

Southend Airport Runway Extension and Associated Development

Contaminated Land Phase I Desk Study






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| | Originated by | Checked by | Reviewed by | Approved by |
|-------------------------|--|--|---|-----------------------|
| ORIGINAL | NAME Ifeyinwa Madueke | NAME Hugh Davis | NAME Jane Thrasher | NAME Stephen Mills |
| DATE March 2009 | SIGNATURE  | SIGNATURE  | SIGNATURE  | SIGNATURE |
| Document status: | | | | |

| | NAME | NAME | NAME | NAME |
|--|--|--|---|---------------|
| REVISION | Ifeyinwa Madueke | Hugh Davis | Jane Thrasher | Stephen Mills |
| DATE May 2009 | SIGNATURE  | SIGNATURE  | SIGNATURE  | SIGNATURE |
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| | NAME | NAME | NAME | NAME |
|-------------------------|-----------|-----------|-----------|-----------|
| REVISION | | | | |
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| Document status: | | | | |

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1 Introduction

1.1 Background to the Project

Jacobs has been commissioned by London Southend Airport Company Limited (LSACL) to undertake a Phase I Contaminated Land Desk Study for a runway extension and associated infrastructure. The runway extension would facilitate growth to around 2 million passengers per annum (mppa) by about 2020, with around 50,000 aircraft movements.

For the purposes of this report the whole Southend Airport site will be referred to as the SAS site.

1.2 Description of the proposed development

1.2.1 Introduction

London Southend Airport Company Limited (LSACL) has recently been purchased by Stobart Airports who intend to seek planning permission for the extension to the runway and associated works which will support and accelerate an increase in the number of passengers using the Airport. The aim is to complete the extended runway by May 2011. This will require a planning application, supported by an Environmental Statement.

1.2.2 Description of developments within each area

For the purpose of this report, the proposed development site is divided into three discrete areas namely Area A, Area B and Area C. Most parts of these areas are located within the boundaries of the existing airport and some outside the airport boundary. A location plan is presented in Figure 1. The proposed infrastructure for each of the areas is shown on Figure 2.

(a) Area A

This area is located adjacent to the eastern boundary of the existing airport and immediately south of the eastern runway. Proposed infrastructure and developments within this area include the following:

- Construction of additional taxiway.
- New car parks
- Phase 2 terminal
- Phase 2 apron
- Water attenuation pond 1

Other Planned developments located within this area with consents in place are:

- Phase 1 terminal
- Phase 1 car park

- Phase 1 apron
- Rail station

(b) Area B

This area is located along the North West boundary of the existing airport and is the proposed location for the relocation of the Phase 2 Flying Club. Planning consent has been granted for the development of the Phase 1 Flying Club, immediately west of Area B.

(c) Area C

This is the proposed site for the extension of the existing western runway. The site extends from the existing runway towards the west, past Eastwoodbury Lane Bypass and terminates at Nestuda Way. Associated developments are the diversion of the Eastwoodbury Lane to the south and the construction of a water attenuation pond to the north west end of the area.

1.3 Purpose of the Report

The purpose of this report is to identify potential sources of contamination that may have impacted upon the environmental condition of the proposed development area as a result of current and historical activities on site and in the vicinity, and to advise on other associated potential significant environmental liabilities as appropriate. This has been undertaken in line with the requirements of Planning Policy Statement 23: Planning and Pollution Control (PPS23).

2 Scope of Work

This study has been undertaken to compile a report with regard to the risks from land contamination for the proposed Southend Airport runway extension and associated infrastructure developments.

This environmental desk study report covers the following:

2.1 Site Description

A site reconnaissance was undertaken for this purpose. It was completed to develop an understanding of the site layout and condition, and current on-site activities, which could have an impact on the underlying ground and groundwater. The reconnaissance was limited to publicly accessible areas, and was undertaken by Hugh Davis and Ifeyinwa Madueke on 16th March 2009.

2.2 Environmental Setting

The geological and hydrogeological conditions in the vicinity of the site are of importance because they may influence the vulnerability of groundwater or surface water to contamination or may influence the migration of contamination. The geological and hydrogeological conditions in the vicinity of the site have been reviewed from published maps and web based information.

2.3 Local Area Study

A local area study of adjacent and nearby properties has been undertaken from information included in the above listed documents to help assess if adjacent land use or off-site activities could potentially impact the environmental status of the subject site. This also identifies the presence of potential receptors to contamination arising from the site. Information from the Landmark Environmental Data Report has been used.

2.4 Historical Review

The history of the site and adjacent properties has been reviewed in the desk study to identify former activities or land use which may have affected the environmental condition of the site. The search involves the collection and review of readily available historical maps, including the Landmark Historical Map Pack.

2.5 Development of Conceptual Site Model (CSM)

In line with the Model Procedures for the Assessment of Land Contamination (CLR11), a contamination risk assessment has been undertaken based on the findings of the desk study and a conceptual site model (CSM) has been produced using the source-pathway-receptor principles. A qualitative risk assessment for the site has been undertaken identifying the plausible pollutant linkages and their potential significance. Key uncertainties in the models have been identified.

The assessment has looked at the risks to future site users, site development workers and controlled waters. Where contamination has been identified, recommendations for remediation or further works are included within the report.

3

Site Description**3.1 Site Location**

The SAS site is located approximately 1km to the south of Rochford and about 3.5km north of Southend-on-Sea. The nominal centre of the airport site is on National Grid Reference 587200 189200.

3.2 Site Layout

The SAS site occupies an area of about 125 ha and is generally bound to the east by a railway line which runs in a north–south direction, beyond which are residential areas. It is bounded to the west by open fields, industrial units and a stream, to the north by a golf course and to the south by residential properties. The airport's one operational runway is located at the centre of the airport oriented north-east - south-west. An unused shorter runway is located at right angles to the first. A terminal building including aircraft maintenance and passenger lounge is located in the southeast of the site.

