.	m	2.5			
61.	Supply and install 4 Nr. 100mm PVC cable ducts under concrete slab between storage tanks and electrical cabinet as shown on drg. 3365/2.	m	5			
62.	Supply and install over-ground concrete route markers, 1m high, where changes in direction of the route occur.	Nr.	2			

 Page total to summary

Collection Bill No. 2

ALUM PLANT

Description	AMOUNT £	AMOUNT P
Total Page No. 1 of Bill 2		
Total Page No. 2 of Bill 2		
Total Page No. 3 of Bill 2		
Total Page No. 4 of Bill 2		
Total Page No. 5 of Bill 2		
Total Page No. 6 of Bill 2		
Total Page No. 7 of Bill 2		
Total of Bill 2 forward to Summary		

BILL No.3

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT £	AMOUNT p
	ELECTRICAL INSTALLATIONS					
1.	Supply, install and connect TP4M fuse switches to existing main switchboard including interconnections to bus-bars.	No.	2			
2.	Supply, install and connect outdoor GRP cabinet containing all electrical equipment associated with the two storage tanks and transfer pumps together with additional equipment as indicated on the drawings and located adjacent to the storage tanks.	Item				
3.	Supply, install and connect fill alarm into adjacent to storage tanks fill point complete with all necessary fixings and accessories etc.	Item				
4.	Supply, install and connect all electrical equipment associated with the dosing tank, dosing pumps and carrier water pumps together with additional equipment as indicated on the drawings and located in the dosing shed.	Item				
5.	Supply, install and connect copper conductor PVCSWAPVC type cable between fuse switches and above distribution switchgear including all necessary cable trays, fixings, accessories etc.	Item				
6.	Supply, install and connect copper conductor PVCSWAPVC type cable between equipment in outdoor cabinet and storage tanks/transfer pumps electrical equipment including all necessary isolating devices, cable tray, fixings, interconnections, accessories, etc.	Item				
7.	Cable by means of copper conductor PVCSWAPVC type alarm units including all necessary cable trays, fixings, interconnections, accessories, etc.	Item				

Page total to Summary

BILL No.3

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT £	AMOUNT p
8.	Supply, install and connect copper conductor PVCSWAPVC type cable between equipment in dosing shed and service tank/dosing pumps electrical equipment including all necessary isolating devices, cable tray, fixings, interconnections, accessories, etc.	Item				
9.	Supply, install and connect the following equipment in dosing shed, including all necessary fixings and accessories etc:-					
	(a) 1600mm Corrosion proof flourescent luminaries	Nr.	2			
	(b) 1-way weaterproof switch	Nr.	1			
	(c) 1.0kW Connector Heater with thermo-stat.	Nr.	1			
10.	Cable by means of copper conductor PVCSWAPVC type cable from distribution board to equipment described in 9, including all necessary fixings, interconnections, accessories, etc.	Item				
11.	Supply, install and connect indication/alarm panel in Chemical Building, first floor landing complete with all necessary fixings and accessories, etc.	Item				
12.	Cable by means of copper conductor PVCSWA type cable from local distribution board to above indication/alarm panel complete with all necessary fixings and accessories, etc.	Item				
13.	Cable by means of a copper conductor PVCSWAPVC multi-core type cable (incl. 6 spare cores) from indication/alarm panel to marshalling boxes at outdoor cabinet and storage shed including all necessary fixings and accessories, etc.	Item				

Page total to Summary

BILL No.3

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT £	AMOUNT p
14.	Allow meantime a Provisional Sum of £500 to amend existing alarms as directed by the Engineer	P.S.	£500			
15.	Allow meantime a Provisional Sum of £1000 to provide tank lighting as directed by the Engineer.	P.S.	£1000			

