CL Associates

EXCAVATION OF GELLI SPOIL HEAP

DETAILED WORKING SCHEME

Carried out for : Rhondda Waste Disposal Limited

October 1998

Report No : 3077-7

An assessment will be made of the depth of weathering of the shale below the soil resource in the spoil heap by a suitably qualified person. The depth of weathered shale will be logged visually in each pit and a sample of the shale will be taken from each trial pit and analysed for pH, potassium, phosphorus, nitrogen and other indicators of soil condition. The recoverable depth of weathered shale will be taken as the maximum recorded depth.

2.2 Fencing

The perimeter of the area to be excavated will be fenced with a 1.2 metre high stockproof fence on the line shown on the Site Preparation Plan. The fence will be constructed of sheep netting and topped with a single strand of barbed wire. The fence will have notices showing "Danger Excavations - Keep out" along its length at strategic locations. The fence will link in to the existing site boundary fence on Nant y Gwyddon Site. The fence will be maintained intact for the duration of Site working and will be removed when a good vegetative cover is established by agreement with the Planning Authority.

2.3 Watercourses/Water Treatment Area

The excavation of shale from the Gelli Spoil Heap will not directly affect the line of the Nant y Gwyddon stream. The access to the spoil heap has been designed at the watershed of the spoil heap perimeter ditch. The crossing point will be arranged such that no water contaminated with suspended solids is discharged to the spoil heap perimeter ditch. All water contaminated with suspended solids will be treated at the Water Treatment Area before it is discharged to any watercourse.

A lagoon will be constructed in the location shown for the Water Treatment Area on the Site Preparation Plan. The lagoon will be excavated to a basal level of 303m AOD. It will be 10 metres by 20 metres at the normal water level of 304m AOD and will have a surge capacity to allow surcharging of the normal overflow to a maximum of 305m AOD before a storm water overflow operates. The sides will be cut no steeper than 1 in 1.5. The normal discharge will consist of a floating head connected by a flexible hose to a 100mm diameter pipe set at 304m AOD The discharge pipe will be fitted with a valve so that the rate of discharge of the lagoon can be regulated. The floating head will be fitted with a baffle plate

so that any oil intercepted by the lagoon is retained until it can be removed . The lagoon will be fitted with a 300 mm diameter dip pipe with its invert level at 305 m AOD which will act as a storm water discharge. The lagoon will be monitored for build up of deposited solids and these will be removed before they exceed 0.5 metres in depth. During the removal of the accumulated solids the floating head will be raised out of the water so that no discharge from the lagoon can take place until the disturbed water has settled. The size of lagoon proposed in the Water Treatment Area will be adequate for Phase 1. A stock of polyelectrolyte flocculant will kept on site in case difficulty is encountered settling the suspended solids. The performance of the water treatment area will be monitored during Phase 1 by taking samples of the treated water and assessing the pH and suspended solids levels. It is anticipated that the lagoon may well be sufficient for treating the water from Phase 2. This will be assessed based on its performance during Phase 1. If a further lagoon is required for Phase 2 this will be constructed on Phase 1 in the location shown on Drawing No. 3077/7/3 to a similar specification to that for the existing settlement lagoon.

The lagoons will be fenced with a 1 metre high fence comprising three strands of barbed wire on 1.2 metre posts and will be provided with a lifebuoy. The outlet from the underflow and the storm water overflow will be carried in separate channels to the perimeter ditch at the toe of the Gelli Tip as shown on the Site Preparation Plan (Drawing No. 3077/7/1). The channels will be cut in the existing ground surface and lined using concrete flags set on a concrete base 300 mm wide to prevent erosion.

Uncontaminated water at the top of the spoil heaps will be directed away from the excavation by the installation of interceptor ditches as shown on the phasing plans (Drawings No. 3077/7/2 and 3077/7/3). These ditches will be 300 mm deep and 300 mm wide at the base and will have sides cut at 1 in 1.

Notes

- Planning Application Boundary
- Soil Storage Mound
- Pre-Treatment Drainage
- Treated Drainage
- Water Treatment Area
- Inteceptor Ditch
- Planning Application Boundary- Line of Fence

Rev	Date	Modifications

EXCAVATION OF GELLI SPOIL HEAPS- SITE PREPARATION

Project

NANT-Y-GWYDDON REMEDIATION

Client

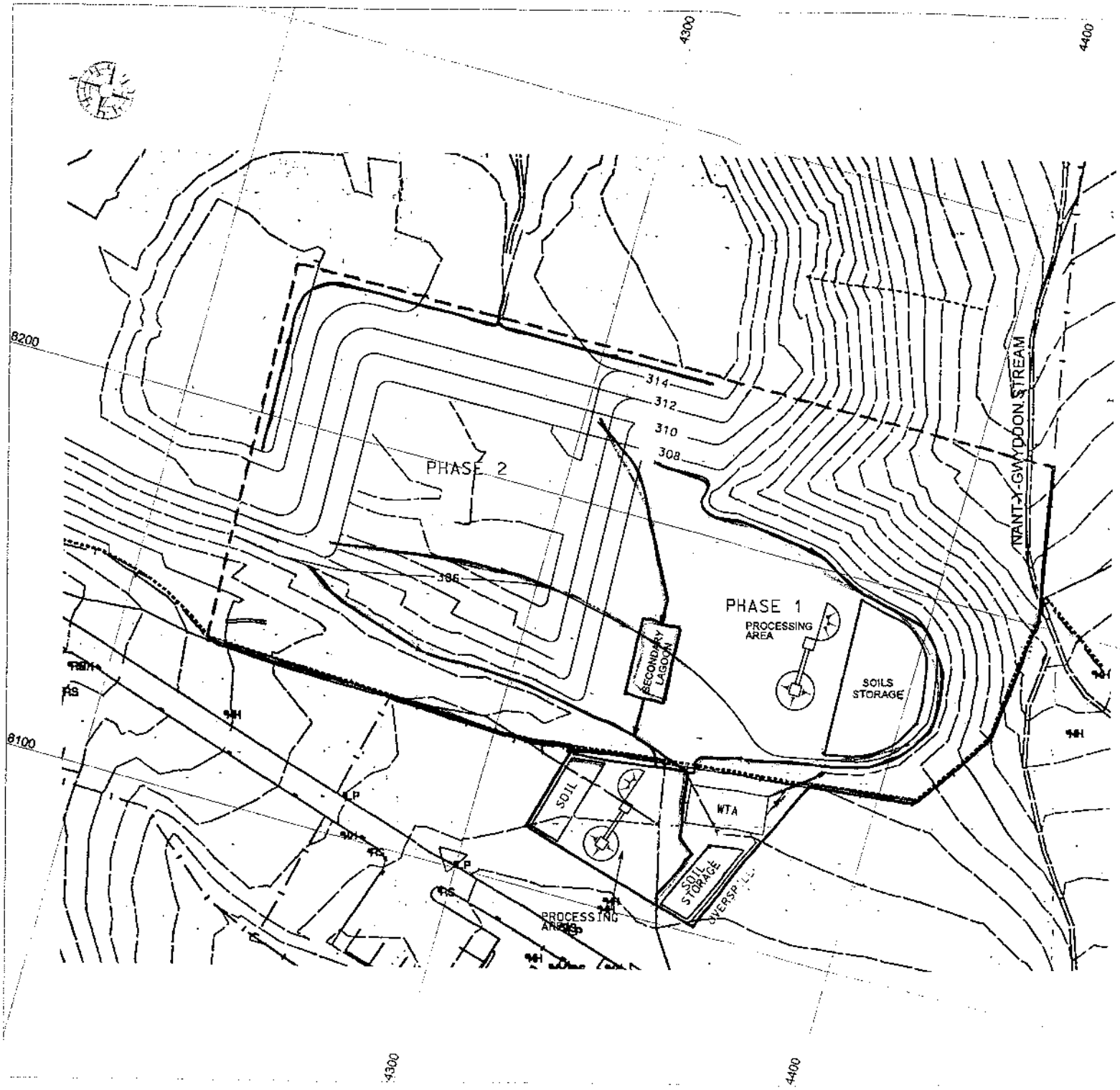
RHONDDA WASTE DISPOSAL

CL Associates

Prepared By	Approved By
RCL	PCT
Scale	**Date**
1: 1000	OCTOBER 1998

Project No	Drawing No	Rev
3077-7	3077/7/1	1

C:\FOXDATA\XXXXXDRAWINGS\XXXX



Notes

- Planning Application Boundary
- Soil Storage Mound
- Pre-Treatment Drainage
- Treated Drainage
- Water Treatment Area
- Inteceptor Ditch
- Planning Application Boundary- Line of Fence

Rev	Date	Modifications

EXCAVATION OF GELLI SPOIL HEAPS PHASE 2

Project

NANT-Y-GWYDDON REMEDIATION

Client

RHONDDA WASTE DISPOSAL

CL Associates

Prepared By	Approved By
RCL	PCT
Scale	**Date**
1: 1000	OCTOBER 1998

Project No	Drawing No	Rev
3077-7	3077/7/3	1

C:\FOX\DATA\XXXX\DRAWING\XXXX

Surface Water Lagoons

1. Surface Water Drainage Schemes, Run off calculations, spreadsheet calculations, Drawing nos 3077/4/7, 8, 10 Extract from Interim Programme and Schemes 1998, CL Associates, August 1998, Report Ref 3077-4

Cell Underdrainage

The cell underdrainage system has been draining since the site was in operation in the early 1990's. There is no detailed design information available regarding the scheme.

Monitoring Locations

We propose to monitor each consent at the discharge location into the Nant y Gwyddon and also at the head of the stream (SW6) and at the base of the slope (Nant y Gwyddon picnic area – SW1). We are currently compiling a Drawing with upto date surveyed information to show these locations clearly and will forward that in due course.

We would appreciate if, given the circumstances, you could indicate what further information is required to complete and formalise each of the Discharge Consent Applications. We have a meeting arranged with Dave Williams and Andy Gibbs at the EA offices at 10am 8th December and it maybe beneficial if you could attend to discuss the way forward.

Should you have any queries in any of the above, please do not hesitate to contact the undersigned.

Yours sincerely
On behalf of en 1 ltd

Morag Aiken

Morag Aiken
Project Manager on behalf of Amgen Rhondda Ltd

c.c Nigel Brinn, Amgen Rhondda Ltd
Andy Gibbs, EA, Cardiff

SECOR

Rhondda Waste Disposal Limited

Gelli Spoil Tip – Supply of Engineering Material to Nant y Gwyddon Landfill

Supplementary Information for Planning Application

Prepared by

SECOR Limited
Wheeley Ridge
Wheeley Road
Alvechurch
Worcs
B48 7DD

September 1998

3.0 DRAINAGE

To ensure satisfactory drainage of the site during the extraction operations, the area of the tip to be removed would be excavated to ensure that falls towards the south are maintained at all times such that water would not pond in the working area. During the extraction phases surface water would drain, via a settlement and attenuation lagoon to the existing surface water ditch which in turn drains to the Nant-y-Gwyddon stream.

In order to minimise the amount of water draining into the site, temporary drainage works would be undertaken to ensure that run-off from adjacent parts of the tip, into the working area, was minimised. Accordingly, during Phase 1, a cut off drain would be installed to the north of the working area in order to limit the catchment of the area. Clean water collecting in this drain would be led to the Nant-y-Gwyddon stream and would by-pass the workings.

Rainfall collecting in the working area would drain across the floor and would be collected in a surface drain which would discharge in to a settlement and attenuation lagoon. The lagoon would be designed in accordance with the engineering principles described in the NCB publication "Technical Management of Water in the Coal Mining Industry". The drainage management techniques described in this document have been formulated with specific regard to colliery sites and would be directly relevant, therefore, to the application site.

Using the rational formula to calculate run-off intensity from the excavation area, it is considered that a 600 m^2 settlement lagoon would require almost 500 m^3 of storage in order to be able to attenuate intense rainfall events whilst maintaining a residence time within the lagoon sufficient to ensure efficient settlement of fines entrained within the run off.

Upon completion of the extraction works, permanent a drainage ditch would be constructed along the base of the restoration slope, which would drain to the existing surface water drainage system.

The proposed layout of site drainage is shown on Drawing No. NG 2.