For the purpose of this report, the proposed development area is divided into three discrete areas namely: Area A, Area B and Area C. Most of the proposed infrastructure for these areas is located within the boundary of the existing airport with the exception of a part of Area C and a small part of Area A.

3.2.1 Area A

This area is associated with the existing airport and is located at the mid point along the eastern boundary. The only development footprint located outside the existing airport boundary is the proposed location for water attenuation, which is located in an open field to the east of the railway line. The railway line does not lie within the footprint of the scheme design.

Area A covers an area of approximately 40,000m² although the proposed developments only comprise a portion of this area. Area A is partly bounded to the east by a railway line and residential properties. The airport eastern aircraft apron is located immediately west of the site. Prittle Brook is also located approximately 350m east of the site.

3.2.2 Area B

This area is associated with the existing airport site and is located along the northwest boundary of the existing airport. The site is a small development footprint and covers an area of about 3,000m². The existing aircraft maintenance site is located within 100m of Area B. Area B is generally covered in grass. Eastwood Brook is located approximately 40m north of Area B, flowing from west to east. The airport fuel tank farm is located approximately 270m east of the site. An interceptor tank lies within 100m east of site. Surrounding the site to the south is open

grassland and the airport runway. An industrial estate is located to the north of Area B.

The tank farm is bunded and contains overground tanks. The Wardell Armstrong December 2007 Report observed that a hole had been created in this area to aid aircraft accessibility but with the result that the integrity of the wall had become compromised. It also reported evidence of hydrocarbon stains in this area during a site visit in 2007.

According to the Wardell Armstrong report, clean topsoil removed from the south of the airport site during car park construction and preparation were placed in Area B and surrounding areas.

3.2.3 Area C

Area C covers part of the present airport runway located to the west of the SAS. The proposed runway extension will run from the existing runway into an open field but will stop before Nestuda Way. Landing lights are currently located in the open field. The existing runway is located to the centre of the SAS and the whole runway area is covered in tarmac. The proposed Eastwoodbury Lane Bypass diversion is located in the southern portion of Area C and this crosses agricultural land and terminates at the Royal Bank of Scotland office car park. One of the two proposed water attenuation ponds for the SAS will potentially be located in the north west portion of Area C. This area is a fallow fenced field associated with nearby smallholdings.

3.3 Site Reconnaissance – Current Site Use

A site reconnaissance was undertaken comprising a walkover of selected routes of the proposed areas of developments and surrounding areas. Details of findings are summarised in Table 3-A below.

| Area | Description | Surrounding areas |
|------|---|---|
| A | <p>The site is split by an access road, which connects to the main airport entrance road. This road is in good condition and is covered with hardstanding.</p> <p>The mid part of the site is currently occupied by a number of small buildings associated with the flying club. This was seen to include small disused buildings with possible asbestos roofing, car parks and an interceptor tank through which surface water passes from the northern airport apron and taxiways.</p> <p>The aircraft apron in the western part Area A was noted to have a number of light aircraft parked on it. A mobile refuelling tank was stationed at one of the aircraft at</p> | <p>A railway line, which runs in a north – south direction and residential properties are located 80m and 150m east of Area A.</p> <p>Northwest of the apron is the runway. The current airport terminal building is located within 200m of Area A.</p> |

| | | |
|---|---|---|
| | <p>the time of the visit. A mobile refuelling tank was also observed at the northern end of the site.</p> <p>A section of the railway line passes through the southeast end of Area A.</p> <p>The field in which the attenuation pond is proposed was seen to be occupied by horses at the time of the visit.</p> | |
| B | <p>The site is located on the northern boundary of the existing SAS site at Aviation Way. The site is covered with grasses and appears as reworked land (made ground). Stockpiled material, mainly soils, containing some demolition materials are present on site with evidence of metals, tarmac, electrical fittings, pottery and bricks. This may be the 'clean topsoil' removed from the car park area on the main site described by Wardell Armstrong 2007.</p> | <p>Eastwood Brook is located approximately 40m north of the Area B but was not accessible during the visit due to a security fence in the north of the site. A temporary track is at the north of the site and is 1 to 2m below the level of the made ground stockpile.</p> <p>The airport tank farm was observed 270m to the east of Area B.</p> |
| C | <p>Area C covers part of the present airport runway and Runway End Safety Area (RESA) located to the west of the airport and extends to Nestuda Way. The main part of the site is currently an open field with landing lights.</p> <p>The proposed location for the water attenuation pond in the north west portion of Area C is currently a fenced fallow field.</p> | <p>Surrounding areas of the site are generally public open space. St Lawrence and All Saints Church and associated graveyard are also adjacent to the north of the site.</p> |

Table 3-A Site Reconnaissance

3.4 Potential Contaminant Sources – Current Site Uses

During the site walkover, potential areas of concern, including potentially contaminative sources were identified within the proposed development areas. These are as follows:

3.4.1 Area A

Potential areas of concern identified within the site and adjacent to it include:

- An interceptor tank through which surface water passes from the airport north apron and taxi way. The interceptor tank could not be opened for inspection and the site escort had no information regarding age, size, make, depth, condition or management of the interceptor. There was however no visual evidence to suggest that the interceptor was not regularly maintained.

- A section of railway line located on the SAS site - this is the area for the proposed rail station build.
- Disused maintenance building with suspected presence of asbestos.
- Aircraft refuelling activities within the eastern apron.

3.4.2 Area B

Potential areas of concern identified within site and adjacent to it are:

- Stockpile of excavated materials suspected to be construction rubble with evidence of bricks, metals, electrical fittings and tarmac. No suspected asbestos containing material was observed in the rubble.
- Off-site poorly bunded fuel tank farm with above ground tanks with history of occasional hydrocarbon stains.

