

Overview & Scrutiny Committee **2**

HOUSING AND ENVIRONMENT



anglianwater

Welcome to
Great Billing
Sewage Treatment Works

Billing Waste Water WORKING PARTY



NORTHAMPTON
BOROUGH COUNCIL

Contents

Foreword	3
Recommendations	4
Key Findings	5-9
• Complaints	5
• Campaign for Lower Ecton Action Now (CLEAN)	6
• Businesses	6
• Residents	6
• Parish Councils	6
• Dealing with complaints	7
• Statutory Nuisance	7
• Conclusions from Key Findings	9
Proposed Works by Anglian Water	10-12
• Odour Management Plan	10
• Evidence from Anglian Water	11
• Site Visit	12
• Conclusions	12

Foreword

Overview & Scrutiny Committee Two (Housing & Environment) formed from its membership the Billing Waste Water Working Party. The Working Party membership comprised Councillors Dennis Meredith, Ifty Choudary and Phil Larratt.

The remit of the Working Party was to consider the issue of alleged odour nuisance at Anglian Water's Waste Water Treatment Works.

The review undertaken by this Working Party was a short focused study of evidence both technical and anecdotal drawn from local residents, businesses, Cogenhoe Parish Council, CLEAN (a local campaign group) Anglian Water and the Council's Environmental Health Officers. In addition the Working Party visited the Waste Water Treatment Works where they had the opportunity to experience the site at first hand and ask further technical questions.

The Working Party undertook its work between December 2007 and April 2008

Acknowledgements are made to all those who took part in this review and presented evidence, specifically thanks are given to:

- Paul Mallard, Senior Environmental Health Officer
- Joe Alfano, Environmental Protection Team Leader
- Campaign for Lower Ecton Action Now (CLEAN)
- Anglian Water

Councillor Dennis Meredith



Councillor Meredith (Chair)	Dennis	Councillor Ifty Choudary	Councillor Phil Larratt
--------------------------------	--------	--------------------------	-------------------------

Recommendations

This Working Party recommends that;

- (1) It has seen sufficient evidence to acknowledge that the work of Northampton Borough Council's Environmental Health Officers has been robust and professional. To ensure continued improvements to the service, the Environmental Health Department carries out periodic reviews to ensure that their working practices continue to be in line with national standards and Government guidance;
- (2) The Working Party considers that currently there is insufficient evidence to serve an Abatement Notice;
- (3) Notwithstanding the above statement, given the factors affecting the possibility of any potential future nuisance due to the nature of the activity and the many causative factors, it is recommended that a robust proactive continuous monitoring regime is put in place by the Council's Environmental Health Department;
- (4) The evidence collected by this working party is forwarded onto West Northamptonshire Development Corporation for their information in the consideration of any planning applications submitted by Anglian Water;
- (5) The evidence presented in this report be noted, and
- (6) Overview and Scrutiny Committee Two recommends to Cabinet the findings and recommendations of this report for adoption.
- (7) That Officers be instructed to monitor the iron salts releasing programme
- (8) That Officers be instructed to contact Anglian Water requesting details when the iron salts releasing programme was installed, the dates that the consultants will be visiting the site and details of the open day.
- (9) That a copy of the report be forwarded to all neighbouring Local Authorities

This Working Party notes that:

- (10) In addition to point (3) Anglian Water is and will continue to take appropriate action to manage the odour, working closely with the Council's Environmental Health Officers;
- (11) The Council's Environmental Health Officers are contacting each petitioner within the Northampton Borough Boundary, and forward the rest of the petition to Wellingborough Borough Council for action according to their processes.

1.0 Introduction

1.1 The Working Party was formed in December 2007 in order to consider the issue of odour caused by the Anglian Water Waste Water Treatment Works located at Billing, Northampton. The Working Party developed a methodology to assist them in undertaking this study, the methodology and the evidence gathered can be found at Appendices A, B and C. The main sections of this report detail the Working Party's key findings drawn from the evidence presented, and makes conclusions to support its recommendations.

Key Findings

2.0 Complaints

- 2.1. Complaints concerning the works have been received almost every year, however, they are not generally very numerous. There have been two incidents of note in the recent past that have produced a number of complaints. At the beginning of 2002 there was a change in regulations governing the spread of Sewage Sludge to land so there was a rush to spread as much as possible before the regulations came in at the end of 2001.
- 2.2 At the beginning of 2002 the machine that was supposed to process the sludge to the appropriate standard to allow its spread straight away was failing so untreated and partially treated sludge was having to be stockpiled on site. This was the cause of some particularly pungent odour incidents over December 2001 and January 2002.
- 2.3 The accumulation was subsequently only removed from site over the summer of 2002 and 2003 to be spread to land and accounted for problems during the summer of 2002 and 2003 when the sludge was disturbed.
- 2.4 This period accounted for the highest rate of complaints since 1991. The last period of note was during the latter part of 2006 when maintenance work of the Primary Settlement Tanks (PSTs) caused a number of complaints. The subsequent management regime for maintaining the tanks appears to have overcome this problem and complaints in 2007 have dropped significantly.
- 2.5 The working party found that the level of complaints about the site were historically low. Complaints peaked in 2002 at over 20 but only 2 complaints had been received in 2007. Other sites where an Odour Abatement Notice had been served had received several hundred complaints – for example the Mogden site (Hounslow) had been receiving 300 complaints year on year, and Ipswich 707 complaints over 3 years.
- 2.6 The level of odour emission from the “normal” operation of the site has to be distinguished from those emissions arising from extraordinary circumstances or essential maintenance operations.
- 2.7 Odour emissions from the site are not uniform they vary considerably depending on the temperature, septicity of the incoming sewage and sludge in the primary tanks, whether there has been heavy rain and the level of sludge in the storm tanks, breakdowns etc.
- 2.8 No one thing will eliminate odour emissions completely. Even new sites with a full suite of odour abatement techniques still appear prone to complaints.
- 2.9 Case law indicates that enforcement action by the Council, which requires works, should specify those works. However, it is apparent that local authorities that have

served notice have done so on the basis of a simple “abate the nuisance” format. In the Mogden case a schedule of works was devised later. A notice specifying works would be much easier to enforce.

2.10 Unfortunately odour can arise from a number of sources and mechanisms on site and focussing on one remedy might not guarantee a solution.

2.11 Appendix B summarises the historical complaint numbers received.

2.12 Based on the evidence presented, the working party sought clarification from Businesses in the area, Ward Councillors and Parish Councils and the Campaign For Ecton Action Now (CLEAN). CLEAN brought forward the views of residents in a petition.

2.13 **Campaign for Lower Ecton Action Now (CLEAN)**

2.13.1 CLEAN is an action group that purports to represent local businesses, householders and neighbours of the Anglian Water Waste Water Treatment Works. CLEAN has actively campaigned to ensure that the Council serves an Abatement Notice on Anglian Water.

2.13.2 CLEAN has been present at meetings of this Working Party and has submitted evidence (referred to later). Additionally, the Working Party received a petition organised by CLEAN (18/3/08) and noted that many of the petitioners were from Ecton, which is in the Borough of Wellingborough. Wellingborough Borough Council will be sent the petition.

2.13.3 The working party received representations from CLEAN directly at a meeting on 11th February and at 3 prior Overview and Scrutiny Committees on the 8th of October 2007, 22nd of November 2007, and 31st of January 2008. A summary of the evidence provided is attached as Appendix C. The working party was grateful for evidence provided by CLEAN and acknowledges their concerns.

2.14 **Businesses**

2.14.1 The Working Party wrote to over 40 businesses in the area during February. As a result over 30 businesses provided written complaints and these have been forwarded to be processed by Environmental Health Officers. Councillors noted that one business reported that *‘it does worry me that a spot check or site visit on any given day may well find no problem’* but that overall, the other businesses reported ongoing problems for a number of years.

2.15 **Residents**

2.15.1 The petition raised by CLEAN contained a considerable number of signatures (over 300), however the majority live outside the Borough in Ecton Village. Those residents and businesses within the Borough have been contacted and asked to complete a questionnaire on how the odour affected them in 2007. Out of 47 questionnaires sent out only 4 have been returned to date. These state that they have been affected between 2 and 12 times in 2007. This would indicate the odour is a matter of reasonable cause for annoyance rather than nuisance.

2.15.2 The Petition has been passed on to Wellingborough BC for their attention.

2.16 **Parish Councils**

2.16.1 Billing Parish Council provided evidence of complaints and a letter was received from Cogenhoe Parish Council. The Complainants identified by Billing Parish Council have been contacted by Environmental Health Officers. Cogenhoe Parish

Council reported that many complaints appeared to have not been dealt with and that the Parish Council was concerned about the proposed expansion of the site. The Council's records indicate that only five complaints have been received from Cogenhoe since 1990, three in September 2001 and one each in September and October 2003. These complainants were advised to contact South Northants District Council.

2.16.2 In total, the working party directly received 41 individual complaints from Businesses, Residents and the Parish Councils and passed these on to Environmental Health Officers for action.

2.17 Dealing with complaints

2.17.1 This section outlines how the Environmental Health Department deals with potential nuisance complaints. Complaints about the Waste Water Treatment Works (WWTW) have fallen into two main categories. One is a non-specific general complaint about odour from WWTW; the other is about an odour problem that has been affecting the complainant for some days and prompted a complaint.

2.17.2 The first type are sent diary sheets and asked to call when a problem is apparent.

2.17.3 The second type will normally entail a visit(s) as appropriate, they are also sent diary sheets and asked to call when the problem is apparent. The works is generally also contacted with information concerning the incident; this might reveal that there was a plant breakdown or other problem.

2.17.4 WWTW also contact the Council to advise of problems that might give rise to complaints.

2.17.5 For an odour problem to arise within the borough there must be an odour emission and the wind needs to be in the right direction, or no wind at all. Since the wind directions affecting the borough are relatively infrequent a situation can arise where any odour might be blown across an area for a period of days or a week or so, complaints might not be made until the end of that period. Obviously once the wind changes the problem goes away and visits would not find a problem. As a result from 2005, where complaints have been received some pro-active visits were made during appropriate weather conditions.

2.17.6 Six observations were made in 2005 only one revealed any significant odour off-site. Ten were made in 2006 mainly in September as the result of complaints, but no significant incidents off-site were observed. However, none were made in 2007 due to the small number of complaints. Four have been made so far in 2008 but again no significant odours observed off-site.

2.18 Statutory Nuisance

2.18.1 One factor in assessing nuisance is determining the character of the neighbourhood. Development has been allowed close to the WWTW, presumably considering it to be a satisfactory standard of development. It could be argued, therefore, that occupants in the vicinity must expect to suffer such odour as may arise; as the Council, in determining the standard of development, had considered it to be an acceptable part of the character of the neighbourhood it could not constitute a nuisance.

2.18.2 On the other hand in actions for Common Law Nuisance the WWTW cannot defend itself by arguing that the plaintiff moved to the nuisance or that their operation was of public benefit. Since the odour from the WWTW can affect a large population it could be argued that if a nuisance did arise it would be a Public Nuisance. The

Council has specific statutory powers to bring such proceedings to protect the interests of the public without the need to show special damage.

- 2.18.3 In order for the odour to be a nuisance it has to “qualify” under certain principles that have been determined over many years by court judgements, it is not a situation that has been defined by an Act of Parliament.
- 2.18.4 The main principles in this case would be that it would have to be more than merely annoying. It would have to cause a material interference with the comfort and enjoyment of a person’s property. There must be an element of continuation or repetition. It must only qualify under the above for the average person.
- 2.18.5 The determination of nuisance should not be confused with the guidance given in documents issued by the Environment Agency (EA) for their officers dealing with Authorised Processes, such as the Horizontal Guidance for Odour Pt1 and 2. These documents concern themselves with maintaining a situation that does not give reasonable cause for annoyance. The Billing WWTW is not a process that requires Authorisation and is, therefore, not subject to such stringent controls. This is a much better standard than nuisance, which must be more than merely annoying.
- 2.18.6 Odour from industrial premises has been defined in the Environmental Protection Act 1990, section 79 as a Statutory Nuisance. Somewhat surprisingly odour emissions could not subject to Statutory Nuisance Action prior to the 1990 Act. In addition there was a period of time, from around 2000 to 2003, where case law indicated that sewage Works were not “premises” and could not, therefore, be subject to Statutory Nuisance Action.
- 2.18.7 A Statutory Nuisance has to meet the same requirements as a Common Law Nuisance described above. The Council is obliged to investigate complaints from residents in their area and if they are satisfied that a nuisance exists they must serve a notice to require its abatement.
- 2.18.8 However, non-domestic sources of nuisance can defend themselves against prosecution for failing to comply with such a notice if they can show that they are taking the Best Practicable Means (BPM) to abate the nuisance. BPM takes into account local circumstances, cost and technical knowledge available at the time. So unlike Common Law, action for Statutory Nuisance cannot provide an absolute requirement to abate a nuisance.
- 2.18.9 It should be noted, given the above, that the Council does not have a duty, or the powers, to prevent odours arising from Billing WWTW and can only act if the situation becomes a nuisance and that means that it would have to be more than merely annoying.
- 2.18.10 The odour model referred to by CLEAN, and appears to form the basis for their argument for serving a notice, has been based on estimated odour emission levels. Therefore, the data can only be regarded as useful to indicate the likely change in odour emissions due to the new plant and proposed changes to the process. Mathematical models generally require validating in the field before they can be regarded as a reliable prediction tool.
- 2.18.11 The view of one officer from another authority, who has had some experience of predictions of Odour Models, is that it would be unsafe to serve notice purely on that evidence.

- 2.18.12 Prior to CLEAN's efforts to raise awareness and collect a petition, the number of complaints received and observations by officers did not support the predictions of the model.
- 2.18.13 It also has to be borne in mind that the predictions are in terms of the 98th percentile level. This is the value achieved for 2% of the time.
- 2.18.14 There was some debate about the number of odour units (OU), predicted by the model, that should be regarded as significant. The Environment Agency guidance refers to a 1.5 OU level for their purposes, but they are concerned with authorised processes that normally carry a condition of no objectionable odour beyond the process boundary and the levels relate to reasonable cause for annoyance not nuisance; this is a much higher standard than nuisance.
- 2.18.15 The 5 OU limit referred to in the planning application was an internal standard for Anglian Water. This might have been derived from a Planning Enquiry at Newbiggin-by-the-Sea, where a 5 OU limit was accepted as a level that would avoid nuisance (but not necessarily avoid complaints).
- 2.18.16 The Code of Practice on Odour Nuisance from Sewage Treatment Works refers to standards used in other countries and notes that a 10% time limit for residential and 15% time limit for commercial areas for the frequency of the incidence of recognisable odour. This is equivalent to about 36 days a year for residential areas. It is assumed that this standard would not allow objectionable odours to this extent. There is no comparable standard for the UK.

2.19 Odour Management

- 2.19.1 West Northamptonshire Development Corporation (WNDC) granted Anglian Water Limited planning permission for a new bio solid treatment works at the site. A condition of this being that the odour must be reduced. Further conditions were attached which would also improve the release of odour from the site.
- 2.19.2 Sewage works generate a variety of chemicals and monitoring of hydrogen sulphate in the area is being carried out.

2.19 Conclusions:

- 2.19.1 By the very nature of the activity of the Working Party considering this issue, it must be noted that complaint numbers increased.
- 2.19.2 Between 1991 and 2007 (16 years) 140 complaints have been received by the Council with peaks occurring in 1998 (19), 2001 (20), 2002 (22), 2003 (20), and 2006 (15)(Actual numbers in brackets).
- 2.19.3 During the CLEAN campaign a petition containing approximately 300 signatures was presented to the Working Party and complaints from over 40 businesses and Parish Councils generated
- 2.19.4 Consideration must be given when deciding the weight and brevity given to the actual numbers of complaints in the serving of an Abatement Notice:
- Are the complaints genuine or in response to being asked a specific question, and

- Have the numbers of complaints been generally low as there is an element of despondency from residents to the likelihood of any action ever taking place
- When considering the actions of other local authorities large numbers of complaints, in the several hundreds formed the basis of evidence to serve a notice.

2.19.5 Due to the nature of the activity and the number of variables affecting the likelihood of odour such as the factors such as rain wind and temperature it is unlikely that odour emissions can be fully eliminated whatever course of action is taken.

2.19.6 Currently given the “test” required to serve an Abatement Notice there is insufficient evidence to support this course of action at this point.