9

RHONDDA WASTE DISPOSAL LIMITED

Gelli Spoil Tip – Supply of Engineering Material to Nant y Gwyddon Landfill

Addendum to Supplementary Information for Planning Application

Prepared by

SECOR Limited
1 Kelso Place
Upper Bristol Road
Bath
BA1 3AU

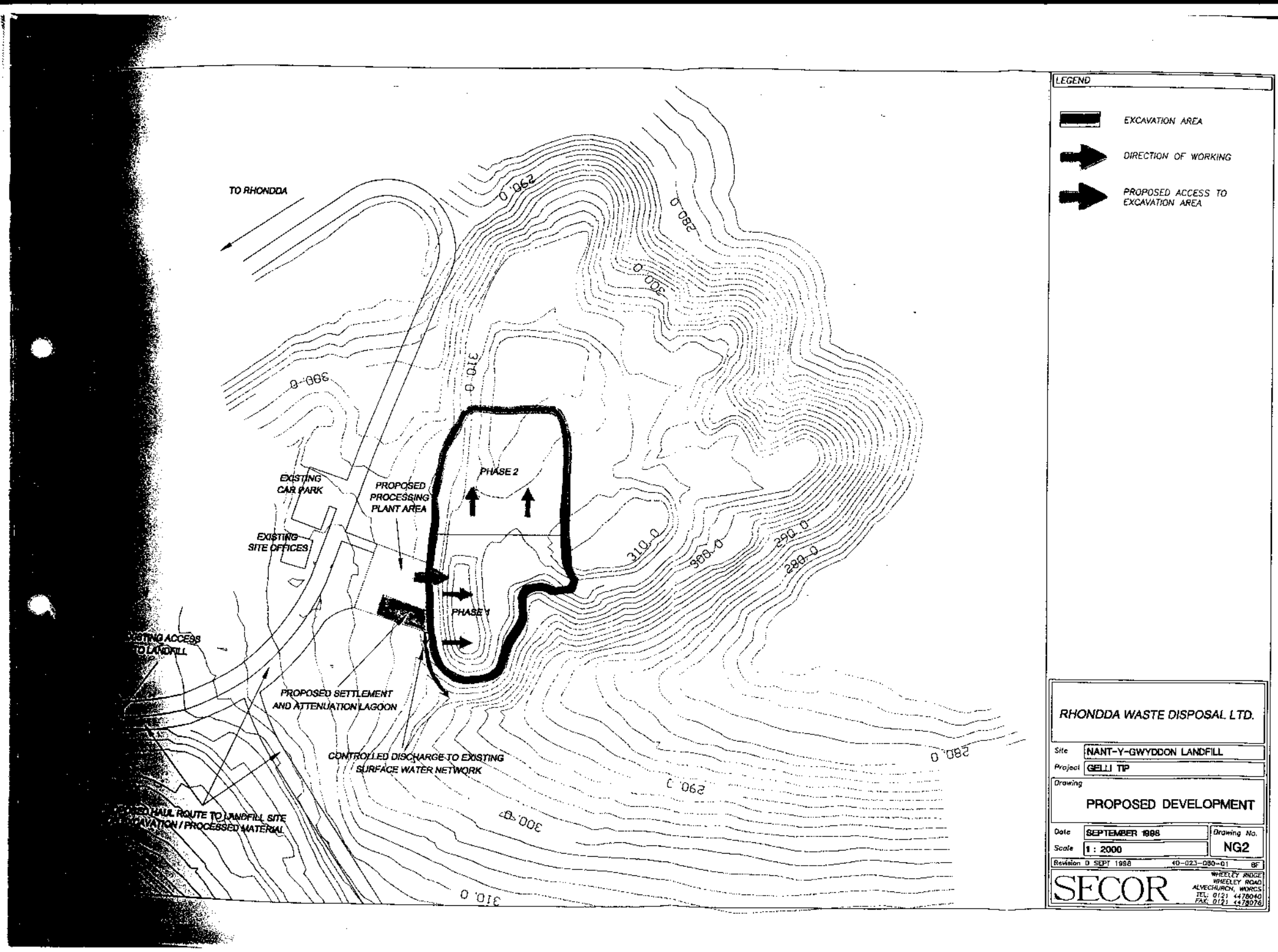
September 1998

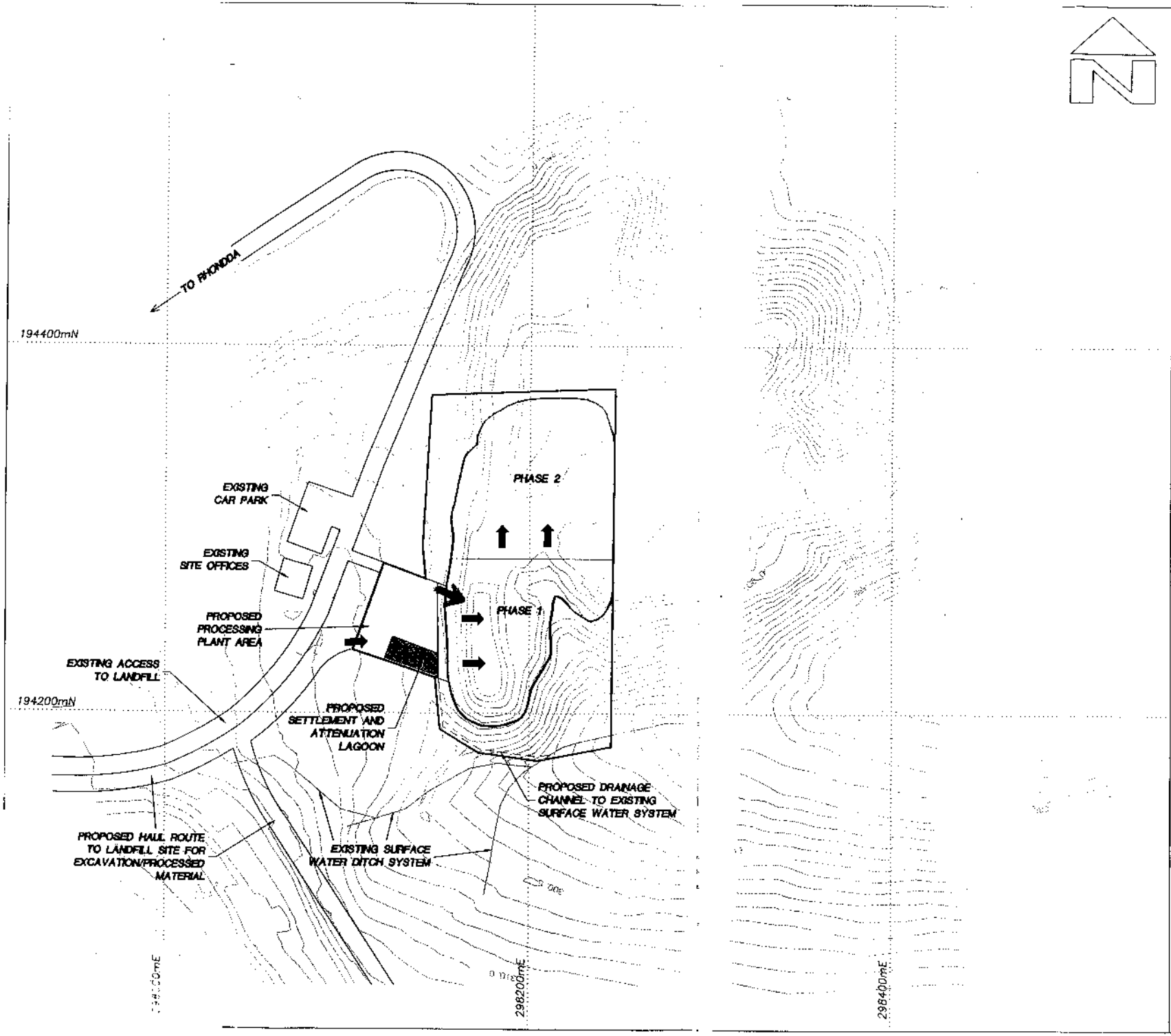
4. DRAINAGE

Details of the temporary drainage works to be implemented during extraction operations are detailed within Section 3 of the Supplementary Information document submitted on 21 September 1998.

The proposed attenuation and settlement lagoon would be located within the area shown on Drawing Nos. NG2a and NG2b. All water draining from the excavation area would be directed to the lagoon by means of temporary drainage grips and channels. Within the lagoon, water run-off would be attenuated and settled to control off site flows to the satisfaction of the Environment Agency.

The drainage channel from the lagoon to the existing surface water network, see Drawing Nos. NG2a and NG2b, would be lined where scour of the channel is considered likely to occur. The extent and nature of lining works required would be agreed with the Environment Agency prior to the surface water system being utilised.


TO RHONDDA
EXISTING CAR PARK
PROPOSED PROCESSING PLANT AREA
EXISTING SITE OFFICES
PHASE 2
PHASE 1
EXISTING ACCESS TO LANDFILL
PROPOSED SETTLEMENT AND ATTENUATION LAGOON
CONTROLLED DISCHARGE TO EXISTING SURFACE WATER NETWORK
PROPOSED HAUL ROUTE TO LANDFILL SITE EXCAVATION / PROCESSED MATERIAL
LEGEND
EXCAVATION AREA
DIRECTION OF WORKING
PROPOSED ACCESS TO EXCAVATION AREA
RHONDDA WASTE DISPOSAL LTD.
Site NANT-Y-GWYDDON LANDFILL
Project GELLI TIP
Drawing PROPOSED DEVELOPMENT
Date SEPTEMBER 1988
Drawing No. NG2
Scale 1 : 2000
Revision D SEPT 1988
40-023-080-01
SECOR
WHEELEY RIDGE
WHEELEY ROAD
ALVECHURCH, WORCS
TEL: 0121 4478040
FAX: 0121 4479076



KEY

- PLANNING APPLICATION BOUNDARY
- EXCAVATION AREA
- DIRECTION OF WORKING
- PROPOSED ACCESS TO EXCAVATION AREA
- PROPOSED ACCESS TO PLANNING APPLICATION AREA

RHONDDA WASTE DISPOSAL LTD

Site: NANT-Y-GWYDDON LANDFILL

Project: GELLI TIP

Drawing

Proposed Development

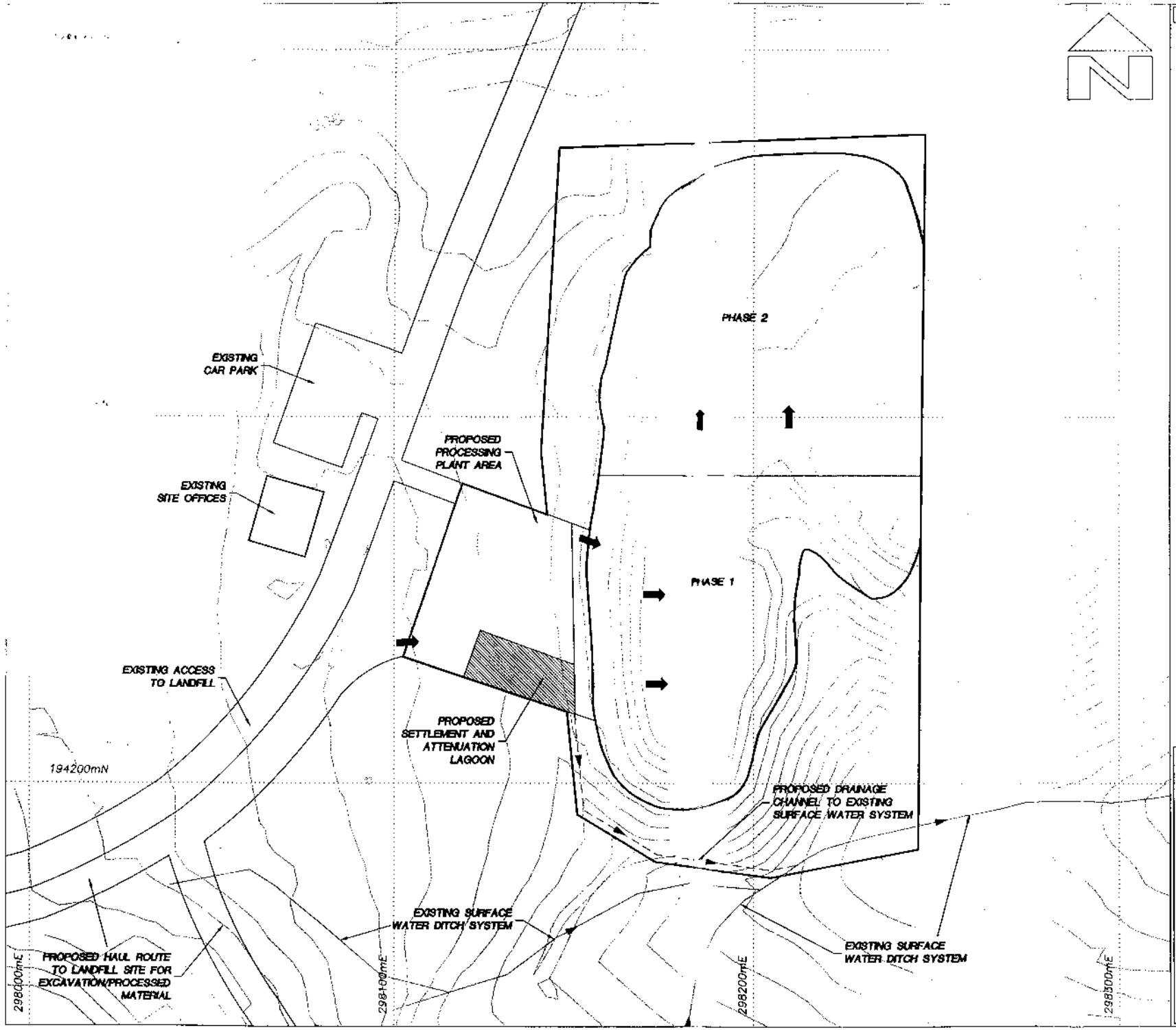
Date: OCTOBER 1998

Drawing No: NG2e

Scale: 1:2000

Revision 0 Oct 1998 NP 4A.158.001 NGGTP00 4B/

SECOR
T KELSO PL
UPPER BRISTOL RO
BATH, BA1
TEL: 01225 318
FAX: 01225 318



KEY

- PLANNING APPLICATION BOUNDARY
- EXCAVATION AREA
- DIRECTION OF WORKING
- PROPOSED ACCESS TO EXCAVATION AREA
- PROPOSED ACCESS TO PLANNING APPLICATION AREA

RHONDDA WASTE DISPOSAL LTD.

Site: NANT-Y-GWYDDON LANDFILL

Project: GELLI TIP

Drawing: **Proposed Development**

Date: OCTOBER 1998

Drawing No.: **NG2b**

Scale: 1:1000

Revision 0 Oct 1998 NP 4A.158.001 NGGTP020 4B/DA

SECOR
1 KELSO PLAC
UPPER BRISTOL RO
BATH, BA1 3
TEL: 01225 3188
FAX: 01225 3188

en 1 ltd
environmental management

6 kew court, pynes hill
rydon lane, exeter, EX2 5AZ
phone / fax 01392 444720

united downs, st. day
redruth, cornwall, TR16 5HU
phone / fax 01209 820936

e-mail office@en1.co.uk

RECEIVED
14 MAR 2001

Ref : 0030125/300

Mr David Walters
Environment Agency Wales
Rivers House
St. Mellons Business Park
St. Mellons
Cardiff
CF3 0LT

Date: 12 March 2001

Dear Mr Walters

Re: Nant y Gwyddon, Amgen Rhondda Ltd
Discharge Consents Applications AN0308301 & AN 0308201

Further to your letters dated 16 February 2001(received 22/2/01) requesting details of a detailed drainage survey, our subsequent discussion and you providing us with an example for our information (received 26 February 2001), we would like to confirm that we are undertaking a drawing to meet your requirements for the surface water settlement lagoons. We hope to have this with you by the end of this week.

In the meanwhile with respect to Application No AN0308301, please find enclosed VHE Drawing No. NYG-AB\010 which shows the details associated with the Gelli Tip surface water drainage. We hope this meets your satisfaction.

We hope that the information provided meets your requirements however should you have any queries please do not hesitate to contact the undersigned or Matthew Wilson (tel 01579 321837).

Yours sincerely
On behalf of en 1 ltd

[signature]

pp Morag Aiken
Project Manager on behalf of Amgen Rhondda Ltd

Encl: VHE Drawing No NYG-AB\010 Re Gelli Tip Surface Water Lagoon

c.c Nigel Brinn, Amgen Rhondda Ltd
Ruth Tipping, Michelle Coles, Environment Agency Cardiff

knowledge in action

en 1 ltd
environmental management

6 kew court, pynes hill
rydon lane, exeter, EX2 5AZ
phone / fax 01392 444720

united downs, st. day
redruth, cornwall, TR16 5HU
phone / fax 01209 820936

e-mail office@en1.co.uk

Ref : 0030125/300

Mr David Walters
Environment Agency Wales
Rivers House
St. Mellons Business Park
St. Mellons
Cardiff
CF3 0LT

Date: 4 December 2000

Dear Mr Walters

Re: Nant y Gwyddon, Amgen Rhondda Ltd
Discharge Consents – Surface Water

Amgen Rhondda understand that as the Environment Agency approved the recent design and construction of the surface water lagoons and Gelli Tip Lagoon that they have accepted the quantities and quality of discharge from these locations in principle. The Agency reviewed information in 1998 as Statutory Consultees and accepted it for construction that was undertaken primarily during 1998.
Due to the change in ownership of the landfill in September 1999, unfortunately it will be both time consuming and costly to obtain detailed calculations undertaken by the designers at the time of design and construction or to undertake these calculations again, as indicated in the requirements for the Discharge Consent.
As it is now a matter of urgency that Discharge Consents are awarded (EA letter dated 13 November 2000 Ref SEA\EP2\GC\COMP) we provide for your information extracts of relevant information that we believe the EA approved during 1998.

The information enclosed is as follows:

Gelli Lagoon Surface Water Discharge

1. Pages 6 and 7 and Drawing NG 2. Extract from Secor Ltd Report – Gelli Spoil Tip – Supply of Engineering Material to Nant y Gwyddon Landfill – Supplementary Information for Planning Application – Sept 1998 Ref. A4-023-080
2. Section 4 and Drawings NG2a and NG2b. Extract from Secor Ltd Report – Gelli Spoil Tip – Supply of Engineering Material to Nant y Gwyddon Landfill – Addendum to Supplementary Information for Planning Application – Sept 1998 Ref. 4A/158/001
3. Section 2.3 Extract from Excavation of Gelli Spoil Heap, Detailed Working Scheme, CL Associates October 1998, Report Ref 3077-7
4. Drawing Nos 3077/7/1 to 3 Revision 1 – CL Associates Letter dated 21 October 1998

ASIANTAETH YR AMGYLCHEDD CYMRU
ENVIRONMENT AGENCY WALES

Eich cyf/Your ref. AN0308201

Ein cyf/Our ref. ACSC/CUST/SW/PJ/AN0308201

Dyddiad/Date: 31st July 2001

Morag Aiken
EN 1 Ltd.
6 Kew Court,
Pynes Hill,
Rydon Lane,
Exeter.
EX2 5AZ

Dear Mrs. Aiken,

RE: WATER RESOURCES ACT 1991, SCHEDULE 10 (AS AMENDED BY THE ENVIRONMENT ACT 1995) APPLICATION FOR CONSENT TO DISCHARGE AT A SETTLEMENT LAGOON SERVING GELLI TIP AREA BY THE MANAGING DIRECTOR, AMGEN RHONDDA LTD FROM PREMISES AT NANT Y GWYDDON LANDFILL SITE, GELLI, RHONDDA. APPLICATION NO.AN0308201.

Further to your application the Agency has decided that consent should be given subject to conditions. I enclose the Agency's formal consent to discharge trade effluent from a settlement lagoon serving Gelli Tip Area.

Under the present Scheme of Charges for Discharges to Controlled Waters an annual charge will be made for all consents to discharge, except where the discharge is of sewage effluent of five cubic metres or less per day. The charge is based on information derived from the conditions attached to the consent to discharge, as outlined in the enclosed leaflet.

If you consider that the conditions imposed by the consent are unreasonable you have a right of appeal to the National Assembly for Wales at Cathays Park, Cardiff CF10 3NQ.

Notice of an appeal must be given in writing within three months of this notification and must be accompanied by a statement of the grounds of appeal.

Asiantaeth yr Amgylchedd Cymru
Ty Abacus, Parc Busnes Llaneirwg, Llaneirwg, Caerdydd, CF3 0EY
Ffon: 029 20770088 Ffacs: 029 20798555
www.environment-agency.gov.uk

Environment Agency Wales
Abacus House, St Mellons Business Park, St Mellons, Cardiff, CF3 0EY
Tel: 029 20770088 Fax: 029 20798555
www.environment-agency.gov.uk

If granted, a consent under Schedule 10 of the Act, covers water quality considerations only. It does not alter the need to obtain any other consents or approvals which might be required in connection with your proposal under other legislation. For example it does not give any right or permission to discharge where land is not owned by the applicant.

Please take careful note that if the holder of the consent changes, you must inform the Agency IN WRITING as soon as possible of the name of the new holder. This is to ensure that the rights and charges associated with the Consent are transferred to the new holder. A Certificate of Holder notice will be sent to you shortly which is designed for this purpose, and should be kept safely with the Consent until required.