Page total to Summary

Collection Bill No. 3

ELECTRICAL INSTALLATION

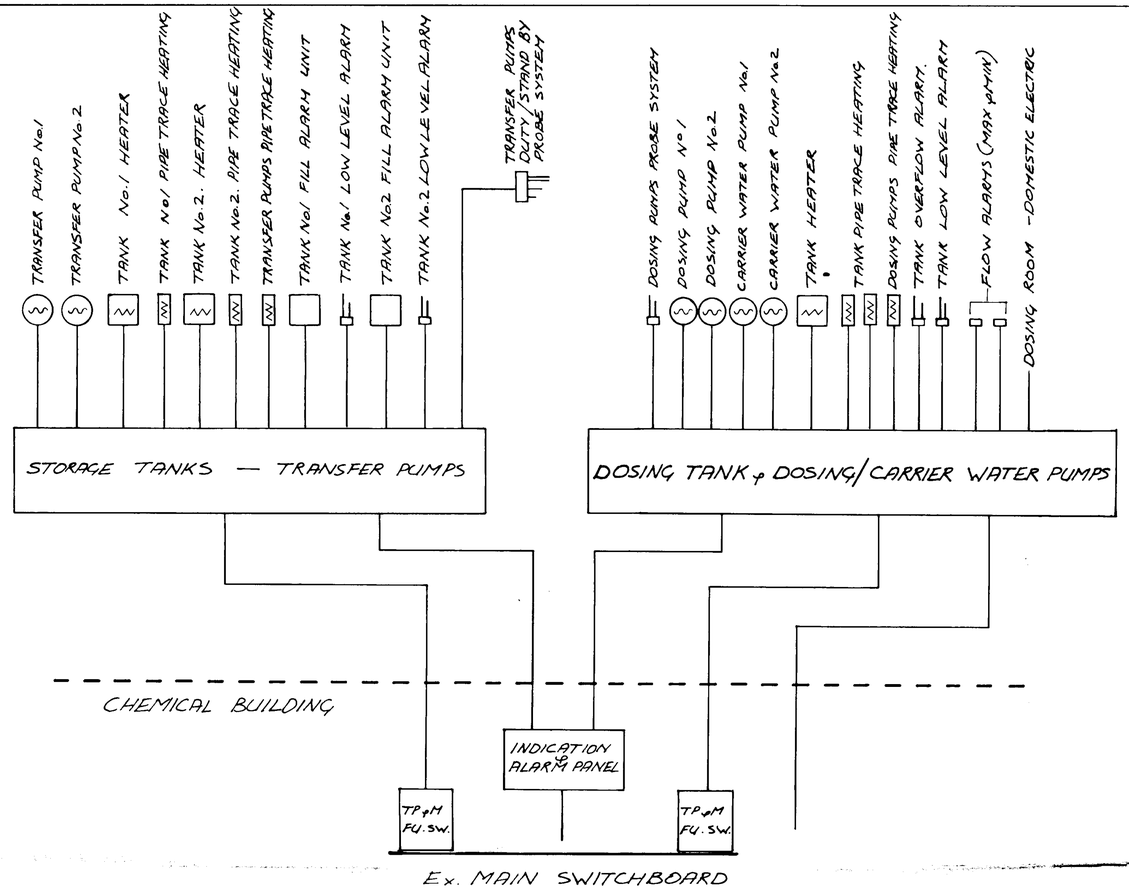
Description	AMOUNT £	p
Total Page No. 1 of Bill 3		
Total Page No. 2 of Bill 3		
Total Page No. 3 of Bill 3		
Total of Bill 3 forward to Summary		

BILL No. 4

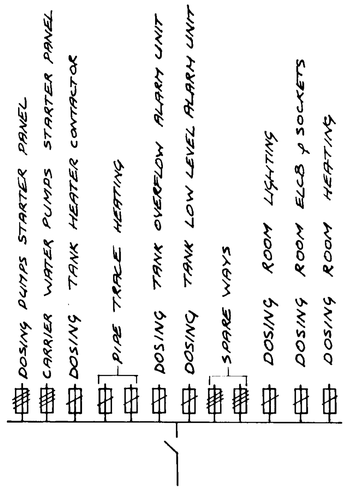
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT £	AMOUNT p
	TOOLS AND MANUALS					
1.	Complete set of spanners and special tools for maintenance of Alum plant.	Sets	2			
2.	Bound operation and maintenance manual for Alum plant including copy wiring and control drawings.	Unit	5			
3.	Set 'as constructed' wiring and control drawings including plant installation drawings on polyester negative.	Set	2			
4.	Spare parts list as per para 7.3 of this Specification.	List	2			
	Bill No. 4		Bill 4 total to Summary			

