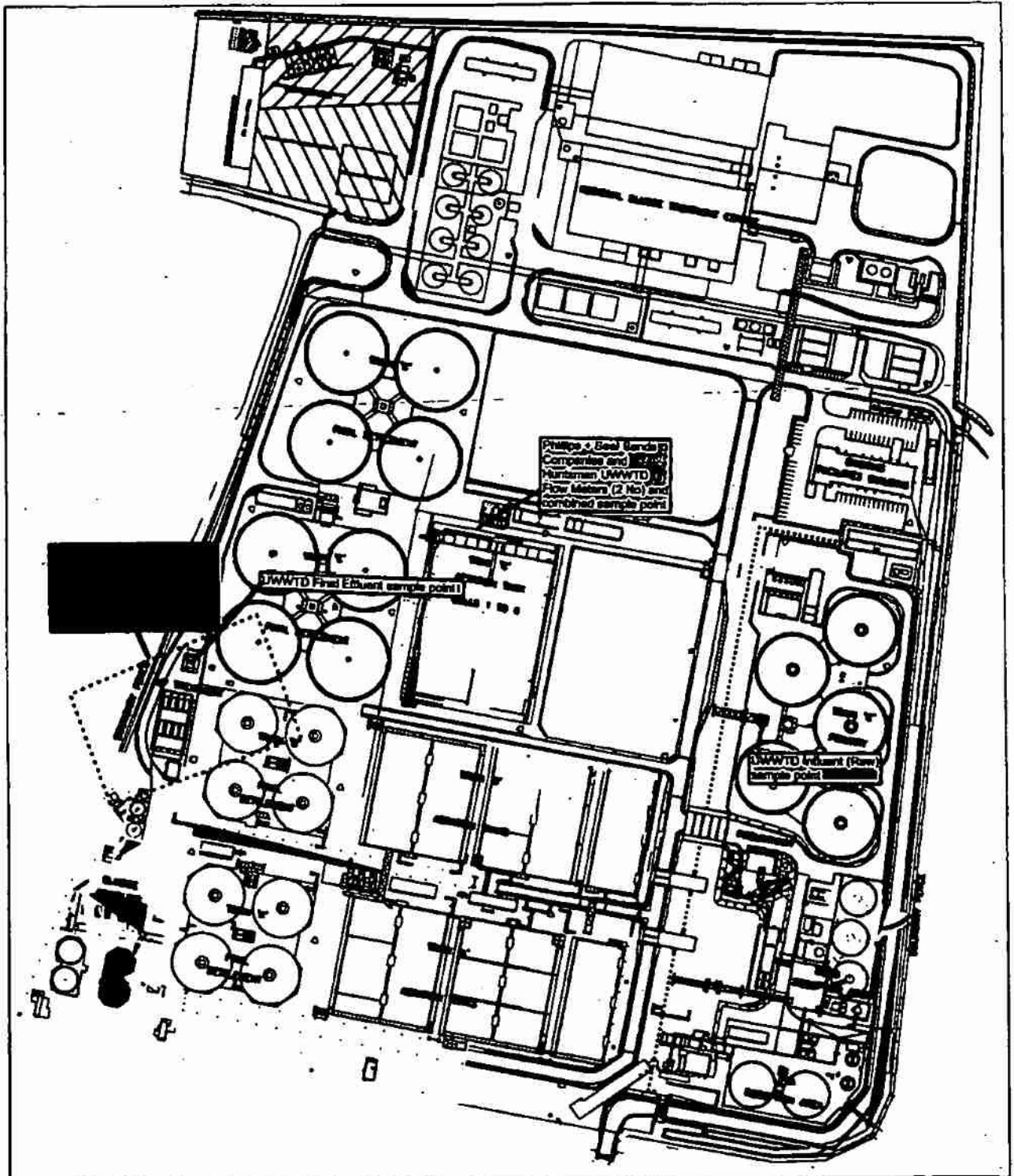


Site Plan (d1)

Northumbrian Water Limited
Bran Sands Municipal Sewage Treatment Works

UWWTR Sample Points



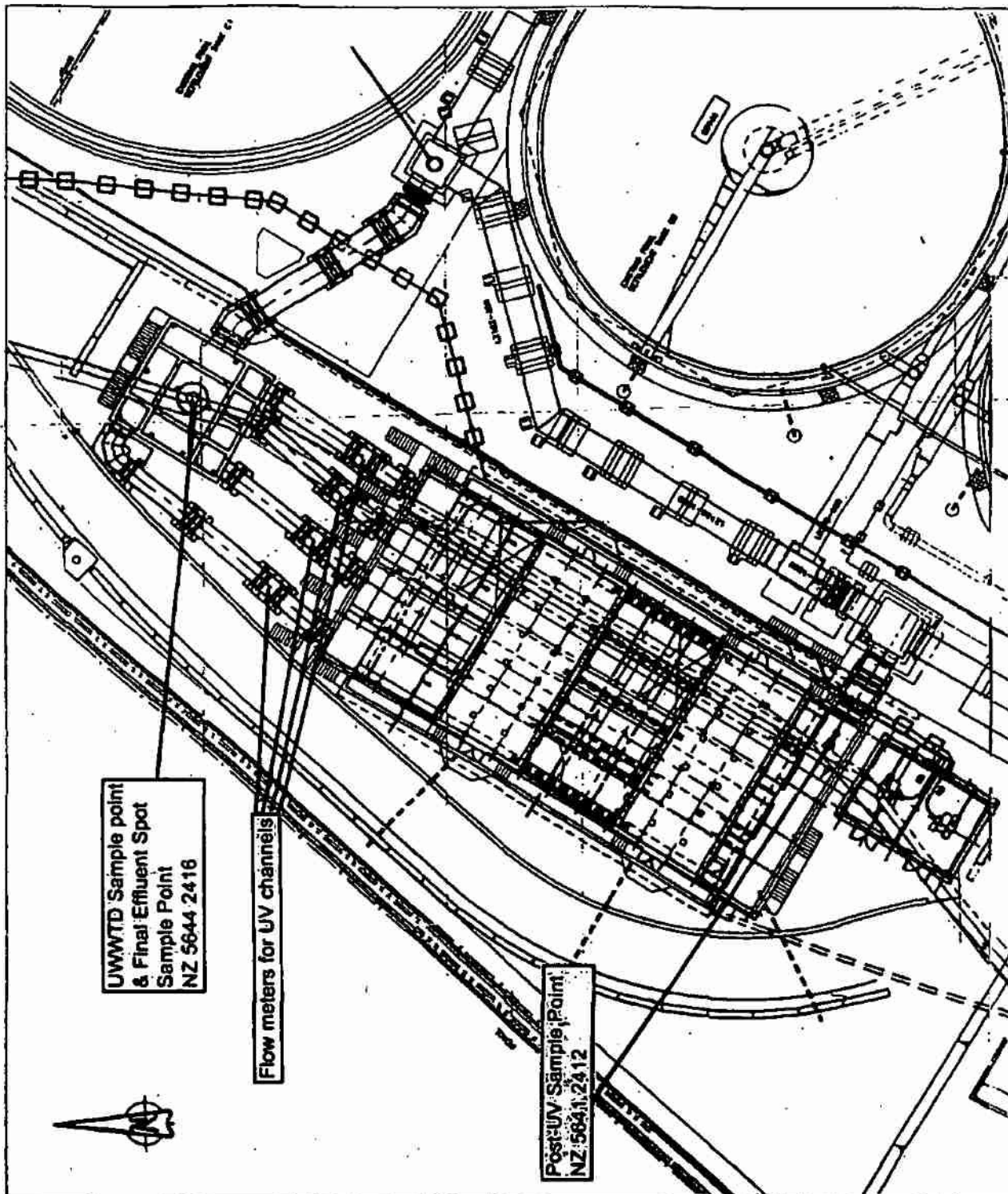
Not to Scale - illustrative only

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Site Plan (f)

Northumbrian Water Limited
Bran Sands Municipal Sewage Treatment Works

UWWTR & Final Effluent & UV Sample Points



Not to Scale – illustrative only

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CONSENT NO. 254/1920

THE WATER RESOURCES ACT 1991
(As amended by the Environment Act 1995)

SECTION 88 - SCHEDULE 10

**NOTICE OF MODIFICATION OF CONSENT TO
DISCHARGE**

To: **NORTHUMBRIAN WATER LIMITED**
ABBEY ROAD, PITY ME, DURHAM, DH1 1FJ

[For the attention of Mr.A Snape, Environment Agency Liaison Advisor]

Notice is hereby given that **Consent Number 254/1920**, issued on the 28th of March 2006, and effective from 31st March 2006, as amended by any relevant Modifications and Variations, in respect of making various Discharges of Sewage and Trade Effluent from the **Bran Sands Municipal Sewage Treatment Plant** at Bran Sands Effluent Treatment Works, Bran Sands, Tees Dock Road, Middlesbrough, is hereby **Modified**, as follows:-

This Modification applies for the period from the 29th January 2007 up to and including the 30th January 2007.

For the above specified period only, Section 5. – UV Disinfection (254/1920.05) – does not apply.

[With effect from the 31st January 2007, Section 5. UV Disinfection (254/1920.05) reapplies in its entirety]

NOTES

1. All other conditions, pages, schedules, and annexes as included in Consent Number 254/1920, dated the 28th March 2006, and as amended by any relevant Modifications and Variations, remain unaltered.
2. The effect of this Modification is to extend the removal of the requirement for "UV Disinfection" for a further two days only. This further relaxation is to allow for the two day delay in starting the pumping equipment installation work.

[Continued on Page 2 →]

CONSENT NO. 254/1920

**THE WATER RESOURCES ACT 1991
(As amended by the Environment Act 1995)**

MODIFICATION OF CONSENT TO DISCHARGE

NOTES (cont'd)

3. If the Applicant or Consent Holder considers that the conditions imposed by this Modification are unreasonable they may, within three months of the date given below, appeal to the Secretary of State DEFRA, Environment Appeals Administration, Environment Appeals Team, The Planning Inspectorate, Room 4/12 Eagle Wing, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6PN.

Subject to the provisions of Paragraphs 7. & 8. of Schedule 10 of the Water Resources Act 1991, as amended by the Environment Act 1995, no notice shall be served by the Agency, altering the Modification made by this notice, without the agreement in writing of the Consent Holder, during a period of four years from the date this notice is served

Signed  Date 29th January 2007

**D. SHEPHERD, REGULATORY WATER QUALITY TEAM LEADER
ON BEHALF OF THE ENVIRONMENT AGENCY, NORTH EAST REGION**

CONSENT NO. 254/1920

**THE WATER RESOURCES ACT 1991
(As amended by the Environment Act 1995)**

SECTION 88 - SCHEDULE 10

**NOTICE OF MODIFICATION OF CONSENT TO
DISCHARGE**

**To: NORTHUMBRIAN WATER LIMITED
ABBAY ROAD, PITY ME, DURHAM, DH1 1FJ**

[For the attention of Mr.A Snape, Environment Agency Liaison Advisor]

Notice is hereby given that Consent Number 254/1920, issued on the 28th of March 2006, and effective from 31st March 2006, as amended by any relevant Modifications and Variations, in respect of making various Discharges of Sewage and Trade Effluent from the Bran Sands Municipal Sewage Treatment Plant at Bran Sands Effluent Treatment Works, Bran Sands, Tees Dock Road, Middlesbrough, is hereby Modified, as follows:-

This Modification applies for the period from the 11th January 2007 up to and including the 28th January 2007.