If you have any queries regarding the enforcement of this consent, please do not hesitate to contact David Williams, Team Leader Environment Protection, on 029 20 770088 quoting extension 2106.

COPY

Yours sincerely,

D Charrett

David Charrett
Team Leader Customer Contact

Asiantaeth yr Amgylchedd Cymru
Ty Abacus, Parc Busnes Llaneirwg, Llaneirwg, Caerdydd, CF3 0EY
Ffon: 029 20770088 Ffacs: 029 20798555
www.environment-agency.gov.uk

Environment Agency Wales
Abacus House, St Mellons Business Park, St Mellons, Cardiff, CF3 0EY
Tel: 029 20770088 Fax: 029 20798555
www.environment-agency.gov.uk

CONSENT NO.	AN0308201

ASIANTAETH YR AMGYLCHEDD CYMRU
ENVIRONMENT AGENCY WALES

WATER RESOURCES ACT 1991

SECTION 88 - SCHEDULE 10

(AS AMENDED BY THE ENVIRONMENT ACT 1995)

CONSENT TO DISCHARGE

COPY

TO: The Managing Director
Amgen Rhondda Ltd
Bryn Pica
Llywncoed
Aberdare CF44 0BX

The **ENVIRONMENT AGENCY** ("The Agency") in pursuance of its powers under the Water Resources Act 1991 **HEREBY CONSENTS** to the making of a discharge **OF TRADE EFFLUENT**, as follows:

Site Drainage

FROM: A settlement lagoon serving Gelli Tip Area

AT: Nant y Gwyddon Landfill Site, Gelli, Rhondda

TO: The Nant y Gwyddon

HEREAFTER SUBJECT TO the conditions set out in the following schedule:

Site Drainage: Schedule No. AN030820101

Subject to the provisions of Paragraphs 7 and 8 of Schedule 10 of the Water Resources Act 1991, no notice shall be served by the Agency, altering this consent without the agreement in writing of the Consent Holder, during a period of 4 years from the date this consent takes effect.

This consent is issued and takes effect on the 24th day of July 2001

Signed .....
Team Leader Water Quality Consents

Asiantaeth yr Amgylchedd Cymru
Ty-Abacus, Parc Busnes Llaneirwg, Llaneirwg, Caerdydd, CF3 0EY
Ffon: 029 20770088 Ffacs: 029 20798555

Environment Agency Wales
Abacus House, St Mellons Business Park, St Mellons, Cardiff, CF3 0EY
Tel: 029 20770088 Fax: 029 20798555

CONSENT NO.	**AN0308201**
SCHEDULE NO.	**AN030820101**
DATE ISSUED	24/7/01

ASIANTAETH YR AMGYLCHEDD CYMRU
ENVIRONMENT AGENCY WALES

CONDITIONS OF CONSENT TO DISCHARGE

Site Drainage: ("the Discharge")

FROM: Run-off from Phases 1 & 2 of Gelli tip area and area south of access road to Settlement Lagoon

1. (a) The Discharge shall not contain any poisonous, noxious or polluting matter or solid waste matter.

(b) Provided that the Discharge hereby consented is made in accordance with the following conditions of this consent, such discharge shall not be taken to be in breach of condition (a) above by reason of containing substances or having properties identified in and controlled by these conditions.

NATURE

2. The Discharge shall consist solely of trade effluent comprising of settled colliery spoil tip site drainage from a total catchment area of 25,039 square metres.

LOCATION

3. The Discharge shall be made in the manner and at the place specified as:

(a) discharging via a 560mm diameter pipe;

(b) discharging to the Nant y Gwyddon;

(c) at National Grid Reference SS 9817 9417;

(d) shown marked 'Consent Point' on plan AN0308201 attached as Annex 1.

CONSENT NO.	AN0308201
SCHEDULE NO.	AN030820101

ASIANTAETH YR AMGYLCHEDD CYMRU
ENVIRONMENT AGENCY WALES

SAMPLING POINT

4. A sample point shall be provided and maintained at National Grid Reference SS 9814 9421 as shown marked 'Sample Point' on Plan AN0308201 attached as Annex 2, so that a representative sample of the Discharge may be obtained. The Consent Holder shall ensure that all constituents of the Discharge pass through the said sampling point at all times and in any legal proceedings it shall, for the purposes of Section 10 of the Rivers (Prevention of Pollution) Act 1961, be presumed, until the contrary is shown that any sample of the Discharge taken at the said sampling point is a sample of what was discharging into controlled waters.

VOLUME

5. The volume of the Discharge shall be dependant on rainfall.

6. A flow measurement structure shall be provided and maintained to enable the daily volume and instantaneous flow rate of the Discharge to be measured or determined as required.

COMPOSITION

7. The discharge shall not contain more than:

   (a) 60 milligrammes per litre of suspended solids (measured after drying at 105°C).

   (b) 5 milligrammes per litre of mineral oil.

   (c) a pH value of 9 pH units or less than a pH value of 6 pH units.

8. As far as is reasonably practicable, the treatment lagoons shall be operated so as to prevent:

   (a) any matter being present in the Discharge, other than matter specifically covered by numerical conditions in this consent, to such an extent as to cause the receiving waters, or any waters of which the receiving waters are a tributary, to be poisonous or injurious to fish in those waters, or to the spawning grounds, spawn or food of fish in those waters, or otherwise cause damage to the ecology of those waters; and

   (b) the Discharge from having any other adverse environmental impact.

MAINTENANCE

9. The water treatment facility shall be maintained in an efficient operational condition at all times.

CONSENT NO.	**AN0308201**
SCHEDULE NO.	**AN030820101**

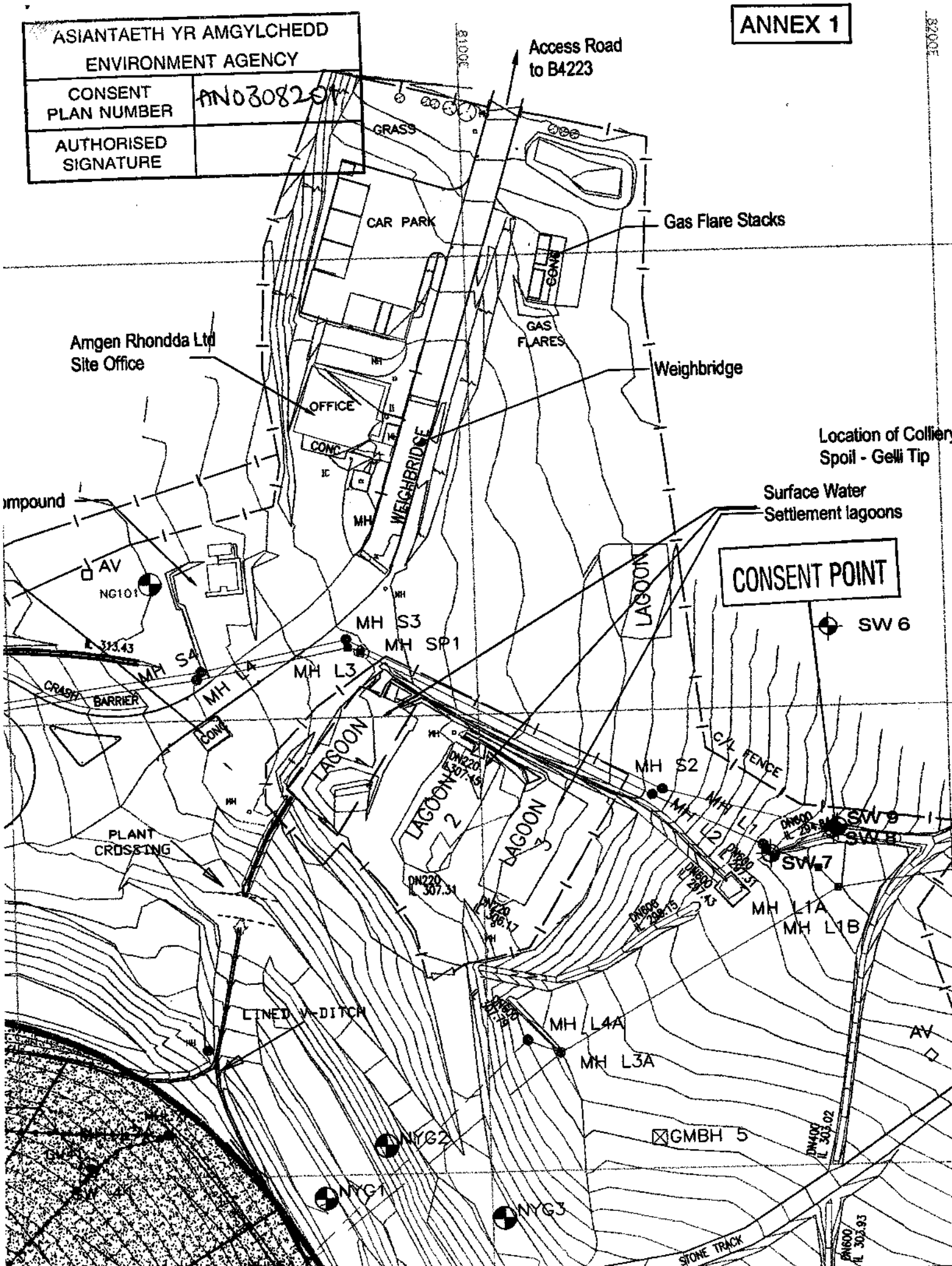
ASIANTAETH YR AMGYLCHEDD CYMRU
ENVIRONMENT AGENCY WALES

OTHER

10. The Consent Holder shall notify the Agency in writing before using flocculent or other chemicals and shall advise the Agency of the substance to be used, the dosing rate to be applied, method of control and the storage arrangements.

ASIANTAETH YR AMGYLCHEDD ENVIRONMENT AGENCY	
CONSENT PLAN NUMBER	AN038201
AUTHORISED SIGNATURE	

ANNEX 1



Gelli hp
1 lagoon

ENVIRONMENT AGENCY

WATER RESOURCES ACT 1991 (schedule 10)

(as amended by the Environment Act 1995)

Application for new consent/variation to an existing consent* to discharge

(* delete as appropriate)

Regional/Area Address:	*Official Use Only* *Dist/Area Ref:* EEP 2 *Application No.* AN0308201 *Date Received:* 05-02-01 *Fee Received:* £1290

Each applicant must complete the main form and may need to complete a separate annexe if appropriate. Please look through the form and read the notes carefully before you complete it. Processing of your application will be aided by full and accurate completion of all the relevant sections and provision of the necessary plans. If you have any queries regarding the form please contact the person given in the notes.

NOTE:
All information contained within this application will be made available on the public register unless there is a request to withhold any of it. Any such request should provide a full justification stating why the information needs to be withheld.

SITE ADDRESS

Address or other sufficient description of land or premises to which this application applies.

LANDFILL SITE AT:- AHGEN RHONDDA LTD.
NANT Y GWYDDON LANDFILL
HYNVDD-Y-GELLI.
GELLI
RHONDDA.

Post Code: CF41 7TL

DETAILS OF DISCHARGE(S)

State the nature of the discharge(s) (see note i and ii) - tick one or more boxes as appropriate:-

Sewage Effluent - volume of 5 cubic metres per day or less ☐

Sewage Effluent - volume greater than 5 cubic metres per day **(complete annexe 1)** ☐

Sewage Effluent discharged under storm or emergency conditions **(complete annexe 2)** ☐

Cooling Water **(complete annexe 3)** ☐

Trade Effluent *(including site drainage)* **(complete annexe 3)** ☑

Others *(please specify)* ☐

2 Please state the maximum quantity it is proposed to discharge in any one day 9676.8 m³/day
Briefly state how this figure was calculated (see note ii).

1 IN 10 YEAR STORM PERIOD 2HOUR EVENT 112 L/S

3 a) Indicate proposed means of discharge - tick as appropriate and show on plan:-
(for 1, 2 & 3 please state dimensions below)

1. Pipe	☑	4. Borehole	☐	7. Sub-Irrigation System	☐
2. Channel	☐	5. Well	☐	8. Combination of 6. & 7.	☐
3. Culvert	☐	6. Soakaway	☐	9. Other *(please specify below)*	☑

FROM LAGOON TO OPEN CHANNEL. & THEN PIPE AT SW9 DRAWING. 0030125/500/001.
PIPE DIAMETER. 560mm.

b) National Grid Reference(s) of point(s) of discharge (see note iii).

S S / 8 1 7 6 / 4 1 7 3 *(please indicate on accompanying plans)*

4 a) The Agency will normally require adequate provision for the taking of samples of the discharge in a safe and convenient manner at any time. Please indicate the means proposed (see note iv) - tick as appropriate and show on plan:-

At the outlet ☑ At a manhole or sampling chamber ☐

Other *(please specify)*

b) National Grid Reference(s) of sampling point(s). (If different from 2.3 b) above)

☐☐ / ☐☐☐☐ / ☐☐☐☐ *(please indicate on accompanying plans)*

c) What flow measurement facilities will be provided (see note v)?
Please give details.

SEE PROPOSED SKETCH FOR V-NOTCH WEIR

2.5 a) Type of Treatment Plant(s) to be used *(please specify make and model)* - tick as appropriate:-

Septic Tank ☐ Package Sewage Treatment Works ☐ Other ☑

LAGOON FOR SETTLEMENT.

b) Will the treatment process involve the use of any chemicals (eg ferric salts, polyeletrolytes) Y/N
If yes please give details.

POLYELECTROLITE FLOCCULANT AS REQUIRED.
SEE ENCLOSED DETAILS

2.6 a) On what date do you anticipate the discharge will commence? IMMEDIATE / /

b) If you require the consent for a limited time period please give dates; from: / /

to: / /

c) If the discharge is not continuous please detail the period/circumstances when it will occur.

DEPENDANT ON RAINFALL EVENT (SEE CALCS)

2.7 a) Are there any existing consents for discharge from the premises (see note vi)? Y/N
If yes, please give the reference numbers *(Any further information should be given in section 5.3).*

b) Has any person had a Prohibition Notice served on them in respect of this site? Y/N
If yes, please give the reference number.

SITE DETAILS

3.1 Please give the name of the relevant Planning Authority.

RHONDDA CYNON TAFF.
PLANNING OFFICE.
CRAWSHAY STREET.
TON PENTRE CF41 7EP

3.2 Please give details of the premises - tick as appropriate:-

1. Single Dwelling	☐	6. Fish Farm	☐
2. Multiple Dwellings	☐	7. Mineral Workings	☐
3. Industrial Premises	☐	8. Water Services plc STW	☐
4. Vehicle Parking Area	☐	9. Water Supply	☐
5. Commercial Premises *(please specify)*	☐	10. Other *(please specify)*	☑

LANDFILL SITE & QUARRY SHALE

3 Please indicate source of the water supply - tick as appropriate:-

1. Well ☐
2. Borehole ☐
3. Precipitation (eg. rain or snow) ☑
4. Mains *(please state water supply company)* ☐

5. River *(please give name below)* ☐
6. Estuary *(please give name below)* ☐
7. Coastal Water *(please give name below)* ☐

DETAILS OF RECEIVING ENVIRONMENT

1 Receiving Medium - tick the category(s) to which the proposed discharge(s) is(are) to be made:-

1. Estuarial Water (tidal river or stream) ☐
2. River or Stream (non-tidal) ☑
3. Canal ☐
4. Lake, Loch or Pond ☐
5. Into Land ☐
6. Onto Land ☐
7. Directly into Groundwater ☐
8. Coastal Water (see note vii) ☐

State name of receiving water if known:

NANT Y GWYDDON

2 In the case of sub-irrigation systems, soakaways or boreholes:- N/A.

(a) Is any part of the system within 5 metres of the boundary of the premises? Y/N

(b) Is any part of the system within 10 metres of a watercourse? Y/N

(c) Is any part of the system within 50 metres of a borehole or spring? Y/N

(d) For wells and boreholes state dimension(s) in metres. m

(e) For sub-irrigation systems, soakaway pits, wells and boreholes, state maximum depth in metres. m

(f) For boreholes, state details of lining in metres:

(i) Depth of lining m

(ii) Depth of perforated lining m

(iii) Depth of unperforated lining m

(g) A percolation test must be carried out in accordance with British Standard BS6297:1983. Have the results been provided? Y/N

3 Is there a foul sewer available to which the discharge(s) could be made (see note viii)? Y/N
If yes, please give the reasons it is not practical to connect to it (eg. distance, flow etc.).

5 DETAILS OF APPLICANT AND OTHER INFORMATION

5.1 (See general notes and note ix)

(a) Full name and postal address of applicant. This should be the person who will become the consent holder should consent be issued.