3.4.3 Area C

There were no obvious areas of potential contamination noted in Area C during the site walkover.

4 Environmental Setting

4.1 Introduction

The environmental setting which is based on published information is described below.

4.2 Geology

The geology of the proposed development area is shown on the BGS geological map sheet 258 and 259 and outlined in the Table 4-A below:

| Type | Age | Formation |
|-------|------------------------|--|
| DRIFT | Pleistocene and Recent | River Deposits: Alternating layers of River 'Brickearth' and 'Sand and Gravel' from 1 st , 2 nd and 3 rd Terraces. |
| SOLID | Eocene | London Clay |

Table 4-A Geology of site

The proposed site is underlain by all or some of 1st, 2nd and 3rd Terraces of River Deposits, overlying London Clay. Alluvial deposits have been identified to the north east of the site along the route of the River Roach and its tributary, the Eastwood Brook. The Alluvium also follows the route of the watercourse to the west and is present adjacent to Area C. Alluvium is also identified along the Prittle Brook located some 370m east of Area A.

A ground investigation of Area C conducted by JacobsGibb between 25th – 27th November 2002 found Made Ground at 0.1m – 0.3m bgl, RTD at 0.2m – 1.8m bgl and brown fine to coarse sand at 4.9m – 8.4m bgl, anticipated to overlie the London Clay.

4.3 Hydrogeology

The 1:100,000 groundwater vulnerability map Sheet 40 Thames Estuary classifies the proposed development areas as summarised in Table 4-B below:

| | Age | Formation | Aquifer Class |
|-------|------------------------|----------------|---------------|
| DRIFT | Pleistocene and Recent | River Deposits | Minor Aquifer |
| SOLID | Eocene | London Clay | Non-Aquifer |

Table 4-B Hydrogeology of site (SAS site)

The River Deposits and nearby alluvial deposits are classified as a Minor Aquifer. These deposits are variably permeable, do not possess a high primary permeability and do not produce large quantities of water for abstraction but are important for baseflow to rivers.

Soils present within the alluvium to the north west of site (north of Area C) and adjacent to Area A, east of the site are classified as soils with high leaching potential, while soils present within the northern portion of the SAS site (Area B) are classified as soils of intermediate leaching potential, which can possibly transmit a wide range of pollutants. The River Terrace Deposits are also classified as a Minor Aquifer. The London Clay is a non aquifer which is negligibly permeable and is generally regarded as containing insignificant quantities of groundwater.

The site is not within a Source Protection Zone.

4.4 Hydrology

The nearest water course to Area A is the Prittle Brook, a tributary of the River Roach. The River Roach flows from north-west to south and is joined by the Prittle Brook which is located around 250m east of Area A and east of the railway line. A water course is also located parallel to the southern boundary of the proposed rail station site. Eastwood Brook, another tributary of the River Roach, is located within 40m north of Area B and flows from a westerly to easterly direction towards Area A.

The Environment Agency website shows that the River Roach has a General Quality Assessment (GQA) of chemical river quality as classification C (fairly good) in 2007.

According to the Envirocheck report, the northern area of Area B and Area C are liable to extreme flooding without defences.

4.5 Designated Sites

No Sites of Special Scientific Interest (SSSI) or any site of regional ecological importance were identified on site or within 500m of the site. Parts of the northern section of the airport site lie within a designated Nitrate Vulnerable Zone (NVZ).

5

Local Area Study

5.1 Regulatory Information obtained from the Envirocheck Report

Environmental and geological reports were commissioned from Envirocheck to provide environmental site sensitivity data. The report covers a 1,000m radius around the approximate centre of the SAS site. The full reports are reproduced in Appendix A.

The regulatory information provided in the Envirocheck report includes groundwater abstractions, groundwater quality, river quality, known pollution incidents and landfill sites. A summary of relevant information from the report is provided in the table below.

| Data Type | Data Category | Description | Potential Relevance to the Site |
|-----------|---|--|--|
| Water | Red List Discharge Consents, Prosecutions relating to Controlled Waters | None on site (A, B, C) or within 500m of site. | - |
| | Abstractions | Area A: None on site. One located within 220m southeast of site, currently revoked. | None. |
| | | Area B: None on site. One operated by Tabor Farms for general agricultural purposes located 550m northeast of site, abstracting from Eastwood Brook. | Sensitive downstream receptor. |
| | | Area C None on site or within 500m radius. | - |
| | Discharge Consents | Area A: Two consents for the discharge of 'other matter - surface water' into Prittle Brook onsite - one located at northwest end of site and the other south east of site. Four others for discharge of other matter – surface water are shown offsite within 500m east and southeast of site. | Possible sources of contamination of local watercourse |
| | | Area B Two consents for the discharge of 'other matter - surface water' into Eastwood Brook are shown on site, one of which has been revoked, and four others within 500m – one to the northeast, one to the west and two to the southwest | |
| | | Area C Four consents for the discharge of 'other matter surface water' to Eastwood Brook are shown just outside the northeast corner of the site, one of which having been revoked. | |

