LONDON ASHFORD AIRPORT

SEWERAGE REPORT

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REV: -

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QUALITY ASSURANCE

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1.0 FOUL WATER SEWAGE DISPOSAL OVERVIEW

1.1 Introduction

In order to re-assess the current sewerage arrangements at London Ashford Airport (LAA), and the assumptions based on tanker collections in the 2006 Environmental Statement (ES) and those set out by Shepway District Council (SDC), Parsons Brinckerhoff (PB) instructed a Senior Public Heath Engineer to carry out a site visit and general overview of the current foul and surface water drainage regime. This visit was conducted on15th July 2008.

1.2 Site Visit Outcomes

The foul water drainage system at LAA primarily comprises a septic tank sewage treatment system, with a separate cesspool system (which was the only type of system described in the Terminal ES) relating to the temporary air traffic control building on the airfield. The discharge from the septic tank runs into the Dengemarsh sewer, an open surface water dyke containing free-flowing surface water via a reed bed. The current arrangement is set out as a sketch plan copied from the site files (*See Appendix 1*).

The existing situation is that the septic tank requires regular tanker emptying to ensure the upstream below ground drainage does not surcharge and overflow.

The temporary air traffic control building on the airfield utilises a separate cesspool drainage system that requires tanker-emptying on a monthly basis.

1.3 Recommendations

In brief, following further assessment and discussions with airport management, it is considered necessary for the current septic tank arrangement to be upgraded for the development proposals. The following upgrade options have been presented to LAA and discussed with senior management:

Foul Effluent disposal method	Notes
Self contained packaged sewage treatment plant	Requirements of current discharge licence will need to be adhered to
Self contained packaged pump chamber (pumping foul discharge to local foul water sewer or treatment plant)	Would need to discuss current discharge licence as no longer discharging to a water course

Either of these options present realistic ways of ensuring a satisfactory upgrade to the foul water treatment system, in conjunction with discussions with the discharge authorities, to cater for the development proposals at 300,000 and 500,000 passengers per annum. The alternative of tankering also remains viable in principle (see 2.4 below) but the airport would accept a planning condition requiring the undertaking of a technical study for an on-site treatment works and the undertaking of a comparison assessment with the option of tankering to confirm the most appropriate solution.

1.4 Conclusion

LAA senior management accept the requirement for such an upgrade of the foul water treatment system, and the recommendation for an on-site treatment works is accepted in principle as a preferred alternative subject to the technical study and the assessment of the comparison with tankering. LAA senior management have confirmed that they will initiate such a technical study into one of the two on-site treatment options above upon planning approval.

2.0 FOUL WATER SEWAGE VOLUMES

2.1 Introduction

We have set out below revised calculations following consideration of the original ES data and tankering away sewage, and we comment below on SDC's analysis of the ES figures quoted (which they felt significantly underestimated the quantity of foul sewage that would be produced- *Refer to Appendix 2 for the relevant section extracted from this letter).*

This section of the report therefore provides a response to the queries raised in that letter.

2.2 Calculations

On review of SDC's comments to PB's initial foul water figures, SDC's volumes appear to have been over calculated by approximately seven times, in that the weekly population (500,000 / 52) has been used and multiplied by the weekly volume *per person* (this over calculation arrived at the incorrect requirement of 139 tanker removals per week). If weekly population figures are used for passengers then the weekly passenger figure should be multiplied by 0.05m3 discharge the daily per person volume not the weekly per person volume. (In summary each passenger using the 500,000 passengers p.a. airport will only be at the airport 1 day per week not 7 days).

However, it is accepted that some adjustment is needed to the ES calculations previously given and the calculations below therefore represent our current assessment of foul water volumes:

Site foul outflow calculations

CIRIA PR72 has been used as a guide to quantify foul flow per person per day. This document is used as a guideline by local authorities when quantifying the foul water discharge per person per day when assessing the storage requirements for foul water packaged pumpset (Building Regulations require that all pumping stations without a backup power supply require 24 hours storage).

As airports are not included within these tables, we have adopted the daily figure for "offices and / or factories with canteen" which is 90 litres/day per person and divided it by 50% to reflect an average time on site per passenger of 4 hrs which is considered reasonable.