3.0 Proposed Works by Anglian Water

- 3.1 A number of improvements are being suggested by Anglian Water both as a result of the Odour Management Plan (OMP) and as works that are associated with, and might be conditional on, the building of an enhanced sludge treatment process, currently being pursued under the planning process. It is not within the remit of this Working Party for it to make direct comments in relation to any planning application, which is a separate process, however it has taken into account the detail of the application proposed by Anglian Water. West Northamptonshire Development Corporation (WNDC) granted Anglian Water Limited planning permission for a new bio solid treatment works at the site. A condition of this being that the odour must be reduced. Further conditions were attached which would also improve the release of odour from the site.
- 3.2 Sewage works generate a variety of chemicals and monitoring of hydrogen sulphate in the area is being carried out.
- 3.3 The Environmental Health Department are awaiting confirmation of the proposals arising from the draft Odour Management Plan from Anglian Water. So far odour abatement units have been fitted to the discharge points for the Sludge Digester Tanks, but have yet to be commissioned. Similar units are proposed for the Primary Settlement Tanks (PST) sludge cascade in the take-off line. Covering the sludge holding tank is also being proposed for 2008.
- 3.4 The planning application for the enhanced sludge processing plant is still in progress. WNDC have engaged a consultancy firm (Jacobs) to report to them on odour issues connected with the plant and the application with particular reference to the Ferric dosing claims.
- 3.5 Jacobs have visited the site and are reporting to WNDC, and the Council hopes to receive a copy of the report. A meeting with WNCD was held on the 11th March where they Jacobs that the plant is run reasonably well but were surprised that they did not have a completed OMP.
- 3.6 Jacobs advised that CLEANS’s ideas of covering the PSTs are not practicable. They thought that there were several obvious measures that could be taken to reduce odour from the site. One was covering the sludge holding tank and the other was providing odour abatement to the sludge cascade in the PST sludge off-take line. The works manager informed us some weeks ago, that he was recommending these items for action.

3.7 They advised that the ferric dosing is a mechanism for reducing phosphate but did have a secondary benefit of reducing hydrogen sulphide emissions, when applied to the inlet stream. Comments about reduction of odour emissions above apply.

3.8 These issues are outside the planning application and could probably only be required as an s106 agreement. The Working Party has suggested that WNDC includes these works as part of an s106 agreement.

3.9 Odour Management Plan (OMP)

3.9.1 As a result of a legal challenge over whether a Waste Water Treatment Works (WWTW) were “Premises” and thus could not be subject to Statutory Nuisance action, the Government commissioned a study on the best way to deal with these facilities, should the action succeed.

3.9.2 However the Courts finally decided in 2003 that WWTW could be considered “Premises” and could be subject to Statutory Nuisance control. Under the circumstances the Government decided that this would be sufficient, as bringing the Works into the Local Authority Air Pollution or Integrated Pollution Control regimes would result in too greater expenditure in upgrading works that did not cause problems.

3.9.3 The process produced a Code of Practice on Odour Nuisance from Sewage Treatment Works (CoP). This document provides a framework for dealing with odours from WWTW.

3.9.4 As a minimum, works should have a system for monitoring and dealing with odour. This is referred to as an Odour Management Plan (OMP).

3.9.5 The Billing WWTW are currently reviewing their OMP and Environmental Health is liaising with the management in developing the document.

3.9.6 It is considered that the document should be traceable to the CoP. Currently, some elements are missing and the management have been advised of the Council’s views.

3.9.7 However, the implementation of the document as it stands has already resulted in improvements in the process and plans for additional odour controls.

3.9.8 The Environmental Health Department will continue to liaise with Anglian Water in respect of the work on their OMP.

3.10 Evidence from Anglian Water

3.10.1 The Working Party has heard and received evidence that Anglian Water:

- Acknowledge that the works smell (‘currently a broad dispersion of odour around the existing works, which is likely to cause a widespread nuisance to the surrounding area’- based on their computer model prediction)¹
- Four complaints had been received last year²
- Are doing something about the smell
- Will continue to do something about the smell
- The site visit 11/1/2008 took evidence from the site manager and noted that in the last year, Anglian Water had, for example,

¹ P18, AW Odour dispersion model

² Site visit notes

- Been improving the removal of settled solids from the primary tanks
- Maintained odour sprays
- Changed the pipe work to avoid floating sludge in primary tanks
- Improved control over tanker discharge at works inlet
- New odour control in sludge thickening building
- Continuous monitoring of Odour Management Plan

3.10.2 Also planned work for the next 12 months includes:

- Odour control on digested sludge outlet chambers
- (Subject to planning permission) Dosing of Iron Salts to prohibit release of sulphides in primary tanks – expected to reduce odour from the works by 30% overall
- (Subject to planning permission) Odour control on new sludge treatment centre in north site
- Agreeing Odour Management Plan with Northampton Borough Council Environmental Health Officers
- Engaging odour consultant to measure emissions from the site

3.10.3 Anglian Water informed the Working Party that the current and proposed improvements are valued at over £1 million. The Working Party felt that this was a substantial investment in the site and would go a long way to addressing the issue.

3.10.4 Additionally, the Working Party noted that the proposal to increase the works would lead to a threefold increase in renewable energy production at the site. This means that the site will be able to export energy to the national grid. The Working Party welcomed the re-starting of the 'open days' proposed by Anglian Water.

3.10.5 The process itself is an essential service to the town and cannot be stopped. The service of a notice would, therefore, have no immediate effect unless the problem arose from a medium-long term (in order to qualify as a nuisance there would have to be an element of continuance), maintenance or management problem.

3.11 Site Visit to the Billing Waste Water Treatment Works by the Working Party

3.11.1 The working party visited the site on the 11th of January 2008. During the site visit, Councillors questioned the feasibility of covering the tanks and were informed of the corrosion problems that this would cause to the concrete on the existing tanks. It was further noted that covered tanks at a brand new site (2001/02) in Hull (Salt End) had not solved the problem and 195 complaints had been received between 2004-2006. Councillors also noted the functioning odour masking sprays and were informed of the corrective works being proposed at various parts of the site. Whilst at the site, Councillors and Anglian Water acknowledged that the site did smell, at that time.

3.12 Conclusions:

3.12.1 From the evidence gathered, the Working Party concludes that whilst there is currently insufficient evidence to support the service of an Abatement Notice, there exists the issue of odour from the site. Anglian Water acknowledges this and has put in place a number of measures to reduce odour emission from the site.

Appendices

Billing Waste Water Treatment Works working party – project plan and meeting record March 2008. v5: December – March

Billing Waste Water Treatment Works	Meeting 1, 11 December 2007 2pm	Meeting 2, 8 January 2008, 2pm	Meeting 3, 11th January 2008	Meeting 4, 11 February 2008
Purpose/Objectives of the Review	<ol style="list-style-type: none"> 1. Review and evaluate evidence 2. Establish whether there is a ‘statutory nuisance’ 3. Identify the range of alternative options to move forward and make recommendations 			
Exclusions and Constraints	<p>Time will be a key constraint and resources for the Working Party will only be sufficient to attend site visits and to deliver an appropriate level of officer support.</p> <p>Agreed To Complete the review by end March 2008</p>			
Outcomes Required	<ol style="list-style-type: none"> 1. Public confidence in a robust process 2. An improved situation based on the best identified way forward 			
Information Required <ul style="list-style-type: none"> • Charts ✓ • Budgets ✗ • Services ✓ • Evidence from users/service employees ✓ • Information from partners ✓ • Relevant BVPIs ✗ • Best Practice Councils ✓ • Experts ✓ 	<ol style="list-style-type: none"> 1. Review of officer briefing note <ul style="list-style-type: none"> ○ Legal considerations ○ Practical considerations ○ Complaints – very few received. Complainants encouraged to keep records ○ Proposed new sludge treatment works ○ CLEAN 2. Review of Odour Management Plan 3. Communication Plan <p>Agreed to use O&S Committee to provide public updates. Overview and Scrutiny to deal with public/other queries</p>	<p>Scope questions for meeting with Anglian Water – January 11th.</p> <p>Review officer evidence</p> <ul style="list-style-type: none"> ○ Mogden Schedule of Works ○ Complaints data (including those from WBC and SNDC – Paul Mallard to provide) ○ Recent communications review <p>Identify appropriate best practice site to visit in February</p>	<p>Meet with Anglian Water representatives (Tim Hilsdon- Manager) (11th January)</p> <p>Consider how to work with Anglian Water on new Odour Management Plan</p>	<p>Collect evidence from witnesses</p> <ul style="list-style-type: none"> • CLEAN • Businesses in the area • Local residents, (invited to 31 January O&S 2 meeting) • Ward members, Parish Councils <p>Review project plan and scope remaining meetings.</p>
Format of Information	Officer reports	Officer reports	Expert advice	Verbal and written evidence

<ul style="list-style-type: none"> • Officer briefings ✓ • Officer reports ✓ • Portfolio holder reports ✗ • Councillor reports ✗ • Published reviews by other organisations ✓ • Case studies ✓ • Expert advice ✓ • Surveys ✓ • Witnesses verbal/ written evidence ✓ • Commissioned research ✗ • Presentations ✓ • Local/regional/national data ✓ 	<p>The February meeting will require case studies of other Councils experience.</p>			
<p>Methods used to Gather Information</p> <ul style="list-style-type: none"> • Interviews in committee/community ✓ • Focus Groups/User Groups in the Community ✗ • Public Meetings ✗ • Working Groups ✗ • Structured Visits to Other Organisations ✓ • Site Visits ✓ • Advertisements ✗ • Media ✓ • Questionnaires ✓ 	<p>The working party will visit the site at Billing and appropriate other sites identified as best practice. (Dates to be arranged – mid January Billing site & the local area)</p> <p>A meeting with OFWAT will be arranged.</p> <p>Visit to ‘best practice’ site – to be identified</p> <p>Evidence needs to be gathered from West Northamptonshire Development Corporation on planning considerations</p> <p>Chamber of Commerce to be asked for comments.</p> <p>A press release will be prepared when this Working Party has completed its work.</p>		<p>Letters to be sent to</p> <ul style="list-style-type: none"> ○ Billing Aquadrome ○ Mill Pub ○ Garden centre ○ School ○ Other businesses in area <p>Businesses need to be encouraged to keep record sheets.</p>	

Co-Options to the Review Committee	The Working Party considered possible co-option and decided to call witnesses as and when necessary – to deliver presentations & verbal/written evidence, rather than formally co-opt to the Working Party. Interested Parties will receive information (in the form of updates to this project plan) at the O&S meeting in January			
Evidence gathering timetable	January to March 2008			
Responsible Officers	Joe Alfano, Paul Mallard, Steve Elsey, (Environmental Health) Ben Bix, Mark Farmer (Overview and Scrutiny) Agreed That Steve Elsey would not be involved in the evidence gathering stages but would be involved at sign off.		Simone Wade – Policy and Governance Manager – Final report preparation	Simone Wade – Policy and Governance Manager – Final report preparation
Resources and Budgets	Budget for site visits – will be identified as meetings progress			
Final report presented by	Cllr Meredith to Overview and Scrutiny 2			
Final report submitted to	Overview and Scrutiny 2, early April 2008			
Monitoring procedure	To be agreed			

Last update, 19 March 2008.

Issues Log

11/1/2008 - Remaining meetings in March must be scheduled

28/1/2008 – Site visit to Hull identified, to be scheduled after 5 March

6/2/2008 – Ofwat representative likely to attend 11 February meeting as observer (did not attend)

17/3/2008 – Working Party decide to meet to scope draft report

18/3/2008 – Site visit to Hull not available, approach made to Ipswich. Chair decides that site visit will not add to final report as summaries from sites have already been made available for consideration

Appendix B

Billing Sewage Treatment Works

Address	Year	Month	Month 2	Case	Case 2
Oathill Dr	1991	Aug	8	a	1
Caravan Site	1991	Nov	11	b	1
Vantage Meadow	1991	Nov	11	b	
Foxendale Sq	1991	Oct	10	c	1
Hillbury Rise	1991	Sep	9	d	1
Chedworth Close	1992	Jul	7	a	1
Riverwell	1992	Jul	7	a	
Cogenhoe	1992	Mar	3	b	1
Home Farm Close	1992	May	5	c	1
Sharrow Place	1992	Nov	11	d	1
Caravan Site	1992	Sep	9	e	1
Lawson Cres	1992	Sep	9	e	
Ecton Park Rd	1993	Jan	1	a	1
Paddocks way	1993	May	5	b	1
Sharrow Place	1993	May	5	b	
Foxendale Sq	1994	Aug	8	a	1
Westcott Way	1995	Aug	8	a	
Caravan site	1995	Jul	7	b	1
Foxendale Sq	1995	Jul	7	b	
Hall Piece Close	1995	Jul	7	b	
Riverwell	1995	Jul	7	b	
Rixon Close	1995	Jul	7	b	
none	1996			0	
Crow Lane	1997	Aug	8	a	1
Leyside Court	1997	Aug	8	b	1
Strawberry Hill	1997	Aug	8	b	
Manorfield Court	1997	Dec	12	c	1
Manorfield Court	1997	Nov	11	c	
Crow Lane	1997	Oct	10	a	1
Crow Lane	1997	Sep	9	a	
Crow Lane	1998	Aug	8	a	
Ibstock Cl	1998	Aug	8	a	
Chedworth Close	1998	Jul	7	b	1
Cogenhoe	1998	Jul	7	b	
Station Rd	1998	Jul	7	b	
Willow Brook Sq	1998	Jul	7	b	
Crow Lane	1998	May	5	c	1
Chedworth Close	1998	Oct	10	d	1
Crow Lane	1998	Sep	9	d	
Crow Lane	1998	Sep	9	d	
Damson Dell	1998	Sep	9	d	
Ecton Brook	1998	Sep	9	d	
Gervase Sq	1998	Sep	9	d	
Knights Court	1998	Sep	9	d	
Knowles Close	1998	Sep	9	d	
Leafields	1998	Sep	9	d	
Manorfield Close	1998	Sep	9	d	
Manorfield Court	1998	Sep	9	d	
The Fair Oaks	1998	Sep	9	d	

Riverwell	1999	Apr	4	a	1
Fishers Close	1999	Aug	8	b	1
Glade Close	1999	Aug	8	b	
Sunset Court	1999	Jul	7	c	1
The Causeway	1999	Jul	7	c	
Abington Park Cres	1999	May	5	d	1
Station Rd	1999	May	5	d	
Oransay Cl	1999	Sep	9	e	1
Riverwell	1999	Sep	9	e	
Sunset Court	2000	Aug	8	a	1
Station Rd	2000	Feb	2	b	1
Kingfisher Court	2000	Jun	6	e	1
Caravan site	2000	Mar	3	c	1
NK	2000	Mar	3	c	
Earls Barton	2000	May	5	d	1
Causway	2001	Jul	7	a	1
Crow Lane	2001	Jul	7	a	
Crow Lane Ind	2001	Jul	7	a	
Lawson Cres	2001	Jul	7	b	1
Manorfield Close	2001	Jul	7	b	
Walgrave Close	2001	Jul	7	b	
Crow Lane	2001	Aug	8	c	1
Crow Lane Ind	2001	Aug	8	c	
Station Rd	2001	Aug	8	c	
Walgrave Close	2001	Aug	8	c	
Cogenhoe	2001	Sep	9	d	1
Cogenhoe	2001	Sep	9	d	
Cogenhoe	2001	Sep	9	d	
Lawson Cres	2001	Oct	10	e	1
Causway	2001	Dec	12	f	1
Crow Lane	2001	Dec	12	f	
Lower Ecton lane	2001	Dec	12	f	
Lower Ecton lane	2001	Dec	12	f	
Manorfield Close	2001	Dec	12	f	
NK	2001	Dec	12	f	
Daimler Close	2002	Jan	1	a	1
Damson Dell	2002	Jan	1	a	
Damson Dell	2002	Jan	1	a	
Damson Dell	2002	Jan	1	a	
Fieldmill Road	2002	Jan	1	a	
Fishers Close	2002	Jan	1	a	
Gurston Rise	2002	Jan	1	a	
Lasham Court	2002	Jan	1	a	
Lower Ecton lane	2002	Jan	1	a	
Station Rd	2002	Jan	1	a	
Talmer Sq	2002	Jan	1	a	
Valentine Way	2002	Jan	1	a	
Willow Rise	2002	Jan	1	a	
Causway	2002	May	5	b	1
Manorfield Close	2002	May	5	c	1
Palmer sq	2002	May	5	c	
Manorfield Close	2002	Jun	6	d	1
Crow Lane	2002	Sep	9	e	1
Station Rd	2002	Sep	9	f	1
Causway	2002	Oct	10	g	1

Damson Dell	2002	Oct	10	g	
Caravan Site	2002	Oct	10	g	
Damson Dell	2003	Apr	4	a	1
Lawson Cres	2003	Apr	4	a	
Manorfield Close	2003	Apr	4	a	
Manorfield Close	2003	May	5	b	1
Chedworth Close	2003	Jun	6	b	
Hone Farm Close	2003	Jun	6	b	
Station Rd	2003	Jun	6	c	1
Willow Rise	2003	Jun	6	c	
Windflower Place	2003	Jun	6	c	
Causway	2003	Jul	7	d	1
Crow Lane	2003	Jul	7	d	
Crow Lane	2003	Jul	7	d	
Damson Dell	2003	Jul	7	d	
Damson Dell	2003	Jul	7	d	
Standing Stones	2003	Jul	7	d	
Causway	2003	Aug	8	e	1
Cogenhoe	2003	Sep	9	f	1
Cogenhoe	2003	Oct	10	g	1
Jackdaw Close	2003	Oct	10	g	
Thorburn Rd	2003	Oct	10	g	
The Causway	2004	Sep	9	a	1
The Causeway	2005	Apr	4	a	
The Causway	2005	Apr	4	b	1
Fishers Close	2005	Apr	4	c	1
Penfold Lane	2005	Sep	9	d	1
Old carpenters Clo:	2005	Oct	10	e	1
Penfold Lane	2006	Jun	6	a	1
Medelin Hill	2006	Jul	7	b	1
Oak Park Close	2006	Jul	7	b	
Paddocks way	2006	Jul	7	b	
Chantry Cl	2006	Sep	9	c	1
Manorfield Close	2006	Sep	9	c	
NK	2006	Sep	9	c	
Pond lane	2006	Sep	9	c	
Russett Dr	2006	Sep	9	c	
Sunset Court	2006	Sep	9	c	
Conyngham Rd	2006	Oct	10	c	
Ecton	2006	Oct	10	c	
Lakeside dr	2006	Oct	10	c	
Lowick Ct	2006	Oct	10	c	
Manorfield Close	2006	Oct	10	c	
Longford Ave	2007	Jul	7	a	1
Ecton Brook Rd	2007	Oct	10	b	1