NIGEL BRINN
MANAGING DIRECTOR
AMGEN RHONDDA LTD.
BRYN PIEA
LLWYDCOED.
ABERDARE.

Post Code: CF44 0BX

Daytime Telephone Number: 01685 870770

Company Registration Number (if appropriate): 3687641

(b) Agent (if any) - Full name and postal address.

EN 1 LTD.
6 KEW COURT.
PYNES HILL.
RYDON LANE
EXETER.

Post Code: EX2 5AZ

Contact Name and Daytime Telephone Number: HORAC AIKEN 07881 818295 (M)

5.2

Please give full name and address to which bills should be sent if different to that given above:

SEE 5.1 (a).

Post Code:

Daytime Telephone Number:

5.3 Are there any other factors to be taken into account? Please continue on a separate sheet if necessary.

DECLARATION

I/We:

1. apply under the Water Resources Act 1991 (as amended by the Environment Act 1995) for consent to discharge, as described in this Application. "This Application" means this page, all the other pages of this form and any attached annexes, the attached plan(s), any other sheets attached, and any other written information supplied to support the application.

2. enclose the required application fee, payable to the Environment Agency (see note x).

3. enclose 3 copies of the plan(s) and location maps with all relevant information clearly marked (see note xi).

4. will pay required advertising costs (see note xii).

5. confirm that I/we* will notify the Environment Agency of any changes in the information in this application which might be material to the continuation of the consent.

6. confirm that the information given in this application and any questions which the Environment Agency may have about it is/will* be true to the best of my/our* knowledge, information and belief and am/are* not aware of any other facts or information which might affect the granting of a consent, or conditions which might be put on it (see note xiii).

7. confirm that I/we* will pay any annual charges due should a consent be granted YES/NO*. If no please indicate who will by completing section 5.2 above (see note xiv).

(* Delete as appropriate)

SIGNED: N Glynn ..... **PRINT NAME:** NIGEL GLYNN

ON BEHALF OF: AMGEN HONDA LTD ..... **DATED:** 01/02/01

o O o

CONFIDENTIALITY

I/we apply for commercial confidentiality and enclose a full written justification (see note xv).

SIGNED: ..... **DATED:** .....

PLEASE RETURN THIS FORM TO THE ADDRESS GIVEN ON THE FRONT PAGE

ENVIRONMENT AGENCY

ANNEXE 1

SEWAGE EFFLUENT GREATER THAN 5 CUBIC METRES PER DAY

Please complete this annexe if you are proposing to discharge more than 5 cubic metres per day of sewage effluent (if the effluent is to contain a trade component Annexe 3 should also be completed).

Official Use Only
Application No.

1. Site Name.

2. Please detail the type and number of treatment units you are proposing to use.

3. Volume, rates and overflow settings. (Please give volumes in cubic metres per day or litres per second as indicated below)

a) Maximum flow to full treatment. (see note (ii) in main guidance notes for population equivalents) — m^3/d

b) Dry weather flow of discharge(s). — m^3/d

c) Average daily flow. — m^3/d

d) Maximum rate of discharge(s) — l/s

4. Will there be provisions for storm/emergency discharges? Y/N
If yes, please complete Annexe 2.

5. a) Will any self monitoring take place? Y/N
If yes, please give details.

b) Will automatic sampling equipment be provided? Y/N
If yes, please give details of type and location *(please indicate on plan).*

a) Please state the maximum population served by the treatment works.

b) Please give reasons for any variations in population eg. holiday resort, training area, seasonal industry etc. and detail the periods/times involved.

c) Please state type of catchment/site being served eg. residential, resort, industrial etc.

Will a maintenance agreement be set up to manage the sewage works? (see note b) Y/N
If yes, please give details.

Does the effluent contain a trade component? Y/N
If yes, please complete appropriate section on Annexe 3 for authorised discharges of trade effluent to the sewerage system.

lotes (see also the notes attached to the main form):

) *For significant sewage treatment plants full details of the plant design, dry weather flow and Biochemical Oxygen Demand load, along with information on all discharges from the works must be included in order for the application to be processed. Flow monitoring will normally be required for such discharges and details of siting and type of flow recorders should be provided.*

) *The Agency require a single body or company to be responsible for the discharge and any bills raised under the Charges for Discharges Scheme. Where multiple dwellings under different ownership are connected to the same system a management company should be set up.*

ENVIRONMENT AGENCY

ANNEXE 2
SEWAGE EFFLUENT DISCHARGED IN STORM OR EMERGENCY CONDITIONS

Please complete this annexe if you are proposing to make a discharge of sewage in emergency or storm conditions (if the effluent is to contain a trade component then Annexe 3 should also be completed)

Official Use Only
Application No.

Site Name.

State the type of discharge - tick as appropriate:-

- Storm tanks ☐
- Combined Sewer Overflow from sewerage system ☐
- Combined Sewer Overflow from pumping station ☐
- Emergency overflow from sewerage system ☐
- Emergency overflow from pumping station ☐
- Other *(please specify)* ☐

For effluents discharging from sewage treatment works, is the storm/emergency effluent discharged via the same outlet as the treated effluent? Y/N

If no please give: a) the National Grid Reference of the treated effluent outlet.

☐☐/☐☐☐☐/☐☐☐☐

b) the consent or application number covering the treated effluent discharge.

If yes please give the National Grid Reference of the storm/emergency sampling point (see notes)

☐☐/☐☐☐☐/☐☐☐☐

For effluents discharging from combined sewer overflows, is the discharge via a dedicated pipe? Y/N

If no please give the National Grid Reference of the overflow into the sewer.

Overflow settings

a) Overflow setting to storm tanks. l/s

b) Maximum flow to storm tanks. l/s

c) Overflow setting to storm sewage overflow. l/s

d) Maximum flow to storm sewage overflow. l/s

Storage capacity

a) Volume of Storm Tanks. m^3

b) Retention time of storm tanks at maximum flow. hours

c) Storage capacity of sewer/wet well. m^3/day

Please provide full details of the design criteria that have been used to support this application.

Will facilities be provided to raise alarms (eg. telemetry)? Y/N
If yes, please give details.

Will facilities be provided to prevent the discharge of gross solids? Y/N
If yes, please give details (for screens give bar spacing or aperture).

0. What provisions will be made to deal with:

a) power failure (eg. standby generators)?

b) mechanical breakdown (eg. standby pumps)?

c) rising main failure?

d) tanker access?

otes (see also the notes on the main form):

ull details of the design criteria must be provided in order for the application to be determined. If you have any ueries about what information is required please contact the person given in notes attached to the main form

ENVIRONMENT AGENCY

ANNEXE 3
TRADE EFFLUENT DISCHARGES

Please complete this annexe if you are proposing to discharge trade effluent (this includes site drainage).

Official Use Only
Application No.

1. Site Name.

NANT Y GWYDDON LANDFILL

2. a) Describe in full the trade effluent and the process(es) from which it arises.

SURFACE RUNOFF FROM PHASE 1+2 OF QUARRY TIP + AREA SOUTH OF ACCESS ROAD TO LAGOON

b) Please state the type and number of treatment units you are proposing to use *(if site drainage please include details of oil/petrol interception facilities).*

NONE — BALANCING LAGOON FOR SETTLEMENT, FLOCCULANT

3. **Rainfall Dependent Discharges**

a) Is the volume going to be rainfall dependent? Y/~~N~~

b) If yes, please give the total area drained. 25039. m²

c) Please give details of any activities which occur in the drainage area which could contaminate surface water (see note b)

VEHICLE MOVEMENTS, FURTHER EXCAVATION OF TIP, GAS FLARES + CONDENSATE

4. **Rainfall Independent Discharges** N/A

a) What is the maximum rate of discharge? l/s

b) What is the average daily flow? m³/d

c) For discharges where the source of supply is other than mains water:

i) give the abstraction licence number.

a) Will any self monitoring take place? Y/N
If yes, please give details.

FREQUENCY & DETERMINANDS AS PER ATTACHMENT.
LOCATIONS AS PER DRAWING

b) Will automatic sampling equipment be provided? Y/N
If yes, please give details of type, frequency and location *(please indicate on plan).*

a) Please state the maximum temperature in degrees Celsius of the effluent when discharged if different from ambient.

AMBIENT

b) Will the discharge be monitored for temperature? Y/N
If yes, please give details of type and location *(please indicate on plan).*

SEE 3 (a)

Has an application for Authorisation been made for a 'prescribed process' as defined in Part 1 of the Environmental Protection Act 1990? Y/N

N/A

If yes, please complete the following:

a) The application reference.

c) Contact name of case officer.

8. a) Please indicate if any of the specified substances given below or their compounds will be present in the effluent and if so at what maximum concentration (please give values in micrograms per litre - ug/l). Please see note c. U/A.

SUBSTANCE	CONCENTRATION (ug/l)			SUBSTANCE	CONCENTRATION (ug/l)		
	Max	Min	Mean		Max	Min	Mean
Iron				Lead			
Arsenic				Malathion			
Atrazine				Mercury			
Azinphos-ethyl				Nickel			
Azinphos-methyl				PCB's			
Boron				PCSD's			
Cadmium				Parathion			
Carbon tetrachloride				Parathion-methyl			
Chloroform				Pentachlorophenol (PCP)			
Chromium				Perchloroethylene			
Copper				Permethrin			
Cyanide				pH < 5.5 or > 9.0			
Cyfluthrin				Phosphorus			
DDT				Polychlorinated biphenyls			
1,2 Dichloroethane				Simazine			
Dichlorvos				Sulcofuron			
Dioxins				Tetrachloroethylene			
Drins (eg. Aldrin, Dieldrin)				Tributyltin compounds			
Endosulfan				Trichlorobenzene			
Fenitrothion				Trichloroethane			
Fenthion				Trichloroethylene			
Flucofuron				Trifluralin			
Hexachlorobenzene (HCB)				Triphenyltin compounds			
Hexachlorobutadiene (HCBD)				Vanadium			
Hexachlorocyclohexanes (HCH's)				Zinc			

b) Are there any other significant chemical components used on site which may be contained in the effluent, including biocides or additives? Y/~~N~~

If yes, please give details.

UNCONTROLLED SEEPAGE OF LEACHATE REMOTE POTENTIAL

lotes (see also the notes attached to the main form):

) *For direct trade effluent discharges, full details of the type of the effluent are required (eg. cooling water from air conditioning units), along with typical analytical details and the results of any toxicity studies on the effluent or its constituents. In certain circumstances the Agency may require that specific samples be taken and tests and analysis carried out. The Agency is empowered to recover any costs incurred as a result of special studies..*

) *Possible sources of contamination include oil/chemical storage areas, vehicle loading/unloading areas, heavy vehicle parking areas and oil/petrol filling points. Any other potential sources of contamination should be detailed.*

) *Where discharges of trade effluent take place to a sewerage system, as covered by this application, please give details of all authorised discharges of substances listed in table 8 overleaf.*

ASIANTAETH YR AMGYLCHEDD
ENVIRONMENT AGENCY

ANNEXE 4
WELSH REGION SUPPLEMENTARY INFORMATION ANNEXE

Please complete this annexe for <u>every</u> proposed discharge.

<u>Official Use Only</u>
Application No.

<u>For all proposed discharges:</u>

1. Site Name.
   NANT Y GWYDDON LANDFILL.

2. Is this application being made to reinstate a lapsed Consent?
   Y/N

   If so, please state the Number of the lapsed Consent:

   IMPORTANT: If you are in need of advice on either part of question 2, please contact the Agency Regional Consents Section on 01222 770088.

3. If the proposed discharge is to be made down a pipe, channel or culvert (as given in Section 2.3 in the main application form), please state the <u>diameter</u> (including units):
   560 mm.

4. Please indicate the anticipated cost of the proposed scheme, including any alternatives which may have been considered:
   SCHEME ALREADY DESIGNED & CONSTRUCTED. (CALCULATIONS FOR DESIGN ARE UNAVAILABLE.

5. Is there any trade effluent component in the proposed discharge?
   X/N

   If yes, please confirm here that you have completed and enclosed Annexe 3: *Tick*

ASIANTAETH YR AMGYLCHEDD
ENVIRONMENT AGENCY

6. Will the proposed discharge be pumped or made under gravity? (please circle):

~~Pumped~~ / Gravity

If pumped, please state the maximum pump rate in l/sec:

l/s

For proposed discharges of sewage in storm or emergency conditions:

7. Please confirm here that you have completed and enclosed both Annexes 1 and 2: *Tick* ☐

8. Please state:

Population served (head)	
Consumption (l/head/day) default = 180	
Infiltration (m^3/day)	
Industrial effluent flow (m^3/day)	
Dry Weather Flow (m^3/day)	
SOCA (l/sec)	
Predicted spill frequency (per annum)	

IMPORTANT NOTES FOR ALL CONSENT APPLICATIONS:

1. **Whoever signs the declaration on the main application form takes responsibility for the discharge, and will become the registered consent holder, if consent is given. In the case of a 'body corporate' (e.g. a public limited company ('plc'), limited company, local authority), the 'body corporate' will be the registered consent holder, and the person with the delegated authority to sign on behalf of the 'body corporate' should give their job title.**

2. **Agents making an application on behalf of a client, must attach their clients written authority.**

3. **If the name and/or address of the applicant changes after submission of this application to the Environment Agency, the applicant must inform the Agency in writing.**

2.2 Discharge Quantity
Rainfall Intensity Calculations

Rainfall Intensity Calculation
1 in 5 Year Storm Return Period (MT=5)

Case specific input

Input parameters

#	Area drained (m2)	25,030	Gelli Ph 1 and 2 and Processing area (see plan)
#	Runoff coefficient	1.0	
	Pumps & storage		
#	Sump storage (m3)	400.0	Gelli Lagoon dimensions = 20*10*2
		(litres/sec)	
#	Duty pump rate		
#	Assist/standby pump rate		
	Max combined pump rate	0.0 m3/hr	

Manual calculation of rainfall intensities (Meteorological Office)
(Wallingford Procedure - Modified Rational Method: Volume 4, National Water Council Publications)

1 in 5 year storm event for 24 hrs

	MT =	5 years	Return period
	D =	24 hrs	Duration
#	M5-60 =	20.0 mm	5 yr - 60 min rainfall depth
#	r =	0.18	Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
#	Z1 =	4.2	Factor relating D & r
	M5-D = Z1(M5-60mm) M5-D =	84.0 mm	rainfall depth for M5 return period
#	Z2 =	1.02	Ratio between rainfall of return period MT and M5 - England & Wales
	MT-D =	85.7 mm	Rainfall depth for return period (MT) and duration (D)
	i =	3.6 mm/hr	Point rainfall intensity
	Runoff	2145.3 m3 89.4 m3/hr	2,145,342 litres 24.83 litres/sec

1 in 5 year storm event for 48 hrs

	MT =	5 years	Return period
	D =	48 hrs	Duration
	M5-60 =	20.0 mm	5 yr - 60 min rainfall depth
	r =	0.18	Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
#	Z1 =	5.8	Factor relating D & r
	M5-D = Z1(M5-60mm) M5-D =	115.9 mm	rainfall depth for M5 return period
#	Z2 =	1.02	Ratio between rainfall of return period MT and M5 - England & Wales
	MT-D =	118.3 mm	Rainfall depth for return period (MT) and duration (D)
	i =	2.5 mm/hr	Point rainfall intensity
	Runoff	2882.6 m3 61.7 m3/hr	2,882,514 litres 17.14 litres/sec

1 in 5 year storm event for 10 hrs

	MT =	5 years	Return period
	D =	10 hrs	Duration
	M5-60 =	20.0 mm	5 yr - 60 min rainfall depth
	r =	0.18	Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
#	Z1 =	2.8	Factor relating D & r
	M5-D = Z1(M5-60mm) M5-D =	55.9 mm	rainfall depth for M5 return period
#	Z2 =	1.02	Ratio between rainfall of return period MT and M5 - England & Wales
	MT-D =	57.1 mm	Rainfall depth for return period (MT) and duration (D)
	i =	5.7 mm/hr	Point rainfall intensity
	Runoff	1430.3 m3 143.0 m3/hr	1,430,320 litres 39.73 litres/sec

1 in 5 year storm event for 5 hrs

	MT =	5 years	Return period
	D =	5 hrs	Duration
	M5-60 =	20.0 mm	5 yr - 60 min rainfall depth
	r =	0.18	Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
#	Z1 =	2.1	Factor relating D & r
	M5-D = Z1(M5-60mm) M5-D =	42.0 mm	rainfall depth for M5 return period
#	Z2 =	1.02	Ratio between rainfall of return period MT and M5 - England & Wales
	MT-D =	42.8 mm	Rainfall depth for return period (MT) and duration (D)
	i =	8.6 mm/hr	Point rainfall intensity
	Runoff	1072.7 m3 214.5 m3/hr	1,072,671 litres 59.59 litres/sec