| Data Type | Data Category | Description | Potential Relevance to the Site |
|---------------------|---|---|---|
| | Pollution Incidents to Controlled Waters | Area A None have occurred on site. Within 500m of the site: Three Category 3 incidents to Prittle Brook 140m to the east of Area A involving oil and sewage in 1997. Three incidents, one Category 2 and two Category 3, 380m south of the site, between 1993 and 1994, into the Prittle Brook. One incident 390m southeast of site, Category 2, oils, 1994, into the Prittle Brook. | Background environmental quality and history. |
| | | Area B: None occurred on site. One 50m northeast of site, Category 3, into the Eastwood Brook in 1993. One 150m northeast of site, Category 3, oil into Eastwood Brook in 1995. One 250m northeast of site, Category 3, rubble, litter or solids, into Eastwood Brook, 1998. | |
| | | Area C: Two Cat. 3 pollution incidents are recorded for Eastwood Brook at approx. 300 and 400m west of the site and upstream | |
| | Source Protection Zones | None. | - |
| Waste | IPC Registered Waste Sites. | None within 500m of site. | - |
| | Landfill Sites | One historic landfill site is located within 500m north east of Area A. Last waste input was in 1976 None within Area B and Area C. | Possible source of landfill gas. Due to the age and distance from the site, potential risk to site is considered to be low. |
| | Waste Treatment, Transfer and Disposal Sites | Located at Cherry lane, unknown waste types and status located within 1km north west of Area B and Area C | Potential contaminant source |
| Sensitive Land Uses | Sites of Specific Scientific Interest, Nature Reserves, Protected Areas, Ramsar Sites, World Heritage Sites. | No Ecological Designation within 500m. Area of site to the North adjacent to Area B and C is defined as area of Adopted Green Belt. However, this has been revised. See section 4.5 for more details | None |
| | Registered Radioactive Substances, Prosecutions relating to Authorised Processes, Enforcement and Prohibition Notices, Planning Hazardous Substance Consents or Enforcements, NIHHS sites, Explosive sites, Contaminated Land Sites | One within 200m of Area C at Aviation Way, status either cancelled or revoked. | None |

| Data Type | Data Category | Description | Potential Relevance to the Site |
|--------------------------------------|--------------------------------|--|---|
| Statutory Authorisations | Integrated Pollution Controls, | None | None |
| | Local Air Pollution Control. | Two within 500m of Area B, and one within 100m south of Area A Re-spraying of road vehicles located within 200m west and coating and recoating of aircraft and components are located approx. 400m north of site: | None |
| | COMAH sites | Two approximately 750m north of Area B, relating to brick works, both of type "Lower Tier" and with records ceased to be supplied under COMAH Regulations. | None |
| Potentially contaminative activities | Fuel Station Entries | None within 500m of Area and B. Two are located within 300m of Area C. | According to previous report for Area C, petrol station was new in 2002 and potential for hydrocarbon discharge to site was considered low. |

Table 5-A Regulatory Information obtained from the Envirocheck Report

5.2 Other Regulatory Consultation

The site lies within the administrative boundaries of Southend BC and Rochford DC. These authorities were consulted on 17th March 2009 regarding records or information on contamination issues within and adjacent to the proposed sites. The Environment Agency was also consulted.

A response was received from the Rochford DC on 8th May 2009 (see Appendix D). The council confirmed that they do not have any records or are aware of any landfill, waste sites or contamination issues within a 500m radius of Areas B and C. However, they recorded the following pollution issues near Area A:

- Pollution Incident involving kerosene spillage in December 1997, within 250m of Area A, at TQ878892.
- Petroleum Hydrocarbon contamination was found in soils and groundwater during the redevelopment of the eastern corner of the airport in the 1990s; however this was cleaned up to the satisfaction of the Environment Agency.

No responses have been received from the Environment Agency and Southend BC at the time of writing.

5.3 Historical Study

A summary of the relevant information shown on the historical maps in the Envirocheck report is provided in Appendix C.

A detailed history of the airport is provided in Appendix C.

Research and information obtained from Hendon Air museum during the previous site investigation of Area C (2002) indicate that the site of Southend Airport was used previously as an aircraft base during both World War I and World War II. It is understood from previous researches that the airfield was bombed heavily between 1940 and 1941. An explosive ordnance survey of the site carried out by the military in the 1980s found unexploded bombs including pipe bombs.

Little specific information is available regarding military land uses within the areas of interest. Hendon Air Museum stated “with respect to other structures on the site, most were situated on the site of the current Terminal... with a strip of smaller structures running north adjacent to the railway line”. This latter area may include Area B.

The JacobsGibb 2002 report identified two specific areas of potential concern within Area C, related to former military activities. These comprised possible former air raid shelters potentially backfilled with contaminated materials and located north west of site, and former gun butts (thought to have been used in the second world war for the test firing of aircraft armaments) identified to the north – west.

The site was derequisitioned between the two World Wars and the land reverted back to farm use. Southend Council reopened the land as an airfield in the 1930s for recreational and commercial flights before it was requisitioned by the RAF at the start of World War II.

The maps show that the airport was not developed permanently as an airport until 1955. The 1955 Ordnance Survey map shows ponds on site next to the railway line and some airport features and small buildings associated with current light aircraft operations.

In the mid-1950s two runways were built and this led to a new level of commercial flying at the Airport for both passenger and cargo operations.

There has been gradual development of the surrounding areas, including the industrial estate to the north and this is thought to have taken place in the early 1970s.

In Area A, there has been the construction and demolition of several small buildings over time and the loss of ponds, possibly as a result of infilling.

The area immediately south of the terminal which was developed for a short time before housing was constructed, may have been buildings associated with RAF barracks.

6

PREVIOUS SITE INVESTIGATION

6.1 Previous Site Investigations

A Phase I assessment of this site conducted by JacobsGibb in 2002 identified four areas of potential concern within Area C, leading to a Phase II ground investigation being conducted by Jacobs Gibb between 25th – 26th November 2002. The areas of potential concern are as follows:

- Possible former air raid shelters potentially backfilled with contaminated materials, identified north west of site
- Site of former gun butts (thought to have been used in the second world war for the test firing of aircraft armaments) identified to the north - west
- Arable field with runway lights - site of previous light aircraft crashes
- Sites of former greenhouses and other smallholding out-houses

The ground investigation comprised the collection of representative soil samples and groundwater samples from three boreholes, six trial pits and twelve hand auger holes. Samples were tested for contaminants of concerns (COC) including metals, polycyclic aromatic hydrocarbons, total petroleum hydrocarbons and volatile organic carbons.