Billing Waste Water Treatment Works

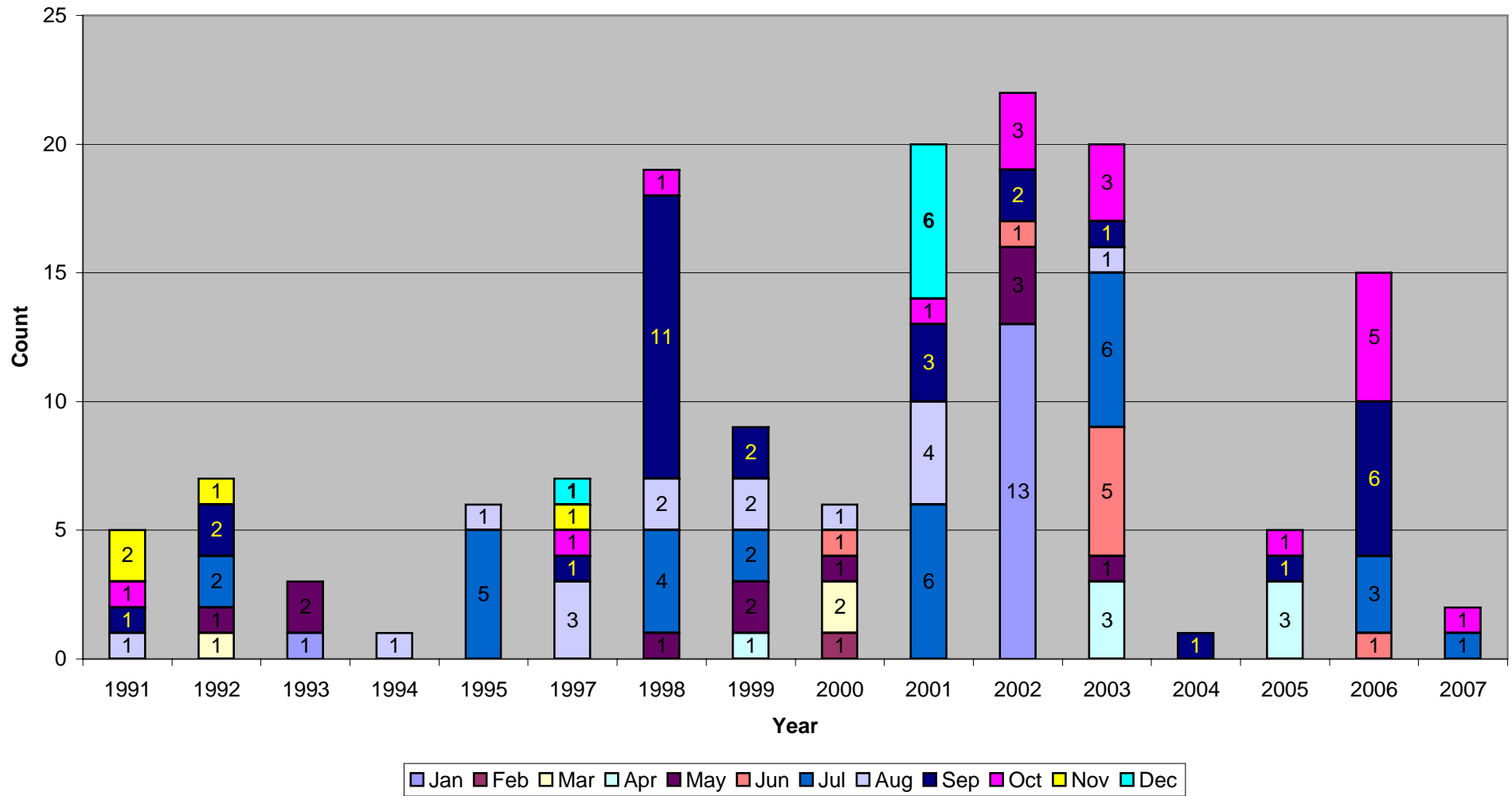
Count of Address	Month												Grand Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Abington Park Cres					1								1
Caravan Site			1				1		1	1	1		5
Causway					1		2	1		1		1	6
Chantry Cl									1				1
Chedworth Close						1	2			1			4
Cogenhoe			1				1		4	1			7
Conyngham Rd										1			1
Crow Lane					1		3	3	4	1		1	13
Crow Lane Ind							1	1					2
Daimler Close	1												1
Damson Dell	3			1			2		1	1			8
Earls Barton					1								1
Ecton										1			1
Ecton Brook									1				1
Ecton Brook Rd										1			1
Ecton Park Rd	1												1
Fieldmill Road	1												1
Fishers Close	1			1				1					3
Foxendale Sq							1	1		1			3
Gervase Sq									1				1
Glade Close								1					1
Gurston Rise	1												1
Hall Piece Close							1						1
Hillbury Rise									1				1
Home Farm Close					1								1
Hone Farm Close						1							1
Ibstock Cl								1					1
Jackdaw Close										1			1
Kingfisher Court						1							1
Knights Court									1				1
Knowles Close									1				1
Lakeside dr										1			1
Lasham Court	1												1
Lawson Cres				1			1			1			4
Leafields									1				1
Leyside Court								1					1
Longford Ave							1						1
Lower Ecton lane	1											2	3
Lowick Ct										1			1
Manorfield Close				1	2	1	1		2	1		1	9
Manorfield Court									1		1	1	3
Medelin Hill							1					1	1
NK			1						1			1	3
Oak Park Close							1						1
Oathill Dr								1					1
Old carpenters Close										1			1
Oransay Cl									1				1
Paddocks way					1		1						2
Palmer sq					1								1
Penfold Lane						1			1				2
Pond lane									1				1
Riverwell				1			2		1				4
Rixon Close							1						1
Russett Dr									1				1
Sharrow Place					1						1		2
Standing Stones							1						1
Station Rd	1	1			1	1	1	1	1				7
Strawberry Hill								1					1
Sunset Court							1	1	1				3
Talmer Sq	1												1
The Causeway				1			1						2
The Causway				1					1				2
The Fairoaks									1				1
Thorburn Rd										1			1
Valentine Way	1												1
Vantage Meadow											1		1
Walgrave Close							1	1					2
Westcott Way								1					1
Willow Brook Sq							1						1
Willow Rise	1					1							2
Windflower Place						1							1
Grand Total	14	1	3	7	11	8	29	16	31	17	4	7	148

Billing Waste Water Treatment Works

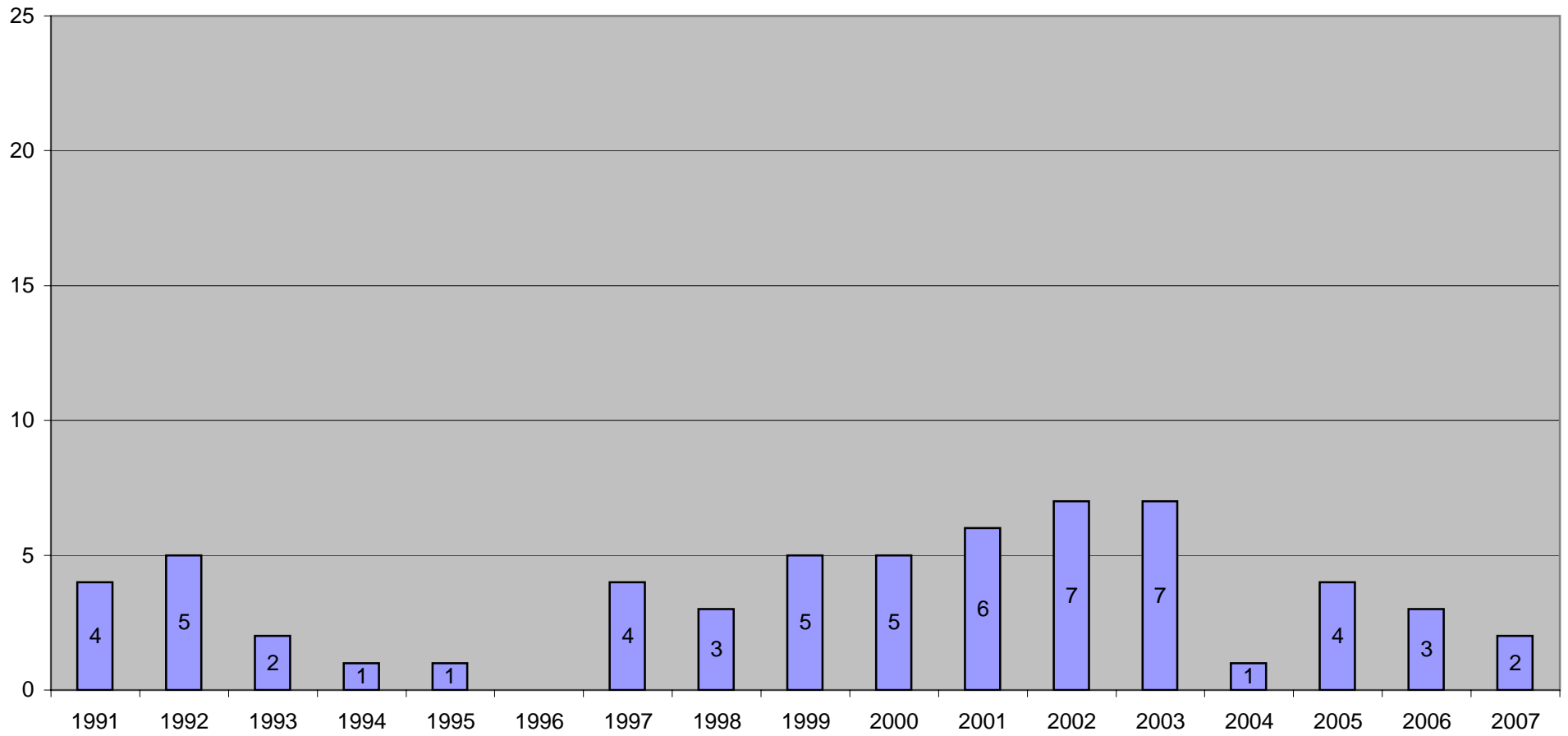
Count of Address	Month												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total
1991								1	1	1	2		5
1992			1		1		2		2		1		7
1993	1				2								3
1994								1					1
1995							5	1					6
1997								3	1	1	1	1	7
1998					1		4	2	11	1			19
1999				1	2		2	2	2				9
2000		1	2		1	1		1					6
2001							6	4	3	1		6	20
2002	13				3	1			2	3			22
2003				3	1	5	6	1	1	3			20
2004									1				1
2005				3					1	1			5
2006						1	3		6	5			15
2007							1			1			2
Grand Total	14	1	3	7	11	8	29	16	31	17	4	7	148

Longford Ave																	1	1
Lower Ecton lane										2	1							3
Lowick Ct																	1	1
Manorfield Close							1			2	2	2					2	9
Manorfield Court						2	1											3
Medelin Hill																	1	1
NK									1	1							1	3
Oak Park Close																	1	1
Oathill Dr	1																	1
Old carpenters Close																1		1
Oransay Cl									1									1
Paddocks way			1														1	2
Palmer sq												1						1
Penfold Lane																1	1	2
Pond lane																	1	1
Riverwell		1				1			2									4
Rixon Close						1												1
Russett Dr																	1	1
Sharrow Place		1	1															2
Standing Stones																		1
Station Rd							1	1	1	1	2	1						7
Strawberry Hill						1												1
Sunset Court								1	1								1	3
Talmer Sq												1						1
The Causeway								1									1	2
The Causway														1	1			2
The Fair Oaks							1											1
Thorburn Rd																1		1
Valentine Way												1						1
Vantage Meadow	1																	1
Walgrave Close											2							2
Westcott Way						1												1
Willow Brook Sq								1										1
Willow Rise												1	1					2
Windflower Place																	1	1
Grand Total	5	7	3	1	6	7	19	9	6	20	22	20	1	5	15	2		148

Billing Waste Water Treatment Works Odour Complaints



**Billing Waste Water Treatment Works
Odour Cases or Episodes**



■ Total

Appendix C

CLEAN represents local businesses, householders and neighbours of Billing sewage plant. We are here because we want an odour nuisance abatement order served against Anglian Water. We believe that there are and have been sufficient complaints and that the smell is severe enough to warrant this.

In a court case on the subject of odours from sewage works in March 2007 the Honourable Mr Justice Ramsey referred to the Water Industry Act 1991 and the requirement to deal effectually with the contents of sewers. He states: *"One of the purposes for the requirement for effectually dealing with the contents is therefore to treat the sewage in such a way as to render it reasonably harmless and inoffensive. I consider that this would include treatment so that it does not give rise to unreasonable odours or to insect infestations while at a sewage works."*

Further he states: *"It is common ground that what is needed to deal effectually with the content of sewers is a matter of degree. However, where the contents of a sewer when emptied at a sewage treatment works causes odours and mosquitoes then I consider that, on the natural meaning of that phrase, the contents of the sewers have not been effectually dealt with"*.

CLEAN have stated before that in the DEFRA Code, the Government Guidance clearly states in section 5.1 paragraph 2, that a statutory odour nuisance abatement order can be served with *"only one complaint or even none"*. Further, in table 2 of section 5.2.2 it also states that an odour dispersion model *"has the advantage that it allows comparison with numerical standards"*.

Anglian Water themselves have supplied their odour dispersion model which shows Anglian Water's CURRENT odour levels and odour emissions. This model is intended to predict odours for their expansion, but we will only refer to the current levels. This report also states on page 18 that there is *'Currently a broad dispersion of odour around the existing works, which is likely to cause a widespread nuisance to the surrounding area'*.

OFWAT's comment on this report is that they feel that *"It is clear that, on the basis of the estimated odour contours from the Odour Dispersion Survey, nuisance may currently exist in this area"*. They also say that *"...[owing to the primary settlement tank de-sludging practice]...Odour may well be worse than that"* and that Anglian Water's operational practice is *"more serious than the 'good housekeeping as intended in DEFRA's Code of Practice 8.2"*

It is on this evidence, this odour dispersion survey commissioned by Anglian Water themselves, and the many letters of complaint that we have seen from local businesses, residents, and Ecton Brook Primary School, that we believe that a statutory odour nuisance abatement order should be served against Anglian Water. CLEAN have approached Neil Stockdale of Hugh James Solicitors, the solicitors handling the class action against Thames

Water, and have shown him this evidence. He writes: *"It is clear from the report prepared by Mott McDonald in support of a planning application and the odour dispersion study incorporated therein that the site has been responsible for nuisance problems for some time. There are comments on page 18 and 37 in particular and the odour contour plans show that odour would have had the potential to affect a fairly significant area."* He further states: *"in my view the information that you have provided me with thus far suggests that the ingredients for an action in nuisance are present"*.

NBC Environmental Health Officers have written that they would *"need to give evidence that they made a decision correct in law"* prior to the issuing of an abatement notice. CLEAN believe that Neil Stockdale's statement proves that the decision to issue an abatement notice is correct in law.

NBC Environmental Health has also stated that: *"the council cannot use the legal process of abatement notice more than once if the first attempt fails."* We have heard from Hounslow Borough Council Environmental Health that the sequence of serving a statutory odour nuisance abatement order is to serve notice that a nuisance exists, and then a judge will tell the water company to negotiate with the environmental health officers to create a schedule of works. Helen Matthews of DEFRA wrote to CLEAN in September 2007 and stated *"The abatement notice requires that the nuisance be ceased or abated, and can, (but does not have to) specify steps to be taken."* The DEFRA Code of Practice states on page 14 that *"An abatement notice once issued may simply require abatement without specifying works or other steps necessary."*

It should be a simple matter for NBC Environmental Health Officers to use the information in Anglian Water's dispersal report to specify remedial works. The report indicates that the Primary Inlet and Primary Settlement tanks along with the Sludge Import buffers and the Sludge Cake Bays are responsible for most of the odours. These are the areas that could be covered to remove most of the unpleasant smells.

Not only that, there is a solution they have implemented in Melbourne Australia, to cover the Primary inlets and Primary settlements tanks and take the methane that is formed and use it to make green electricity. Anglian Water already has the infrastructure in place to use any extra methane they recover, therefore this solution could be self-funding.