For the above specified period only, Section 5. – UV Disinfection (254/1920.05) – does not apply.

[With effect from the 29th January 2007, Section 5. UV Disinfection (254/1920.05) reapplies in its entirety]

NOTES

- 1. All other conditions, pages, schedules, and annexes as included in Consent Number 254/1920, dated the 28th March 2006, and as amended by any relevant Modifications and Variations, remain unaltered.**
- 2. The effect of this Modification is to remove the requirement for "UV Disinfection" for a limited period only. This relaxation is to allow the installation of cooling water pumping equipment in the UV channel to provide quench water for the Bran Sands Industrial Effluent treatment process.**

(Continued on Page 2 →)

CONSENT NO. 254/1920

**THE WATER RESOURCES ACT 1991
(As amended by the Environment Act 1995)**

MODIFICATION OF CONSENT TO DISCHARGE

NOTES (cont'd)

3. If the Applicant or Consent Holder considers that the conditions imposed by this Modification are unreasonable they may, within three months of the date given below, appeal to the Secretary of State DEFRA, Environment Appeals Administration, Environment Appeals Team, The Planning Inspectorate, Room 4/12 Eagle Wing, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6PN.

Subject to the provisions of Paragraphs 7. & 8. of Schedule 10 of the Water Resources Act 1991, as amended by the Environment Act 1995, no notice shall be served by the Agency, altering the Modification made by this notice, without the agreement in writing of the Consent Holder, during a period of four years from the date this notice is served

Signed  Date 3rd January 2007

**D. SHEPHERD, REGULATORY WATER QUALITY TEAM LEADER
ON BEHALF OF THE ENVIRONMENT AGENCY, NORTH EAST REGION**

CONSENT NO. 254/1920

**THE WATER RESOURCES ACT 1991
(As amended by the Environment Act 1995)**

SECTION 88 - SCHEDULE 10

**NOTICE OF VARIATION OF CONSENT TO
DISCHARGE**

**To: NORTHUMBRIAN WATER LIMITED
ABBEY ROAD, PITY ME, DURHAM, DH1 1FJ**

[For the attention of Mr.A Snape, Environment Agency Liaison Advisor]

Notice is hereby given that Consent Number 254/1920, issued on the 28th of March 2006, and effective from 31st March 2006, as amended by any relevant Modifications and Variations, in respect of making various Discharges of Sewage and Trade Effluent from the **Bran Sands Municipal Sewage Treatment Plant** at Bran Sands Effluent Treatment Works, Bran Sands, Tees Dock Road, Middlesbrough, is Varied with effect from the 1st of December 2006, as follows:-

This Variation applies for the period from the 1st December 2006 up to and including the 28th February 2007.

Section 5.

UV DISINFECTION (254/1920.05)

Conditions applicable to the UV Disinfection of Secondary Treated Sewage Effluent

Condition 5.3.1, which relates to the Composition of the Discharge, shall now read :

5.3 Composition

- 5.3.1 Subject to paragraph 5.3.2 below, the Discharge shall not contain more than one hundred milligrammes per litre (100 mg/l) of suspended solids (measured after drying at 105 °C);

[Conditions 5.3.2 and 5.3.3 remain unchanged]

NOTES

- 1: All other conditions, pages, schedules, and annexes as included in Consent Number 254/1920, dated the 28th March 2006, and as amended by any relevant Modifications and Variations, remain unaltered.

[Continued on Page 2 →]

CONSENT NO. 254/1920

**THE WATER RESOURCES ACT 1991
(As amended by the Environment Act 1995)**

VARIATION OF CONSENT TO DISCHARGE

NOTES (cont'd)

2. The effect of this Variation is to relax the suspended solids limit for a limited period only. This relaxation is to allow for anti-corrosion work to be carried out on equipment in four of the final tanks in Train C.
3. If the Applicant or Consent Holder considers that the conditions imposed by this Variation are unreasonable they may, within three months of the date given below, appeal to the Secretary of State DEFRA, Environment Appeals Administration, Environment Appeals Team, The Planning Inspectorate, Room 4/12 Eagle Wing, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6PN.

Subject to the provisions of Paragraphs 7. & 8. of Schedule 10 of the Water Resources Act 1991, as amended by the Environment Act 1995, no notice shall be served by the Agency, altering the Variation made by this notice, without the agreement in writing of the Consent Holder, during a period of four years from the date this notice is served

Signed  Date 23rd November 2006

**D. SHEPHERD, REGULATORY WATER QUALITY TEAM LEADER
ON BEHALF OF THE ENVIRONMENT AGENCY, NORTH EAST REGION**

CONSENT NO. 254/1920

**THE WATER RESOURCES ACT 1991
(As amended by the Environment Act 1995)**

SECTION 88 - SCHEDULE 10

**NOTICE OF VARIATION OF CONSENT TO
DISCHARGE**

**To: NORTHUMBRIAN WATER LIMITED
ABBEY ROAD, PITY ME, DURHAM, DH1 1FJ**

[For the attention of Mr.A Snape, Environment Agency Liaison Advisor]

Notice is hereby given that Consent Number 254/1920, issued on the 28th of March 2006, and effective from 31st March 2006, as amended by any relevant Modifications and Variations, in respect of making various Discharges of Sewage and Trade Effluent from the Bran Sands Municipal Sewage Treatment Plant at Bran Sands Effluent Treatment Works, Bran Sands, Tees Dock Road, Middlesbrough, is hereby Varied, as follows:-

This Variation applies for the period from the date of issue up to and including the 10th September 2006.

Section 1.

SECONDARY TREATED SEWAGE EFFLUENT (254/1920.01)

Condition 1.7.4 of 1.7, which relates to the Composition of the Discharge, shall now read :

1.7 Composition

1.7.4 Subject to paragraph 1.7.5 below, the Discharge shall not contain more than sixty milligrams per litre (60.0 mg/l) of ammoniacal nitrogen (expressed as N).

[Conditions 1.7.1, 1.7.2, 1.7.3 and 1.7.5 remain unchanged]

NOTES

1. All other conditions, pages, schedules, and annexes as included in Consent Number 254/1920, dated the 28th March 2006, and as amended by any relevant Modifications and Variations, remain unaltered.
2. The effect of this Variation is to relax the Ammonia limit for a limited period only, to allow for emergency repairs to two of the five primary settlement tanks [PSTs No. 3 and No. 4].

CONSENT NO. 254/1920

**THE WATER RESOURCES ACT 1991
(As amended by the Environment Act 1995)**

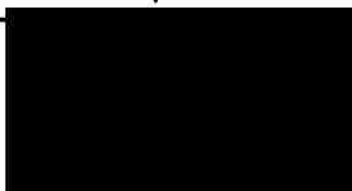
VARIATION OF CONSENT TO DISCHARGE

NOTES (cont'd)

3. If the Applicant or Consent Holder considers that the conditions imposed by this Variation are unreasonable, they may, within three months of the date given below, appeal to the Secretary of State DEFRA, Environment Appeals Administration, Environment Appeals Team, The Planning Inspectorate, Room 4/12 Eagle Wing, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6PN.

Subject to the provisions of Paragraphs 7. & 8. of Schedule 10 of the Water Resources Act 1991, as amended by the Environment Act 1995, no notice shall be served by the Agency, altering the Variation made by this notice, without the agreement in writing of the Consent Holder, during a period of four years from the date this notice is served

Signed



..... Date 8th August 2006

**D. SHEPHERD, REGULATORY WATER QUALITY TEAM LEADER
ON BEHALF OF THE ENVIRONMENT AGENCY, NORTH EAST REGION**

CONSENT NO. 254/1920

**THE WATER RESOURCES ACT 1991
(As amended by the Environment Act 1995)**

SECTION 88 - SCHEDULE 10

**NOTICE OF VARIATION OF CONSENT TO
DISCHARGE**

**To: NORTHUMBRIAN WATER LIMITED
ABBEY ROAD, PITY ME, DURHAM, DH1 1FJ**

[For the attention of Mr.A Snape, Environment Agency Liaison Advisor]

Notice is hereby given that Consent Number 254/1920, issued on the 28th of March 2006, and effective from 31st March 2006, as amended by any relevant Modifications and Variations, in respect of making various Discharges of Sewage and Trade Effluent from the Bran Sands Municipal Sewage Treatment Plant at Bran Sands Effluent Treatment Works, Bran Sands, Tees Dock Road, Middlesbrough, is Varied with effect from the 1st of August 2006, as follows:-

This Variation applies for the period from the 1st August 2006 up to and including the 30th November 2006.

Section 5.

UV DISINFECTION (254/1920.05)

Conditions applicable to the UV Disinfection of Secondary Treated Sewage Effluent

Condition 5.3.1, which relates to the Composition of the Discharge, shall now read :

5.3 Composition

5.3.1 Subject to paragraph 5.3.2 below, the Discharge shall not contain more than one hundred and fifty milligrams per litre (150 mg/l) of suspended solids (measured after drying at 105 °C);

[Conditions 5.3.2 and 5.3.3 remain unchanged]

NOTES

1. All other conditions, pages, schedules, and annexes as included in Consent Number 254/1920, dated the 28th March 2006, and as amended by any relevant Modifications and Variations, remain unaltered.

[Continued on Page 2 →]

CONSENT NO. 254/1920

**THE WATER RESOURCES ACT 1991
(As amended by the Environment Act 1995)**

VARIATION OF CONSENT TO DISCHARGE

NOTES (cont'd)

2. The effect of this Variation is to relax the suspended solids limit for a limited period only. This relaxation is to allow the final tanks in Train C to be drained, one at a time, for scum board installation and tie bar replacement..
3. If the Applicant or Consent Holder considers that the conditions imposed by this Variation are unreasonable they may, within three months of the date given below, appeal to the Secretary of State DEFRA, Environment Appeals Administration, Environment Appeals Team, The Planning Inspectorate, Room 4/12 Eagle Wing, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6PN.

Subject to the provisions of Paragraphs 7. & 8. of Schedule 10 of the Water Resources Act 1991, as amended by the Environment Act 1995, no notice shall be served by the Agency, altering the Variation made by this notice, without the agreement in writing of the Consent Holder, during a period of four years from the date this notice is served

Signed  Date 31st July 2006

**D. SHEPHERD, REGULATORY WATER QUALITY TEAM LEADER
ON BEHALF OF THE ENVIRONMENT AGENCY, NORTH EAST REGION**

creating a better place



**Environment
Agency**

Mr Allan Snape
Northumbrian Water Limited
Leat House
Pattinson Road
District 15
Washington
Tyne & Wear
NE38 8LB

Our ref: 254/1920

Your ref:

Date: 31 July 2008

Dear Mr Snape

**WATER RESOURCES ACT 1991 SCHEDULE 10
VARIATION OF CONSENT TO DISCHARGE AT - BRAN SANDS MUNICIPAL SEWAGE
TREATMENT PLANT
CONSENT NUMBER: - 254/1920**

I enclose the notice of variation of consent to discharge Sewage and Trade Effluent (ref. 254/1920) from the Bran Sands Municipal Sewage Treatment Plant.

Under paragraph 2 of Section 91 of the Water Resources Act 1991, you may appeal to the Secretary of State for the Environment if you consider any of the conditions of this consent to be unreasonable. Any appeal should be sent to: -

Environmental Appeals Administration
The Planning Inspectorate
Room 215
Regus Building
1 Friary
Temple Quay
Bristol
BS1 6EA

If you wish in the future to apply to revoke (cancel) or vary (change/amend) the conditions of your consent please contact your local Agency office.