1 in 5 year storm event for 2 hrs

	MT =	5 years	Return period
	D =	2 hrs	Duration
	M5-60 =	20.0 mm	5 yr - 60 min rainfall depth
	r =	0.18	Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
#	Z1 =	1.3	Factor relating D & r
	M5-D = Z1(M5-60mm) M5-D =	26.8 mm	rainfall depth for M5 return period
#	Z2 =	1.03	Ratio between rainfall of return period MT and M5 - England & Wales
	MT-D =	26.9 mm	Rainfall depth for return period (MT) and duration (D)
	i =	13.4 mm/hr	Point rainfall intensity
	Runoff	670.5 m3 335.2 m3/hr	670,544 litres 93.13 litres/sec

1 in 5 year storm event for 1 hrs

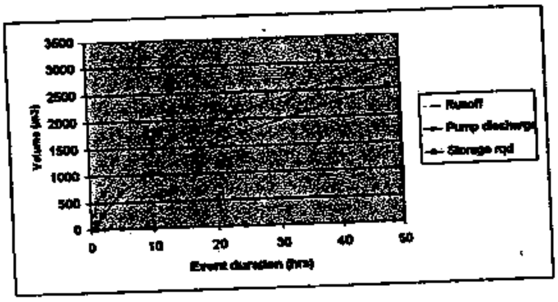
	MT =	5 years	Return period
	D =	1 hrs	Duration
	M5-60 =	20.0 mm	5 yr - 60 min rainfall depth
	r =	0.18	Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
#	Z1 =	1.0	Factor relating D & r
	M5-D = Z1(M5-60mm) M5-D =	20.0 mm	rainfall depth for M5 return period
#	Z2 =	1.03	Ratio between rainfall of return period MT and M5 - England & Wales
	MT-D =	20.6 mm	Rainfall depth for return period (MT) and duration (D)
	i =	20.6 mm/hr	Point rainfall intensity
	Runoff	515.9 m3 515.8 m3/hr	515,903 litres 143.30 litres/sec

1 in 5 year storm event for 0.5 hrs

	MT =	5 years	Return period
	D =	0.5 hrs	Duration
	M5-60 =	20.0 mm	5 yr - 60 min rainfall depth
	r =	0.18	Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
#	Z1 =	0.7	Factor relating D & r
	M5-D = Z1(M5-60mm) M5-D =	14.0 mm	rainfall depth for M5 return period
#	Z2 =	0.8	Ratio between rainfall of return period MT and M5 - England & Wales
	MT-D =	11.2 mm	Rainfall depth for return period (MT) and duration (D)
	i =	22.4 mm/hr	Point rainfall intensity
	Runoff	280.4 m3 560.9 m3/hr	280,437 litres 155.80 litres/sec

Pump & storage requirements

		runoff coefficient		1.0			
contributing area (m2)	25,030						
duration (hr)	0.5	1	2	5	10	24	48
depth (mm)	11.2	20.6	26.8	42.8	57.1	85.7	118.3
runoff (m3)	280	516	671	1073	1430	2145	2883
discharge (m3/hr)	560.8	515.8	335.2	214.5	143.0	89.4	61.7
discharge (l/sec)	156	143	93	60	40	25	17
pump rate (l/sec)	0						
pump rate (m3/hr)	0.0						
pumped discharge (m3)	0	0	0	0	0	0	0
Storage available (m3)	400.0	400.0	400.0	400.0	400.0	400.0	400.0
storage reqd (m3)	0.0	115.8	270.5	672.7	1030.2	1745.3	2482.8



Gelli Tip Phase 1 2 Discharge

Rainfall Intensity Calculation
1 in 2 Year Storm Return Period (MT=2)

Code specific input	Input parameters			
a	Area drained (m2)	25,039	Gelli Ph 1 and 2 and Processing area (see plan)	
c	Runoff coefficient	1.0		
	Pumps & storage			
#	Sump storage (m3)	400.0	Gelli Lagoon dimensions = 20*40*2	
		(litres/sec)		
#	Duty pump rate	0		
#	Assist/standby pump rate	0		
	Max combined pump rate	0	0.0 m3/hr	

Manual calculation of rainfall intensities (Meteorological Office)
(Wallingford Procedure - Modified Rational Method: Volume 4, National Water Council Publications)

1 in 2 year storm event for 24 hrs

MT =	2	years	Return period
D =	24	hrs	Duration
M5-60 =	20.0	mm	5 yr - 60 min rainfall depth
r =	0.18		Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
Z1 =	4.2		Factor relating D & r
M5-D = Z1(M5-60min)			
M5-D =	84.0	mm	rainfall depth for M5 return period
# Z2 =	0.87		Ratio between rainfall of return period MT and M5 - England & Wales
MT-D =	73.1	mm	Rainfall depth for return period (MT) and duration (D)
i =	3.0	mm/hr	Point rainfall intensity
Runoff	1820.9	m3	1,820,850 litres
	76.2	m3/hr	21 litres/sec

1 in 2 year storm event for 48 hrs

MT =	2	years	Return period
D =	48	hrs	Duration
M5-60 =	20.0	mm	5 yr - 60 min rainfall depth
r =	0.18		Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
Z1 =	5.9		Factor relating D & r
M5-D = Z1(M5-60min)			
M5-D =	116.0	mm	rainfall depth for M5 return period
# Z2 =	0.88		Ratio between rainfall of return period MT and M5 - England & Wales
MT-D =	102.1	mm	Rainfall depth for return period (MT) and duration (D)
i =	2.1	mm/hr	Point rainfall intensity
Runoff	2558.0	m3	2,558,081 litres
	53.2	m3/hr	14.79 litres/sec

1 in 2 year storm event for 10 hrs

MT =	2	years	Return period
D =	10	hrs	Duration
M5-60 =	20.0	mm	5 yr - 60 min rainfall depth
r =	0.18		Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
Z1 =	2.8		Factor relating D & r
M5-D = Z1(M5-60min)			
M5-D =	56.0	mm	rainfall depth for M5 return period
# Z2 =	0.85		Ratio between rainfall of return period MT and M5 - England & Wales
MT-D =	47.5	mm	Rainfall depth for return period (MT) and duration (D)
i =	4.8	mm/hr	Point rainfall intensity
Runoff	1191.9	m3	1,191,859 litres
	119.2	m3/hr	33.11 litres/sec

1 in 2 year storm event for 5 hrs

MT =	2	years	Return period
D =	5	hrs	Duration
M5-60 =	20.0	mm	5 yr - 60 min rainfall depth
r =	0.18		Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
Z1 =	2.1		Factor relating D & r
M5-D = Z1(M5-60min)			
M5-D =	42.0	mm	rainfall depth for M5 return period
# Z2 =	0.84		Ratio between rainfall of return period MT and M5 - England & Wales
MT-D =	35.3	mm	Rainfall depth for return period (MT) and duration (D)
i =	7.1	mm/hr	Point rainfall intensity
Runoff	883.4	m3	883,375 litres
	176.7	m3/hr	49.08 litres/sec

1 in 2 year storm event for 2 hrs

MT =	2	years	Return period
D =	2	hrs	Duration
M5-60 =	20.0	mm	5 yr - 60 min rainfall depth
r =	0.18		Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
Z1 =	1.3		Factor relating D & r
M5-D = Z1(M5-60min)			
M5-D =	26.0	mm	rainfall depth for M5 return period
# Z2 =	0.82		Ratio between rainfall of return period MT and M5 - England & Wales
MT-D =	21.3	mm	Rainfall depth for return period (MT) and duration (D)
i =	10.7	mm/hr	Point rainfall intensity
Runoff	533.8	m3	533,831 litres
	266.9	m3/hr	74.14 litres/sec

1 in 2 year storm event for 1 hrs

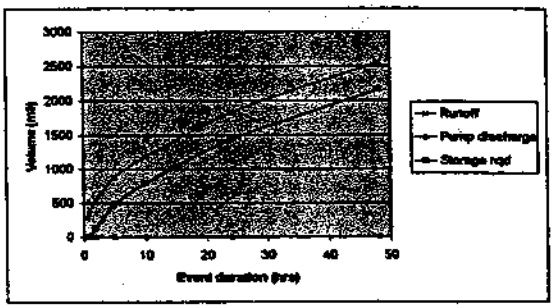
MT =	2	years	Return period
D =	1	hrs	Duration
M5-60 =	20.0	mm	5 yr - 60 min rainfall depth
r =	0.18		Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
Z1 =	1.0		Factor relating D & r
M5-D = Z1(M5-60min)			
M5-D =	20.0	mm	rainfall depth for M5 return period
# Z2 =	0.81		Ratio between rainfall of return period MT and M5 - England & Wales
MT-D =	16.2	mm	Rainfall depth for return period (MT) and duration (D)
i =	16.2	mm/hr	Point rainfall intensity
Runoff	405.9	m3	405,932 litres
	405.9	m3/hr	112.88 litres/sec

1 in 2 year storm event for 0.5 hrs

MT =	2	years	Return period
D =	0.5	hrs	Duration
M5-60 =	20.0	mm	5 yr - 60 min rainfall depth
r =	0.18		Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
Z1 =	0.7		Factor relating D & r
M5-D = Z1(M5-60min)			
M5-D =	14.0	mm	rainfall depth for M5 return period
# Z2 =	0.8		Ratio between rainfall of return period MT and M5 - England & Wales
MT-D =	11.2	mm	Rainfall depth for return period (MT) and duration (D)
i =	22.4	mm/hr	Point rainfall intensity
Runoff	280.4	m3	280,437 litres
	560.9	m3/hr	155.80 litres/sec

Pump & storage requirements

Contributing area (m2)	25,039	runoff coefficient	1.0				
Duration (hr)	0.5	1	2	5	10	24	48
Depth (mm)	11.2	16.2	21.3	35.3	47.8	73.1	102.1
Runoff (m3)	280	406	534	883	1182	1830	2558
Discharge (m3/hr)	560.9	405.8	266.9	176.7	119.2	76.2	53.2
Discharge (l/sec)	156	113	74	49	33	21	15
Pump rate (l/sec)	0						
Pump rate (m3/hr)	0.0						
Pump discharge (m3)	0	0	0	0	0	0	0
Storage required (m3)	400.0	400.0	400.0	400.0	400.0	400.0	400.0
Storage required (m3)	0.0	5.8	133.8	483.4	781.9	1429.8	2158.0



Nant y Gwyddon
Discharge Consent

Gelli Tip Phase 1 and 2
Discharge

Rainfall Intensity Calculation
1 in 10 Year Storm Return Period (MT=10)

Case specific Input

Input parameters

a	Area drained (m2)	25,039	Gelli Fm 1 and 2 and Processing area (see plan)
a	Runoff coefficient	1.0	
	Pumps & storage		
Ar	Sump storage (m3)	400.0 (litres/sec)	Gelli Lagoon dimensions = 20*10*2
qi	Duty pump rate	0	
qr	Assist/standby pump rate	0	
	Max combined pump rate	0	0.0 m3/hr

Manual calculation of rainfall intensities (Meteorological Office)
(Wallingford Procedure - Modified Rational Method: Volume 4, National Water Council Publications)

1 in 10 year storm event for 24 hrs

MT =	10	years	Return period
D =	24	hrs	Duration
M5-60 =	20.0	mm	5 yr - 60 min rainfall depth
r =	0.19		Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
Z1 =	4.2		Factor relating D & r
M5-D = Z1(M5-60min)			
M5-D =	84.0	mm	rainfall depth for M5 return period
Z2 =	1.14		Ratio between rainfall of return period MT and M5 - England & Wales
MT-D =	95.8	mm	Rainfall depth for return period (MT) and duration (D)
i =	4.0	mm/hr	Point rainfall intensity
Runoff	2397.7	m3	2,397,735 litres
	99.9	m3/hr	28 litres/sec

5 in 10 year storm event for 48 hrs

MT =	10	years	Return period
D =	48	hrs	Duration
M5-60 =	20.0	mm	5 yr - 60 min rainfall depth
r =	0.18		Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
Z1 =	5.8		Factor relating D & r
M5-D = Z1(M5-60min)			
M5-D =	116.0	mm	rainfall depth for M5 return period
Z2 =	1.13		Ratio between rainfall of return period MT and M5 - England & Wales
MT-D =	131.1	mm	Rainfall depth for return period (MT) and duration (D)
i =	2.7	mm/hr	Point rainfall intensity
Runoff	3282.1	m3	3,282,112 litres
	68.4	m3/hr	18.90 litres/sec

1 in 10 year storm event for 10 hrs

MT =	10	years	Return period
D =	10	hrs	Duration
M5-60 =	20.0	mm	5 yr - 60 min rainfall depth
r =	0.18		Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
Z1 =	2.8		Factor relating D & r
M5-D = Z1(M5-60min)			
M5-D =	56.0	mm	rainfall depth for M5 return period
Z2 =	1.17		Ratio between rainfall of return period MT and M5 - England & Wales
MT-D =	65.5	mm	Rainfall depth for return period (MT) and duration (D)
i =	6.6	mm/hr	Point rainfall intensity
Runoff	1640.9	m3	1,640,955 litres
	164.1	m3/hr	45.57 litres/sec

1 in 10 year storm event for 5 hrs

MT =	10	years	Return period
D =	5	hrs	Duration
M5-60 =	20.0	mm	5 yr - 60 min rainfall depth
r =	0.18		Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
Z1 =	2.1		Factor relating D & r
M5-D = Z1(M5-60min)			
M5-D =	42.0	mm	rainfall depth for M5 return period
Z2 =	1.19		Ratio between rainfall of return period MT and M5 - England & Wales
MT-D =	50.0	mm	Rainfall depth for return period (MT) and duration (D)
i =	10.0	mm/hr	Point rainfall intensity
Runoff	1251.4	m3	1,251,448 litres
	250.3	m3/hr	69.52 litres/sec

1 in 10 year storm event for 2 hrs

MT =	10	years	Return period
D =	2	hrs	Duration
M5-60 =	20.0	mm	5 yr - 60 min rainfall depth
r =	0.18		Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
Z1 =	1.3		Factor relating D & r
M5-D = Z1(M5-60min)			
M5-D =	26.0	mm	rainfall depth for M5 return period
Z2 =	1.24		Ratio between rainfall of return period MT and M5 - England & Wales
MT-D =	32.2	mm	Rainfall depth for return period (MT) and duration (D)
i =	16.1	mm/hr	Point rainfall intensity
Runoff	807.3	m3	807,257 litres
	403.6	m3/hr	112.12 litres/sec

1 in 10 year storm event for 1 hrs

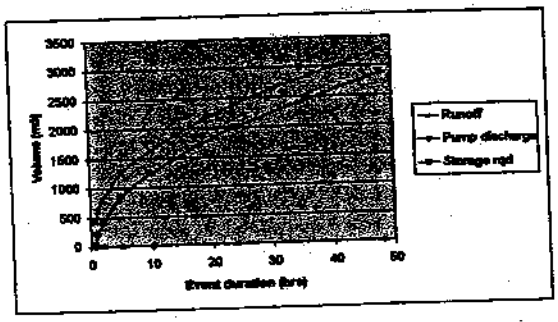
MT =	10	years	Return period
D =	1	hrs	Duration
M5-60 =	20.0	mm	5 yr - 60 min rainfall depth
r =	0.18		Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
Z1 =	1.9		Factor relating D & r
M5-D = Z1(M5-60min)			
M5-D =	20.0	mm	rainfall depth for M5 return period
Z2 =	1.24		Ratio between rainfall of return period MT and M5 - England & Wales
MT-D =	24.8	mm	Rainfall depth for return period (MT) and duration (D)
i =	24.8	mm/hr	Point rainfall intensity
Runoff	621.9	m3	620,987 litres
	621.0	m3/hr	172.49 litres/sec