CLEAN have approached a manufacturer of butyl rubber linings and covers for sewage lagoons. Butyl Products Ltd have created lined sewage lagoons for Anglian Water and for a range of clients including the MOD. I explained the project and they have quoted me £8.50 per square metre, installed.

Using the information in the Dispersion report, the inlet channels emit 45,000 Odour units and the primary treatment emits 190, 914 Odour units. This total of 236,838 is two-thirds of the total odour units shown in the report. (Total Odour units are 380,715).

The total square metres of each individual process can easily be seen in the report. Total area to be covered is 8944.59 sq metres at £8.50 supplied and installed and would cost approximately £76,000 pounds. As none of the individual processes exceeds 1200 sq metres, this is the correct covering figure. Some of these areas would also need to be lined, so we will double the figure and estimate £150,000 pounds for covering and lining.

CLEAN believe that Anglian Water will not consider this inexpensive and self-funding solution without being compelled to do so with a Statutory Odour Nuisance Abatement Order. CLEAN have opened further dialogue with Anglian Water at their 'Roadshow' in Ecton on Tuesday 5th February 2007 and whilst they suggest that they are *'keen to improve odours from the site'* and can give evidence of the actions they have taken over the past 12 months CLEAN's continued belief is that these actions fall far short of what must to be done to comply with their industry's Code of Practice and to match best practice in other sewage treatment works.

Northampton Borough Council Environmental Health officers have not acted with regard to the DEFRA's Guidance which says that they should take a proactive stance - This means that they should regularly, perhaps even daily in the summer, go to Crow Lane and breathe in. They should be monitoring this, not waiting for complaints.

NBC Environmental Health's current procedures are a strategy for failure, saying that they prefer to negotiate with Anglian Water than issue an abatement notice, but this strategy has led to years of complacency and neglect of responsibility from Anglian Water. It wasn't until CLEAN intervened and that Anglian Water's expansion plans were held up that anything happened. Environmental Health have not protected the children at Ecton Brook primary school or taken care of the best interests of the local population, surely something that should be their primary objective?

CLEAN request that this working party recommend to Northampton Borough Council that their Environmental Health officers are compelled to make their decisions with regard to the Government Code of Practice, DEFRA's Code of Practice on Odour Nuisance from Sewage Treatment Works. In so doing it is clear that their next action should be to issue a Statutory Odour Nuisance Abatement Order and work out a rigid plan to eliminate this nuisance once and for all. CLEAN are happy to provide support to Anglian Water in their efforts to reach a satisfactory outcome for all parties.

Biosolids Quality Sub-Programme (S0017)

Great Billing New Biosolids Treatment Centre (SEW 05840)

Odour Dispersion Study

Issue and Revision Record

Rev	Date	Originator (Print) (Signature)	Checker (Print) (Signature)	Approver (Print) (Signature)	Description
A	December 2006	A Piggott	G Hoyland	J Newton	First Issue
B	January 2007	A Piggott	G Hoyland	J Newton	Minor additions included
C	June 2007	A Piggott	A Paskins	J Newton	Inclusion of ferric chloride dosing at inlet works
D	<u>July 2007</u>	A Piggott	A Paskins	A Fernand	Including storm tanks and covered cake reception options only.

This document has been prepared for the titled project or named part thereof and should not be relied upon or used for any other project without an independent check being carried out as to its suitability and prior written authority of Mott MacDonald being obtained. Mott MacDonald accepts no responsibility or liability for the consequences of this document being used for a purpose other than the purposes for which it was commissioned. Any person using or relying on the document for such other purpose agrees, and will by such use or reliance be taken to confirm his agreement to indemnify Mott MacDonald for all loss or damage resulting therefrom. Mott MacDonald accepts no responsibility or liability for this document to any party other than the person by whom it was commissioned.

To the extent that this report is based on information supplied by other parties, Mott MacDonald accepts no liability for any loss or damage suffered by the client, whether contractual or tortious, stemming from any conclusions based on data supplied by parties other than Mott MacDonald and used by Mott MacDonald in preparing this report.

4 Environmental Issues



In context of the proposed development at Great Billing WwTW, a range of potential environmental issues have been identified, as described below.

4.1 Odour

Great Billing WwTW has received over 100 odour complaints since 1997 from local residents and nearby traders (e.g. Billing AquaDome) and is under threat of an abatement notice. Existing odours mainly originate from the primary sedimentation tanks and the sludge cake storage bays.

Aerosol sprays are currently used to control odour from the primary settlement tanks. This system has been implemented since the earlier complaints and Anglian Water's intent is to continue using aerosol sprays to control odour from the primary settlement tanks until a permanent solution can be implemented.

As part of this scheme an Odour Management Plan has been prepared separately in consultation with the Northampton Environmental Health Officer.

The latest Odour Dispersion Study for the Great Billing WwTW site was prepared in July 2007, a copy of which has been attached in Appendix D. It gives a representative picture of the existing and future odour emissions from the upgraded works. Below is a summary of the findings of the report.

Results of the study show that the total emission rate from the proposed works will be lower than the rate from the existing works by 31%. This decrease will arise due to the reduced emissions from the inlet works, primary settlements tanks and primary sludge treatment, as well as the Bio-P activated sludge plant, as a result of ferric chloride dosing at the inlet works. Furthermore the proposed scheme will produce a more stable sludge than currently and will remove the need to store sludge on site for further treatment, hence reducing the current odour issues associated with cake storage.

Plots presenting the odour concentration contours around the proposed new plant show that this plant will have little impact on the surrounding sensitive receptors; the 5 OU/m³ odour concentration contour just touches the site boundary in one place (at the south east end of the site away from any sensitive receptors) and no concentration contours cross the site boundary at any point. No odour contours are observed in the location of the proposed new north site.

The predicted 5 OU/m³ and 10 OU/m³ concentration contours around the WwTW following the proposed works are smaller than those around the existing works, indicating that there will be a reduction in the odour nuisance caused by the works after the proposed upgrades. Particular improvements would be observed in part of the caravan site and at the school beyond the trunk road.

5 Odour Contour Maps

Plots of the predicted odour concentration contours around the Great Billing site (in units of OU/m³) are shown on the following pages. The plots in Figures 5.1, 5.2 and 5.3 show the impact of the new plant to be installed on the site, using meteorological data from 2003 to 2005. Figures 5.4, 5.5 and 5.6 show plots of the predicted odour concentration contours around the existing Billing site for the existing works, and Figures 5.7, 5.8 and 5.9 show the predicted contours for the combined existing and proposed works. These situations are also shown using meteorological data from different three years, 2003 to 2005.

5.1 Odour Concentration Contours

It should be noted that the odour concentration contours shown on the maps are concentrically, from the outside towards the centre, 5 OU/m³, 10 OU/m³, 20 OU/m³, 50 OU/m³, 100 OU/m³ and 200 OU/m³.

5.2 New Plant Only

The proposed new plant that will be installed on the works will comprise imported sludge cake reception plant, additional screenings skips, additional gas holder tanks with associated pressure relief valves, an additional digester with associated pressure relief valves, a proprietary Monsal EEH plant, a new centrifuge building with two centrifuge units, and a return liquors treatment plant. At the present time, it is intended that the cake reception plant (including offloading point, transfer belt and hoppers) will be fully enclosed and force-vented to an odour control unit.

Figures 5.1 to 5.3 present the predicted 98 percentile hourly-average odour contour plots for the existing works, chronologically using MET data from 2003 to 2005. The widest dispersion was observed for the year 2003, and the following observations are made about this plot:

- no odour contours are observed in the location of the proposed new north site;
- operation under the proposed configuration predicts that there will be significant odour generated only by the return liquors treatment plant;
- the plots show a maximum odour concentration of 5 OU/m³ at one point on the site boundary (in the south east, away from any sensitive receptors), with no odour contours crossing the boundary.

These plots suggest that there will be no increased nuisance caused by odour generated by the proposed plant to be added to the works.

5.3 Existing Works

It should be noted that the unusually high odour emission rate attributed to the primary sludge on the existing works is due to current operational practice; the PSTs are desludged once every two days, resulting in production of primary sludge with a significant degree of septicity. In the future, this will be changed so that the PSTs are continuously desludging, which will reduce the odour emissions

associated with the primary sludge. However, this reduction has not been included in the calculations of total odour emission rates for the proposed works.

Figures 5.4 to 5.6 present the predicted 98 percentile hourly-average odour contour plots for the existing works, chronologically using MET data from 2003 to 2005. The widest dispersion was observed for the year 2003, and the following observations are made about this plot:

- operation under the existing conditions currently results in odour concentrations at the site boundary in the range 10 to 50 OU/m³;
- the 10 OU/m³ odour concentration contour encompasses the whole of the caravan park to the north and the industrial estate and factory to the west of the site;
- the 5 OU/m³ odour concentration contour encompasses a large stretch of the A45 and the school and playing fields beyond the trunk road.

These plots suggest that there is currently a broad dispersion of odour around the existing works, which is likely to cause wide-spread nuisance to the surrounding area.

5.4 Proposed Works

Figures 5.7 to 5.9 present the predicted 98 percentile hourly-average odour contour plots for the proposed works, chronologically using MET data from 2003 to 2005. The total odour emission rate from the proposed configuration is approximately 31% lower than the rate from the existing works, due to the significant reduction in odour emission as a result of ferric chloride dosing.

The widest dispersion was observed for the year 2003, and the following observations are made about this plot:

- operation under the proposed configurations predict odour concentrations at the site boundary in the range 10 to 50 OU/m³;
- the 10 OU/m³ odour concentration contour encompasses part of the caravan park to the north, and most of the industrial estate and factory to the west of the site;
- the 5 OU/m³ odour concentration contour encompasses a large stretch of the A45 and part of the school playing fields (but not the school itself) beyond the trunk road.

These plots suggest that there should be no increase in the level of odour nuisance created by the works, and it is likely that there will be a marked decrease in odour emissions at the works after the installation of the new plant and the change of operational procedure.

Biosolids Quality Sub-Programme (S0017)
Great Billing New Biosolids Treatment Centre (SEW 05840)
Odour Dispersion Study

Existing Works (2005 MET data)



Figure 5.6: 98 percentile Odour Conc. Contour Plot for Existing Works (2005 MET data)

School

Homes in Crow Lane

Billing Garden Centre

Billing Aquadrome



APPENDIX 6 - INSTALLATION-SPECIFIC EXPOSURE CRITERIA



Annoyance potential

Annoyance potential is the likelihood that a specific odorous mixture will give reasonable cause for annoyance in an exposed population.

Not all odours have the same potential to cause annoyance – for example odours arising from putrescible materials, are typically considered to be more “offensive” than odours from a bakery which might be better tolerated. It should be remembered however that **ANY** odour has the potential to cause offence if, for example, the odour is strong and/or exposure is frequent. The list below (Table A6.1) is based around a ranking of industrial-type odours which was carried out in the UK recently (as described in Appendix 1). The results are consistent with those from the Netherlands and Germany. A larger UK study is currently underway and the table below will be reviewed in line with any different outcomes.

This ranking gives some indication of **relative** offensiveness. These have then been categorised as “low”, “medium” and “high” offensiveness and exposure criteria have been assigned to each category. These categories are indicative only and do not have definite cut-off points in terms of the industry types listed. Although this ranking is based upon the views of a number of people; within this there may be individuals who respond differently, (see Appendix 1 – “Offensiveness”)

Table A6.1: Indicative odour exposure criteria for ground level concentration of mixtures of odorants

<p><u>Relative "offensiveness" of odour</u> More offensive odours.....</p> <p>Activities involving putrescible waste Processes involving animal or fish remains Brickworks Creamery Fat & grease processing Wastewater treatment Oil refining Livestock feed factory</p> <p>-----></p>		<p>HIGH</p> <p>MEDIUM</p> <p>LOW</p>	<p>Indicative Criterion</p> <p>1.5 ou_E m⁻³ 98th percentile</p>	<p>(a). Select most appropriate category – high, medium or low - for the particular odour type (or most offensive odour if there is more than one distinct odour released from the particular installation). The model shows three distinct categories to simplify the process; in reality the gradation is continuous.</p> <p>(b). Select the corresponding indicative criterion from Table A6.1 and use this as a starting point. See also Table A1.1 which gives a wider range of odour types.</p> <p>(c) Now make adjustments for any relevant local factors and record the decision.</p> <p>(d) The end result will be an installation-specific odour exposure criterion in terms of odour ground level concentration at sensitive receptors. This equates to “no reasonable cause for annoyance”.</p> <p>Compare this with:</p> <ul style="list-style-type: none"> • what the operator is currently achieving • what is achievable with BAT to derive Permit conditions. <p>New installations will be expected to meet indicative BAT standards (as set out in the appropriate Sector Guidance Note) from the outset.</p>
<p>Intensive livestock rearing Fat frying (food processing) Sugar beet processing</p> <p>These are odours which do not obviously fall within the HIGH or LOW categories</p> <p>-----></p>			<p>Indicative Criterion</p> <p>3.0 ou_E m⁻³ 98th percentile</p>	
<p>Chocolate manufacture Brewery Confectionery Fragrance and flavourings Coffee roasting Bakery</p> <p>Less offensive odours (not <u>in</u>offensive)</p> <p><u>These categorisations are indicative only</u> Table A1.1 lists a wider range of industrial odours.</p>			<p>Indicative Criterion</p> <p>6.0 ou_E m⁻³ 98th percentile</p>	

The criteria given are based upon: (see Appendix 4)