SUMMARY

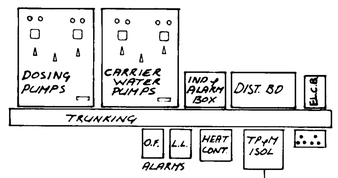
Bill No.	Description	AMOUNT IR£	P
1.	General Provisions		
2.	Alum Plant		
3.	Electrical Appliances		
4.	Tools and Manuals		
	TOTAL CARRIED TO FORM OF TENDER		



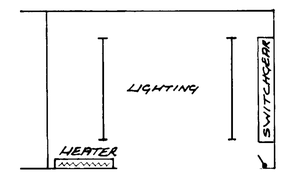
SINGLE LINE CABLE DIAGRAM



PROPOSED CIRCUIT DIAGRAM

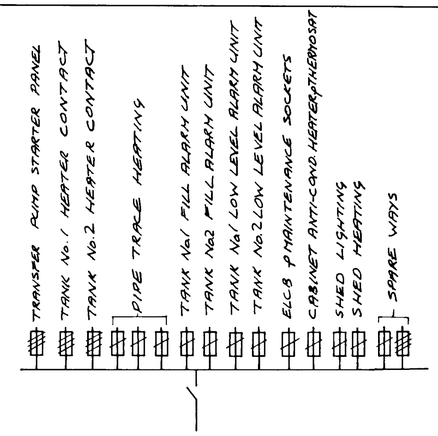


PROPOSED ARRANGEMENT OF EQUIPMENT

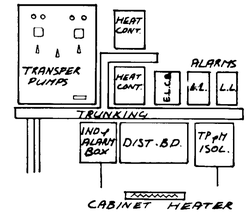


PROPOSED ARRANGEMENT DOSING ROOM

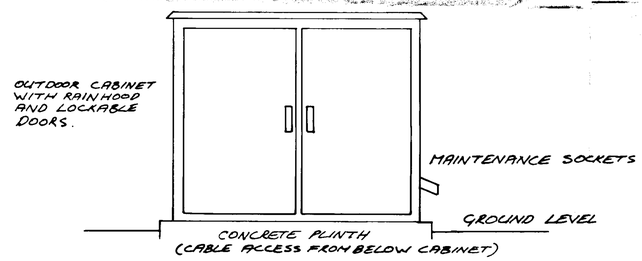
DOSING TANK AND DOSING/CARRIER WATER PUMPS



PROPOSED CABINET CIRCUIT DIAGRAM

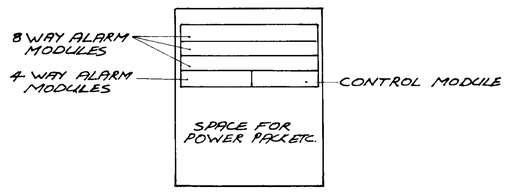


PROPOSED ARRANGEMENT CABINET EQUIPMENT



PROPOSED ARRANGEMENT OUTDOOR CABINET

STORAGE TANKS AND TRANSFER PUMPS



PROPOSED ARRANGEMENT INDICATION ALARM PANEL IN MAIN BUILDING

NOTES

1. Indication/Alarm Panel

(a) Alarm modules and control module similar to UC30 Series Solid State Alarm Communicator as manufactured by Highland Electronics Ltd.

(b) Control module to comprise of high power sounder, lamp test and accept push buttons. Provision for remote reset by means of key operated switch and also provision for remote external sounder.

(c) Alarm modules to comprise 6-off indication, 12-off fault, 10-off spare (indication or fault).

2. Outdoor Cabinet

(a) Cabinet shall be of GRP construction.

(b) Equipment within cabinet shall be separately enclosed.

(c) Transfer pumps starter panel shall comprise of; main isolator, run/fault lamps, ammeters, hour counters, hand/off/auto switches, Pump1-duty (Pump2-stand-by)/ Pump2-duty(Pump1-standby) switch, pump isolator, pump fuses, contactors and O/L devices, control relays, level control relays etc.