If you require any further information or clarification please contact Neil Madden on 01904 822620.

Yours sincerely


JULIE LILLIE
Authorisations Officer

Enc.



DATE OF ENTRY

INTO REGISTER: 28/03/2006

CONSENT NO. 254/1920

**THE WATER RESOURCES ACT 1991
(As amended by the Environment Act 1995)**

SECTION 88 - SCHEDULE 10

**NOTICE OF MODIFICATION OF CONSENT TO
DISCHARGE**

**To: NORTHUMBRIAN WATER LIMITED
ABBEY ROAD, PITY ME, DURHAM, DH1 1FJ**

[For the attention of Mr.A Snape, Environment Agency Liaison Advisor]

Notice is hereby given that **Consent Number 254/1920**, issued on the 28th of March 2006, and effective from 31st March 2006, as amended by any relevant Modifications and Variations, in respect of making various Discharges of Sewage and Trade Effluent from the **Bran Sands Municipal Sewage Treatment Plant** at Bran Sands Effluent Treatment Works, Bran Sands, Tees Dock Road, Middlesbrough, is **Modified** with effect from the 31st March 2006, as follows:-

This Modification applies for the period from the 31st March 2006 up to and including the 31st July 2006.

Section 5.

UV DISINFECTION (254/1920.05)

Conditions applicable to the UV Disinfection of Secondary Treated Sewage Effluent

Condition 5.3.1, which relates to the Composition of the Discharge, shall now read :

5.3 Composition

5.3.1 Subject to paragraph 5.3.2 below, the Discharge shall not contain more than one hundred and fifty milligrams per litre (150 mg/l) of suspended solids (measured after drying at 105 °C);

[Conditions 5.3.2 and 5.3.3 remain unchanged]

NOTES

1. All other conditions, pages, schedules, and annexes as included in Consent Number 254/1920, dated the 28th March 2006, and as amended by any relevant Modifications and Variations, remain unaltered.

[Continued on Page 2 →]

CONSENT NO. 254/1920

**THE WATER RESOURCES ACT 1991
(As amended by the Environment Act 1995)**

MODIFICATION OF CONSENT TO DISCHARGE

NOTES (cont'd)

2. The effect of this Modification is to relax the suspended solids limit for a limited period only. This relaxation is to allow the final tanks in Train C to be drained, one at a time, for the installation of scum boards to improve final effluent quality.
3. If the Applicant or Consent Holder considers that the conditions imposed by this Modification are unreasonable they may, within three months of the date given below, appeal to the Secretary of State DEFRA, Environment Appeals Administration, Environment Appeals Team, The Planning Inspectorate, Room 4/12 Eagle Wing, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6PN.

Subject to the provisions of Paragraphs 7. & 8. of Schedule 10 of the Water Resources Act 1991, as amended by the Environment Act 1995, no notice shall be served by the Agency, altering the Modification made by this notice, without the agreement in writing of the Consent Holder, during a period of four years from the date this notice is served

Signed



..... Date 28th March 2008

**D. SHEPHERD, REGULATORY WATER QUALITY TEAM LEADER
ON BEHALF OF THE ENVIRONMENT AGENCY, NORTH EAST REGION**

DATE OF ENTRY
INTO REGISTER: 31.03.2006.

Consent to Discharge

Water Resources Act 1991
(as amended by the Environment Act 1995)

Consent Holder:

Northumbrian Water Limited
Abbey Road
Pity Me
Durham
DH1 5FJ

For the attention of:

Mr A Snape
Environment Agency
Liaison Advisor

Consent to Discharge from:

Bran Sands
Effluent Treatment Works
Municipal Sewage Treatment
Plant
Bran Sands RSTC and ETW
Bran Sands
Tees Dock Road
Middlesbrough
TS6 6UE

Consent Number:

254/1920

Environment Agency

Tyneside House, Skinnerburn Road, Newcastle Business Park, Newcastle upon Tyne, NE4 7AR

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Introduction

This note does not form part of the Consent.

This Consent does not exempt the Consent Holder from obtaining any Consent required by, or from complying with, any other statutory provisions, statutory instruments or bye-laws.

If the Applicant or Consent Holder considers that the conditions of this Consent are unreasonable they may within three months from the giving of the Consent, appeal to the Secretary of State DEFRA, Environment Appeals Administration, Environment Appeals Team, The Planning Inspectorate, Room 4/12 Eagle Wing, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6PN.

The Agency intends to monitor the Discharges and their effect on the receiving environment and may after the statutory period review the Consent as appropriate.

This Consent is issued following a review of consenting requirements for the Bran Sands site and replaces Consent No. 25/04/1630, which is revoked accordingly. A separate Consent will be issued for the Bran Sands Industrial Effluent treatment plant.

Consent History

Detail	Date	Comment
Consent No. QC.25/04/1458	Issued : 24 September 1996	Revoked : 24 August 2000
Consent No. QC.25/04/1468	Issued : 14 April 1997	Revoked : 25 August 2000
Consent No. QR.25/04/1553	Issued : 30 December 1998	Revoked : 25 August 2000
Consent No. 25/04/1630	Issued : 25 August 2000	Revoked : 31 March 2006 [Municipal Sections only]
Consent No. 254/1920	Issued : 28 March 2006	Effective : 31 March 2006

Consent to Discharge
Water Resources Act 1991
Section 88, Schedule 10
(as amended by the
Environment Act 1995)



**ENVIRONMENT
AGENCY**

Consent to Discharge

Consent Number **254/1920**

To:

NORTHUMBRIAN WATER LIMITED

ABBEY ROAD, PITY ME, DURHAM, DH1 5FJ

The Environment Agency ("the Agency") in pursuance of its powers under the Water Resources Act 1991 (as amended by the Environment Act 1995) hereby consents to the making of the following Discharges:

Secondary Treated Sewage Effluent -	(254/1920.01)
Trade Effluent -	(254/1920.08)
Storm Sewage Effluent -	(254/1920.07)
Sewage in an Emergency -	(254/1920.08)

From: **Bran Sands Effluent Treatment Works
Municipal Sewage Treatment Plant**

At: **Bran Sands, Tees Dock Road,
Middlesbrough, TS6 6UE**

To: **The Dabholm Gut, a tributary of the River Tees**

Subject to the conditions set out in this Consent.

Subject to the provisions of Paragraphs 7 and 8 of Schedule 10 of the Water Resources Act 1991, as amended by the Environment Act 1995, 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 on **28th March 2006**
and takes effect on **31st March 2006**

Signed

A rectangular box containing a solid black redaction, covering the signature of the official.

D. SHEPHERD, Regulatory Water Quality Team Leader
On behalf of the Environment Agency, North East Region

Conditions of Consent

1 SECONDARY TREATED SEWAGE EFFLUENT (254/1920.01)

1.1 Works Operation

1.1.1 The works shall be operated and effluent shall be treated in a manner which, so far as reasonably practicable, minimises the polluting effects of the Discharge made from the works on controlled waters.

1.1.2 This condition does not require;

-/ -any higher standard to be achieved in relation to any characteristic of the Discharge which is specifically regulated by Conditions 1.7.1, 1.7.2, 1.7.4, and 1.7.5 than is required by those conditions.

//. Any alteration of the works or a change in the type of treatment used.

1.1.3 As far as is reasonably practicable, the works shall be operated so as to prevent the discharge from containing any significant trace of visible oil or grease.

1.2 Substantial Change

1.2.1 a A discharge shall not be made from the works if it would cause a significant increase in the polluting effects of the discharge on controlled waters as a result of a new or altered discharge of trade effluent into the works.

b A discharge of trade effluent into the works is new if:

/ it is made by the sewerage undertaker and is of a kind not made into the works by the undertaker immediately before the date of effect of this Consent; or

// it is made by a third party and the Discharge is authorised on or after that date.

c A discharge of trade effluent into the works is altered if:

/ it is made by the sewerage undertaker and its composition or quantity changes significantly on or after the date of effect of this consent; or

// it is made by a third party and the alteration of the Discharge is authorised on or after that date.

d An increase in the polluting effects of the Discharge on controlled waters is not significant for the purposes of this condition if it relates to any characteristic of the Discharge which is specifically regulated by....

....Conditions 1.7.1, 1.7.2, 1.7.4, and 1.7.5 of this Consent but it may be significant if it is caused by a change in some other characteristic of the Discharge.

- e For the purposes of this condition, "trade effluent" means:-
- i. any discharge by the sewerage undertaker other than surface water run-off, or domestic sewage from premises connected directly or indirectly to the works,
 - ii. any discharge by a third party which is authorised under Chapter III of Part IV of the Water Industry Act 1991 or which is only accepted as a result of a contract with the sewerage undertaker.

1.3 **Unauthorised Discharges**

1.3.1 A discharge made from the works shall not contain any poisonous, noxious or polluting matter or solid waste matter which is attributable to any unauthorised discharge into the works.

- a A discharge into the works is unauthorised if it is made by a third party and either there is no obligation to receive it or conditions subject to which there is an obligation to receive it are not observed.
- b Nothing in this, or any other, condition of this Consent prevents anyone from relying on any defence available to them under section 87 of the Water Resources Act 1991.

1.4 **Source and Nature**

1.4.1 The Discharge shall be derived from the Bran Sands Effluent Treatment Works, Municipal Effluent Treatment Plant, at Bran Sands, Tees Dock Road, Middlesbrough, TS6 6UE and the nature shall be that of Secondary Treated Sewage Effluent discharged in admixture with Treated Trade Effluent from the Bran Sands Industrial Effluent Treatment Plant.

1.5 **Location**

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

- a discharging via an existing (combined) outlet to the Dabholm Gut, a tributary of the River Tees Estuary;
- b located at a point corresponding to National Grid Reference NZ 5614 2409;
- c shown marked 'Consent Point' in the plans included in this Consent.

1.6 **Volume**

1.6.1 The volume of the Discharge shall not exceed three hundred thousand cubic metres per day (300,000 m³/d).

1.6.2 The dry weather flow of the Discharge shall not exceed one hundred and seventy one thousand one hundred and forty cubic metres per day (171,140 m³/d).

1.6.3 For the purpose of this condition Dry Weather Flow shall mean the average daily flow to the treatment works during seven consecutive days without rain (excluding a period which includes public holidays) following seven days during which the rainfall did not exceed 0.25 millimetres on any one day.

1.7 **Composition**

1.7.1 The Discharge shall not contain more than:-

- a two hundred and fifty milligrams per litre (250 mg/l) of suspended solids (measured after drying at 105°C);
- b two hundred and fifty milligrams per litre (250 mg/l) of biochemical oxygen demand (measured after 5 days at 20°C with nitrification suppressed by the addition of allyl-thiourea);

1.7.2 The pH of the Discharge shall not be less than five (5.0) and not more than nine (9.0),

1.7.3 As far as is reasonably practicable, the works shall be operated so as to prevent the Discharge from containing any significant trace of visible oil or grease.

1.7.4 Subject to paragraph 1.7.5 below, the Discharge shall not contain more than forty milligrams per litre (40.0 mg/l) of ammoniacal nitrogen (expressed as N).

1.7.5 The limit for any of the relevant parameters set out in paragraph 1.7.4 above may be exceeded where, in any series of samples of the Discharge taken at regular but randomised intervals in any period of twelve consecutive months as listed in Column 1 of the 'Look-up table' attached to this consent, no more than the relevant number of samples, as listed in Column 2 of the said table, exceed the applicable limit for that relevant parameter.