- 98th percentile
- 1 hour averaging time

Table 4.1: Odour Sources and Emission Rates for Existing WwTW Including STC


Ref	Process units	Dimensions										Ventilation				Emission from plant							Removal			Comments		
		No.	Length m	Width m	Radius m	Structure height m	Weir drop m	Area per unit m ²	Total area (All units) m ²	Total volume (All units) m ³	Source elevation wrt ground m	Enclosed	Ventilated to scrubber	Air changes	Air rate from ventilation (All units) m ³ /hr	Gas flow rate (All units) m ³ /hr	Model Ass:	Air flow velocity per unit m/s	Hydraulic flow rate (Weir) l/s	Liquid velocity m/s	Odour potential or concentration OU/m ³	Specific odour emission rate Area Weir or Point OU/m ² .s OU/s	Total odour emission rate (All units) OU/s	Scrubbed	Removal %		Residual emission rate to atmosphere in 1000 weeks OU/s	
WwTW (Modelling by AW)																												
Preliminary Treatment																												
1	Inlet Channels	1	6.56	2.80	-	0.75	-	18.37	18.37	-	0	No	No	-	-	-	-	-	-	-	-	920.4	-	16,906	-	-	-	
2	Inlet Channel (not near pipe)	1	-	-	-	0.75	-	-	47.60	-	0	No	No	-	-	-	-	-	-	-	-	-	-	-	-	-		
3	Inlet Channel Diffuser	1	8.50	1.50	-	1.00	-	14.25	14.25	-	0	No	No	-	-	-	-	-	-	-	-	102.3	-	4,899	-	-		
4	Primary Screens	1	10.00	9.50	-	1.00	-	95.00	95.00	-	0	No	No	-	-	-	-	-	-	-	-	61.4	-	875	-	-		
5	Screenings Skip	1	4.00	2.50	-	2.00	-	10.00	10.00	-	0	No	No	-	-	-	-	-	-	-	-	71.6	-	6,802	-	-		
6	Channel to Detritor	1	3.60	16.23	-	0.75	-	58.43	58.43	-	0	No	No	-	-	-	-	-	-	-	-	8.7	-	87	-	-		
7	Detritor	2	12.50	12.00	-	2.00	-	150.00	300.00	-	0	No	No	-	-	-	-	-	-	-	-	33.2	-	1,540	-	-		
8	Detritor Downstream i	1	10.99	2.00	-	1.00	-	21.98	21.98	-	0	No	No	-	-	-	-	-	-	-	-	7.2	-	2,160	-	-		
9	Detritor Downstream ii	1	-	-	-	1.00	-	-	24.10	-	0	No	No	-	-	-	-	-	-	-	-	7.2	-	158	-	-		
10	Grit Skip	2	2.50	4.00	-	2.50	-	10.00	20.00	-	0	No	No	-	-	-	-	-	-	-	-	7.2	-	174	-	-		
11	Return	1	2.00	1.50	-	2.50	-	3.00	3.00	-	0	No	No	-	-	-	-	-	-	-	-	2.3	-	46	-	-		
12	Secondary Screens	2	2.25	2.00	-	1.00	-	4.50	9.00	-	0	No	No	-	-	-	-	-	-	-	-	8.2	-	25	-	-		
13	Flume Under Road	1	3.70	1.50	-	1.00	-	5.55	5.55	-	0	No	No	-	-	-	-	-	-	-	-	22.5	-	203	-	-		
14	Channel to Distribution	1	3.70	105.70	-	1.00	-	391.09	391.09	-	0	No	No	-	-	-	-	-	-	-	-	51.1	-	264	-	-		
15	Overflow on Channel	1	-	-	-	1.00	-	-	138.10	-	0	No	No	-	-	-	-	-	-	-	-	15.3	-	5,984	-	-		
16	Overflow to Distribution	1	-	-	-	1.00	-	-	146.20	-	0	No	No	-	-	-	-	-	-	-	-	23.0	-	3,176	-	-		
	Total for Preliminary Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15.3	-	2,237	-	-		
	Storm Water Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
17	Storm Water Holding Tanks	7	59	19	-	-	-	1091.50	7640.50	-	0	No	No	-	-	-	-	-	-	-	-	-	-	-	-	45,924		
Primary Treatment																												
18	Distribution Chambers	2	-	-	2.50	0.50	-	19.63	39.27	-	0	No	No	-	-	-	-	-	-	-	-	6.1	-	240	-	-		
19	PSTs i	4	-	-	22.00	0.30	-	1520.53	6082.12	-	0	No	No	-	-	-	-	-	-	-	-	25.6	-	155,702	-	-		
20	PSTs ii	1	-	-	22.00	0.30	-	1520.53	1520.53	-	0	No	No	-	-	-	-	-	-	-	-	23.0	-	34,572	-	-		
	Total for Primary Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	190,914		
AS Treatment																												
21	Bio P AS Lane	1	84.00	42.00	-	6.00	-	3528.00	3528.00	-	0	No	No	-	-	-	-	-	-	-	-	0.6	-	2,117	-	-		
22	Bio P AS Settled Return i	1	5.00	4.00	-	10.00	-	20.00	20.00	-	0	No	No	-	-	-	-	-	-	-	-	715.9	-	14,318	-	-		
23	Bio P AS Settled Return ii	1	5.00	12.00	-	10.00	-	60.00	60.00	-	0	No	No	-	-	-	-	-	-	-	-	17.4	-	1,044	-	-		
24	AS Distribution Chamber i	1	5.00	3.00	-	0.50	-	15.00	15.00	-	0	No	No	-	-	-	-	-	-	-	-	11.2	-	168	-	-		
25	AS Distribution Chamber ii	1	3.00	3.00	-	0.50	-	9.00	9.00	-	0	No	No	-	-	-	-	-	-	-	-	6.0	-	54	-	-		
26	AS Distribution Chamber iii	1	-	-	5.00	0.50	-	78.54	78.54	-	0	No	No	-	-	-	-	-	-	-	-	14.3	-	1,123	-	-		
27	AS Lane 1	1	70.00	22.00	-	2.00	-	1540.00	1540.00	-	0	No	No	-	-	-	-	-	-	-	-	6.5	-	770	-	-		
28	AS Lane 2	1	65.00	22.00	-	1.00	-	1430.00	1430.00	-	0	No	No	-	-	-	-	-	-	-	-	6.5	-	715	-	-		
29	Old AS Land Distribution	1	1.20	1.20	-	0.75	-	1.44	1.44	-	0	No	No	-	-	-	-	-	-	-	-	1.4	-	2	-	-		
30	Old AS Lane Aerobic	3	-	-	-	0.20	-	-	1295.20	-	0	No	No	-	-	-	-	-	-	-	-	0.5	-	648	-	-		
31	Old AS Lane Aerobic Outlet	1	-	-	-	0.20	-	-	310.70	-	0	No	No	-	-	-	-	-	-	-	-	0.2	-	62	-	-		
	Total for AS Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	190,914		
Final Settlement																												
32	Final Effluent Channels	1	-	-	-	0.00	-	2609.40	2609.40	-	0	No	No	-	-	-	-	-	-	-	-	-	-	-	-	21,021		
33	Distribution Chamber	1	4.50	2.50	-	1.50	-	11.25	11.25	-	0	No	No	-	-	-	-	-	-	-	-	0.5	-	1,305	-	-		
34	FSTs i	4	-	-	17.00	1.00	-	907.92	3631.68	-	0	No	No	-	-	-	-	-	-	-	-	0.7	-	8	-	-		
35	FSTs ii	6	-	-	11.00	0.00	-	380.13	2280.80	-	0	No	No	-	-	-	-	-	-	-	-	0.3	-	684	-	-		
36	FSTs iii	6	-	-	12.09	0.10	-	459.20	2755.20	-	0	No	No	-	-	-	-	-	-	-	-	0.3	-	827	-	-		
37	FST Desludge	3	3.00	2.00	-	0.50	-	6.00	18.00	-	0	No	No	-	-	-	-	-	-	-	-	0.7	-	13	-	-		
	Total for Final Settlement	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13		
	Total for WwTW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5,378		
	Total Emission Rate to Atmosphere for WwTW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5,378		
STC (Modelling by MM)																												
Imported Sludge Thickening and Storage																												
39	Imported Sludge Buffer Tanks	2	-	-	1.2	3	-	13.3	26.7	0	Yes	No	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
40	Imported Sludge Holding Tank	1	-	-	10	5.6	-	314.16	314.16	1759.29	0	No	No	-	-	-	-	-	-	-	-	Surface	1.0	-	49	-	49	
41	Imported Sludge Strain Presses	2	-	-	-	6.6	-	-	-	-	Yes	No	-	-	-	-	-	-	-	-	-	5.0	-	15	-	4,771		
42	Skips for Screenings	1	5	1.8	-	2.2	-	9	9	19.8	2.2	No	No	-	-	-	-	-	-	-	-	Surface	5.0	-	6	-	364	
43	Imported Sludge Sump (including submersible pump)	1	2	2	-	1	-	4	4	4	Yes	Yes	-	-	-	-	-	-	-	-	-	Surface	1.0	-	364	-	364	
44	Raw Sludge Blending Tank	1	-	-	6	4	-	113.10	113.10	452.39	0	No	No	-	-	-	-	-	-	-	Surface	5.0	-	6	-	6		
	Total for Imported Sludge Thickening and Storage	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14,199		
SAS Thickening and Storage																												
48	SAS Buffer Tank	1	-	-	4.2	4.8	-	55.42	55.42	266.00	0	Yes	Yes	-	-	-	-	-	-	-	-	Surface	1.0	-	2	-	2	
49	SAS Strain Presses	2	-	-	-	6.6	-	-	-	-	Yes	No	-	-	-	-	-	-	-	-	-	Surface	-	-	2	-	2	
50	Screenings Skips	2	5	1.8	-	2.2	-	9	18	35.6	2.2	No	No	-	-	-	-	-	-	-	-	Surface	5.0	-	364	-	364	
	Total for SAS Thickening and Storage	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14,199		
Aquabel and Solid Tech Table Thickening Plant																												
51	Thickener Belt	2	3	2	-	-	-	6	12	-	Yes	Yes	-	-	-	-	-	-	-	-	-	Surface	1.0	-	0.02	-	500,000	
52	Sludge Drop	-	-	-	-	0.4	-	-	-	-	Yes	Yes	-	-	-	-	-	-	-	-	-	Weir	-	5.5	-	138	-	1,654
53	Liquor Drop	-	-	-																								

proportionate to the number of and severity of complaints received regarding the issue in question. The Environmental Health officer would also need to consider, that if an Abatement Notice is served onto a party, will there be enough evidence to justify the Abatement Notice.

Currently, the Environmental Health Officer dealing with this matter does not consider there to be enough evidence to issue an Abatement Notice, however, the Department will continue to monitor the situation and serve the appropriate Notice when satisfied with the evidence. At the same time, the Council will continue to process the Planning Application that it has received, in line with procedure.

I would like to clarify, with regards the decision as to whether a Notice should be served or not, is a matter for the Environmental Health Officers. Furthermore, if after serving any Notice, the matter is taken to a Court, any evidence would need to be heard from the person who made the decision to serve the Notice, and this person will need to give evidence that they made a decision correct in law.

In the meeting on 31st January 2008, you made a number of allegations regarding the professionalism of Council officers.

If you have an issue with any decision  or action taken by any officer of the Council, there is a complaints procedure that should be followed, and matters need to be addressed through these channels.

The Council understands the feelings evoked in people when it deals with nuisance, however, the Council is extremely concerned about the allegations you have made against Council Officers and in particular the tone and potentially defamatory allegations about the Officers in a public meeting..

As a member of public, you have a right to attend and sit in on the Overview & Scrutiny Meetings, but you do not have any right to make personal comments against officers or indeed members, and by so doing you could open yourself up to legal challenge.. Therefore, I would ask that in future, you display caution as to what is said in any meetings you attend and to take note, that any grievances you do have with individuals at the Council should be pursued using the appropriate complaints procedure.

In the event that you would like to discuss matters further, then please do not hesitate to contact me.

Yours sincerely,



Mohammed Rahman
Solicitor
Legal Services

Cc Councillor Meredith



HUGH JAMES

Mrs Vicki Ward
54 High Street
Ecton
North Hants
NN6 0QB

Your ref:
Our ref: NAS/SL/GreatBilling
Please ask for: Neil Stockdale
Date: 25 October 2007
Direct line: 01685 352536
Email: neil.stockdale@hughjames.com

Dear Mrs Ward

Re: Great Billing Sewage Treatment Works

Thank you for your letter dated the 10th of October 2007. You have instructed me to consider a possible group action by residents in relation to an odour nuisance alleged to have been caused by the Great Billing Sewage Treatment Works in Northamptonshire.

I thank you for sending me some relevant documents including a copy of Anglian Water's planning application in relation to the proposed new bio solids treatment centre.

I note from the documents that Great Billing Sewage Treatment Works is situated in Crow Lane in Northampton and is run by Anglian Water. It appears as though the sewage treatment works have been the source of nuisance for some time. Page 7 of the environmental statement says that Great Billing Sewage Treatment Works has received over 100 odour complaints since 1997 from local residents and nearby traders and is said to be "under threat of an Abatement Notice". I also note that in the local press Councillor Meredith, in relation to the proposed application, stated (in August 2007), "we already get smells from the sewage treatment works at times...".

There is a travellers' site nearby in Lower Ecton Lane and concerns have also been raised by Ecton Brook Primary School, the Billing Acquadrome and other local businesses who appear to be supportive of efforts to secure an Abatement Notice. Concerns relating to the proposed expansion plans have also been raised to due to the fact that it is proposed that sewage be taken from neighbouring authorities in Peterborough, Corby and Wellingborough.

I also note that concerns over the site have reached such a level that a local campaign group called CLEAN and others are pressing Northampton Borough Council to serve an Abatement Notice.

It is clear from the report prepared by Mot McDonald in support of a planning application for the new bio solids treatment centre and the odour dispersion study incorporated therein that the site has been responsible for nuisance problems for some time. There are comments on page 18 and 37 in particular and the odour contour plans show that odour would have had the potential to affect a fairly significant area.





I have therefore considered in light of this information whether residents may have a claim against Anglian Water principally in the law of nuisance.

Nuisance is an action which relates to the unlawful interference with the use and enjoyment of land caused by odour. To succeed the claimants in such an action would need to show that the odour has materially interfered with their reasonable enjoyment of the land / property concerned over the time that the odour has existed.

A claim in nuisance can only be brought by a person with a legal interest in land such as the freehold or leasehold owner or a tenant. This means that children cannot claim and would not be compensated for the impact on them. It may be possible for those without a legal interest to bring a claim based on breaches of their Human Rights but I have not considered that at this stage.

The law of nuisance has developed around the concept of reasonable use of land. A claimant must also establish that the relevant harm was a reasonably foreseeable consequence of the defendant's operation.

Damages in nuisance are awarded to reflect the impact of the odours on the enjoyment value of the property affected. This usually involved considering the monthly rental value of the property with the nuisance, the rental value of it without the nuisance and the damages are the difference between the two. If the assessment is too difficult then the Court may make a general award of damages.

If the Court is satisfied that a nuisance exists it may also grant an injunction to restrain the Defendant from continuing to cause a nuisance

In my view the information that you have provided me with thus far suggests that the ingredients for an action in nuisance are present albeit that further information is still required for us to be able to carry out a formal assessment of merits.

However, in this case the Defendant is likely to argue that it has statutory authority to operate the works and that this therefore gives immunity to an action in nuisance. It is therefore necessary for us to also consider whether Anglian Water has in fact operated the works with all reasonable care and regard to the interests of others and / or whether Anglian have been negligent in the operation of the works. This will require input from an expert in the operation of Sewage Treatment works.

Further the 'Marcic' principle as set out in the Mogden Judgement, which I understand you have read, would operate to preclude claimants from bringing a claim in nuisance or negligence where the exercise of adjudicating on that claim would be inconsistent with the statutory procedure under the Water Industry Act 1991, under which Director General of Water Services (OFWAT) regulates a Sewage undertakers performance of its statutory duty to effectually deal with sewage etc.

This again is likely to mean that we need the input of an expert to advise on whether the failings of Anglian Water are due to failings in the physical operation or management of the works as opposed to failings which arise out of the financial regulation and capital constraints placed on the Defendant by Ofwat. As I am sure you will gather this is a complex issue and fraught with some difficulty.

At present all that can be said is that it seems that the primary cause of the odour is the desludging of primary settlement tanks as referred to in paragraph 5.3 of the report Odour report. It may be that this is a management failing but I would like further information before indicating a view on this.



Our ref. CA/BM/207/00299

Centre City Tower
7 Hill Street
Birmingham
B5 4UA

Ms V Ward
54 High Street
Ecton
Northamptonshire
NN6 0QB

Phone: 0121 625 1300
Direct line: 0121 625 1404 Fax: 0121 625 1359

7 February 2008

Dear Ms Ward

Re: Great Billing Sewage Treatment Works – Odour (section 94 (1)(b) Water Industry Act 1991

I apologise for the delay in responding to your letter of 14 January. However, as previously indicated, I have been consulting with colleagues in connection with the Mott McDonald report which you kindly provided with your original correspondence.

I have now written to Anglian Water in the enclosed terms requesting a formal response from the company within 10 working days.

As soon as I am in receipt of the company's response I will write to you again.

Yours sincerely


David Lane
Consumer Protection Division

Enc





It is clear that, on the basis of the estimated odour contours from the Odour Dispersion Survey, nuisance may currently exist in this area.

However the report is unhelpful for a number of reasons. For example, it is not clear if the Primary Settlement Tank de-sludging practice (see below) has been factored into MM's Odour Dispersal Survey. If not, the actual odour may well be worse than that predicted from estimated emissions. (The Defra Code methodology for assessing nuisance (DEFRA Code section 5) has not been reported here.)

No enquiries into either the nuisance or the odour levels by the Northampton Borough Council Environmental Health Officer have been reported. Nor has the EHO's opinion been cited (see letter 20 Sept NBC, Steve Elsey to V Ward).

Furthermore there are no local enquiries, or risk assessments undertaken by the company, included in the report. It is therefore not clear if the company has received complaints. If the company has applied the principles of the Defra Code, it should have done an odour risk assessment of this site, assuming they have in fact received complaints. The site should also have appeared on Anglian's odour management plan/strategy and there should be an odour management plan for the site.

Primary Settlement Tank ('PST') de-sludging

We have noted the reference in the MM Report to the elevated levels of odour being generated at these works by the practice of de-sludging the PST's once every two days. PST de-sludging arrangements are more serious than the 'good housekeeping' as intended in Defra Code of Practice 8.2 and may have a major impact on odour emissions. We therefore question why Anglian Water has not dealt with the de-sludging cycle to date. Continuous de-sludging, or more frequent de-sludging, would minimise the odour potential of the PSTs.

And, while we note from the new scheme that Anglian appear to be proposing to dose ferric chloride at the works inlet and that this will reduce the odour potential of the existing PSTs, ferric chloride dosing is not said to be needed as part of the Biosolids extension scheme and could presumably therefore be installed whether or not the scheme for increased sludge (biosolids) treatment capacity goes ahead.

We anticipate that Anglian Water will have a risk assessment and Odour Management Plan for this site. This plan and related studies should disclose whether the existing PST de-sludging arrangements have been factored into the assessment of odour from the existing facilities. As such I would be grateful to receive a copy of this document and any supporting documents with your reply.

.../...



to demonstrate that the methods he has employed are “best practicable means” for that site, and for the Court to decide if it agrees that this is the case.

Further guidance is included in Part II of this Code of Practice on the investigation and assessment of odour problems. The procedures and controls outlined in this Code of Practice (particularly in Part III) establish an approach to dealing with statutory nuisance from odour. Having said that, compliance with this Code cannot guarantee that a Court will agree with the operator that “best practicable means” are being employed, should the operator demonstrate that he has complied with the provisions of this Code and Guidance.

Under section 80 of the Environmental Protection Act 1990, the Environmental Health Practitioner *cannot* delay issuing an abatement notice once “satisfied” that a statutory nuisance exists or may occur or recur. Therefore, this Code cannot require an Environmental Health Practitioner, once he is “satisfied” that a statutory nuisance exists or may occur or recur, to delay issuing an abatement notice until “best practicable means” is proved or otherwise. Nor can this Code require an Environmental Health Practitioner to pin-point sources of or reasons for odour – it is sufficient for him to attribute statutory nuisance from odour to a “premises”.