3. Dosing Room

(a) Equipment shall be separately enclosed.

(b) Dosing Pumps and Carrier Water Pumps starter panels shall comprise of equipment as above.

(c) Dosing Pumps starter panel shall also contain equipment for variable control by means of a 4-20 mA signal from a raw water flow meter.

4. Storage Tanks and Dosing Tank

(a) The storage tanks and the dosing tank shall be complete with sensors to give pumps control and overflow/level alarms.

(b) Tanks to be complete with heaters and exposed pipes to be complete with trace heating.

REV	DATE	DESCRIPTION

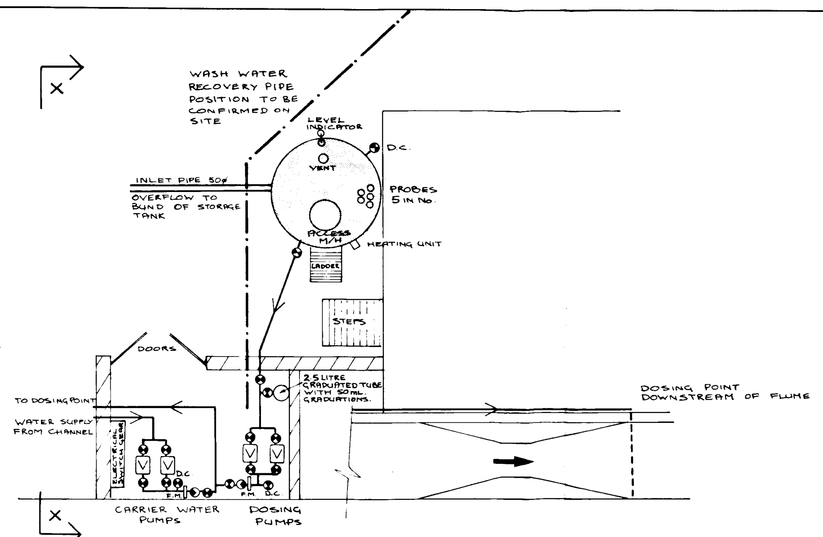
DUBLIN CORPORATION,
WATERWORKS PRODUCTION,
68-70 MARROWBONE LANE,
DUBLIN 8.
TEL. NO. 543444
FAX NO. 534849