1.8 **Flow Measurement**

1.8.1 A continuous flow measurement and recording system, to a specification provided by the Agency, shall be provided and operated to record the total daily volume and instantaneous flow of sewage through the treatment works. An on-site visual display from which instantaneous flow readings can be readily obtained by the Agency shall be provided and operated. The Consent Holder shall hold records of the flow readings.

1.8.2 As soon as practicable after completion of the flow system and subsequently on the expiry of any certificate issued, the Consent Holder shall employ an independent expert to certify that the installation and its quality management system complies with the Agency's specification.

The independent expert shall be accredited to a competency scheme approved by the Agency. A copy of the certificate shall be sent to the Agency and the certifier's report shall be provided to the Agency on request. If a certificate issued for a flow system has no expiry date included, then the certificate shall be deemed to expire five years after the date of issue of the certificate.

1.8.3 The Consent Holder shall produce and maintain a documented quality management system, approved by the independent expert and to the satisfaction of the Agency, specifying procedures for the calibration, operation and maintenance of the flow measurement equipment. The flow measurement equipment shall be calibrated, operated and maintained by the Consent Holder in accordance with the provisions of the quality management system. The Consent Holder shall keep a record of these procedures available for inspection by the Agency and provide a copy to the Agency on request.

1.8.4 The Consent Holder shall record all failures of the continuous flow measurement system and any other breaks in the flow record. The reasons for all significant failures and breaks, which lead to missing or suspect data, and all steps taken to prevent a re-occurrence shall be recorded and details provided to the Agency on request. A failure or break is significant for the purposes of this condition if it prevents the calculation of the total daily volume to the required level of uncertainty. The Consent Holder shall ensure that as far as possible the recorder remains fully operational at all times. Any failures shall be remedied as soon as possible.

1.8.5 Records of the flow readings or the reason for any breaks in the record, as described in Condition 1.8.4 above, shall be provided to the Agency when requested, in a format specified by the Agency.

1.8.6 Flows of the sewage through the treatment works shall be measured at the existing location or such other point as agreed by the Agency.

1.9 **Unusual Weather**

1.9.1 No sample of the Discharge, taken at a time when unusual weather conditions are adversely affecting the operation of the sewage treatment works, shall be taken into account in deciding whether or not the conditions contained in conditions 1.1.1, 1.7.1, 1.7.2, 1.7.4, and 1.7.5 of this Consent have been complied with.

1.9.2 For the purpose of this condition "unusual weather conditions" shall include:

- a low ambient temperatures as evidenced by effluent temperatures of 5°C or less, or by the freezing of mechanical equipment in the works;
- b significant snow deposits;
- c tidal or fluvial flooding;
- d weather conditions causing unforeseen loss of power supply to the sewage treatment which could not be ameliorated by the reasonable provision and operation of standby generation facilities.

- 1.9.3 On any occasion where unusual weather conditions adversely affect the operation of the sewage treatment works, the Consent Holder shall use its best endeavours to mitigate that adverse effect.
- 1.9.4 For a sample of the Discharge to be considered for the purposes of paragraph 1.9.1 above, the Consent Holder shall notify the Agency, by fax or telephone, as soon as unusual weather conditions are known to have adversely affected operations and shall confirm the circumstances in writing as soon as possible thereafter (and in any event within 14 days of the occurrence of such conditions). That notification shall include a full description of the unusual weather conditions and their impact on the operation of the works.

1:10 **Sample Point**

- 1.10.1 An appropriately labelled sample points shall be provided and maintained at National Grid References NZ 5636 2401 , as shown marked 'Final Effluent Sample Point', on the site plans included in this Consent, so that representative samples of the Discharge may be conveniently and safely obtained.
- 1.10.2 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 points is a sample of what was discharging into controlled waters.

1.11 **Recording and Reporting**

- 1.11.1 The Consent Holder shall establish and operate a documented maintenance programme and record all non-routine actions undertaken that may have adversely affected the effluent quality. Copies of the programme shall be made available for inspection by the Agency's officers at all reasonable times.
- 1.11.2 On request the Consent Holder shall supply the Agency with a written report on the maintenance and all non-routine actions that may have adversely affected effluent quality.

1.12 **Maintenance**

- 1.12.1 The works shall be operated and maintained in accordance with good operational practice such that:
- a It remains fully operational except at times of unavoidable mechanical or electrical breakdown which shall be attended to, and the Agency informed of the failure, as soon as practicable after the failure;
 - b Following a failure all equipment shall be returned to normal operation as soon as practicable;

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- c Tanks shall be desludged at sufficient frequency and in such a manner to prevent excessive carryover of suspended solids;
 - d The Consent Holder shall maintain the outfall pipe and screens in an efficient operational condition, so as to minimise the probability of blockages or other failures, and shall implement periodic inspections of the integrity and performance of the discharge pipe.
-

Conditions of Consent

2 DANGEROUS SUBSTANCES (254/1920.02)

2.1 Notice of Change Condition

2.1.1 The Consent Holder shall notify the Agency in writing if any known introduction or material change in respect of discharges from trade premises to the sewerage system, occurs that may increase or introduce in to the effluent any "dangerous substance" as set out in the list of Dangerous Substances included in this Consent (as updated by the Agency from time to time, and notified to the Consent Holder in writing), or any other substance considered by the Consent Holder as having or likely to have a significant effect on the receiving waters.

2.2 The Dangerous Substances List I Condition

2.2.1

- a The quantity of List I Substances (as defined in the Dangerous Substances Directive 76/464/EEC) in the discharge shall not increase above
 - i the levels specifically regulated by specific numeric conditions (where applicable) , and/or
 - ii the levels in the discharge on the date of effect of this Consent where no specific level is authorised, and
- b notwithstanding 2.2.1 a above, the concentration of List I Substances in the discharge at no time exceeds the "List I General Standards" given below.

2.3

List I General Standards

	<u>Substance</u>	<u>Limit</u> Total Concentration (µg/l)
1.	Aldrin	0.02
2.	Dieldrin	0.02
3.	Endrin	0.01

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	<u>Substance</u>	<u>Limit</u> Total Concentration (µg/l)
4.	Isodrin	0.01
5.	Cadmium	10.0
6.	Carbon tetrachloride	24.0
7.	Chloroform	24.0
8.	DDT (all isomers)	0.05
9.	para-pare-DDT	0.02
10.	Hexachlorobenzene	0.06
11.	Hexachlorobutadiene	0.2
12.	Hexachlorocyclohexane	0.2
13.	Mercury	2.0
14.	Pentachlorophenol	4.0
15.	Trichlorobenzene	0.8
16.	1,2-Dichloroethane	20.0
17.	Trichloroethylene	20.0
18.	Tetrachloroethylene	20.0

2.4 The Dangerous Substances List II Condition

2.4.1

- a The quantity of List II Substances in the discharge shall not increase above
 - i the levels specifically regulated by specific numeric conditions (where applicable), and/or
 - ii the levels in the discharge on the date of effect of this Consent where no specific level is authorised, and
- b notwithstanding 2.4.1 a above, the discharge shall not contain quantities of any List II Substances as defined in the Dangerous Substances Directive 78/464/EEC such as to cause or contribute to the concentration of that substance in the receiving water exceeding the relevant EQS.

2.5 Operational Surveillance Condition

2.5.1

The Consent Holder shall maintain records that demonstrate to the satisfaction of the Agency:

- a knowledge and understanding by the Consent Holder of the composition of materials supplied to them and of any changes in formulation of process inputs to the collecting, sewerage and/or treatment system;

b any changes in processes that may result in a change in the Dangerous Substances composition of the effluent discharge.

2.5.2 The records kept in accordance with paragraph a above shall be made available to the Agency on request

2.6 **Investigate and Monitor Condition**

2.6.1 If the agency is of the opinion that the dangerous substances in the discharge have changed significantly or that a significant change is likely then at the request of the Agency, the Consent Holder shall undertake any necessary investigations and provide an assessment of the source and quantity of specified List I and List II Substances (as defined in the Dangerous Substances Directive 78/484/EEC) within the discharge.

Conditions of Consent

3 URBAN WASTE WATER TREATMENT REGULATIONS (254/1920.03)

3.1

- a The Consent Holder shall comply with the Urban Waste Water Treatment (England and Wales) Regulations 1994 ('the Regulations')
- b For the purpose of conditions 4.2 and 4.3 below, interpretations and references to a numbered regulation or Schedule shall have the meaning as in the Regulations, unless otherwise indicated.

3.2

- a The Discharge derives from an agglomeration with a population equivalent of more than 150,000, discharging to estuarial waters.
- b The Consent Holder shall inform the Agency in writing of any change, or proposed change, to the population equivalent such as would make a material change to the application of the Regulations and shall, on request, inform the Agency in writing of the actual population equivalent.
- c The Discharge shall be subject to Regulation 5(1) and shall satisfy the relevant requirements of Part I of Schedule 3.

3.3

- a The Consent Holder shall provide apparatus for the purpose of:
 - i measuring or recording the volume, rate of flow, nature, composition or temperature, and
 - ii collecting samples of any waste water, as is necessary to ensure compliance with paragraph b below.
- b The Consent Holder shall monitor the Discharge to verify compliance with the requirements of paragraph 3.2.c above in accordance with control procedures as set out in Part II of Schedule 3.
- c The Consent Holder shall provide to the Agency any information collected in complying with paragraph b above in a manner agreed with the Agency.

3.4

- a Condition 3.3 above shall apply for the purpose of verifying compliance with the Directive from the date as specified in the relevant paragraph of Regulation 5 as incorporated in this Consent under condition 3.2 above.

3.5

- a An appropriately labelled sample point shall be provided and maintained at National Grid Reference NZ 5670 2407, as shown marked 'UWWTD Influent Sample Point' on the site plans included in this Consent, or at any other point as agreed in writing with the Agency, so that a representative sample of the Influent may be obtained.
- b An appropriately labelled sample point shall be provided and maintained at National Grid Reference NZ 5636 2401, as shown marked 'UWWTD Final Effluent Sample Point' on the site plans included in this Consent, or at any other point as agreed in writing with the Agency, so that a representative sample of the Discharge may be obtained.

3.6

- a In addition to the above conditions relating to the requirements of the Urban Waste Water Treatment Regulations, the following section "4. Calculation of Load Reduction", including the additional requirements (4.7.1, 4.7.2 and 4.7.3) are also included as conditions of this consent.
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CALCULATION OF LOAD REDUCTION

Calculation of Load Reduction for Urban Waste Water Treatment Regulations Percentage Removal Compliance Assessment

4.1 Inlet Flow Calculation

Bran Sands Effluent Treatment Works has four rising mains arriving from surrounding areas.

Three of these are sampled by the raw sample point on the distribution chamber to the primary tanks (Portrack, Cargo Fleet and Eston catchments). This point also receives liquors from the Regional Sludge Treatment Centre, Phase 1 and Phase 2 (RSTC). The combined flow is measured in accordance with Environment Agency policy requirements. [see Condition 1.8 - Flow Measurement]

The fourth rising main delivers flows from Phillips and other Seal Sands companies' industrial processes, and has separate flow measurement. [see Condition 4.7 - Other Requirements - below]

The following calculations are to allow proportional loads to be calculated, relating to the flow measurement carried out and the proportions for each inlet agreed between the Environment Agency and Northumbrian Water Ltd.

$$\text{The total flow, } Q_{\text{TOTAL}} = Q_{\text{R}} + Q_{\text{P}}$$

(Where Q_{R} is the raw (domestic) flow measured at the individual pumping stations delivering to Bran Sands plus the flow from the RSTC plant at Bran Sands and Q_{P} is the flow from the Phillips and Seal Sands companies measured at their pumping stations. All these flows are relayed by telemetry to Bran Sands.)