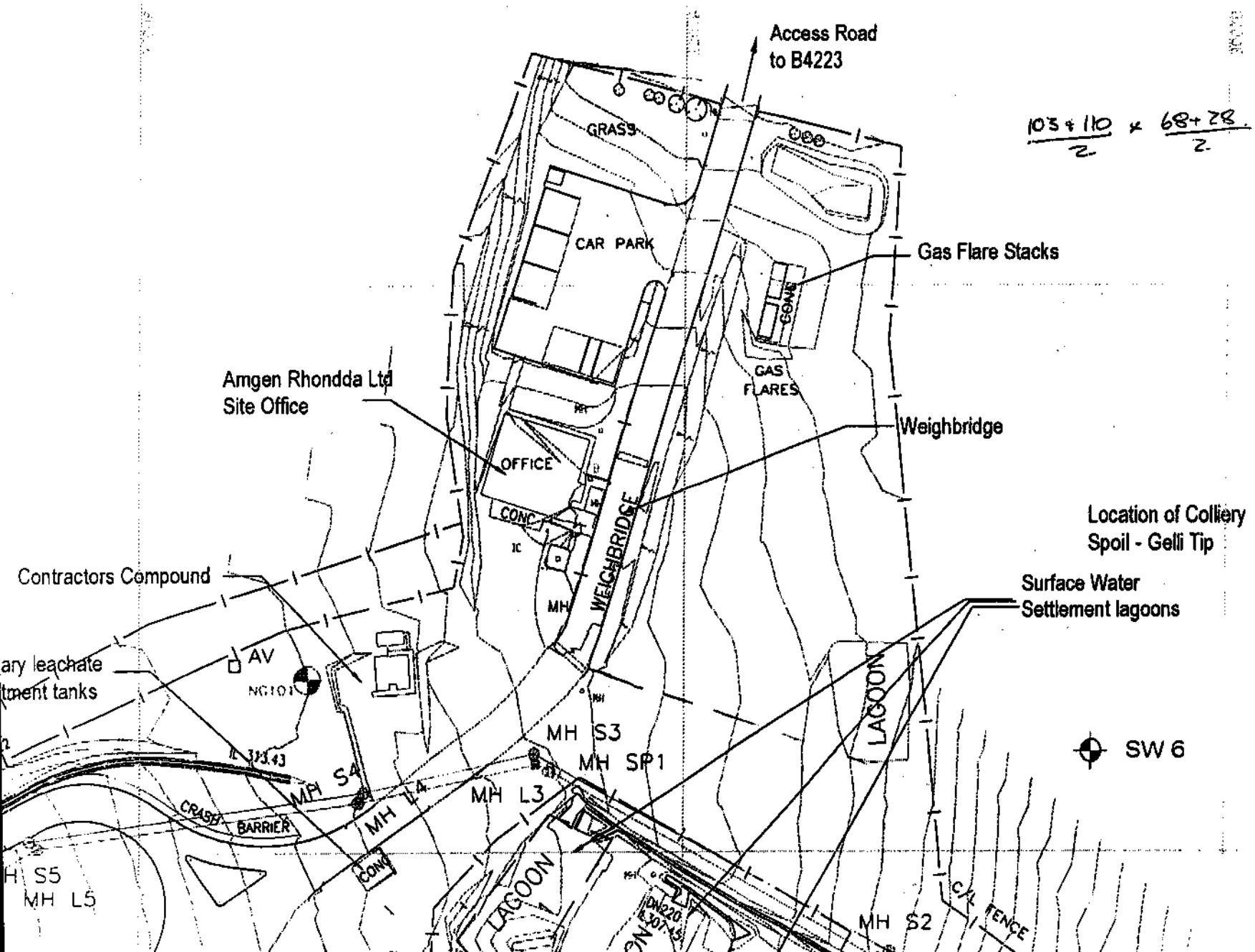
1 in 10 year storm event for 0.5 hrs

MT =	10	years	Return period
D =	0.5	hrs	Duration
M5-60 =	20.0	mm	5 yr - 60 min rainfall depth
r =	0.18		Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
Z1 =	0.7		Factor relating D & r
M5-D = Z1(M5-60min)			
M5-D =	14.0	mm	rainfall depth for M5 return period
Z2 =	1.24		Ratio between rainfall of return period MT and M5 - England & Wales
MT-D =	17.4	mm	Rainfall depth for return period (MT) and duration (D)
i =	34.7	mm/hr	Point rainfall intensity
Runoff	434.7	m3	434,577 litres
	869.4	m3/hr	241.49 litres/sec

Pump & storage requirements

Contributing area (m2)	25,039	runoff coefficient		1.0			
Duration (hr)	0.5	1	2	5	10	24	48
Depth (mm)	17.4	24.8	32.2	50.0	65.5	95.8	131.1
Runoff (m3)	435	621	807	1251	1641	2398	3282
Discharge (m3/hr)	869.4	621.0	403.6	250.3	164.1	99.9	68.4
Discharge (l/sec)	241	172	112	70	46	28	19
Pump rate (l/sec)	0						
Pump rate (m3/hr)	0.0						
Pump discharge (m3)	0	0	0	0	0	0	0
Storage available (m3)	400.0	400.0	400.0	400.0	400.0	400.0	400.0
Storage required (m3)	34.7	221.0	407.5	851.4	1240.8	1997.7	2882.1





Area.

$\frac{103+110}{2} \times \frac{68+28}{2} = 5112$

Nant y Gwyddon
Discharge Consent

Gelli Tip Phase 1 2
Discharge

Rainfall Intensity Calculation
1 in 1 Year Storm Return Period (MT=1)

Case specific input

Input parameters

a	Area drained (m2)	25,039	Gelli Pit 1 and 2 and Processing area (see plan)
a	Runoff coefficient	1.0	
	Pumps & storage		
a	Sump storage (m3)	400.0	Gelli Lagoon dimensions = 20*10*2
		(litres/sec)	
a	Duty pump rate	0	
a	Assistant/duty pump rate	0	
a	Max combined pump rate	0	0.0 m3/hr

Manual calculation of rainfall intensities (Meteorological Office)
(Wallingford Procedure - Modified Rational Method: Volume 4, National Water Council Publications)

1 in 1 year storm event for 24 hrs

MT =	1	years	Return period
D =	24	hrs	Duration
M5-60 =	20.0	mm	5 yr - 60 min rainfall depth
r =	0.19		Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
Z1 =	4.2		Factor relating D & r
M5-D = Z1/M5-60min)			
M5-D =	84.0	mm	rainfall depth for M5 return period
Z2 =	0.77		Ratio between rainfall of return period MT and M5 - England & Wales
MT-D =	64.7	mm	Rainfall depth for return period (MT) and duration (D)
i =	2.7	mm/hr	Point rainfall intensity
Runoff	1619.5	m3	1,619,523 litres
	67.5	m3/hr	19 litres/sec

1 in 1 year storm event for 48 hrs

MT =	1	years	Return period
D =	48	hrs	Duration
M5-60 =	20.0	mm	5 yr - 60 min rainfall depth
r =	0.19		Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
Z1 =	5.8		Factor relating D & r
M5-D = Z1/M5-60min)			
M5-D =	116.0	mm	rainfall depth for M5 return period
Z2 =	0.78		Ratio between rainfall of return period MT and M5 - England & Wales
MT-D =	90.5	mm	Rainfall depth for return period (MT) and duration (D)
i =	1.9	mm/hr	Point rainfall intensity
Runoff	2265.5	m3	2,265,529 litres
	47.2	m3/hr	13.11 litres/sec

1 in 1 year storm event for 10 hrs

MT =	1	years	Return period
D =	10	hrs	Duration
M5-60 =	20.0	mm	5 yr - 60 min rainfall depth
r =	0.19		Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
Z1 =	2.8		Factor relating D & r
M5-D = Z1/M5-60min)			
M5-D =	56.0	mm	rainfall depth for M5 return period
Z2 =	0.73		Ratio between rainfall of return period MT and M5 - England & Wales
MT-D =	40.9	mm	Rainfall depth for return period (MT) and duration (D)
i =	4.1	mm/hr	Point rainfall intensity
Runoff	1023.8	m3	1,023,804 litres
	102.4	m3/hr	28.43 litres/sec

1 in 1 year storm event for 5 hrs

MT =	1	years	Return period
D =	5	hrs	Duration
M5-60 =	20.0	mm	5 yr - 60 min rainfall depth
r =	0.19		Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
Z1 =	2.1		Factor relating D & r
M5-D = Z1/M5-60min)			
M5-D =	42.0	mm	rainfall depth for M5 return period
Z2 =	0.7		Ratio between rainfall of return period MT and M5 - England & Wales
MT-D =	29.4	mm	Rainfall depth for return period (MT) and duration (D)
i =	5.9	mm/hr	Point rainfall intensity
Runoff	736.1	m3	736,147 litres
	147.2	m3/hr	40.90 litres/sec

1 in 1 year storm event for 2 hrs

MT =	1	years	Return period
D =	2	hrs	Duration
M5-60 =	20.0	mm	5 yr - 60 min rainfall depth
r =	0.19		Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
Z1 =	1.3		Factor relating D & r
M5-D = Z1/M5-60min)			
M5-D =	26.0	mm	rainfall depth for M5 return period
Z2 =	0.66		Ratio between rainfall of return period MT and M5 - England & Wales
MT-D =	17.2	mm	Rainfall depth for return period (MT) and duration (D)
i =	8.6	mm/hr	Point rainfall intensity
Runoff	429.7	m3	429,699 litres
	214.9	m3/hr	59.69 litres/sec

1 in 1 year storm event for 1 hrs

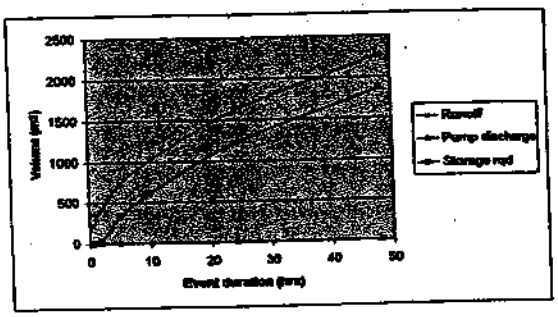
MT =	1	years	Return period
D =	1	hrs	Duration
M5-60 =	20.0	mm	5 yr - 60 min rainfall depth
r =	0.19		Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
Z1 =	1.0		Factor relating D & r
M5-D = Z1/M5-60min)			
M5-D =	20.0	mm	rainfall depth for M5 return period
Z2 =	0.64		Ratio between rainfall of return period MT and M5 - England & Wales
MT-D =	12.8	mm	Rainfall depth for return period (MT) and duration (D)
i =	12.8	mm/hr	Point rainfall intensity
Runoff	320.5	m3	320,499 litres
	320.5	m3/hr	89.03 litres/sec

1 in 1 year storm event for 0.5 hrs

MT =	1	years	Return period
D =	0.5	hrs	Duration
M5-60 =	20.0	mm	5 yr - 60 min rainfall depth
r =	0.19		Ratio of the 5 yr - 60 min rainfall depth to the 5 yr - 2 day rainfall depth
Z1 =	0.7		Factor relating D & r
M5-D = Z1/M5-60min)			
M5-D =	14.0	mm	rainfall depth for M5 return period
Z2 =	0.62		Ratio between rainfall of return period MT and M5 - England & Wales
MT-D =	8.7	mm	Rainfall depth for return period (MT) and duration (D)
i =	17.4	mm/hr	Point rainfall intensity
Runoff	217.3	m3	217,333 litres
	434.7	m3/hr	120.74 litres/sec

Pump & storage requirements

Contributing area (m2)	25,039	runoff coefficient		1.0			
Duration (hr)	0.5	1	2	5	10	24	48
Depth (mm)	6.7	12.8	17.2	29.4	40.9	64.7	90.5
Runoff (m3)	217	320	430	736	1024	1620	2266
Discharge (m3/hr)	434.7	320.5	214.9	147.2	102.4	67.5	47.2
Discharge (l/sec)	121	89	60	41	28	19	13
Pump rate (l/sec)	0						
Pump rate (m3/hr)	0.0						
Pump discharge (m3)	0	0	0	0	0	0	0
Storage available (m3)	400.0	400.0	400.0	400.0	400.0	400.0	400.0
Storage required (m3)	0.0	0.0	29.7	336.1	623.8	1219.9	1865.5



Surfacewater Sampling.

Best Practice sampling requirements as taken from *EnvirosAspinwall Phase 1 Review.*

Field Measurements:

Best Practice Monthly
P.H.
Conductivity
Water Temperature
Dissolved Oxygen

Laboratory Measurements:

Best Practice Monthly
Chemical Oxygen Demand
Ammoniacal Nitrogen
Chloride

Note: Best practice taken from WMP4.

2.4 Proposed Sampling Details

CL Associates

Bridgewater House, Deans Lane, Thelwall, Warrington. WA4 2TN
Tel: 01925 758444 Fax: 01925 758555 Email: 106340.2711@compuserve.com

Your Ref: R/98/6438
Our Ref: LO/3077/069/pct

21 October 1998

Director of Planning
Rhondda Cynon Taff County Borough Council
Planning Department
Llwyncastan
Llbrary Road
Pontypridd
CF37 2YA

OFFICER D.B.
ACKNOWLEDGE YES / NO
22 OCT 1998
TRACKING YES / NO
LETTER No. 2628

For the attention of Ms Donna Bowhay

Dear Sir

EXCAVATION OF GELLI SPOIL HEAP
Detailed Working Scheme

Further to our recent telephone conversations, please find enclosed the following documents in support of the submitted scheme:-

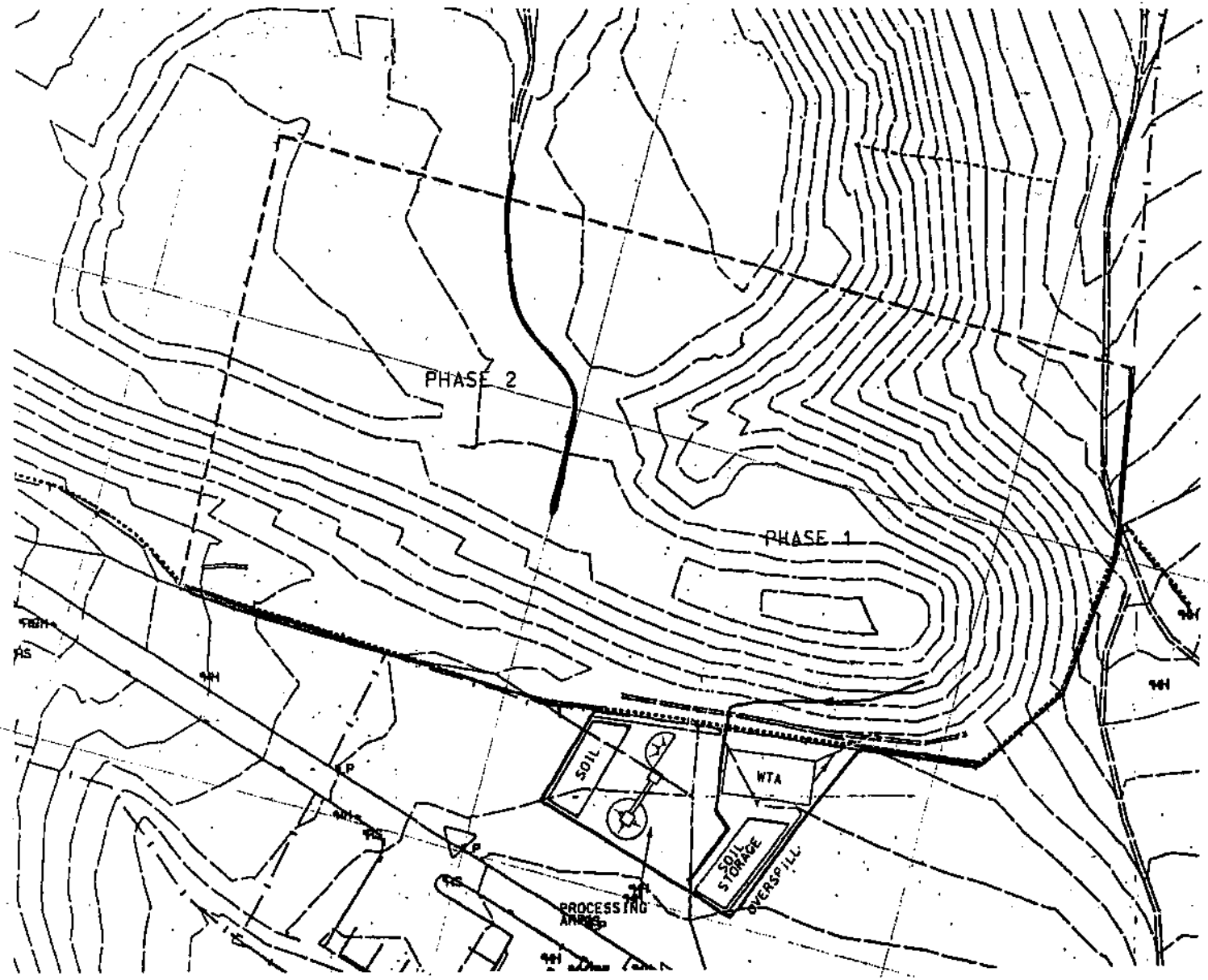
1) Revision 1 versions of Drawings 3077/7/1, 2, 3 & 4 incorporating minor modifications
2) Drawing 3077/7/5 Restoration Strategy
3) Bar chart showing the anticipated timings of the major events within the project. NB 1999 timings assume that filling of the north east corner of Nant y Gwyddon Landfill is successfully achieved in Autumn/Winter 1998/99

As discussed, I will submit two cross sections later this week

I confirm that the suitably qualified person referred to in section 2.1 of the scheme will be Dr Nigel Bending. I enclose his CV for your information. Dr Bending will be on site on Thursday 22 October to carry out the soil survey. The results of the soil analysis will be made available to the Planning Authority.