Project CONTRACT No. 100
PROPOSED LIQUID ALUM PLANT
BALLYBODEN

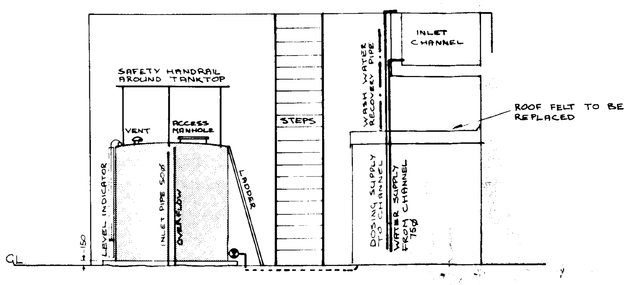
Title PROPOSED ELECTRICAL LAYOUT

DRAWN	CHECKED	DATE	SCALES	Drawing No.
T. O'NEILL		7 JUNE 1991		W.W.3365/3

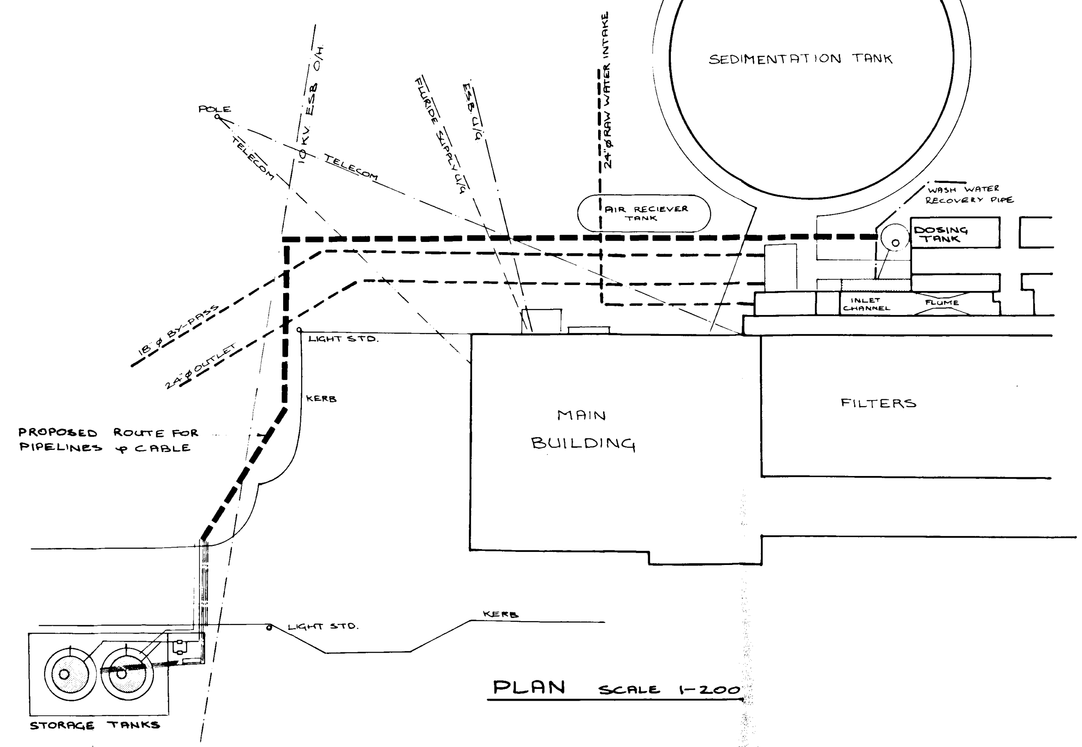
JDH 14749



DOSING ROOM AND TANK SCALE 1-50



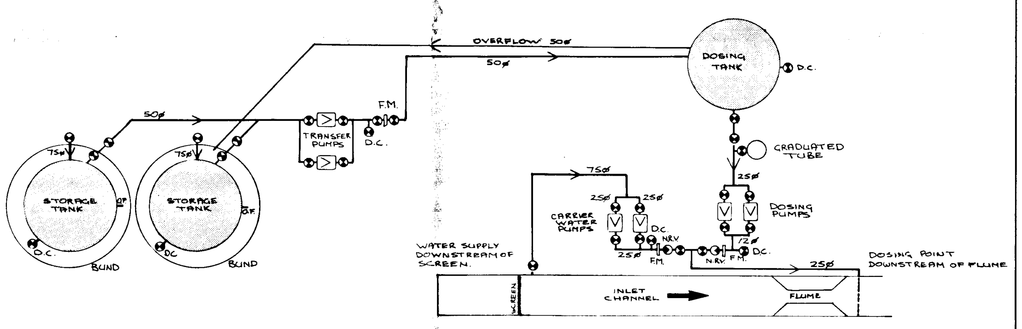
SECTION X-X SCALE 1-50



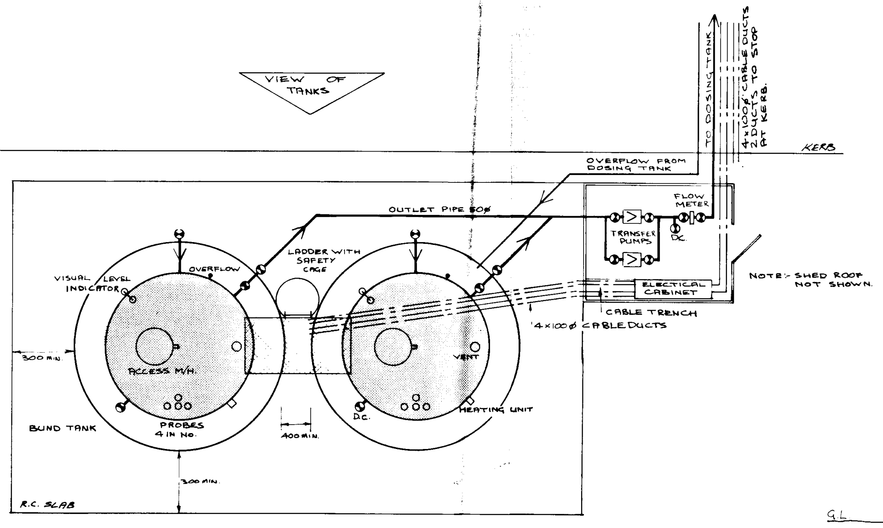
PLAN SCALE 1-200

KEY

- VALVE
- O.F. OVERFLOW
- N.R.V. NON RETURN VALVE
- F.M. FLOW METER
- D.C. DRAINCOCK
- PUMP

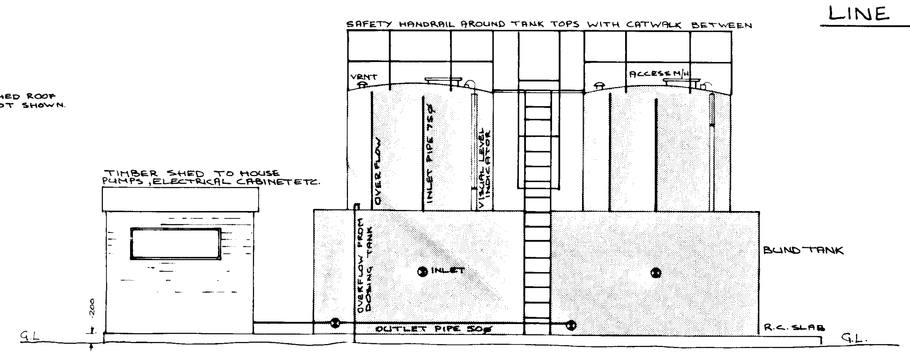


LINE DIAGRAM OF PROPOSED WORKS



STORAGE TANKS

NOT TO SCALE



VIEW OF TANKS

NOT TO SCALE

DUBLIN COUNTY COUNCIL
Planning [illegible] Construction
APPLICATIONS RECEIVED
12 NOV 1991
REG No. 91A/1289

REV.	DATE	DESCRIPTION

DUBLIN CORPORATION,
WATERWORKS PRODUCTION,
68-70 MARROWBONE LANE,
DUBLIN 8.

TEL NO. 543444
FAX NO. 534849

Project CONTRACT No. 100
PROPOSED LIQUID ALUM PLANT
BALLYBODEN