This Code seeks to set up practices that avoid court cases and encourage the adoption of approaches that satisfy all stakeholders and allow effective regulatory function. The view taken by an Environmental Health Practitioner might be considered unsatisfactory by an operator. Even so, Environmental Health Practitioners generally try to work with operators to agree a course of action on an informal basis before taking formal enforcement action. There are also cases where issuing an abatement notice may aggravate or worsen a situation. Both local authorities and operators generally prefer to avoid court action.

An abatement notice once issued may simply require abatement without specifying works or other steps necessary. It should allow sufficient time for action to be taken by the operator, which might include staged implementation to achieve economical and sustainable solutions. In addition, an abatement notice should where possible support the minimal use of non-renewables and minimal energy impact. These objectives complement the use of cost-benefit assessments that operators are required to carry out by Ofwat, and aim to produce socially beneficial and sustainable solutions.

In circumstances where a local authority is of the opinion that prosecution (for ignoring an abatement notice) under section 80(4) of the Environmental Protection Act 1990 would afford an inadequate remedy, section 81(5) of the Environmental Protection Act 1990 allows injunctive action to be taken. This would entail the local authority taking proceedings in the High Court and circumvents the “best practicable means” defence at section 80 (7).

Section 82 (1) of the Environmental Protection Act 1990 allows any person aggrieved by the existence of a statutory nuisance to seek an order from magistrates requiring the abatement or cessation of the nuisance, and to prohibit its recurrence.

Local Environment Protection
Defra
Nobel House 3B
17 Smith Square
London
SW1P 3JR



Mrs Vicky Ward
CLEAN
54 High Street
Ecton
Northamptonshire
NN6 0QB



27 September 2007

Dear Mrs Ward

STATUTORY NUISANCE FROM ODOUR

Section 79 of the Environmental Protection Act 1990 (as amended by the Clean Neighbourhoods and Environment Act 2005) lists what is capable of being a statutory nuisance. At section 79 (1) (d) is "any dust, steam, smell or other effluvia arriving on industrial, trade or business premises and being prejudicial to health or a nuisance".

A statutory nuisance is such that it is emitted from one premises and adversely affects another premises in specific ways, i.e. it causes material interference with the reasonable use of the property or personal well-being, and/or actual or likely adverse health effects, in the premises affected by the nuisance.

"Premises" can be dwellings; places of business, trade or industry; land; beaches; vessels; and the sea (for noise nuisance "premises" can also be vehicles on the street). For odour nuisance, the premises identified as the source of the odour can only be industrial, trade or business.

Section 79 of the Environmental Protection Act 1990 places a statutory duty on local authorities to inspect their areas periodically for existing and potential statutory nuisances, and to take reasonably practicable steps to investigate complaints of nuisance. Once satisfied that a statutory nuisance exists or may occur or recur, the local authority must serve an abatement notice on the person responsible for the nuisance (or the owner or occupier if the person responsible cannot be found or the nuisance has not yet occurred).

The abatement notice requires that the nuisance be ceased or abated, and can (but does not have to) specify steps to be taken. It must specify a timescale.



Hounslow



To MR S. CRABTREE

the attached document is forwarded:

As requested

For your information

For action by you

For your consideration and comments

As per telephone conversation

For noting and returning

From MR. M. MEHTA

Date

07/02/2008

with compliments

Your online A-Z of services www.hounslow.gov.uk

Street Management &
Public Protection
London Borough of Hounslow
Civic Centre, Lampton Road,
Hounslow, TW3 4DN
Tel: 020 8583 5176

ADVICE
SPECIMEN COPY OF AGREEMENT
ATTACHED AS REQUESTED.

**LONDON BOROUGH OF HOUNSLOW
ENVIRONMENTAL PROTECTION ACT 1990 SECTION 80
ABATEMENT NOTICE IN RESPECT OF STATUTORY NUISANCE**

To:

Of:

Take notice that under the provisions of the Environmental Protection Act 1990 Section 79(1)(d), the Council of the London Borough of Hounslow is satisfied that odour amounting to a nuisance has occurred and is likely to recur at the premises known as

arising from the release of malodorous gases detectable outside the process boundary including Hydrogen Sulphide, mercaptans and all other gases associated with, and as a by-product of, the processing and treatment of sewage.

Now therefore, the Council requires you as the owner, occupier and person responsible for the nuisance within 60 days from the service of this notice, to abate the nuisance and prevent the recurrence of the nuisance.

If you contravene without reasonable excuse any requirement of this notice you will be guilty of an offence against Part III of the Environmental Protection Act 1990 and on summary conviction will be liable to a fine not exceeding £20,000 together with a further fine not exceeding one tenth of the maximum for each day on which the offence continues after conviction. The Council may take proceedings for securing the abatement, prohibition or restriction of the nuisance. Any appeal against this notice must be brought within 21 days of the date of service, by application to the local Magistrates' Court.

See notes provided for your guidance. Additionally, the Council may also take proceedings in the High Court to secure the abatement, prohibition or restriction of the nuisance.

Dated:

Signed: _____
**Head of Neighbourhood Enforcement
(Officer authorised for this purpose) Environmental Services Department,
Neighbourhood Enforcement Group, Civic Centre, Lampton Road, Hounslow,
Middlesex TW3 4DN**



Ecton Brook PRIMARY SCHOOL

Ecton Brook Road, Ecton Brook, Northampton NN3 5DY
Telephone: (01604) 409608, Fax: (01604) 409608
Email: bursar@ectonbrook-pri.northants-ecl.gov.uk
www.ectonbrookprimary.k.org
Headteacher: Mrs. J. Kedwards, BEd(Hons), MBA, NPOH



Northamptonshire
County Council



FAO: Stuart Smith
Northamptonshire County Council Development Control Section
Growth Management, PO Box 163
Floor 3 County Hall
Borough Planning
Northampton
NN1 1AX

28 August 2007



Dear Mr Smith,

I am would like to express my concerns about the proposed plans for Anglian Water to expand the Sewage Treatment Works at Great Billing. I apologise for the late submission of this objection, but I am sure that you will appreciate that the school is in holiday period at the moment, and this has only recently come to my attention.


Anglian Water have submitted an odour abatement plan which shows that the nastiest odours will narrowly miss Ecton Brook Primary School's buildings, but still blight our playing fields. This is of huge concern to me and the Governing Body, since we already have difficulties with this issue on certain days, and our outside areas are sometimes rendered unusable.

I also object on behalf of members of my school community from the Traveller Site, where the proposed levels of odour are double that of the school playing fields. This is an unreasonable situation for a residential area.

I would ask that the council deliberate at length on these proposals, and that any odour plan from Anglian Water must be regulated with an Odour Nuisance Abatement Notice served by Northampton Borough Council. I would also request to be kept informed of the progress of this situation.

I thank you for your support in this matter and for considering my objections at any future meetings and discussions.

Yours sincerely


Julia Kedwards
Head Teacher



A. J. Mackaness Ltd.

Billing House, The Causeway, Great Billing, Northampton NN3 9EX
Telephone: Northampton (01604) 409096 Fax: Northampton (01604) 407222

1st October, 2007



Our Ref: JM/JLN

Jim Crabtree
CLEAN
1 Barton Fields
ECTON
Northamptonshire
NN6 0BF

I understand that CLEAN has undertaken a campaign to force Anglian Water to comply with Defra Guidelines on odour nuisance by a Statutory Odour Nuisance Abatement Order. I feel that the odour from Anglian Waters Sewage Treatment Works interferes with and impacts us in the following:

Interested Parties	The Way it effects us
Billing Garden Village – owned by S & J Mackaness SIPP 2003	Smell puts off the shoppers, especially food retailers, which lowers the turnover for shops and lowers the rent for us.
Oriental Paradise – owned by A J Mackaness Ltd	Smell puts off the customers
Billing Mill – owned by A J Mackaness Ltd	Smell puts off the customers
Rockingham House – owned by Mackaness Family 1986 Pension Scheme	Building is up for rent, smell is putting off potential investors.

I feel that CLEAN's campaign supports and represents our interests.

Yours Sincerely,

James Mackaness

cc. Vickie



Ecton Brook Road, Ecton Brook, Northampton NN5 5DY
Telephone: (01604) 409608, Fax: (01604) 409608
Email: bursar@ectonbrook-pr.northants-ecf.gov.uk
www.ectonbrookprimary.kk.org
Headteacher: Mrs. J. Kedwards, BEd(Hon), MBA, NPQH

Jim Crabtree
CLEAN
1 Barton Fields
ECTON
Northamptonshire
NN6 0BF

1 October 2007

Dear Mr Crabtree

Re: Anglian Water Odour Nuisance

I understand that your group is supporting Ecton Village residents in undertaking a campaign to force Anglian Water to comply with Defra Guidelines on odour nuisance by the issuing of a Statutory Odour Nuisance Abatement Order.

The school wishes to support this campaign as any increase in odours resulting from an expansion of Anglian Water's Sewage Treatment Works at Great Billing will interfere with and impact upon the use of our property.

The children of the school are already frequently subjected to the most unpleasant odours when out on the playground or school field which are adjacent to the A45 road, to the extreme that on occasions we are unable to take them outside onto the playground or open any windows. Any increase in the level or frequency of this occurring as a result of an expansion would be entirely unacceptable.

Absolutely no consultation has taken place with the school even though we are in the close proximity to the site, being just across the A45 dual carriageway. Until a concerned local resident alerted me to the proposed development, I had no knowledge of it.

We are of the opinion that CLEAN's campaign supports and represents the interests of the school and this letter is to mandate you to represent our interests in this matter.

Please keep me advised of developments and feel free to contact me if you require any additional information.

Yours sincerely

J Kedwards

Mrs J Kedwards
Headteacher

cc Vickie

1st October 2007

Jim Crabtree
CLEAN
1 Barton Fields
ECTON
Northamptonshire
NN6 0BF

I understand that CLEAN has undertaken a campaign to force Anglian Water to comply with Defra Guidelines on odour nuisance by a Statutory Odour Nuisance Abatement Order. I feel that the odours from Anglian Water's Sewage Treatment Works interferes with and impacts upon the use of our property because there is already an existing odour nuisance that affects our owners, users and team members at present. Whenever we loose a customer either a Holiday Home Owner or a holiday maker they always mention the smell or a presence of a really bad odour. I feel that CLEAN's campaign supports and represents our interests.

Yours Sincerely



Robert Kilgour
Site Services Manager

BILLING AQUADROME
Crow Lane
Great Billing
Northampton NN3 9DA

tel: 01604 408181
fax: 01604 784412
email: enquiries@aquadrome.co.uk
web: www.billingaquadrome.com



essentialfacts

Methane Covers

The Western Treatment Plant at Werribee processes more than half of Melbourne's sewage. It is one of the largest sewage treatment plants in the world, covering about 11,000 hectares (about the size of Phillip Island).

Sewage from Melbourne typically takes 60 to 70 days to be processed through the plant's lagoon systems. The plant processes more than 485 million litres of sewage a day.



Modern lagoons

The first large modern lagoon was installed at the Western Treatment Plant in 1986. Modern lagoons were introduced to increase the treatment capacity of the plant. The lagoons are made up of 10 vast ponds, each of which is 1.5 kilometres long and 200 metres wide. The modern lagoons are able to hold huge amounts of sewage. For example, the 55 East Lagoon has a capacity of 6200 million litres.

Methane covers

The first pond in each lagoon system includes membrane covers to eliminate odour and trap about 20,000 cubic metres of methane gas a day, as well as up to 50 aerators to pump in oxygen. Capturing this methane gas more than halves greenhouse gas emissions from the plant. Melbourne Water has a contract with a power company, AGL Pty Ltd, to use the methane gas trapped under the lagoon covers to fire gas engines to generate electricity for the plant, saving the plant in electricity costs.

Melbourne Water is owned by the Victorian Government. We manage Melbourne's water supply catchments, remove and treat most of Melbourne's sewage, and manage rivers and creeks and major drainage systems throughout the Port Phillip and Westernport catchment.

Telephone 131 722 or visit melbournewater.com.au

essentialfacts

The power generation facilities are capable of producing 3.7 megawatts of electricity. With further alterations to the lagoons and gas recovery in coming years, this system will have the capability to produce up to twice the amount of electricity currently produced.



The first lagoon cover was installed in 1992 and additional covers were installed in 1999.

Each cover is made from high-density, 2.5mm thick polyethylene. Each cover takes up four hectares and consists of a foam layer in the middle of two outer plastic layers. The cover is anchored around the perimeter of the pond and held down by weighted pipes. The cover traps methane, which can be stored for up to eight hours, allowing the gas generators to draw on it when needed. This program reduces operating costs, and reduces greenhouse emissions

and eliminates odour. Similar covers are used in sewage treatment plants in parts of North America, but few are quite as large.

The gas generators operate up to 24 hours a day, with each lagoon producing enough electricity to supply a small suburb. The covers collect around 40,000 cubic metres of gas each day. The composition of the cover is:

Methane	80%
Carbon Dioxide	10%
Nitrogen	5%
Hydrogen Sulphide	0.5%
Water	4.5%

Further information

If you would like further information on any other aspect of Melbourne Water's role in managing our water resources, please contact us on 131 722 or visit Melbourne Water's website at melbournewater.com.au

Melbourne Water is owned by the Victorian Government. We manage Melbourne's water supply catchments, remove and treat most of Melbourne's sewage, and manage rivers and creeks and major drainage systems throughout the Port Phillip and Westernport catchment.

Telephone 131 722 or visit melbournewater.com.au



Methane Emissions from Municipal Wastewater Treatment Processes

Peter M. Czepliel,* Patrick M. Crill, and Robert C. Harriss

Complex Systems Research Center, Morse Hall,

03824-3525

was determined for methane and carbon dioxide in both the aerated and nonaerated areas of the grit tanks. Statistical correlations to temperature measured in a secondary aeration tank were marginal for methane and insignificant for carbon dioxide. Emission factors derived from our measurements were 39 g of CH₄ person⁻¹ year⁻¹ and 35 698 g of CO₂ person⁻¹ year⁻¹ for primary and secondary activated sludge treatment processes.

Introduction

A key to formulating strategies to control and reduce the rate of increase of methane (CH₄) in the atmosphere is the identification and quantification of all CH₄ sources, both natural and anthropogenic. Significant natural sources, including wetlands, natural biomass burning, termites, and oceans and freshwater, are generally not subject to human control. These sources account for approximately 45% of the total global CH₄ emissions which are estimated to range from 440 to 640 Tg of CH₄ year⁻¹ (1). However the anthropogenic sources, especially those in urban areas such as landfills, natural gas systems, fossil fuel combustion, and wastewater treatment facilities, could potentially be regulated once properly resolved and quantified (2). Preliminary studies of whole city methane emissions, scaled to the globe, suggest an urban methane source of approximately 30-60 Tg (3). Relatively small reductions in global methane emissions of 30-50 Tg year⁻¹ would be sufficient to stabilize the global atmospheric concentration, assuming that the rates of destruction by OH and soil uptake remain the same.

The purpose of this study was to quantify CH₄ emissions from a wastewater treatment plant consisting of processes typical of those in use in the industrialized world. The transport and management of residential, commercial, and industrial wastewater is known to produce CH₄ gas (4, 5). CH₄ is produced by bacterial decomposition of organic matter in the absence of oxygen. Aerobic decomposition processes in wastewater demand more oxygen than can be supplied by surface diffusion. Therefore, in the absence of mechanical aeration, methanogenic bacteria activate anaerobic decomposition which produces CH₄ gas as a byproduct. However, few quantitative data exist regarding the generation of CH₄ in wastewater processes other than the anaerobic digestion of sewage sludge. Wastewater treatment plants were estimated to account for approximately 5% of total global emissions or 20-25 Tg of CH₄, year⁻¹ by the IPCC, although the basis for the estimate was not defined (1). The lack of quantitative data describing CH₄ emissions from the specific processes that comprise modern wastewater treatment plants will limit further technical assessments of mitigation options. The field measurements described below were performed to

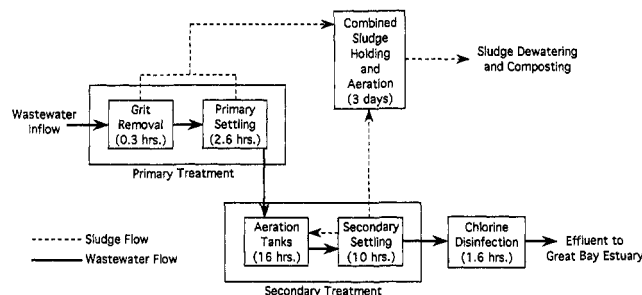


Figure 1. Simplified process diagram for the Durham NH, wastewater treatment plant. Retention times are given in parentheses.

quantify CH₄ emissions from processes in a wastewater treatment plant and to determine the fate of organic carbon in the influent.

CO₂ emissions were measured simultaneously with the CH₄ emission measurements. The CO₂ data are useful as an indication of overall decomposition processes and to a broader goal we have for understanding urban carbon metabolism.

Field Site

The municipal wastewater treatment plant studied is located in Durham, NH. The facility serves the town and the main campus of the University of New Hampshire. The population served during the school year is approximately 12 500 and generates a mean wastewater flow of approximately 4×10^6 L day⁻¹. The population served during the summer is approximately 6200 and generates a mean wastewater flow of approximately 2×10^6 L day⁻¹. During the summer months, the plant processing capacity is normally reduced by one-half through partial shut down of the grit tanks, primary settling tanks, secondary aeration tanks, and secondary settling tanks.