This reduced figure of 45 litres per person per day equates to 0.315m3 (315 litres) foul water per passenger per week which compares closely to the current average figures of 0.35m3 foul water per person per week:

Passengers per day (500,000 pa / 12 / 30)	1,389
Staff per day	180
Provisional allowance for airside staff per day	100
Provisional allowance for non defined parties (retail etc)	100
Approximate average total daily staff population	380

Volume of foul water discharge per day (passengers) 1,389 x 45 = 62,505 litres (63m3)

Volume of foul water discharge per day (staff) 380 x 90 = 34,200 litres (34m3)

Total volume of foul water discharge = 96,705 litres (97m3)

Therefore with this figure we can approximate a foul water quantity (albeit averaged out over the year) of 96,705 litres per day (97m3) for assumed average airport population with 500,000 passengers per annum.

With these figures we can establish that the use of cesspools is still viable although it would necessitate 28 x 25m3 tanker removals per week at 500,000 passengers per annum.

With regards to disposal of aircraft lavatory tank contents it is understood a typical Boeing 737 vacuum system tank creates an insignificant increase in foul water calculation at just 64.3 litres per aircraft.

2.3 Availability and cost of Tankering

Following discussions with the current sewage removals contractors (Sucklifts) it was confirmed that an increase in effluent removal was viable in line with anticipated figures for an airport increase in passenger traffic to 500,000 per annum.

Foul effluent would need to be taken to either Ashford or New Romney treatment works, subject to discussions with the local authority. The cost of 28 x 25m3 tankers per week including disposal charges is approximately £19,500.00. Sucklifts currently have a fleet of 140 25,000 litre tankers.

2.4 Conclusion

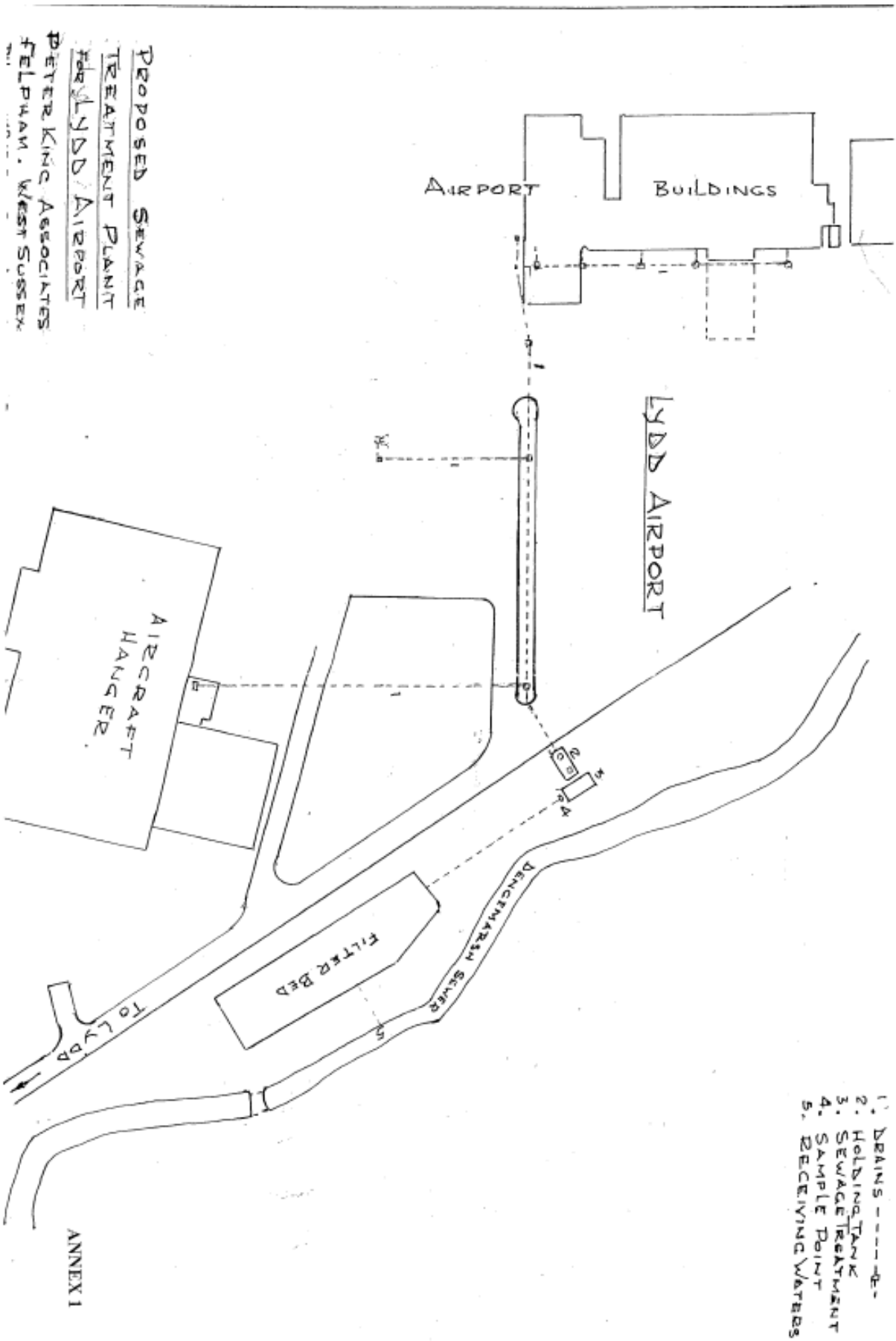
A new cesspool system would require up to approximately 28 tankers per week, adjusting the previous ES calculations but rebutting the 137 calculation by SDC.