The analytical testing of soil samples indicated that COC were detected below Dutch Intervention Values (DIV) and CLEA 2002 with the exception of zinc and arsenic at the north-west location and PAHs in a borehole located to the south of the site. Slightly elevated levels of pesticides (below DIV) were detected in the area of former greenhouses, however a groundwater sample from the same area did not detect pesticide, thus reducing concern over their migration potential.

Asbestos was not found in any soil sample collected from site, but was observed to be present as discrete fragments of asbestos containing materials in building rubble at one isolated location. The material was determined to contain cement-based asbestos with between 2% and 50% Chrysotile asbestos.

The analytical results have been compared to current (March 2009) generic screening levels derived using CLEA 1.04 (Jan 2009). The maximum level of benzo(a)pyrene was recorded at a concentration of 4.26mg/kg, above residential screening values but well below the commercial screening value of 15 mg/kg. Zinc (maximum 1065 mg/kg) and arsenic (maximum 52 mg/kg) were also recorded above the screening values for residential use with plant uptake, but well below the commercial soil guideline values; these potential pollutants were also only identified at depth. There are no UK generic Human Health Criteria for pesticides, although the Dutch Values can be used as benchmark screening values. The maximum total recorded concentration of the sum of DDT, DDD and DDE was 0.2 mg/kg, above the Dutch Target Value of 0.01 mg/kg but well below the Dutch Intervention Value of 4 mg/kg. Therefore, it is considered that none of the potential chemical contaminants identified in 2002 are at a concentration that should cause concern for the proposed commercial site use.

7 Conceptual Site Model

A Conceptual Site Model (CSM) of the site has been developed, utilising the source-pathway-receptor linkage model to identify potentially significant pollutant linkages.

A detailed site description summary is provided in section 2.1.

7.1 Proposed Development Assumption

The proposed development within Area A, B and C is to consist of hardstanding, buildings and soft landscaping with commercial type uses.

7.2 Potential Contamination Sources

Potential areas of concern and areas of potentially contaminative use have been identified during the desk study and site reconnaissance. Areas of potential concern in Area C were investigated in the 2002 intrusive investigation. Other areas of potential concern have not been investigated.

Potential contamination sources identified are as follows:

7.2.1 Area A

Potential areas of concern identified within the site and adjacent to it are:

- Refuelling of light aircraft from mobile tankers, with no spill protection
- Storage and maintenance of light aircraft – possibility of fuel or oil leaks
- An interceptor tank through which surface water passes from the airport north apron and taxi way. If not regularly maintained, interceptors may act as contaminant sources. There was no visual evidence to suggest that the interceptor was not maintained.
- A section of railway line located on site, within the area for the proposed rail station build (Phase 1 development and therefore not included within the EIA to which this study relates).
- Disused maintenance building with suspected presence of asbestos containing material within the building fabric, a potential risk to soil if not controlled properly during demolition
- Historical use of the site as a World War II airfield, including potential contaminative activities such as maintenance of aircraft, bombing, aircraft crashes, possible unregulated disposal of wastes, possible poorly controlled demolition of buildings including asbestos containing materials.

7.2.2 Area B

Potential areas of concern identified within Area B and adjacent to it are:

- Stockpile of excavated materials suspected to be construction rubble with evidence of bricks, metals, electrical fittings, tarmac;
- Off-site tank farm, 270m to the east. Major potential hydrocarbon source
- Historical use of the site as a World War II airfield, including potential contaminative activities such as maintenance of aircraft, bombing, aircraft crashes, possible unregulated disposal of wastes, possible poorly controlled demolition of buildings including asbestos containing materials.

7.2.3 Area C

A site reconnaissance of Area C was undertaken and findings are similar to those reported in the January 2003 Phase I and II site investigation of Area C carried out by JacobsGibb. The findings of the JacobsGibb site investigation were that the runway extension area has not been heavily impacted by historical and potentially contaminative land uses and potential pollutants are not present at concentrations considered to present a potential concern for the proposed commercial end use. Groundwater in the area was not found to have been significantly impacted. Slightly elevated concentrations of potential contaminants including zinc, arsenic, polyaromatic hydrocarbons and pesticides were identified. An isolated area of waste building material including cement-based asbestos was noted.

In summary, the residual areas of concern in Area C are:

- Slightly elevated concentrations of potential contaminants including zinc, arsenic, polyaromatic hydrocarbons and pesticides .
- An isolated area of waste building material including asbestos containing materials.

7.2.4 Summary of Information of Contamination Sources

The desk study and review has identified a number of potential contaminant sources, however none have the potential for large scale widespread contaminative impact. Further investigation is required to assess the actual presence, extent and mobility of potential contaminants in Areas A and B.

Traces of potential contaminants have been identified by site investigation in Area C, which are localised and insignificant for the proposed end use, although they should be taken into consideration at the construction phase.

7.3 Plausible Pathways

Based upon the geology, hydrogeology, proposed construction and operation of the site, the following potential exposure pathways have been identified:

7.3.1 Area A

- Direct exposure to contaminated soil during construction via ingestion, inhalation of soil dust and dermal contact

- Disturbance of soil during excavation leading to migration of potentially contaminated land to controlled water – Prittle Brook
- Leakage from the interceptor tank, migrating to surrounding soils and groundwater. Subsequent direct exposure to contaminated soil and groundwater during construction via ingestion, inhalation of soil dust and dermal contact. Movement of groundwater to local watercourse (Prittle Brook).