The facility consists of primary and secondary unit operations and processes (Figure 1) that treat a medium-strength municipal wastewater with an average influent BOD₅ at 20 °C of approximately 250 mg/L. Average removal efficiency is 94%. A set of two grit chambers is the first physical unit operation encountered by the influent. Grit, consisting of sand, gravel, and other heavy solids, settles and is removed from the system. The wastewater then enters the primary settling tanks where it is held in a relatively quiescent state which results in the removal of solids with a higher specific gravity than the liquid by settlement and solids with a lower specific gravity by flotation and skimming. The liquid then enters secondary treatment, while the solids are removed from the system as primary sludge. The secondary treatment system consists of four aeration tanks and two clarification tanks. In this process, the wastewater organic matter that enters the aeration tanks is decomposed by suspended bacterial biomass under aerobic conditions. This results in the release of gases to the atmosphere and the growth of microbial biomass. The microbial-rich liquid then passes into the secondary clarification tanks where the microbial biomass is separated from the treated wastewater



Butyl Products Ltd.

11 Radford Crescent, Billericay, Essex CM12 0DW, England.

Tel: +44 (0)1277 653281 Fax: +44 (0)1277 657921

E-mail: enquiries@butylproducts.co.uk

www.butylproducts.co.uk

Ms. V. Ward
54 High Street
Ecton
Northants.
NN6 0QB

Dear Ms. Ward,

Thank you for your enquiry about our lining products, I have enclosed a set of our literature with this letter giving details about ourselves and some of the projects that we have lined over the last forty years. There is also a copy of our submittal document which goes into the details of methods and working practises.

As a guideline on prices for installing butyl linings the budget installed price for 1.0mm butyl is £8.50 per square metre. The budget installed price of the 2500 CBR geotextile layers are £1.75 per square metre per layer. I hope this provides the information that you require.

Kind regards,

Adam Hayes
(Sales Engineer)



Directors: R A Young J R Young R J Martin J Gander

Registered office: 11 Radford Crescent, Billericay, Essex CM12 0DW, England.

Registration No: GB 3141465



Butyl Products Ltd

11 Radford Crescent,
Billericay, Essex, CM12 0DW England.
Tel: 44 (0)1277 653281 Fax: 44 (0)1277 657921
E-mail: enquiries@butylproducts.co.uk.

A Selection of our Recent Lining Projects in UK

<u>Client/Contractor</u>	<u>Project</u>	<u>Material</u>	<u>Area m²</u>
Amoco Cats Terminal	Oil Tank Bund & Lining	1.5mm HDPE	2,120m ²
Anghian Water	Sewage Treatment Lagoon	1.5mm HDPE	1,200m ²
Ayot Place	Boating Lake Liner	0.75mm Butyl	1,500m ²
Barry Dock	Landfill/capping Liners	1.0/2.0mm HDPE	5,000m ²
British Petroleum	Mud Pit Linings	1.14mm Elvaloy	5,000m ²
British Sugar	Effluent Lagoon Lining	1.5mm HDPE	1,756m ²
Buttsbury Bridge	Deck Waterproofing for listed bridge repairs	0.75mm Butyl	75m ²
Churchill Construction Ltd	Tank Lining	1.0mm VLDPE	7,500m ²
Clark Construction	Tank Bund Lining	2.0mm HDPE	919m ²
Colton Construction	Reed Bed	2.0mm HDPE	1,800m ²
Costain Construction	Landfill	1.5mm HDPE	4,000m ²
Crumb and Dean	Fire Pond Liner	0.75mm Butyl	720m ²
Davyhulme WTW	Contaminated Land Cap	1.0mm VLDPE	3,700m ²
Earls Court	Indoor Water Feature	0.75mm Butyl	1,000m ²
Essex County Council	Park Lake Lining	0.75mm Butyl	1,245m ²
Granada Service Area	Balancing Pond Lining	0.75mm Butyl	5,300m ²
Granada Technology Group	Covers and floats for a lagoon	0.91mm PP Rief	838m ²
Halstead STW	Lagoon	1.5mm HDPE	1,000m ²
Hampton Court Show Ground	Water Feature	0.75mm Butyl	260m ²
Hills of the North	Public Park Water Feature	0.75mm Butyl	3,800m ²
Hinkins & Frewin	Pond Lining	1.0mm VLDPE	3,141m ²
I G Pilcher	Chemical run-off Storage Lagoon	1.5mm HDPE	4,665m ²
J and H Bunn	Chemical Storage Lagoon	2.0mm HDPE	3,000m ²
Kier Construction	Storm Water Basin	2.0mm HDPE	4,000m ²
Lyceum Theatre	Fire Tank	1.0mm Butyl	160m ²
M1 Extensions	Balancing Ponds	1.0mm HDPE	2,300m ²
Maryfield Sports Complex	Under Pitch Lining	1.0mm VLDPE	8,000m ²
Micheldean WTW	Liner to Sludge Lagoon	1.14mm PP RIEF	583m ²
MOD	Reservoir Lining	Butyl/PP RIEF	1,500m ²
MOD	Lagoon Liner	1.0mm Butyl	231m ²
MOD	Tank & Cover	1.14mm Elvaloy	1,700m ²
MOD	Fire Water Lagoon	1.0mm Butyl	230m ²
Moygashel Limited	Oxidation Ditch	1.0mm Butyl	2,950m ²
New Kingston City Challenge	Stream & Lake Liner	0.75mm Butyl	1,200m ²
Newline Civil Engineering	Reed Bed	0.6mm RIEF LDPE	1,800m ²
Oslo, Norway	Effluent Tank Lining	1.5mm Butyl	220,000 litres
Oxford City Council	Trench Lining	1.5mm HDPE	1,593m ²
Pavillion Park Buxton	Victorian Boating Lake	0.75mm Butyl	9,000m ²
Pembroke Dock	Vertical Contamination Barrier	2.5mm HDPE	500m ²
Purac Limited	Tank/Lining	1.0mm Butyl	70,000 litres
R J Budge Mining	Aeration Lagoon Lining	1.0mm HDPE	15,000m ²
Redgate Mill STW	Reed Beds	1.0mm VLDPE	22,000m ²
RSPCA Building	Storage Lagoon/Reed Beds	1.0mm Butyl	2,000m ²
R.I. Construction	Oil Tank Bund Lining	2.0mm HDPE	500m ²
Shropshire Union Canal	Burgendin Lock/Canal Lining	1.0mm VLDPE	2,500m ²
Simon Storage	Tank Bund Lining	2.0mm HDPE	400m ²
Stones Landscapes	Lake Linings	0.75mm Butyl	3,000m ²
Tame Valley Canal	Aqueduct Lining	0.91mm Elvaloy	250m ²
Telluric Limited	Contaminated Land Cover	0.5/1.0mm PE	6,714m ²
The Environment Agency	Knightsford Bridge Temp Works Div Channel	0.75mm Butyl	830m ²
Thermos Limited	Lagoon Lining	0.75mm Butyl	1,000m ²
Walters UK	Lining to Attenuation Ponds	0.75/1.0mm LLDPE	6,300m ²
Westmorland Motorway Services	Water Feature	0.75mm Butyl	700m ²
Worsborough STW	Aerating Lagoon Liners	1.5/2.0mm HDPE	4,000m ²



Website: www.butylproducts.co.uk
Directors: R.A. Young J.R. Young R.J. Martin J. Gander
Registered Office: 11 Radford Crescent, Billericay, Essex, CM12 0DW. Registration No.: GB 3141465

Great Billing Biosolids Treatment Plant

Outline Odour Management Plan

Table of Contents

1. Purpose of the Odour Management Plan
2. Emergency Contact List
3. Site Location
4. Site Layout
5. Process Description Overview
6. Review of Odour Sources – Activity and Release Points
7. Description and Operation of Odour Control Measures.
8. Operational Management
9. Local Liaison
10. Odour Complaint Recording
11. Investigation
12. Reporting
13. Odour Management Plan Review.

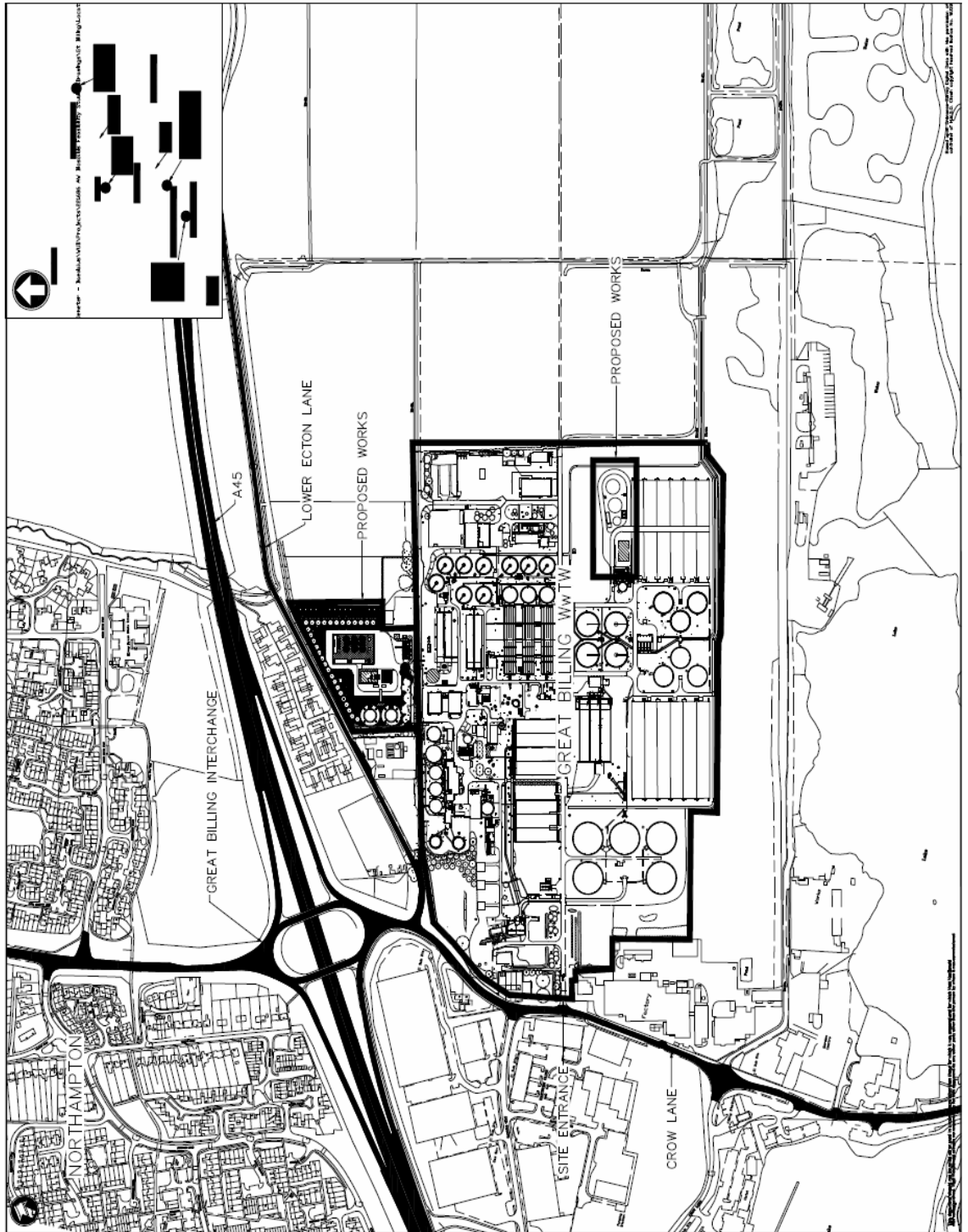
1. Purpose of the Odour Management Plan

- 1.1. The Odour Management Plan identifies the sources of odour from the Great Billing Biosolids treatment plant and outlines a strategy to minimise the risk of odour nuisance beyond the boundary of the sewage treatment works.

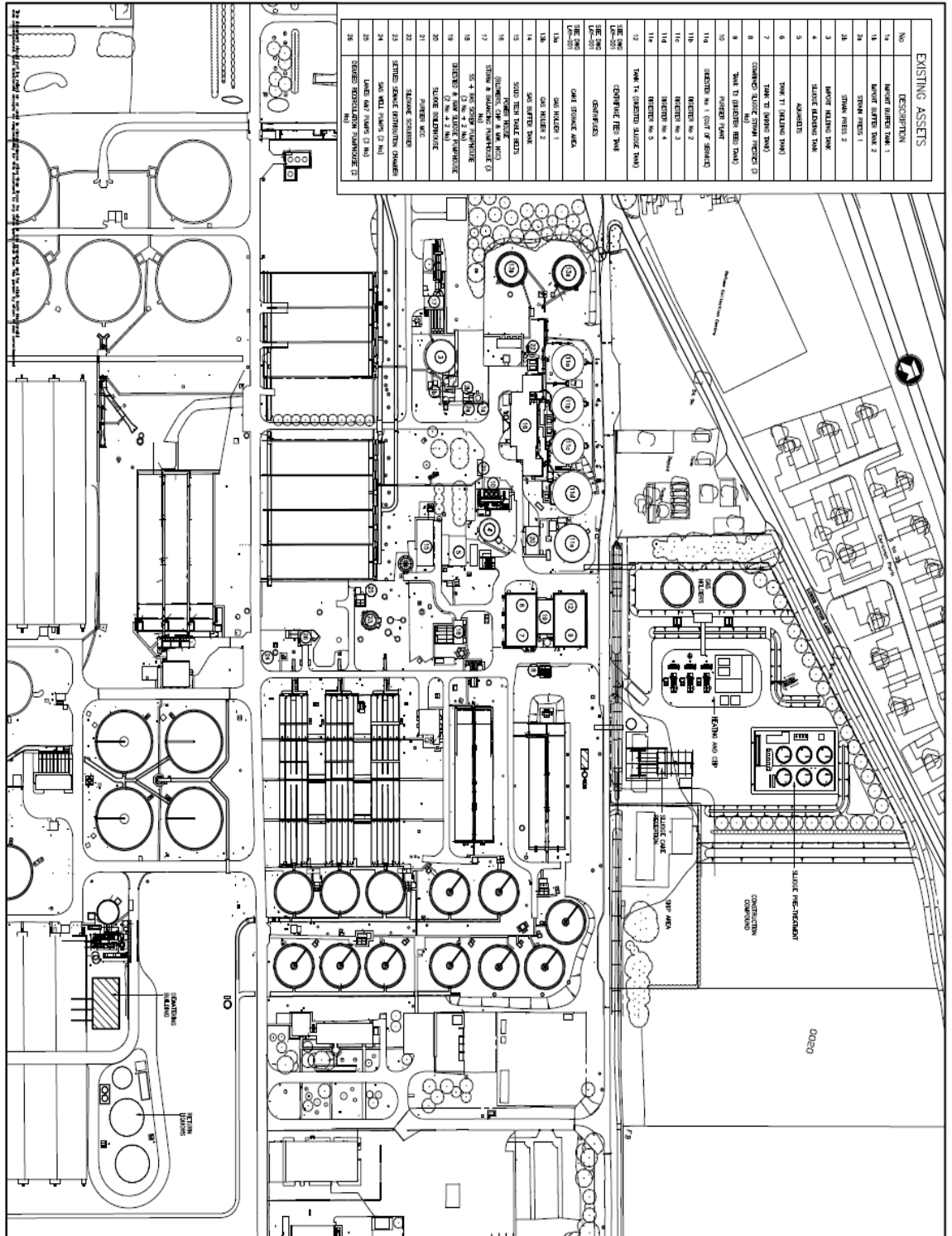
2. Emergency Contacts and Procedures

	Contact Telephone Number	Responsibility
Anglian Water Control Centre	0845 145145	To initiate local investigation within agreed timescales
Treatment Works Manager	01604 446948	Manage on site investigation and mitigation. Liaison with NBC Environmental health and complainant.
Northampton Borough Council Environmental Health	01604 838000	Liaison with AW personnel and complainant.