I also confirm that fencing will commence on the site on Thursday 22 October, as discussed, and that subject to suitable progress on infrastructure, soil stripping and excavation will commence as soon as possible thereafter.

2.5a Details of Drainage Scheme



Planning Application Boundary

Soil Storage Mound

Pre-Treatment Drainage

Treated Drainage

Water Treatment Area

Inteceptor Ditch

Planning Application Boundary-Line of Fence

Rev	Date	Modifications

EXCAVATION OF GELLI SPOIL HEAPS- SITE PREPARATION

Project

NANT-Y-GWYDDON REMEDIATION

Client

RHONDDA WASTE DISPOSAL

CL Associates

Prepared By	Approved By
RCL	PCT
Scale	**Date**
1: 1000	OCTOBER 1998

Project No	Drawing No	Rev
3077-7	3077/7/1	1

21 October 1998

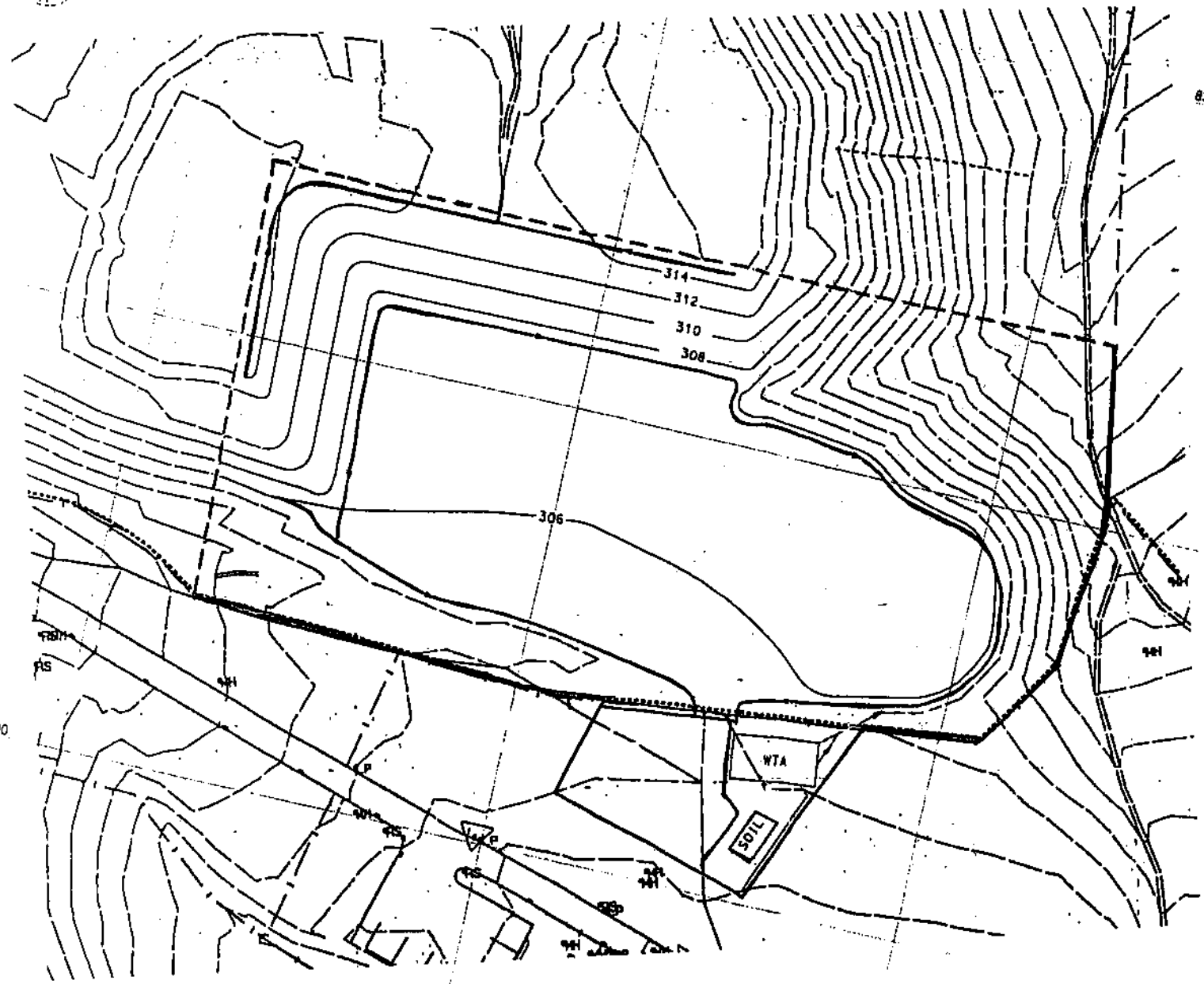
Director of Planning
Rhondda Cynon Taff County Borough Council

I hope you find the above in order. If you have any queries please do not hesitate to contact me.

Yours faithfully

PETER THOMPSON
Principal Engineer

cc R Chaddock - Rhondda Waste Disposal



Soil Storage Mound

Pre-Treatment Drainage

Treated Drainage

Water Treatment Area

Inteceptor Ditch

Planning Application Boundary- Line of Fence

Rev	Date	Modifications

EXCAVATION OF GELLI
SPOIL HEAPS
END OF EXTRACTION

Project

NANT-Y-GWYDDON
REMEDIATION

Client

RHONDDA WASTE DISPOSAL

CL Associates

Prepared By	Approved By
RCL	PCT
Scale: 1: 1000	Date: OCTOBER 1998

Project No	Drawing No	Rev
3077-7	3077/7/4	1

An assessment will be made of the depth of weathering of the shale below the soil resource in the spoil heap by a suitably qualified person. The depth of weathered shale will be logged visually in each pit and a sample of the shale will be taken from each trial pit and analysed for pH, potassium, phosphorus, nitrogen and other indicators of soil condition. The recoverable depth of weathered shale will be taken as the maximum recorded depth.

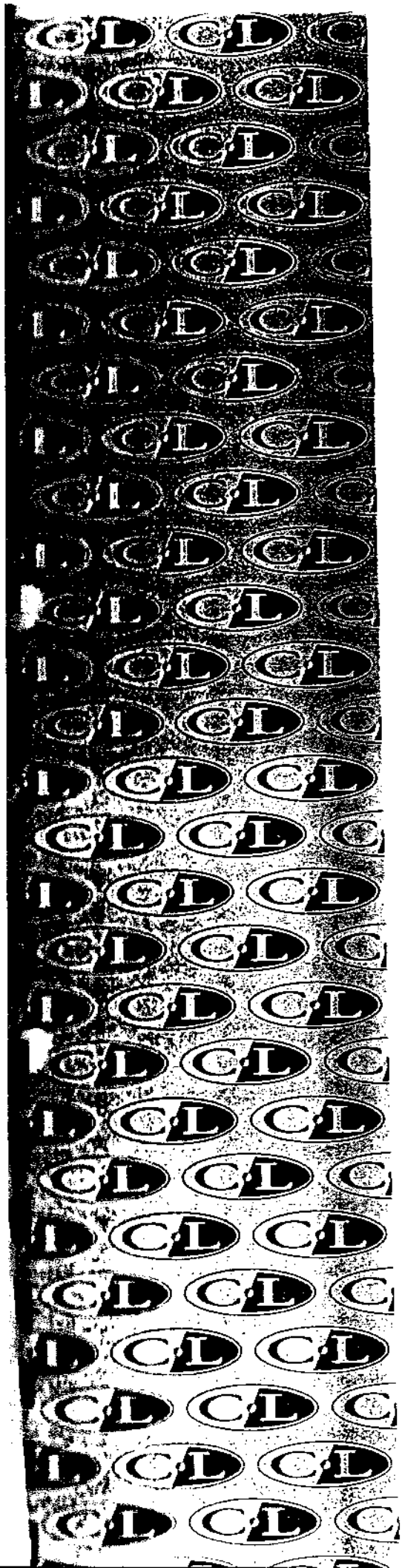
2.2 Fencing

The perimeter of the area to be excavated will be fenced with a 1.2 metre high stockproof fence on the line shown on the Site Preparation Plan. The fence will be constructed of sheep netting and topped with a single strand of barbed wire. The fence will have notices showing "Danger Excavations - Keep out" along its length at strategic locations. The fence will link in to the existing site boundary fence on Nant y Gwyddon Site. The fence will be maintained intact for the duration of Site working and will be removed when a good vegetative cover is established by agreement with the Planning Authority.

2.3 Watercourses/Water Treatment Area

The excavation of shale from the Gelli Spoil Heap will not directly affect the line of the Nant y Gwyddon stream. The access to the spoil heap has been designed at the watershed of the spoil heap perimeter ditch. The crossing point will be arranged such that no water contaminated with suspended solids is discharged to the spoil heap perimeter ditch. All water contaminated with suspended solids will be treated at the Water Treatment Area before it is discharged to any watercourse.

A lagoon will be constructed in the location shown for the Water Treatment Area on the Site Preparation Plan. The lagoon will be excavated to a basal level of 303m AOD. It will be 10 metres by 20 metres at the normal water level of 304m AOD and will have a surge capacity to allow surcharging of the normal overflow to a maximum of 305m AOD before a storm water overflow operates. The sides will be cut no steeper than 1 in 1.5. The normal discharge will consist of a floating head connected by a flexible hose to a 100mm diameter pipe set at 304m AOD The discharge pipe will be fitted with a valve so that the rate of discharge of the lagoon can be regulated. The floating head will be fitted with a baffle plate



CL Associates

EXCAVATION OF GELLI SPOIL HEAP

DETAILED WORKING SCHEME

Carried out for : Rhondda Waste Disposal Limited

October 1998

Report No : 3077-7

9

RHONDDA WASTE DISPOSAL LIMITED

Gelli Spoil Tip – Supply of Engineering Material to Nant y Gwyddon Landfill

Addendum to Supplementary Information for Planning Application

Prepared by

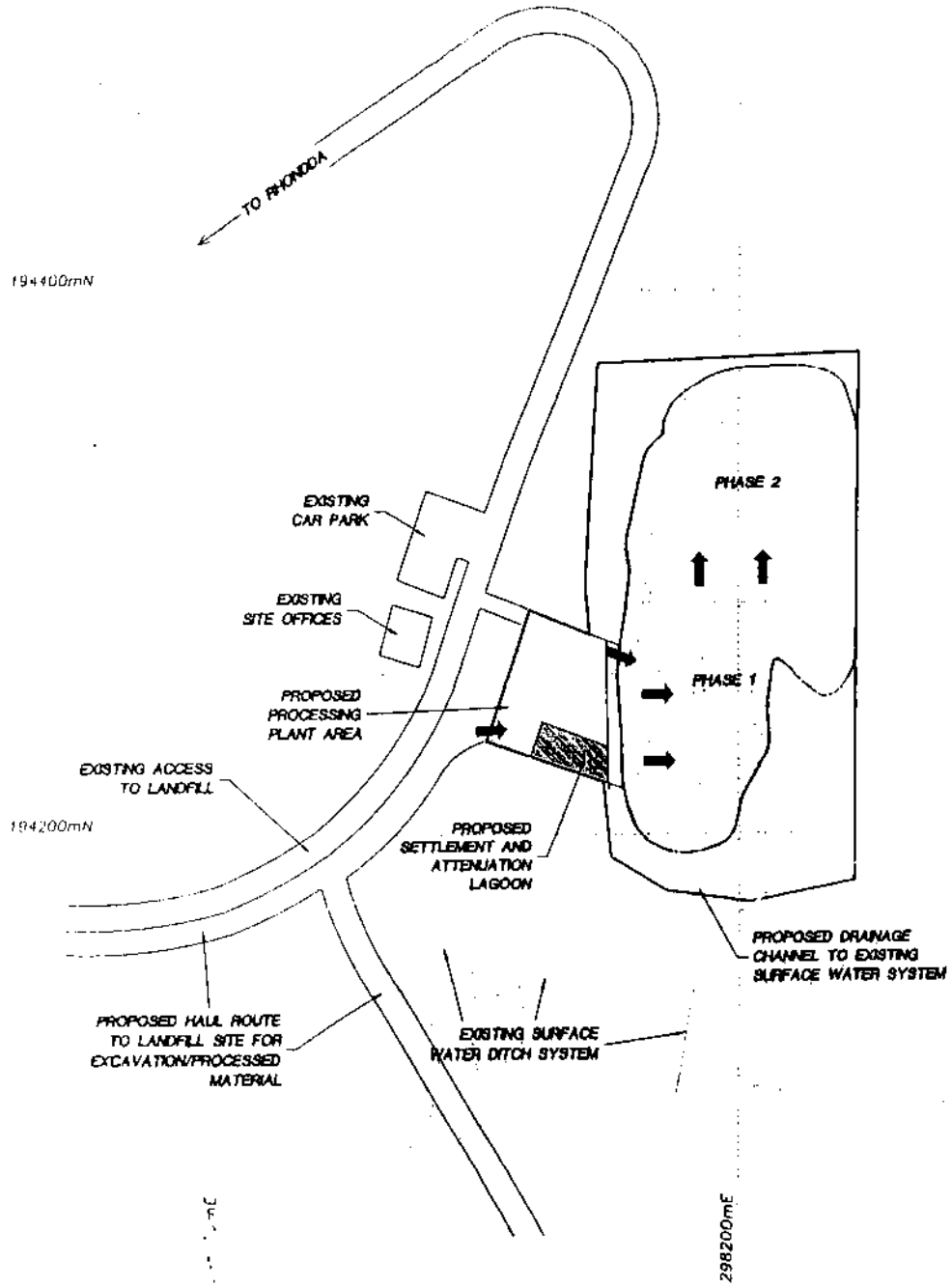
SECOR Limited
1 Kelso Place
Upper Bristol Road
Bath
BA1 3AU

September 1998

so that any oil intercepted by the lagoon is retained until it can be removed . The lagoon will be fitted with a 300 mm diameter dip pipe with its invert level at 305 m AOD which will act as a storm water discharge. The lagoon will be monitored for build up of deposited solids and these will be removed before they exceed 0.5 metres in depth. During the removal of the accumulated solids the floating head will be raised out of the water so that no discharge from the lagoon can take place until the disturbed water has settled. The size of lagoon proposed in the Water Treatment Area will be adequate for Phase 1. A stock of polyelectrolyte flocculant will kept on site in case difficulty is encountered settling the suspended solids. The performance of the water treatment area will be monitored during Phase 1 by taking samples of the treated water and assessing the pH and suspended solids levels. It is anticipated that the lagoon may well be sufficient for treating the water from Phase 2. This will be assessed based on its performance during Phase 1. If a further lagoon is required for Phase 2 this will be constructed on Phase 1 in the location shown on Drawing No. 3077/7/3 to a similar specification to that for the existing settlement lagoon.

The lagoons will be fenced with a 1 metre high fence comprising three strands of barbed wire on 1.2 metre posts and will be provided with a lifebuoy. The outlet from the underflow and the storm water overflow will be carried in separate channels to the perimeter ditch at the toe of the Gelli Tip as shown on the Site Preparation Plan (Drawing No. 3077/7/1). The channels will be cut in the existing ground surface and lined using concrete flags set on a concrete base 300 mm wide to prevent erosion.

Uncontaminated water at the top of the spoil heaps will be directed away from the excavation by the installation of interceptor ditches as shown on the phasing plans (Drawings No. 3077/7/2 and 3077/7/3). These ditches will be 300 mm deep and 300 mm wide at the base and will have sides cut at 1 in 1.



EXCAVATION AREA

DIRECTION OF WORKING

PROPOSED ACCESS TO EXCAVATION AREA

PROPOSED ACCESS TO PLANNING APPLICATION AREA

RHONDDA WASTE DISPOSAL LTD

Site: NANT-Y-GWYDDON LANDFILL

Project: GELLI TIP

Drawing: **Proposed Development**

Date: OCTOBER 1998

Drawing No: NG2

Scale: 1:2000

Revision 0 Oct 1998 NP 44.158.001 NGDTPDO 48/

SECOR
1 KELSO PL
UPPER BRISTOL R
BATH, BA1
TEL: 01225 318
FAX: 01225 318

4. DRAINAGE

Details of the temporary drainage works to be implemented during extraction operations are detailed within Section 3 of the Supplementary Information document submitted on 21 September 1998.

The proposed attenuation and settlement lagoon would be located within the area shown on Drawing Nos. NG2a and NG2b. All water draining from the excavation area would be directed to the lagoon by means of temporary drainage grips and channels. Within the lagoon, water run-off would be attenuated and settled to control off site flows to the satisfaction of the Environment Agency.

The drainage channel from the lagoon to the existing surface water network, see Drawing Nos. NG2a and NG2b, would be lined where scour of the channel is considered likely to occur. The extent and nature of lining works required would be agreed with the Environment Agency prior to the surface water system being utilised.