7.3.2 Area B

- Direct exposure to soil during construction via ingestion, inhalation of soil dust and dermal contact
- Direct exposure to soil during future Flying Club use via ingestion, inhalation of exposed soil dust and dermal contact
- Surface run-off, or leaching and migration of contaminants into adjacent Eastwood Brook

Although a pathway from the tank farm to the Eastwood Brook is plausible, it is not expected to be a pathway to Area B given the likely flow direction of groundwater and the distance.

7.3.3 Area C

- Direct exposure to soil during construction via ingestion, inhalation of soil dust and dermal contact
- Direct exposure to soil during operation via ingestion, inhalation of soil dust and dermal contact
- Surface run-off, or leaching and migration of contaminants into adjacent Eastwood Brook

7.4 Receptors

The following potentially sensitive receptors have been identified on, or within the vicinity of the site, during or following development:

7.4.1 Area A

- Prittle Brook
- Construction and maintenance workers
- Future users of the airport

7.4.2 Area B

- Eastwood Brook
- Construction and maintenance workers;
- Users of the airport including Flying Club

7.4.3 Area C

- Eastwood Brook
- Construction and maintenance workers;
- Users of the airport and road

7.5 Plausible linkages

- Construction workers and maintenance staff could be exposed via direct dermal exposure to potentially contaminated soil and groundwater (if present) within the drift deposits or Made Ground.
- Exposure of construction workers, residents, airport users, airport staff and road users to site to inhalation of soil dust during construction activities.
- Future users of the Flying Club
- Transport or migration of contaminants into controlled waters adjacent to site (Prittle Brook and Eastwood Brook)

The desk study assessment has identified potential plausible pollutant linkages within the three proposed development areas – Area A, Area B and Area C.

Although potentially contaminative sources and plausible pathways were identified, further investigation of some of these areas may be required to confirm the presence of contamination and assess the actual risks. The potential impact of the scheme is discussed with respect to risks to human health and controlled water.

As stated previously there is no evidence of a contamination source except traces in Area C which can be managed on a local scale. There are also no major sources of contamination expected, only a few minor localised sources.

7.6 Risk Assessment

7.6.1 Risks to human health

Construction workers are expected to be at greatest risk of exposure to potential contamination from site redevelopment activities. The proposed runway extension and associated infrastructure will necessitate the excavation and movement of substantial volume of materials across the sites. Localised small or minor areas of potentially contaminative sources were identified across the entire site and disturbance of potentially contaminated land would create a pathway for exposure of construction workers to contaminated soils or groundwater. With regards to Area B, there is a possibility that works will disturb the stockpile of made ground soil and expose construction workers to contaminated soils (if present).

Site investigation suggests that potentially contaminative uses of Area C have only been localised with limited impact on the soils. It is therefore expected that potential contaminants will be at levels well below the commercial screening guidelines appropriate for the proposed end-use.

A risk from asbestos has been identified. The 2003 report described an isolated area of waste building material containing cement-based asbestos between 2% and 50% Chrysotile asbestos. This presents a potential risk to human health at a localised level. The risk level is assessed to be high for construction workers without mitigation measures. The use of safe working practices and appropriate personal protective equipment (PPE) would reduce this risk to low.

With respect to Area A, the desk study identified disused buildings with the possible presence of asbestos roofing. As a minimum, an asbestos survey of this area should be conducted prior to demolition, and appropriate measures taken to manage any identified asbestos during demolition. Made Ground containing building rubble should be specifically assessed for the presence of asbestos.

Appropriate working practices should be adopted at all times including minimising worker contact with soil and use of suitable PPE. The risk to site workers during the works and during maintenance should be considered in a detailed risk assessment, given the potential presence of contamination in the sub surface. These risks can be mitigated by industry standard health & safety practices, such as those set out in the Health and Safety Executive Document HS(G)66 "Protection of workers and the general public during the development of contaminated land." It is a legal requirement that projects over £250K must have an Environmental Management Plan (EMP) for the management of any areas of contaminated ground identified during construction.

The majority of the accessible areas of the final development where future site users will regularly access is expected to be covered in hardstanding. Risks to future site users are considered very low with the exception of members of the Flying Club who, if exposed to the made ground soils at the site, would be at higher risk depending on the presence and mobility of the contamination identified.

7.6.2 Risks to controlled waters

The proposed development footprints are in close proximity to watercourses and Minor Aquifers that underlie the site.

The nearest watercourse to Area B is Eastwood Brook, a tributary of the River Roach. This flows eastwards approximately 40m north of Area B. This brook has the potential to be impacted by surface runoff and effluent returns. Since the level of site contamination is not known in Area B, the risk to controlled waters is considered moderate at this stage. Further investigation would be required to investigate the presence of contamination on site and further assess the potential risk to identified receptors.

Prittle Brook is located within 370m east of Area A. Surface water runoff discharged to this brook passes through an interceptor, identified during the site walkover. The interceptor is understood to comprise a chamber system. The effectiveness and integrity of the interceptor is not known, but presents a possible pathway for contaminants within surface water runoff and the surrounding soils and groundwater to reach the Prittle Brook.

Groundwater was encountered during the previous investigation of Area C, although it was not found to be impacted at the investigation locations. There is potential risk

of exposure to potentially impacted groundwater during construction, creating a pathway for migration to other sensitive receptors.

Further investigation would be required to investigate the presence of contamination on site and further assess the potential risk to identified receptors. The risk is considered moderate to low at this stage, depending on the presence of mobile contamination.

7.7 Key Uncertainties

The major uncertainty in this risk assessment is the type, extent, magnitude and mobility of any potential contamination in the ground or groundwater. Although intrusive investigation can reduce this uncertainty, due to the nature of the historical use of the site the chemical and physical character of the ground encountered during construction could vary from that identified by the investigation.

The potential for unexploded ordnance remains an uncertainty at the site.