The load will be calculated by using the results from the two inlet samplers (at the Raw and the Phillips plus Seal Sands Companies inlets) and proportioning them.

The UWWTD calculations for Bran Sands ETW are as follows:

4.2 Domestic Raw Sewage Inlet

$$W_{\text{CR}} = (\text{COD}_{\text{R}} \times Q_{\text{R}}) / 10^3$$

Where $W_{\text{CR}} =$ Weight of COD (kg/d) from the raw inlet sewer.

$\text{COD}_{\text{R}} =$ Measured COD (mg/l) from raw inlet sampler.

$Q_{\text{R}} =$ Domestic Raw inlet daily inflow (m^3/d).

$$W_{BR} = (BOD_R \cdot Q_R) / 10^3$$

Where W_{BR} = Weight of BOD (kg/d) from the raw inlet sewer.

BOD_R = Measured BOD (mg/l) from raw inlet sampler.

Q_R = Domestic Raw inlet daily inflow (m³/d).

4.3 **Phillips and Seal Sands Companies Inlet**

$$W_{CP} = (COD_P \cdot Q_P) / 10^3$$

Where W_{CP} = Weight of COD (kg/d) from the Phillips inlet sewer.

COD_P = Measured COD (mg/l) from Phillips inlet sampler.

Q_P = Phillips inlet daily inflow (m³/d).

$$W_{BP} = (BOD_P \cdot Q_P) / 10^3$$

Where W_{BP} = Weight of BOD (kg/d) from the Phillips inlet sewer.

BOD_P = Measured BOD (mg/l) from Phillips inlet sampler.

Q_P = Phillips inlet daily inflow (m³/d).

4.4 **TOTAL INLET LOAD**

$$W_{BITOTAL} = W_{BR} + W_{BP}$$

Where $W_{BITOTAL}$ = Total Weight of BOD (kg/d) entering works.

$$W_{CITOTAL} = W_{CR} + W_{CP}$$

Where $W_{CITOTAL}$ = Total Weight of COD (kg/d) entering works.

4.5 **Total Load in Final Effluent**

$$W_{BFE} = (BOD_{FE} \cdot Q_{TOTAL}) / 10^3$$

Where W_{BFE} = Weight of final effluent BOD (kg/d)

BOD_{FE} = Measured BOD (mg/l) from final effluent sampler

Q_{TOTAL} = Total outlet daily inflow (m³/d).

And

$$W_{CFE} = (COD_{FE} * Q_{TOTAL})/10^3$$

Where W_{CFE} = Weight of final effluent COD (kg/d)

COD_{FE} = Measured COD (mg/l) from final effluent sampler

Q_{TOTAL} = Total outlet daily inflow (m³/d).

Bran Sands Effluent Treatment Works

UWWTD Percentage Removal Calculations

4.6

PERCENTAGE REMOVAL

$$\text{BOD \%age Removal} = 100 * (W_{BITOTAL} - W_{BFE}) / W_{BITOTAL}$$

$$\text{COD \%age Removal} = 100 * (W_{CITOTAL} - W_{CFE}) / W_{CITOTAL}$$

4.7

OTHER REQUIREMENTS

4.7.1

The Consent Holder shall provide suitable flow recorder to measure and record the flows delivered via the rising main from Phillips and other Seal Sands companies. The flow recorder shall comply with the Agency policy requirements as given in Condition 1.8 – Flow Recording.

4.7.2

Alternative means of deriving the flows delivered via the rising main from Phillips and other Seal Sands companies may be used subject to agreement in writing with the Agency.

4.7.3

The Consent Holder shall, in addition to the analytical results and percentage removal figures required under the Urban Waste Water Treatment Directive Regulations, supply the Agency with the full calculations made in accordance with the method set out in this annex, or as otherwise required by the Agency.

Conditions of Consent

5 UV DISINFECTION (254/1920.05)

Conditions applicable to the UV Disinfection of Secondary Treated Sewage Effluent

5.1 Nature of the Discharge

5.1.1 The Discharge shall consist solely of secondary treated sewage effluent which has been disinfected by means of ultra violet (UV) irradiation. For the purpose of this consent, "disinfection" is defined as the use of a process designed specifically to reduce the number of viable, potentially infectious micro-organisms in the effluent.

5.1.2 The Discharge shall be disinfected by means of UV irradiation from an artificial source with at least 85% of the available UV radiation emitted in the wavelength range 250-260nm. An applied dose of 58.76 mJ/cm^2 must be exceeded subject to Conditions 5.1.3 and 5.1.4 below.

5.1.3 The applied UV dose must exceed the limit set out in Condition 5.1.2. above for at least 99% of the measurements (as required by condition 5.4.2.a.ii) in any period of 12 consecutive months.

5.1.4 No more than 10% of the measurements taken consecutively during any 24 hour period from midnight to midnight should fall below 29.38 mJ/cm^2 .

5.1.5 The period(s) when the applied UV dose limit set out in Condition 5.1.2. (above) is not exceeded shall not be used by the Consent Holder for the maintenance of the UV plant. Maintenance is defined in the UV Code of Practice included in this Consent.

5.2 Failure of UV measurement systems

5.2.1 In the event of failure of the flow monitor used in the control of the UV dosing system:

- a the maximum available number of duty banks of UV lamps shall be automatically activated;
- b the minimum applied UV dose, at maximum effluent flow rates at a calculated UV transmittance (at 254nm) of 45%, shall not be less than 58.76 mJ/cm^2 .

Note: Conditions relating to location of the Discharge, Volume of the Discharge and Flow Measurement are included in Section 1 Secondary Treated Sewage Effluent (254/1920.01) of this Consent.

5.3 Composition

5.3.1 Subject to paragraph 5.3.2 below, the Discharge shall not contain more than sixty milligrams per litre (60 mg/l) of suspended solids (measured after drying at 105°C).

5.3.2 The limit for the relevant parameter set out in 5.3.1 above may be exceeded where, in any series of samples of the Discharge taken at regular but randomised intervals in any period of twelve consecutive months as listed in Column 1 of the 'Look-up table' included in this Consent, no more than the relevant number of samples, as listed in Column 2 of the said table, exceed the applicable limit for that relevant parameter.

5.3.3 Samples for the purposes of monitoring suspended solids as required in condition 5.3.1. above shall be taken at the UWWTR Final Effluent sample point at National Grid Reference NZ 5636 2401, as shown in the site plans included in this Consent, or at any other suitable point as agreed in writing with the Agency.

5.4 Recording and reporting

5.4.1 Maintenance Programme

- a The Consent Holder shall establish and operate a documented maintenance programme including the method and frequency of cleaning and replacement of UV lamps and flow meters, and record all non-routine actions undertaken that may have adversely affected effluent quality. Details of the maintenance programme shall be provided to the Agency for agreement. Copies of the programme shall be made available for inspection by the Agency's officers at all reasonable times.
- b The Consent Holder shall keep records of the maintenance undertaken (both routine and non-routine). Copies of these records shall be maintained by the Consent Holder and kept available for inspection by the Agency's officers at all reasonable times.
- c On request, the Consent Holder shall supply the Agency with a written report on the maintenance, and all non-routine actions that may have adversely affected effluent quality.

5.4.2 UV Process Monitoring and Reporting

- a Continuous recorders, with on-site visual display from which readings may be readily obtained, shall be provided and maintained by the Consent Holder enabling the following to be measured and recorded at 15 minute intervals:
 - i the instantaneous flow rate through the UV irradiation channel
 - ii the instantaneous applied UV dose for the UV irradiation channel
 - iii the instantaneous measured UV intensity for each bank
 - iv any other parameters used in calculating the UV dose

- b Copies of the records shall be maintained by the Consent Holder for a minimum of 2 years or such longer time as the Agency may from time to time specify and be kept at a nominated place available for inspection by the Agency's officers at all reasonable times.

5.4.3 The Consent Holder shall supply to the Agency, 1 month in arrears, in a format specified by the Agency, on a monthly basis, the records of the readings specified in condition 5.4.2.

5.4.4 The Consent Holder shall supply to the Agency at three monthly intervals, or upon request, a written report, detailing all occurrences where, at any time:

- i there were any failures of any measurement system used to control the UV dosing system
- ii the external power supply to the UV disinfection system was interrupted
- iii A discharge of sewage effluent was made which had not been subjected to the required UV dose as specified in conditions 5.1.2, 5.1.4 and 5.2.1
- iv The report shall detail the reasons why the situation occurred, and the actions taken by the Consent Holder. The report shall include an assessment of what measures can be adopted in the future to minimise such occurrences
- v The Agency, if satisfied that the cause is an emergency and outside the control of the Consent Holder, and that all possible measures were taken to minimise the impact of the discharge on Controlled Waters, shall exclude the measurements for the period for compliance purposes with condition 5.1.4.

5.5 **Disinfection Efficacy Monitoring**

5.5.1 The Consent Holder shall carry out the monitoring programme as detailed below, unless otherwise notified in writing by the Agency. The results of the monitoring programme are to be supplied to the Agency in a format specified by the Agency, on a three monthly basis, two months in arrears.

- a Sample points as shown on the UV sample point location site plan included in this Consent:
 - i Sample Point A - Crude influent to sewage treatment works at National Grid Reference NZ 5671 2403,
 - ii Sample Point B - Secondary treated sewage effluent before UV disinfection at National Grid Reference NZ 5644 2416,
 - iii Sample Point C - Secondary treated sewage effluent after UV disinfection at National Grid Reference NZ 5641 2412.

- b Microbiological determinands and frequencies (Agency Standard Analytical Methods to be employed, including AQC):-

- I Faecal Coliforms – fortnightly at sample points A, B and C;
- II Total Coliforms – fortnightly at sample points A, B and C;
- III Faecal Streptococci – fortnightly, at sample points A, B and C;
- IV Salmonella – fortnightly, at sample points B and C;
- V Representative enteroviruses – fortnightly, at sample points B and C;
- VI F-specific bacteriophage – fortnightly, at sample points B and C.

Following two consecutive years of full consent compliance, the Agency will review the data annually and notify the Consent Holder in writing of any resulting change to the monitoring regime.

c Other determinands and frequencies

The measurement of all determinands below shall coincide with the measurement of microbial determinands. At each sample point, samples for analysis should be sub-sampled from a single bulk sample. Where this cannot be achieved, the sampling regime shall be clearly recorded.

- I The flow through each UV irradiation channel shall be measured.
- II The applied dose shall be recorded in each UV irradiation channel.
- III The measured UV transmittance at 254 nm at the inlet shall be measured by both in-site meter and by laboratory analysis of samples collected from sample point B.
- IV Suspended Solids shall be measured at the 'UV suspended solids sample point' at National Grid References NZ 5636 2401, as indicated on the site plans included in this Consent, or at any other suitable point as agreed in writing with the Agency.
- V Biochemical Oxygen Demand (atu) shall be measured at sampling point B.

5.6 Telemetry

5.6.1 A telemetry alarm system connected to a 24 hour manned station shall be provided and maintained by the Consent Holder to provide a warning in the event that:

- a the external power supply to the UV disinfection system has been interrupted;
- b failure of any measurement system used to control the UV dosing system has occurred;
- c a Discharge of sewage effluent has occurred which has not been subjected to the required UV dose as specified in conditions 5.1.2, 5.1.4 and 5.2.1 of this consent..