SECOR

Rhondda Waste Disposal Limited

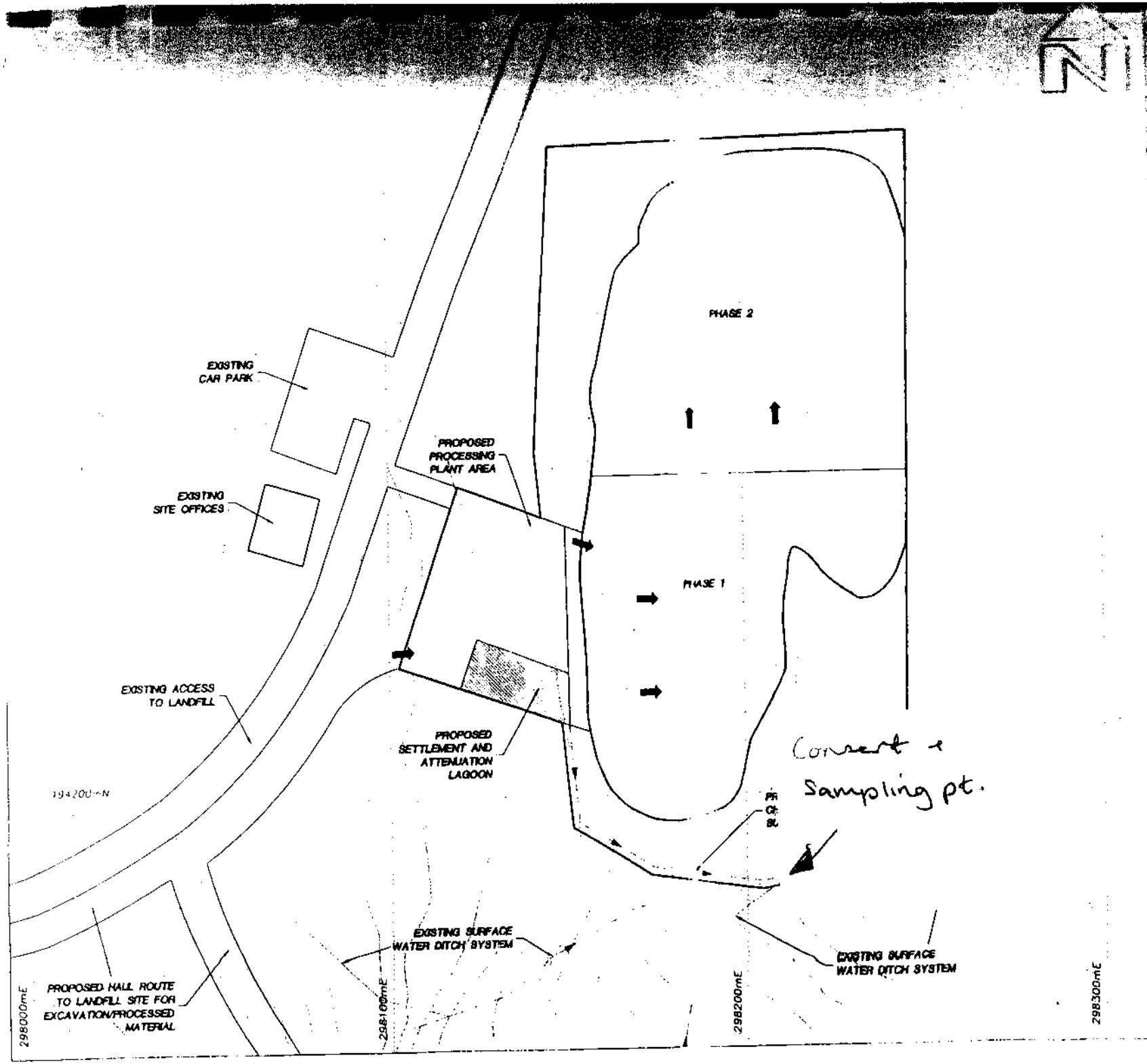
Gelli Spoil Tip – Supply of Engineering Material to Nant y Gwyddon Landfill

Supplementary Information for Planning Application

Prepared by

SECOR Limited
Wheeley Ridge
Wheeley Road
Alvechurch
Worcs
B48 7DD

September 1998



RHONDDA WASTE DISPOSAL LTD.

Site: NANT-Y-GWYDDON LANDFILL

Project: GELLI TIP

Drawing: Proposed Development

Date: OCTOBER 1998

Drawing No: NG2b

Scale: 1:1000

Revision 0 Oct 1998 NP 4A(58.001 NGGTP020 4B/DA

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Upon completion of the extraction works, permanent a drainage ditch would be constructed along the base of the restoration slope, which would drain to the existing surface water drainage system.

The proposed layout of site drainage is shown on Drawing No. NG 2.

3.0 DRAINAGE

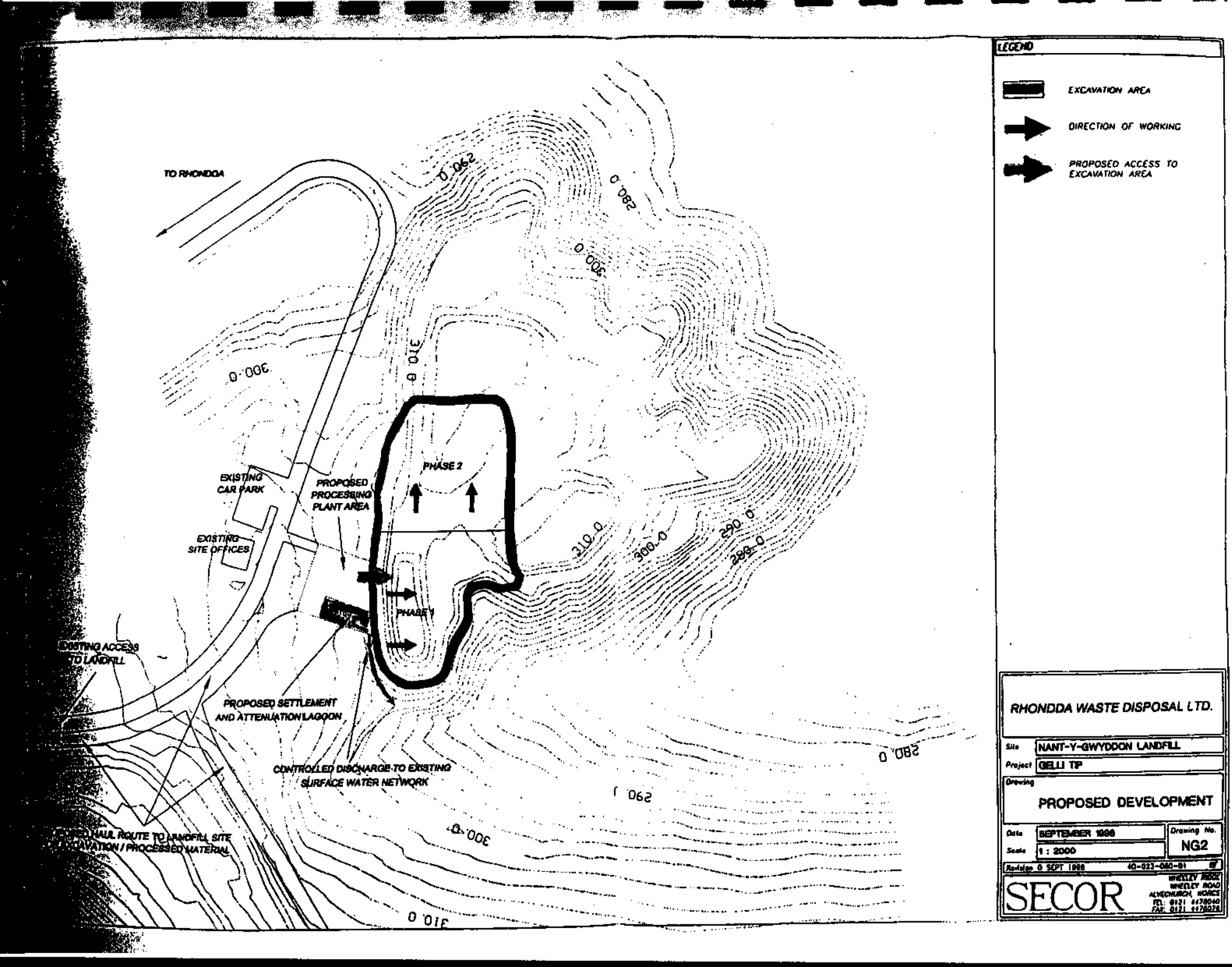
To ensure satisfactory drainage of the site during the extraction operations, the area of the tip to be removed would be excavated to ensure that falls towards the south are maintained at all times such that water would not pond in the working area. During the extraction phases surface water would drain, via a settlement and attenuation lagoon to the existing surface water ditch which in turn drains to the Nant-y-Gwyddon stream.

In order to minimise the amount of water draining into the site, temporary drainage works would be undertaken to ensure that run-off from adjacent parts of the tip, into the working area, was minimised. Accordingly, during Phase 1, a cut off drain would be installed to the north of the working area in order to limit the catchment of the area. Clean water collecting in this drain would be led to the Nant-y-Gwyddon stream and would by-pass the workings.

Rainfall collecting in the working area would drain across the floor and would be collected in a surface drain which would discharge in to a settlement and attenuation lagoon. The lagoon would be designed in accordance with the engineering principles described in the NCB publication "Technical Management of Water in the Coal Mining Industry". The drainage management techniques described in this document have been formulated with specific regard to colliery sites and would be directly relevant, therefore, to the application site.

Using the rational formula to calculate run-off intensity from the excavation area, it is considered that a 600 m^2 settlement lagoon would require almost 500 m^3 of storage in order to be able to attenuate intense rainfall events whilst maintaining a residence time within the lagoon sufficient to ensure efficient settlement of fines entrained within the run off.

2.5b Flocculant Details


LEGEND
EXCAVATION AREA
DIRECTION OF WORKING
PROPOSED ACCESS TO EXCAVATION AREA
TO RHONDDA
EXISTING CAR PARK
PROPOSED PROCESSING PLANT AREA
EXISTING SITE OFFICES
PHASE 2
PHASE 1
EXISTING ACCESS TO LANDFILL
PROPOSED SETTLEMENT AND ATTENUATION LAGOON
CONTROLLED DISCHARGE TO EXISTING SURFACE WATER NETWORK
HAUL ROUTE TO LANDFILL SITE
EXCAVATION / PROCESSED MATERIAL
280.0
290.0
300.0
310.0
RHONDDA WASTE DISPOSAL LTD.
Site NANT-Y-GWYDDON LANDFILL
Project GELLI TIP
Drawing PROPOSED DEVELOPMENT
Date SEPTEMBER 1998
Drawing No. NG2
Scale 1 : 2000
Revision 0 SEPT 1998
40-023-060-01
SECOR
WHEELEY ROAD
WHEELEY ROAD
ALVECHURCH, WORCS
TEL: 0121 4478040
FAX: 0121 4478076

8. EXPOSURE CONTROLS/PERSONAL PROTECTION :

Respiratory protection	Not normally required
Protective equipment	gloves advisable
Special equipment	None

9. PHYSICAL AND CHEMICAL PROPERTIES :

Appearance	Solid briquette, Yellow Colour - 'A' Type Green Colour - 'C' Type Pink Colour - 'N' Type
Odour	Slight ammoniacal
pH	(1% Solution) = Circa 9.0
Boiling point	Not applicable
Flash point	Not applicable

10. STABILITY AND REACTIVITY :

Stability	Stable
Conditions to avoid	None
Incompatibility	None under normal conditions
Hazardous decomposition products	Ultimate thermal decomposition may yield ammonia and oxides of carbon and nitrogen.

11. TOXICOLOGICAL INFORMATION : Essentially low toxicity acute LD_{50} >5 g/Kg (rat)

12. ECOLOGICAL INFORMATION : Estimated LC50 bluegill sunfish, 96 hour >100 mg/L;trout, 96 hour >100 mg/L

13. DISPOSAL CONSIDERATIONS : Incinerate or landfill

14. TRANSPORT INFORMATION : Not regulated

15. REGULATORY INFORMATION : Not regulated

16. OTHER INFORMATION :

ISSUE 8049/B

SIGNED ..... DATE 25 SEPT 93

Ashland UK

DREW INDUSTRIAL DIVISION

ALPRETON TRADING ESTATE
SOMERCOTES
DERBYSHIRE
DE55 4LR
Telephone: 01773 604321
Fax: 01773 606901

SAFETY DATA SHEET

1. IDENTIFICATION OF SUBSTANCE/PREPARATION : Decabloc A1, A2, A3, A4, A7 C2, N1. A1L, A2L, A3L, A4L, A7L, C2L, N1L

2. COMPOSITION/INFORMATION ON INGREDIENTS :

Substance	Concentration	Health Effect
Acrylamide Polymer	-	-
Sodium Carbonate	25 - 50%	Xi - irritating to eyes

3. HAZARDS IDENTIFICATION : Irritating to eyes
Prolonged exposure may cause irritation to skin

4. FIRST AID MEASURES :

Skin and Eyes	Wash eyes with copious amounts of water for 15 minutes Wash skin with soap and water
Ingestion	Give water to drink
Inhalation	Not applicable

5. FIRE FIGHTING MEASURES :

Extinguishing media	Water, dry foam or CO_2
Special protective equipment	None required
Special hazards	None expected

6. ACCIDENTAL RELEASE MEASURES : Shovel up and place in waste disposal container. Note that spills are very slippery when wet. Flush with copious amounts of water and add inert absorbant (e.g. Sand).

7. HANDLING AND STORAGE :

Ventilation	Store in ventilated area
Precaution	Store under dry conditions

Ashland UK

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DECABLOC® A2L Anionic flocculant briquette

Use

DECABLOC A2L is highly effective as a flocculating agent for raw water and industrial waste water clarification. This polymer has found wide usage in many industrial processes where rapid and complete liquid/solids separation is desired.

Features

DECABLOC A2L briquette is a solid, high molecular weight, low-medium anionic polyelectrolyte, suitable for use in many diverse areas

Appearance	: yellow coloured briquettes
Dimensions	: 16x16x8 cm
Weight	: approx. 3 kg/briquette
Flash Point	: none

These data are to be seen as typical values and should not be considered as specifications.

Feeding

DECABLOC A2L briquettes are simple to use on small applications where conventional flocculation treatment would be impractical and uneconomical. The briquettes are simply placed in a mesh cage in the water flow, thereby eliminating costs for dosing equipment.
Feeding rate will be affected by physical parameters like flow, temperature and available block surface. Your Drew representative will assist you in finding the most practical way of applying the product.

Handling precautions

DECABLOC A2L should be stored in a cool, dry place. Wear suitable gloves and use dustproof goggles when handling the product.
In case of spillage the floor may become slippery. Clean-up procedure: scoop up into a suitable container and wash remainder away with plenty of water (large quantities should not be flushed into the sewer). If the floor remains slippery, clean the area with an industrial detergent.
Before use review the Material Safety Data Sheet for additional information.

Transport classification

A.D.R. : not classified
IMDG : not classified
U.N.nr : not classified

Labelling for handling

Symbol : Xi, Irritant
R-phrases : 36, Irritating to eyes and skin
S-phrases : 22/26

Packaging

DECABLOC A2L is packed in cartons containing 8 briquettes, nett weight approximately 25kg per carton.

Revision 0, 9802

Ashland UK

DREW INDUSTRIAL DIVISION

ALFRETON TRADING ESTATE
SOMERCOTES
DERBYSHIRE
DE55 4LR
Telephone: 01773 604321
Fax: 01773 606901

DECABLOC® N1L Nonionic flocculant briquette

Use

DECABLOC N1L is highly effective as a flocculating agent for raw water and industrial waste water clarification. This polymer has found wide usage in many industrial processes where rapid and complete liquid/solids separation is desired.

Features

DECABLOC N1L briquette is a solid, high molecular weight, nonionic polyelectrolyte, suitable for use in many diverse areas. This product is effective over a wide pH range.

Appearance	: pink coloured briquettes
Dimensions	: 16x16x8 cm
Weight	: approx. 3 kg/briquette
Flash Point	: none

These data are to be seen as typical values and should not be considered as specifications.

Feeding

DECABLOC N1L briquettes are simple to use on small applications where conventional flocculation treatment would be impractical and uneconomical. The briquettes are simply placed in a mesh cage in the water flow, thereby eliminating costs for dosing equipment.
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A.D.R.	: not classified
IMDG	: not classified
U.N.nr	: not classified

Labelling for handling

Symbol	: Xi, Irritant
R-phrases	: 36, Irritating to eyes and skin
S-phrases	: 22/26

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Revision 0, 9802