8 Summary and Conclusion

The proposed development area is associated with an existing airport facility and crosses areas of undeveloped land, agricultural land, public amenity field and small holdings. The airport has operated as an airport or an airfield for most of the last 100 years.

Alluvium is expected to be present to the north of the site at Area B, in Area C and within 250m east of Area A, underlain by the River Terrace Deposits. These drift deposits are classified as Minor Aquifers. The entire site is underlain by London Clay which acts as an impermeable barrier. Groundwater was encountered at Area C during the JacobsGibb 2002 site investigation. The proposed site is surrounded by surface waters – Eastwood Brook located approximately 40m north of Area A and 100m north of Area C and Prittle Brook located approximately 370m east of the site.

Area A is currently occupied by small disused buildings with the possible presence of asbestos roofing, interceptor tank(s), rail line (adjacent off-site) and mobile fuel tank for refilling of aircraft parked in the Apron. These have been identified as potentially contaminative sources. If hydrocarbon spillage occurred in the refuelling area, impact to soil or groundwater may have occurred on a localised scale. The integrity of the interceptor is not known and may be allowing contaminants to pass into the surrounding soils. An asbestos survey of this area should be undertaken prior to demolition to reduce risks of exposure to human health.

Area B is located in an area of stockpiled soils mixed with demolition materials and is in close proximity to a watercourse. The quality of the soils at the site is not known. It is not considered likely that significantly high concentrations of contaminants are present at the site. However, if they were present, they would pose a medium to high risk to controlled waters, construction workers and future site users. Further site investigation is recommended to investigate the presence of onsite contamination.

Previous ground investigation (2002) of Area C suggests that potentially contaminative uses of Area C have had only localised and limited impact on the soils, which could be managed by adopting good working practices during construction.

Records indicate that the SAS site was used previously as an aircraft base during both World Wars. It was understood from previous researches that the airfield was bombed heavily between 1940 and 1941. An explosive ordnance survey of the site carried out by the military in the 1980s found unexploded ordnance including pipe bombs. Information sources did not however, provide the exact location where these bombs were found. Although the previous site investigation (2002) for Area C did not identify unexploded ordnance, the potential presence of unexploded ordnance within the site should not be discounted. It should be noted that it was not within the scope of this study to obtain and review the extensive documentation potentially available to research this subject further.