3. Site Location



4. Site Layout



5. Process Description Overview

5.1. Introduction

- 5.1.1. The objective of this project is to provide treatment for 38,700 tonnes dry weight of biosolids (tDS) per year to enhanced treated standards at Great Billing WwTW as part of Anglian Water's AMP 4 Programme. The new treatment centre receives primary sludge and surplus activated sludge from Gt Billing WwTW, existing liquid imports from local sites, liquid imports from Corby WwTW and sludge cake from Flag Fen WwTW and Broadholme WwTW. The cake is re-wetted, diluted and blended with the other sources to produce a digester feed sludge of approx 7% dry solids content (DS). The blended sludges are passed forward to Monsal enzyme hydrolysis and pasteurisation plant and then to mesophilic anaerobic digestion. Digested sludge is dewatered using centrifuges to produce a sludge cake to be stored onsite and recycled to agricultural land.
- 5.1.2. Biogas produced by the digestion process is used to heat the pasteurisation and digestion processes and produce power for export.
- 5.1.3. Locally imported sludges are received into two buffer tanks, 1a and 1b on the accompanying site layout plan. They are screened and pumped to an import holding tank. From the holding tank they are pumped to the raw sludge blending tank.
- 5.1.4. Indigenous primary sludge from five primary settlement tanks is screened to remove plastic and rag and passed forward to a raw sludge blending tank where it is blended with locally imported sludges. Blended raw sludges are thickened using two Aquabelt thickeners will be and passed forward to one of two thickened sludge blending tanks. The thickened sludge blending tanks also receive thickened surplus activated sludge and diluted sludge cake imported from Broadholme WwTW and Flag Fen WwTW. Both the Aquabelt building and the covered thickened sludge holding tanks are fitted with odour control systems.
- 5.1.5. Indigenous surplus activated sludge is passed through a strain press and one of two Solids Technology aquabelt thickeners into the thickened sludge blending tanks.
- 5.1.6. Sludge cake is imported into a cake reception plant; this consists of a building, unloading hopper, conveyor and cake dilution system linked to odour control.
- 5.1.7. Imported cakes are diluted on site with Gt. Billing Final effluent into a diluted sludge balancing tank.

- 5.1.8. The two thickened sludge blending tanks are operated in sequential mode with one filling and one feeding the Monsal enzyme hydrolysis plant. Variations in quality and quantity of feed sludges will be balanced and blended in the thickened sludge blending tanks.
- 5.1.9. Displaced air from the thickened sludge blending tanks is passed to atmosphere via a bioscrubber odour control unit to reduce hydrogen sulphide.
- 5.1.10. The Monsal enzyme hydrolysis and Pasteurisation plant consists of six reactors operated in semi plug flow mode. The reactors are mixed using an unconfined gas mixing system and digester gas. Sludge transfer between reactors is achieved by gas lift systems. At the entry to the hydrolysis plant the system becomes fully enclosed until it enters the centrifuge building.
- 5.1.11. The first three reactors are heated to 42°C to provide optimum conditions for enzyme hydrolysis. The remaining three reactors are operated to provide a pasteurisation stage. Sludge is heated to 55°C for a minimum period of 4 hours in the first pasteurisation tank and then fed into the two remaining tanks operated in alternating fill and draw mode. The reactors are sized to achieve a minimum retention time of 1.5 days.
- 5.1.12. Pasteurised sludge is cooled to 35°C using a final effluent heat exchanger and pumped to the mesophilic anaerobic digesters.
- 5.1.13. Heating is supplied using the CHP unit cooling water or in the event of CHP failure and during commissioning by gas boilers.
- 5.1.14. Cooling is provided by a closed circuit water cooling system using final effluent.
- 5.1.15. Cooled sludge is pumped to the existing digesters and held at 35°C for a minimum of 10 days. A jet mixing system is installed in each digester.
- 5.1.16. Digested sludge is removed from the digesters to a post digestion storage tank and fed to two centrifuges. The resulting sludge cake is conveyed to sludge holding bays for agricultural recycling. Sludge liquors are treated to remove phosphorus before return to the inlet works. Odours within the centrifuge plant will be contained by the building.

- 5.1.17. Gas will be held in two new double membrane spherical inflated gas holders. Biogas is used as the primary source of fuel by the boilers and the CHP engines. Heat reclaimed from the CHP engines is used to heat water for the hydrolysis and pasteurisation process. In the event of the gas production exceeding the demand of the available CHP engines and heating plant excess gas is flared to atmosphere using a low level enclosed waste gas burner.
- 5.1.18. New odour control plant will be provided for the cake reception building, unloading hopper, conveyor and cake dilution plant. The plant will be specified to reduce odours from this area in accordance with the odour model.
- 5.1.19. All existing odour treatment plant will remain in use to control odour from the raw sludge belt press building, the activated sludge thickener building and the sludge blending tanks.
- 5.1.20. Liquor treatment is designed to ensure that effluent compliance can be maintained after the total works load has been increased by importation of non indigenous sludges. A Phospaq unit will be used to extract phosphorus as struvite from centrate liquors before they are returned to the works inlet. The unit will be covered to minimise release of ammonia generated during the process.

6. REVIEW OF ODOUR SOURCES

Activity	Release point	Mitigation	Abnormal occurrence	Consequence	Actions
Physico chemical treatment of crude sewage	Works inlet and primary settlement tanks	Dosing of Ferric sulphate into inlet channel	Dosing Pump failure	Increase in odour potentially off site	Arrange temporary pumping system
Desludging of primary settlement tanks	Primary settlement tanks	Auto desludging of primary tanks	Failure of auto desludge valves/pumps Pipe blockage	Increased risk of septicity and odour.	Switch to manual desludging. Repair valves / pumps, Clear blockage
Receipt and transfer of	Imported sludge buffer	Transfer to raw sludge	Pump failure Pipe	Localised odour	Stop importation.

imported liquid sludges	tanks	blending tank Run tanks at low level. Duty/standby pumping system	blockage	Short Duration	Set up temporary pumping system. Clear blockage Repair pump
Receipt and transfer of imported liquid sludges	Strain press Area including skip for screenings	Transfer to raw sludge blending tank. Duty /standby pumping system	Blockage of strain press Mechanical failure of strain press	Localised odour	Stop liquid imports to site Clear blockage Repair strain press
Receipt and transfer of imported liquid sludges	Imported sludge holding tank	Transfer to raw sludge blending tank Run tank at minimum level	Pump failure Pipe blockage	Localised odour	Stop importation. Set up temporary pumping system. Clear blockage Repair pump
Blending of indigenous primary sludge and imported sludges	Raw sludge blending tank	Transfer to Aquabelts Run tank at minimum level	Pump failure Pipe blockage	Localised odour	Set up temporary pumping system. Clear blockage Repair pump
Thickening of Primary and imported sludges	Belt thickener building	Enclosed building Air extracted to odour control unit	Failure of odour control unit	Localised odour	Preventative maintenance and monitoring as per suppliers instruction
Buffer storage of unthickened surplus activated sludge	SAS Buffer tank	Covered tank	Failure of tank cover	Localised odour	Check integrity of tank cover
Thickening of indigenous secondary sludges	Belt thickener building	Enclosed building Air extracted to odour control unit Enclosed	Failure of Odour control unit	Localised odour	Preventative maintenance and monitoring as per suppliers instruction

		building.			
Batching of Digester feed sludges	Sludge batch tank building	Enclosed tanks with odour extraction and treatment.	Failure of odour control unit	Localised odour	Preventative maintenance and monitoring as per suppliers instruction
Import and dilution of sludge cake	Sludge cake reception building	Delivery within enclosed building. Enclosed reception and transfer. Odour control fitted. Operational regime to ensure correct operational sequence.	Failure of automatic door closure Conveyor breakdown or blockage Transfer pump failure Failure of air extraction fans Failure of odour unit	Localised short duration odour	Allow manual closing of all doors Clear blockages Preventative maintenance of conveyor system Daily monitoring of odour unit to detect odour breakthrough Stop cake import
Enzyme hydrolysis of mixed sludges	Pressure relief valves on hydrolysis reactors	Enclosed process in normal operation	Operation of pressure relief valves. (in emergency only)	Localised short duration odour	Cease pumping operations.
Mesophilic Anaerobic digestion	Pressure relief valves on digesters	Enclosed process in normal operation	Operation of pressure relief valves (in emergency only)	Localised short duration odour	Cease pumping operations
Mesophilic anaerobic digestion	Microbiological Process failure	Process monitoring	Toxic substance in raw sludge	Localised short term odour	Drain digester. Cake and dispose of sludge.
Dewatering of digested sludge	Centrifuge building	Enclosed building			
Storage of Digested sludge cake	Sludge cake storage area	Treatment to enhanced product standard.	Poor cake structure Exceptional weather conditions	Short term odour on movement of sludge	Use masking or surfactant sprays.

		Sludge handling to minimise compaction Minimum storage reduced from 90 days to <10 days.	leading to extended storage. Poor land bank availability		
Treatment of digested sludge liquor	Phospaq reaction tanks	Covered tanks	Process failure	Localised short duration odour	
Flaring of excess gas	Waste gas burner.	Low odour nuisance risk Infrequent use			

7. DESCRIPTION OF ODOUR CONTROL MEASURES

7.1. Inlet Works and Primary Sedimentation Tanks

7.1.1. The inlet works and primary settlement tanks will be dosed with ferric sulphate to control hydrogen sulphide. Ferric sulphate removes odour potential by conversion of sulphide ions to insoluble ferric sulphide. In addition more frequent auto desludging will be carried out on the existing primary tanks. More frequent removal of primary settled solids will significantly reduce sludge residence time and odour development.

7.2. Sludge Screening and Thickening

7.2.1. Open tanks will be operated at low levels to prevent accumulation of solids and odour generation

7.2.2. The Aquabelt primary sludge thickening building is currently fitted with odour control consisting of a catalytic iron reactor to remove hydrogen sulphide and an oxidising reactor to remove ammonia and volatile organic compounds. The flow rate of 1800m³/hr is designed to achieve an odour removal rate of 99.5%.

7.2.3. The solids technology belt thickener building is also fitted with odour control consisting of single stage shell media bioscrubber.

7.3. Sludge Blending

- 7.3.1. The sludge blending tanks are fitted with a single stage bioscrubber
Existing odour control measures will be retained

7.4. Cake Reception Area

- 7.4.1. All import cake lorries will be sheeted over at all times during transit and discharge of cake to minimise odour release.
- 7.4.2. On entering the works at Great Billing, each covered lorry will proceed directly to the weigh bridge where it will be weighed and then on to the sludge cake reception plant.
- 7.4.3. There are three methods of odour control incorporated into the sludge cake reception building. First, odour will be contained within the tipping floor area by enclosure of the operation. Second, escape of fugitive odours will be minimized by the use of a roller door, sheet curtain and surfactant spray whilst unloading third, odours will be extracted from within the contained area to a dedicated odour control unit.
- 7.4.4. The roller door at the entrance to the cake reception building will open, the dedicated tanker exhaust extraction system will be turned on and the lorry will reverse into the import cake building. At this point the roller door isolating the tipping floor and sludge conveyor will remain closed.
- 7.4.5. The lorry will reverse up to the cake reception area at the rear of the cake building and activate the roller shutter doors to open. Before the cake reception area doors open the main building door closes.
- 7.4.6. In addition to the surfactant spray and active extraction system, the cake reception area will be fitted with plastic curtain strips immediately inside the roller shutter doors to minimise the release of fugitive odours
- 7.4.7. As the roller shutter doors begin to open, a surfactant spray system at high level will operate and introduce a surfactant spray into the conveyor area where the cake will be discharged. The surfactant spray will prevent fugitive release of odour back into the cake building cake is discharged from the lorry onto the tipping floor.
- 7.4.8. The lorry will then reverse through a strip curtain and discharge sludge onto the tipping floor.
- 7.4.9. Air will be extracted from the tipping floor, the covered conveyor and the sludge hopper to ensure a slight negative pressure is maintained within this contained area. The trailers will remain sheeted to prevent fugitive odour release into the building and restrict it to the area of the tipping floor behind the strip curtain. This area will be

extracted to the abatement plant at a high rate to counteract the volumes of air that will be displaced by the incoming cake.

7.4.10. The tipping process should take no more than 5 minutes to complete. Once the lorry has discharged its entire cake load, it will be driven out of the cake reception area. The roller shutter doors will then automatically close and the surfactant spray system will switch off. The extraction system within the tipping floor, conveyor and sludge hopper will operate continuously to extract residual odours to the odour abatement plant.

7.4.11. The odour abatement plant will consist of a lava rock biofilter with a single pass irrigation system followed by an activated carbon filter to reduce odour by 90% or to a maximum of 1000 ou at the point of release.

7.4.12. Air will be extracted from the tipping floor at a rate of 1000m³/hr, from three points along the covered conveyor at 150m³/hr and from the sludge hopper at a rate of 40m³/hr giving a total extraction rate of 1490m³/hr for each tipping floor. The total flow to the lava bed trickling biofilter will be 3000m³/hr.

7.4.13. The biofilter will be designed for a total flow of 3000m³/hr and an average inlet concentration of 50mg/l H₂S with a peak of 500mg/l H₂S.

7.4.14. Reference plants in use in the UK and Europe have been shown to achieve >98% removal of H₂S at similar inlet concentrations and 95% removal of all odours based on dynamic olfactometry.

7.5. Return Liquor Treatment Plant

7.5.1. The return liquor treatment consists of a covered holding tank for centrate liquor, a PHOSPAQ reactor and hydrocyclone separation unit. The PHOSPAQ reactor consists of three compartments, a struvite settlement compartment, an aerated stage, and a holding tank for residual liquors. The reactor will be covered to control the release of ammonia from the PHOSPAQ reactor. No additional odour units are proposed for the return liquor treatment plant beyond containment.

8. OPERATIONAL MANAGEMENT PROCEDURES

8.1. Training.

8.1.1. All Operations and Maintenance Staff will be trained to operate and maintain the odour control equipment by the manufacturers of the equipment. This will include recommendations on the monitoring parameters and the frequency of monitoring. All work will be carried out in accordance with that training to ensure safe and effective operation.

8.2. Odour Assessment Log Sheets.

8.2.1. The operation and efficiency of the odour control system is to be assessed on a weekly basis by measuring H₂S concentrations at the inlet and outlet to all odour control systems. A review of the trend analysis produced by H₂S monitors will be carried out monthly.

8.2.2. Daily visual and olfactory checks of the equipment will be carried out by the plant operator to ensure correct operation of mechanical components.

8.3. Operator Alarm Response Procedures.

8.3.1. Response to alarm levels is in accordance with operating procedures and dependant on priority basis. Reaction from the plant operator would depend on severity following on site investigation and escalated if appropriate to Process Scientist / Treatment Works Manager. Action will be taken by onsite staff as detailed in section 6 of this plan.

8.3.2. During working hours alarms are raised on the SCADA control system and appropriate action taken by onsite operational staff.

8.3.3. Outside normal working hours telemetry alarms are handled by the Control Centre who will notify designated staff as appropriate.

8.3.4. The system is designed to operate with the following alarm levels.

Non Critical Alarms

Non annunciating Telemetry alarm.

Next Working Day

Plant Operator to use discretion regarding appropriate response to an alarm. The Control Centre to monitor alarm and inform Operator at the beginning of next working day and filter these alarms between 16.00 and 08.00

Within 4 hours

Plant Operator to use discretion regarding appropriate response to an alarm. The Control Centre to monitor and pass to Operator as appropriate during normal working hours and filter these alarms between 22.00 and 08.00. Design response time between 4-6 hours, but may vary dependent on weather conditions / reactive activity in the area.

Immediate Response

Plant Operator to use discretion regarding appropriate response to an alarm. The Control Centre to monitor and pass to Operator as soon as possible including outside of normal working hours. Design response time between 4-6 hours, but may vary dependent on weather conditions / reactive activity in the area.

8.3.5. The current alarm levels for the odour control system are as follows:

Odour Control Extractor Fans.	Next working Day
Bioscrubber recirculation pumps	Next Working Day
Odour busbar	Immediate
H ₂ S monitor on the stack (> 0.35ppm)	Next Working Day

8.4. Operational Maintenance

8.4.1. All odour control units and associated equipment will be maintained and calibrated in line with the manufacturers' recommendations.

8.4.2. Airflow rates and water flow rates will be checked every six months by Anglian water operational staff to check for media breakdown and blockage. A yearly inspection will be carried out on all mechanical equipment to check for wear and corrosion. Where fans are belt driven, condition and tension of belts will be checked monthly. In line filters on the irrigation water supply will be checked and cleaned weekly.

8.4.3. Media exchange in both units will be carried out at the frequency recommended by the manufacturer or if odour breakthrough is detected by monthly review of H₂S measurements.

9. LOCAL LIAISON

- 9.1. Local liaison should be advised as soon as practicable by phone or email if non-routine activities that carry an increased and unavoidable risk of major odour release are required. When complaints are received directly by Northampton Borough Council the treatment manager should be informed by phone or email as soon as possible.

10.ODOUR COMPLAINT RECORDING

- 10.1. Complaints directed to the AW Control Centre are logged and recorded and then forwarded to the works operator and the Treatment Works Manager for further investigation.

11.INVESTIGATION

- 11.1. On receipt of a complaint the complainant may be contacted for more information and a site visit will undertaken as soon as practicable, and in accordance with the operator's complaints protocol, in order to investigate the causes of the complaint. The investigation could include testing of the OCU by the measurement of the hydrogen sulphide concentration to establish whether it is within the accepted tolerances. Should the cause be found to be the result of malfunction of the process, then corrective action will be taken where appropriate.

12.REPORTING

- 12.1. The results of any investigations will be recorded within the site log. Where appropriate, the complainant will be contacted by the operator to inform them of any results of the investigation/mitigation.

13.ODOUR MANAGEMENT PLAN REVIEW.

- 13.1. This document will be reviewed annually to reflect changes in operating procedures as a result of routine monitoring or the introduction of new process units.