Title PROPOSED LAYOUT

DRAWN	CHECKED	DATE	SCALES	Drawing No.
T. O'NEILL		7 JUNE 1991	AS SHOWN	W.W. 3365/2


BALLYBODEN
Ballyboden
EDMONDSTOWN
ORLAGH? — not used
St. Catherine's
Boden Park
Boden Bridge
St. Joseph's
Mayfield
Woodfield
Beech Park
Park View
Newbrook House
Kingston House
Rockwood
Springvale
The Moorings
Prospect House
Woodbine
Airpark
Laurel Hill
Spring Mount
Stocking Lane
Factory
Edmondstown Park
Pavilion
Wash Water Recovery Plant
Existing Buildings
Proposed Dosing Room
Proposed Storage Tanks
Meter House
Reservoir
(Dublin Corporation Waterworks)
Filter Beds
DISUSED
N
LOCATION MAP
TEMPLEOGUE
WILLBROOK
FIRHOUSE
BALLYBODEN
EXISTING TREATMENT PLANT
EDMONDSTOWN
12 NOV 1991

REV	DATE	DESCRIPTION

DUBLIN CORPORATION,
WATERWORKS PRODUCTION,
68-70 MARROWBONE LANE,
DUBLIN 8.

TEL NO 543444
FAX NO 534849

Project CONTRACT No. 100
PROPOSED LIQUID ALUM PLANT
BALLYBODEN

Title LOCATION PLAN

DRAWN	CHECKED	DATE	SCALES	Drawing No.
T. O'NEILL		June 1991	1-2500	W.W. 3365/1