However, as stated earlier in this report, on planning approval the LAA Senior management would initiate a technical study report for a stand alone sewerage treatment plant or pumping station to replace the existing arrangement. The installation of such plant would remove the requirement for weekly removal by tankers and associated traffic congestion and air pollution. Whilst either would be a viable system, the installation of such on-site plant, subject to the outcome of the technical study and comparison assessment with tankering, is likely to be preferable in practice.

APPENDIX A:

SKETCH OF CURRENT FOUL WATER DISPOSAL

ARRANGEMENT PHOTOGRAPH OF CURRENT SEPTIC TANK SEWAGE TREATMENT PLANT


PROPOSED SEWAGE TREATMENT PLANT FOR LYDD AIRPORT
PETER KING ASSOCIATES FELPHAM. WEST SUSSEX
AIRPORT BUILDINGS
LYDD AIRPORT
AIRCRAFT HANGER
FILTER BED
DENGEMARSH SEWER
TO LYDD
1. DRAINS ----
2. HOLDING TANK
3. SEWAGE TREATMENT
4. SAMPLE POINT
5. RECEIVING WATERS

ANNEX 1

Current septic tank sewage treatment chambers, location adjacent to main car park

APPENDIX B:

EXTRACT FROM THE LOCAL AUTHORITY'S COMMENTS ON INITIAL FOUL WATER VOLUMES WITHIN SECTION 7 OF SHEPWAY DISTRICT COUNCIL'S LETTER OF 05 MARCH 2008

- The accuracy of the figures provided in the ES for sewage disposal is questioned. The baseline shows the airport currently has 2 x 25m^3 tankers removing sewage from the site weekly. This figure is based on 3,000 passengers per annum and 68 staff. With the airport operating at 300,000 passengers per annum and 180 staff, it is predicted that it will require 8 x 25 m^3 tanker removals per week. With 500,000 passengers per annum it will require 13 x 25m^3 tanker removals per week. On closer examination of these figures it is believed the ES has grossly underestimated the amount of sewage that will be produced.

  At present, on average, the airport disposes of 0.35 m^3 sewage per person per week. Figures for 300,000 and 500,000 passengers and staff suggest they will only produce 0.03m^3 per person per week of sewage. If the baseline figure is used of 0.35m^3 then the number of tanker removals increases to 83 per week (12 per day) at 300,000 passengers per annum, and 139 tankers per week (20 per day) at 500,000 passengers per annum. These figures take no account of people who will be using facilities at the airport when they are dropping off / picking up friends and relatives. They have also been based on averages. It is more than likely the airport will operate more flights during the summer months than the winter months and so there is potential that the situation might be more critical at that time of year. The airport will also need to dispose of sewage taken off aircraft.

  The cesspit system is not considered to be sustainable as overflow is likely, thus increasing the risk of contamination to ground water systems and public health in general. Alternative methods of disposal need to be considered (this might require some involvement from the Environment Agency and Southern Water).