5.7 Emergency notification

[UV emergency notification]

- 5.7.1 The Consent Holder shall notify the Agency in the event of a Discharge of Sewage effluent which has not been subjected to the required UV dose as specified in conditions 5.1.2, 5.1.4 and 5.2.1 of this consent, or of power failure causing loss of secondary treatment. Such notification must be made as soon as practicable and no later than 24 hours after the event, and shall detail the reasons why the situation occurred, and the actions taken by the Consent Holder.

5.8 UV Power

- 5.8.1 A duplicate electricity supply shall be provided and maintained for use in the event of failure of the normal electricity supply, to enable resumption of power to the UV disinfection system as soon as practicable.

UV CODE OF PRACTICE

5.9 UV Code of Practice for Applied Dose Systems

- 5.9.1 The UV disinfection system shall be provided and maintained to ensure that its hydraulic characteristics and the path length of UV irradiation are such that, during the required period of disinfection, the effluent is subjected to the UV dose rate specified in the consent.
- 5.9.2 The UV disinfection system and stand-by power facilities shall be operated so as to minimise the frequency and duration of an emergency discharge of sewage effluent which has not been subjected to the required UV dose (as specified in the consent).
- 5.9.3 The applied and received UV doses (as defined in the Calculation of UV dose) shall be determined from
- i the flow rate of effluent through the UV disinfection system (l/s),
 - ii the reactor volume,
 - iii the theoretical UV intensity at end of lamp life at an assumed UV transmittance for the effluent (at 254nm) of 45%;
 - iv the measured UV intensity at 254nm.

5.10

Maintenance

- a A maintenance programme, including the method and frequency of cleaning and replacement of the UV lamps/ UV radiation monitors, shall be undertaken by the Consent Holder as agreed in writing with the Agency.
- b Any failure to meet the requirements of the agreed maintenance programme shall be advised to the Agency as soon as practicable and a report providing an explanation of the circumstances provided to the Agency within 2 weeks.
- c The Consent Holder shall keep records of the maintenance undertaken (both programmed and un-programmed) and shall include the measured UV intensity readings immediately before and immediately after each UV lamp/ UV monitor cleaning or replacement. Copies of these records shall be maintained by the Consent Holder and kept available for inspection by the Agency's officers at all reasonable times.

5.11

Calculation of UV Dose

5.11.1

Definitions

For each bank of UV lamps, UV dose is defined as the product of UV light intensity (impacting on wastewater passing through the bank) and the retention time (of wastewater passing through the bank).

For the purposes of consent, the following terms are defined for each UV irradiation bank:

"reactor volume"

is the volume of wastewater in the bank at any given time;

"adjusted retention time"

is the reactor volume divided by the measured rate of flow through the UV bank;

"theoretical UV intensity"

is the predicted average UV intensity across the reactor volumes, being delivered by the operating lamps at the UV transmittance of 45% (as agreed with the Agency in writing) for the effluent (at 254 nm) (predicted from the rated output (mW) of the UV lamps at the end of lamp life (cleaned) which are energised;

"measured UV intensity"

is the average UV intensity at 254 nm for the effluent measured (at positions within the reactors agreed with the Agency in writing) for each operating bank of UV lamps.

Conditions of Consent

6 TREATED TRADE EFFLUENT (254/1920.06)

Conditions applicable to the discharge of a specific Trade Effluent treated and discharged in admixture with the Sewage Effluent as specified under Section 254/1920.01

6.1 Source and Nature

- 6.1.1 The Discharge shall consist only of trade effluent derived from the manufacture of polyurethane materials treated in admixture with the sewage effluent streams at the Bran Sands Effluent Treatment Works - Municipal Treatment Plant at Bran Sands, Tees Dock Road, Middlesbrough, TS6 6UE.

6.2 Volume

- 6.2.1 The volume of the Discharge of trade effluent shall not exceed seven hundred and twenty cubic metres (720 m³) in any period of twenty four (24) consecutive hours.
- 6.2.2 The rate of Discharge of trade effluent shall not exceed nine litres per second (9.0 l/s).

6.3 Self-monitoring

- 6.3.1 The Consent Holder shall undertake monitoring of the concentration and load of 2,6-dinitrophenol in the trade effluent accepted for treatment and in the final discharge of secondary treated sewage effluent, at weekly intervals or at some other frequency as specified by the Agency.
- 6.3.2 The Consent Holder shall supply the Agency with a report on the monitoring carried out under 6.3.1 above, at six monthly intervals, or at some other frequency as agreed in writing with the Agency, in a form agreed with the Agency.
- 6.3.3 The self-monitoring program, as specified in 6.3.1 above may be amended by the Agency at any time, and the Consent Holder shall implement such changes within 28 days of receipt of the Notice.

6.4 Sample Point

- 6.4.1 The sample point for monitoring the load and concentration of 2,6-dinitrophenol in the combined discharge of treated trade and...

... sewage effluent shall be the sample point defined under Condition 1.10 of this Consent.

6.5 Flow Measurement

- 6.5.1 At the request of the Agency, the Consent Holder shall install, operate and maintain a means of flow measuring to a specification and at a location required by the Agency, to enable the daily volume and/or instantaneous flow of the discharge to be recorded.
- 6.5.2 The Consent Holder shall calibrate, operate and maintain the flow monitoring and recording system to a standard agreed or specified by the Agency. The flow and maintenance records shall be provided to the Agency as and when requested.

6.6 Recording and Reporting

- 6.6.1 The Consent Holder shall maintain records of the volumes and duration of trade effluent (derived from the manufacture of polyurethane materials) accepted for treatment at the Bran Sands Municipal Effluent Treatment Works...
- 6.6.2 On request the Consent Holder shall make such records available to the Agency.

6.7 Daily Load

- 6.7.1 The daily load of trade effluent (derived from the manufacture of polyurethane materials) accepted for treatment shall not increase above the quantity (daily load) agreed with the Agency on the date of effect of this consent, without the prior written agreement of the Agency.

Conditions of Consent

7 STORM SEWAGE EFFLUENT (254/1920.07)

7.1 Source and Nature

- 7.1.1 The Discharge shall be derived from the Bran Sands Effluent Treatment Works - Municipal Treatment Plant at Bran Sands, Tees Dock Road, Middlesbrough, TS6 6UE and the nature shall be that of storm sewage effluent.

7.2 Location

- 7.2.1 The Discharge shall be made in the manner and at the place specified as:
- a discharging via an existing outlet to the Dabholm Gut, a tributary of the River Tees;
 - b located at a point corresponding to National Grid Reference NZ 5614 2409;
 - c shown marked 'Consent Point' in the plans included in this Consent

7.3 Occurrence

- 7.3.1 The Discharge shall occur when, and only for as long as, the rate of flow at the Bran Sands Municipal Sewage Treatment Plant inlet works (arising from the Eston catchment and pumped via the Eston Pumping Station to Bran Sands) is in excess of twenty one thousand cubic metres per day (21,000 m³/d), equivalent to 3x DWF at the pumping station, due to rainfall and/or snow melt.
- 7.3.2 The rate of discharge shall not exceed forty five thousand, three hundred and sixty cubic metres per day (45,360 m³/d), equivalent to 6 x DWF at the pumping station.

7.4 Solids Separation

- 7.4.1 The Discharge shall not contain a significant quantity of solid matter having a size greater than six millimetres (6.0 mm) in more than one dimension.
- 7.4.2 The Discharge shall not be comminuted or macerated to achieve the standard in 7.4.1 above.

7.5 Recording and Reporting

7.5.1 The Consent Holder shall establish and operate a documented maintenance programme and record all non-routine actions undertaken that may have adversely affected the operation of the overflow facilities. Copies of the programme shall be made available for inspection by the Agency's officers at all reasonable times.

7.5.2 On request the Consent Holder shall supply the Agency with a written report on the maintenance and all non-routine actions that may have adversely affected the operation of the overflow facilities.

7.6 Sample Point

7.6.1 An appropriately labelled sample point shall be provided and maintained at National Grid Reference NZ 5666 2397, as shown marked 'Storm Sewage Sample Point' on the site plans included in this Consent, or at any other point as agreed in writing with the Agency, so that a representative sample of the Discharge may be conveniently and safely obtained.

7.6.2 The Consent Holder shall ensure that all constituents of the Discharges pass through the said sampling points at all times and in any legal proceedings it shall, for the purposes of Section 10 of the Rivers (Prevention of Pollution) Act 1981, be presumed, until the contrary is shown that any sample of the Discharge taken at the said sampling points is a sample of what was discharging into controlled waters.

7.7 Maintenance

7.7.1 The overflow facilities shall be maintained in an efficient operational condition.

Conditions of Consent

8 SEWAGE IN AN EMERGENCY (254/1920.08)

8.1 Source and Nature

8.1.1 The Discharge shall be derived from the Bran Sands Effluent Treatment Works - Municipal Treatment Plant at Bran Sands, Tees Dock Road, Middlesbrough, TS8 6UE and the nature shall be that of sewage in an emergency.

8.2 Location

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

- a discharging via an existing outlet to the Dabholm Gut, a tributary of the River Tees;
- b located at a point corresponding to National Grid Reference NZ 5614 2409;
- c shown marked 'Consent Point' in the plans included in this Consent.

8.3 Occurrence

8.3.1 The Discharge shall only occur when one or more of the following:-

1. the preliminary treatment effluent pumping station,
2. the primary effluent pumping station (discharging to the secondary treatment tanks),
3. any other treatment works pumping station, is/are inoperative as a result of one or more of the following :-
 - a. electrical failure not due to the act or default of the Consent Holder, representatives, officers, employees or servants;
 - b. mechanical breakdown of duty and standby pumps;
 - c. failure, blockage or collapse of associated mains or pipelines,

and it is not reasonably practicable to dispose of the Sewage otherwise.

8.3.2 There shall be no undue delay on the part of the Consent Holder in remedying any such failure or breakdown.

8.4 Pumps

8.4.1 The duty pump(s) shall be maintained in good working order, and at least...

...one, stand-by pump shall be provided and maintained.

8.4.2 Stand-by pump(s) shall activate automatically should the duty pump become inoperative for reasons other than power failure. The pumping stations shall be maintained so that the pump(s) shall reactivate immediately after the power is restored after interruption of the supply.

8.5 **Power**

8.5.1 A secondary electrical power supply shall be provided and maintained for use in the event of failure of the normal electricity supply and the Consent Holder shall ensure that connection to the secondary supply is effected as soon as is practicable after an electrical failure.

8.6 **Telemetry**

8.6.1 A 24 hour response telemetry alarm system shall be provided and maintained to provide a notification in the event of operation of the emergency overflow.

8.6.2 The Consent Holder shall notify the Agency, as soon as practicable after receipt of an overflow telemetry warning, that operation of the emergency overflow has taken place.

8.7 **Recording and Reporting**

8.7.1 The Consent Holder shall establish and operate a documented maintenance programme and record all non-routine actions undertaken that may have adversely affected the operation of the treatment works pumping stations. Copies of the programme shall be made available for inspection by the Agency's officers at all reasonable times.

8.7.2 On request the Consent Holder shall supply the Agency with a written report on the maintenance and all non-routine actions that may have adversely affected the operation of the treatment works pumping stations.

8.8 **Sampling**

8.8.1 Sample points shall be provided and maintained for the preliminary treatment effluent pumping station overflow at National Grid Reference NZ 5666 2397, and for the primary effluent pumping station at National Grid Reference NZ 5672 2409, as indicated on the site plans included in this Consent, or at any other points as agreed in writing with the Agency, so that representative samples of the Discharges of Sewage in an Emergency may be conveniently and safely obtained.

8.8.2 The Consent Holder shall ensure that all constituents of the Discharge pass through the said sampling point at all times the Discharge is made and in....

...any legal proceedings it shall, for the purposes of Section 10 of the Rivers (Prevention of Pollution) Act 1981, be presumed, until the contrary is shown that any sample of the Discharge taken at the said sample point of what was discharging into controlled waters.

8.9 Solids Separation

- 8.9.1 The Discharge shall not contain a significant quantity of solid matter having a size greater than six millimetres (6.0 mm) in one dimension.
- 8.9.2 The Discharge shall not be comminuted or macerated to achieve the standard in 8.9.1 above.
-

Look up table

Number of samples taken in any period of 12 months	Maximum number of samples permitted to exceed limit for given determinand
4-7	1
8-16	2
17-28	3
29-40	4
41-53	5
54-67	6
68-81	7
82-95	8
96-110	9
111-125	10
126-140	11
141-155	12
156-171	13
172-187	14
188-203	15
204-219	16
220-235	17
236-251	18
252-268	19
269-284	20
285-300	21
301-317	22
318-334	23
335-350	24
351-365	25

List of dangerous substances

Mercury and its compounds	Cadmium and its compounds	Hexachlorocyclohexane (lindane and related compounds)
Carbon tetrachloride	DDT (the isomers of 1,1,1-trichloro-2,2 bis(p-chlorophenyl) ethane)	Pentachlorophenol (PCP)
Aldrin	Dieldrin	Endrin
Isodrin	Hexachlorobenzene (HCB)	Hexachlorobutadiene (HCBD)
Chloroform	Polychlorinated biphenyls	Dichlorvos
1,2-Dichloroethane	Trichlorobenzene	Atrazine
Simazine	Tributyltin compounds	Triphenyltin compounds
Trifluralin	Fenitrothion	Azinphos-methyl
Malathion	Endosulfan	Lead
Chromium	Zinc	Copper
Nickel	Arsenic	*Iron
*pH outside range 5.5 to 9.0	*Boron	Vanadium
PCSD'S	Cyfluthrin	Sulcofuron
Flucofuron	Permethrin	4-Chloro-3-methyl-phenol
2-Chlorophenol	2,4-Dichlorophenol	2,4-D (ester)
2,4-D (non ester)	1,1,1-Trichloroethane	1,1,2-Trichloroethane
Bentazone	Benzene	Biphenyl
Chloronitrotoluenes	Demeton	Dimethoate
Linuron	MCPA	Mecoprop
Mevinphos	Napthalene	Omethoate
Toluene	Triazophos	Xylene
Cyanide	Azinphos-ethyl	Fenthion
Parathion	Parathion-methyl	Trichloroethylene
Tetrachloroethylene	Dioxins	PAHs
Nonyl phenol	Nonyl phenyl ethoxylate	Di-ethylhexyl phthalate
Bisphenol-A	Diazinon	Chlorfenvinphos
Chlorotoluron	Isoproturon	Diuron
Propetamphos	Fumethrin	Amitraz
High-Cis Cypermethrin	Cyromazine	Deltamethrin
Cypermethrin		

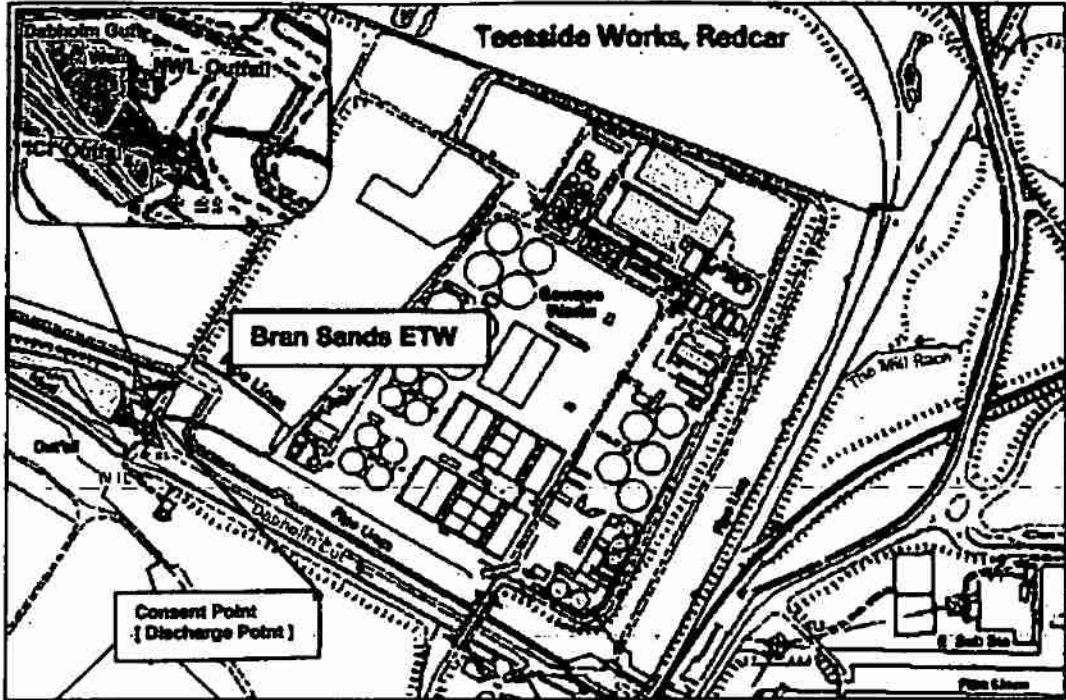
This list is applicable as at 1 December 1998 and will be updated as and when changes to the relevant legislative requirements occur.

*Notification to the Agency by the Consent Holder is only required in respect of changes to Trade Effluents likely to cause significant changes to the pH value, and/or iron or boron concentrations, of the crude sewage.

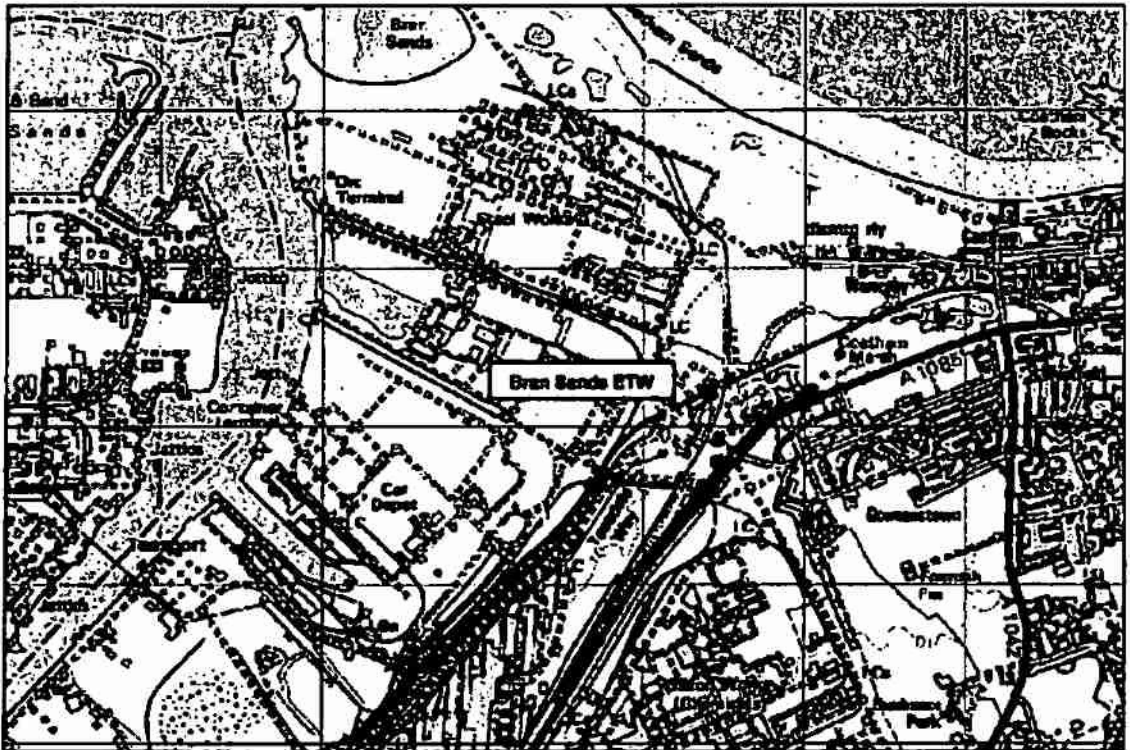
Site Plan (a)

**Northumbrian Water Limited
Bran Sands Effluent Treatment Works**

Location Plan



Not to Scale - illustrative only

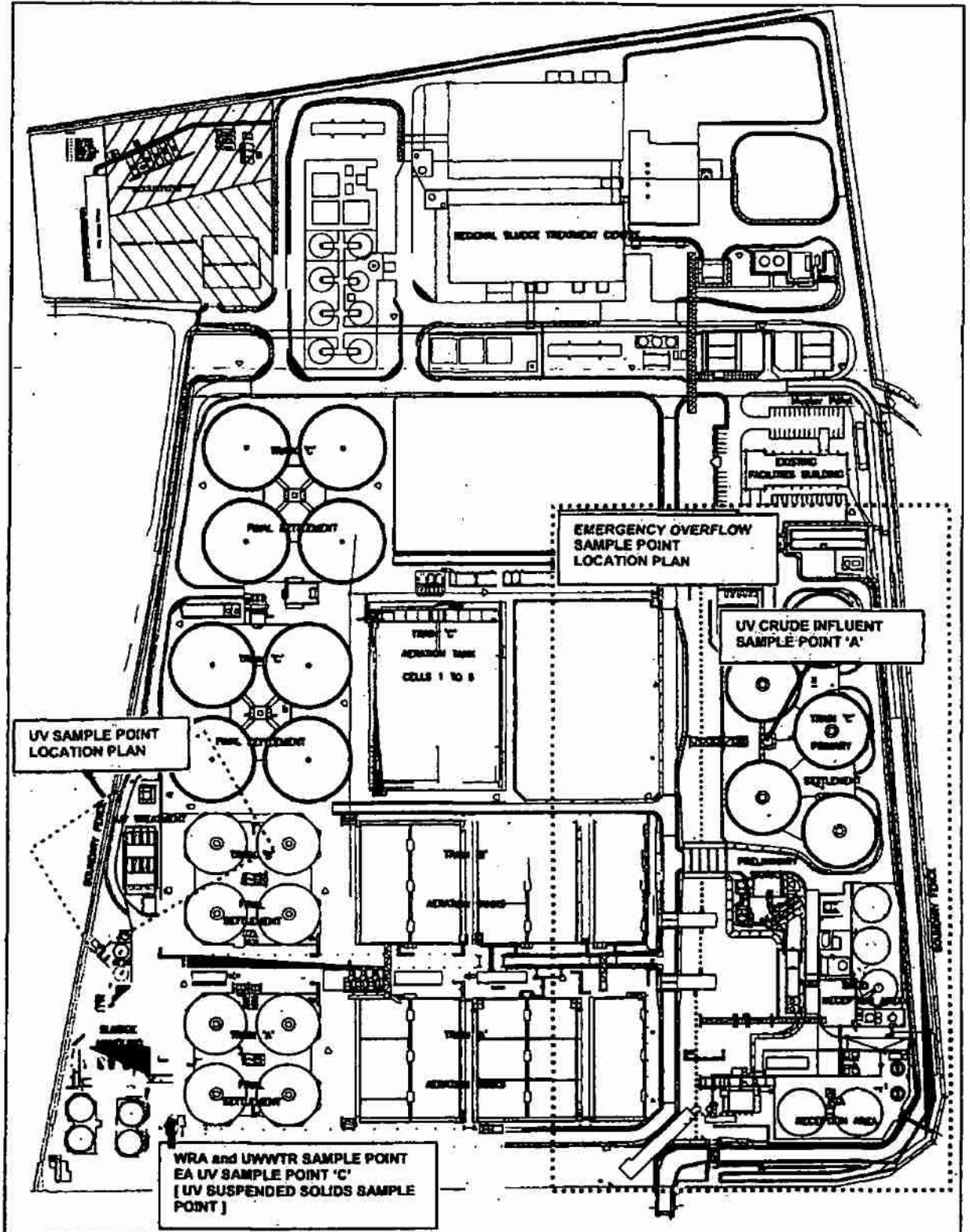


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Site Plan (b)

**Northumbrian Water Limited
Bran Sands Effluent Treatment Works**

Site Plan

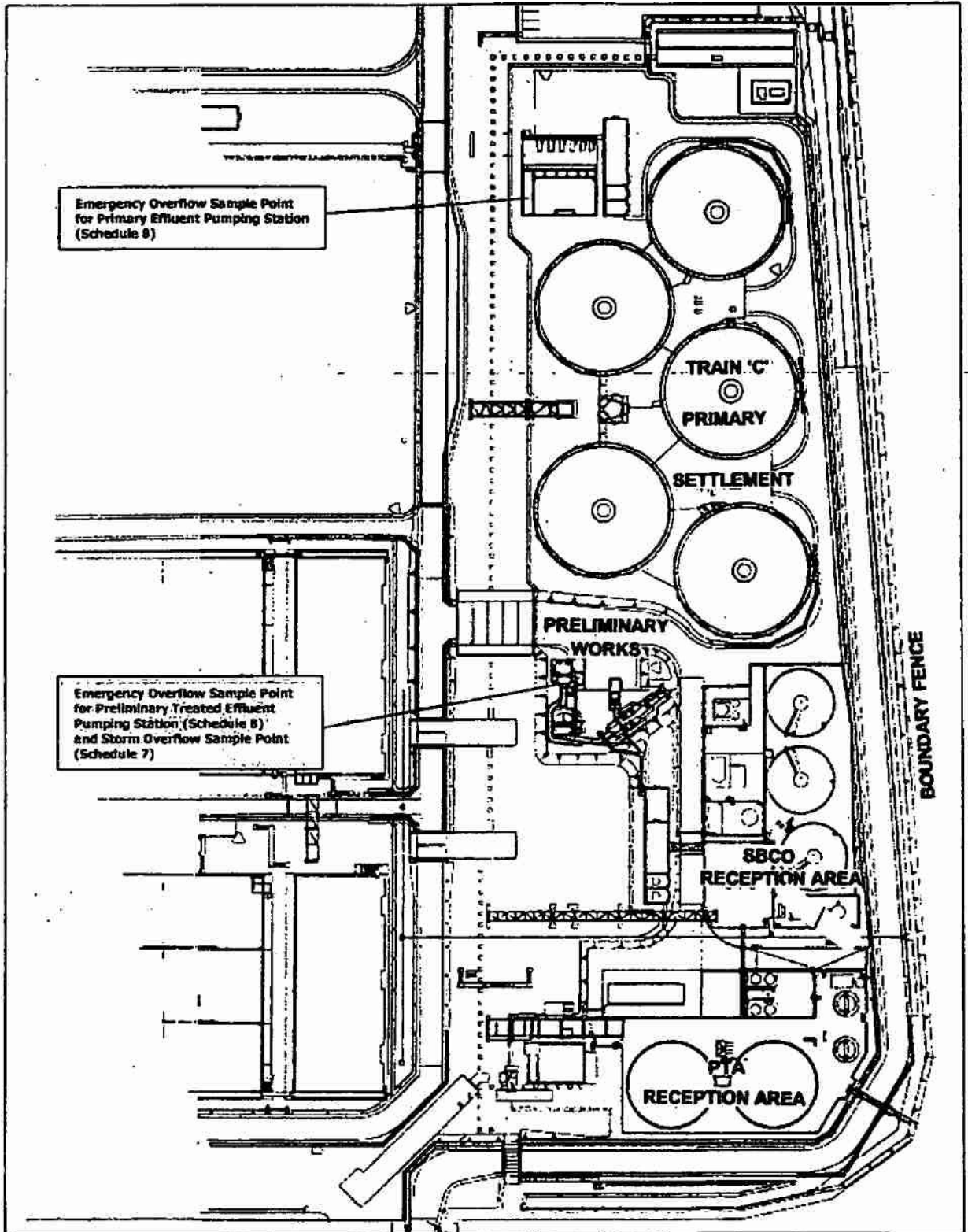


Not to Scale - Illustrative only

Site Plan (c)

**Northumbrian Water Limited
Bran Sands Effluent Treatment Works**

Emergency Overflow Sample Points

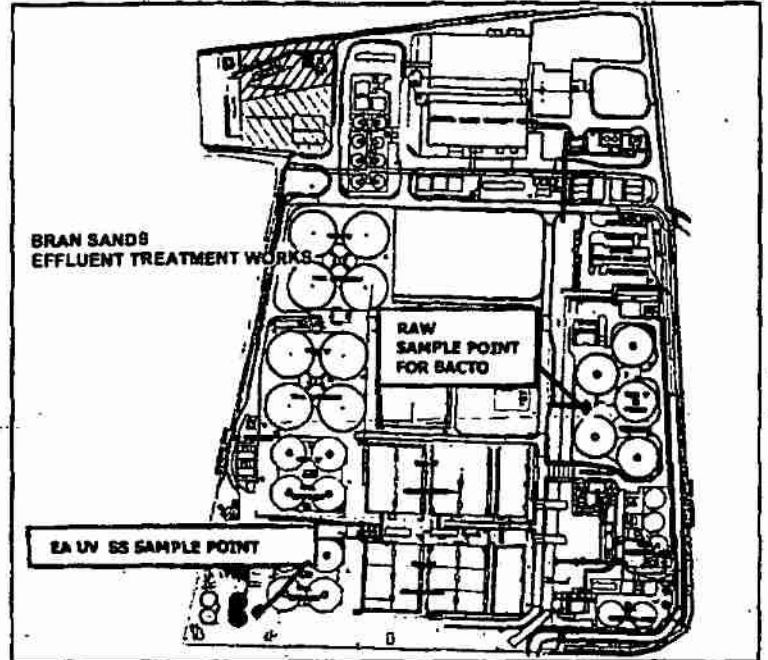


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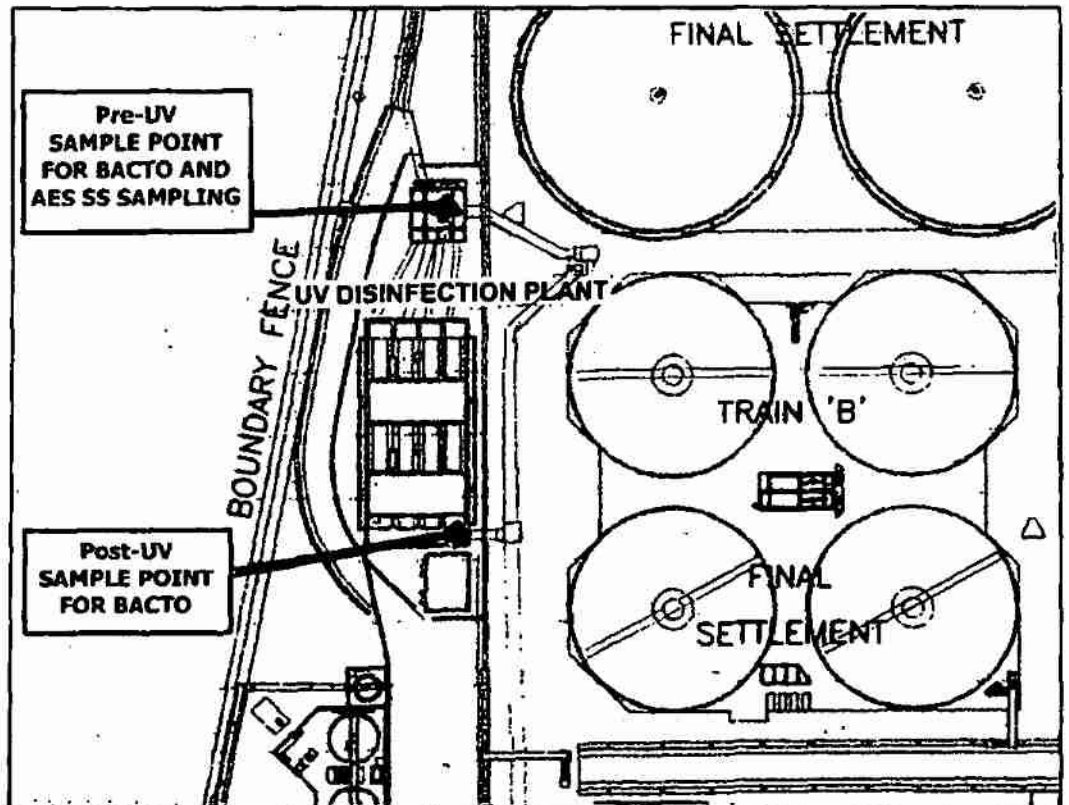
Site Plan (e)

Northumbrian Water Limited
Bran Sands Effluent Treatment Works

UV Disinfection Sampling Points



Not Not to Scale - Illustrative only



ENVIRONMENT AGENCY

NORTHUMBRIA AREA

WATER RESOURCES ACT 1991 (PART III)
(as amended by the Environment Act 1995)

Consent Reference: 254/1920

VARIATION

1	APPLICANT'S NAME AND ADDRESS	NORTHUMBRIAN WATER LIMITED LEAT HOUSE PATTINSON ROAD DISTRICT 15 WASHINGTON TYNE & WEAR NE38 8LB
2	DATE OF APPLICATION	06.09.2006
	DATE RECEIVED	08.09.2006
	FURTHER INFORMATION RECEIVED	18.09.2006
3	NAME AND ADDRESS OF LOCATION OF DISCHARGE	BRAN SANDS EFFLUENT TREATMENT WORKS MUNICIPAL SEWAGE TREATMENT PLANT TEES DOCK ROAD MIDDLESBROUGH TS6 6UE
	RECEIVING WATER OR INTO LAND	NORTH SEA
	N.G.R. POINT OF DISCHARGE	NZ 5614 2409
4	NATURE OF DISCHARGE	SEWAGE EFFLUENT (UV SEASONAL DISINFECTION)
	COMPOSITION: PARAMETERS & CONCENTRATIONS as appropriate Incl. Temperature	
	FOR SSO - RATE OF FLOW AT COMMENCEMENT OF DISCHARGE	
	DRY WEATHER FLOW (m ³ d)	
	MAXIMUM DAILY VOLUME (m ³ d)	300,000m³d
	MAXIMUM RATE OF DISCHARGE (l/sec)	
	PERIOD OF DISCHARGE IF A LIMITED PERIOD	

DATE OF ENTRY INTO REGISTER: 22.09.2006