9

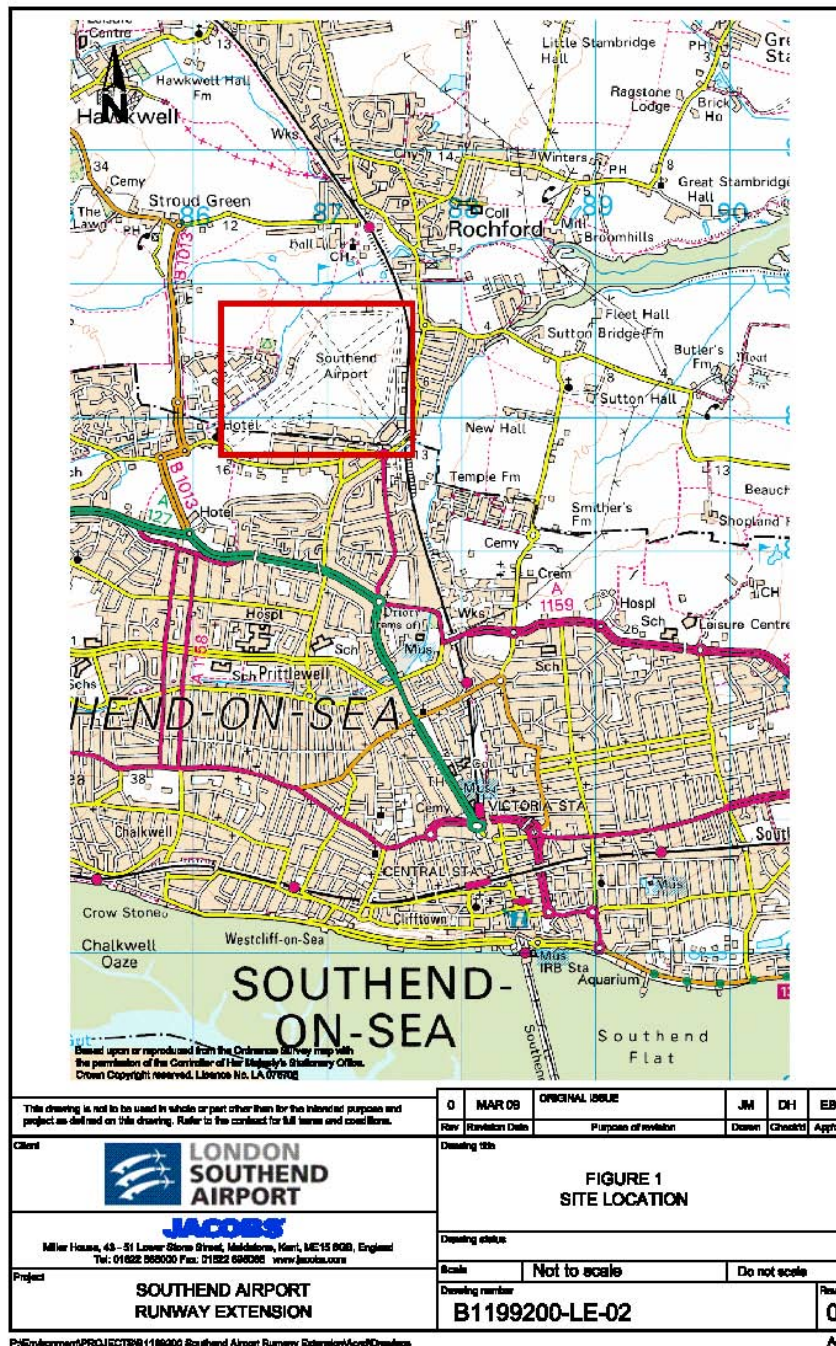
Recommendations

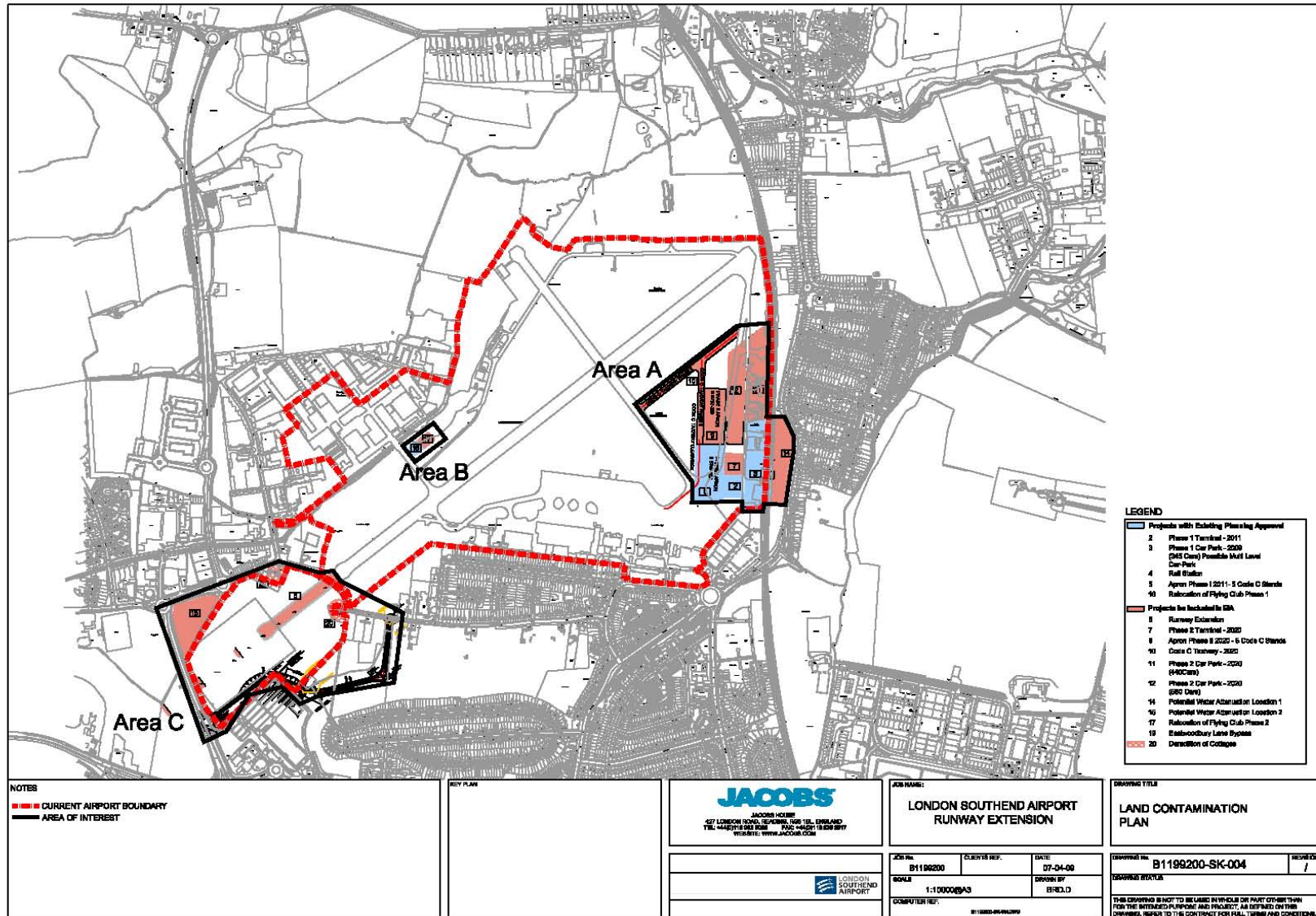
The major uncertainty in this risk assessment is the type, extent, magnitude and mobility of any potential contamination in the ground or groundwater. These uncertainties could be further reduced, but not eliminated, by additional investigation works. In the absence of major potential contaminant sources, a limited pre-construction investigation is recommended, with a watching brief for unexpected ground conditions during construction.

The following works are recommended to address these uncertainties:

- Obtain further information on the condition, age and maintenance records of the Interceptor observed within Area A. If maintenance records are inadequate or unavailable then intrusive investigation of soil and groundwater in the area of the interceptor is recommended.
- Limited intrusive investigation to assess ground conditions within the Area A development footprint is recommended to assess the impact of historical activities, the presence and composition of any Made Ground in the area, and the potential for localised hydrocarbon spillage to ground during mobile aircraft refuelling.
- Limited intrusive investigation to assess ground conditions within Area B is also recommended to assess the quality of the Made Ground observed to have been placed in the area.
- No further intrusive investigation is considered necessary in Area C.

Appendix A – Figures





Appendix B – Envirocheck Report

Available on request

Appendix C – Historical Information Review

Historical Maps

In line with PPS23 Local Planning Authorities are required to pay particular attention to development proposals for sites where there is a reason to suspect contamination. To obtain information on the previous historical use of the Southend Airport site, an Envirocheck report was commissioned from Landmark Information Group on the 19th November 2007 by Wardell Armstrong, reference 23583167_1_1 to provide historical Ordnance Survey maps. The report covers a 1 kilometre radius around the approximate centre of the site.

A summary of the historic map review is detailed in the table below. Historical review of Area C was undertaken as part of the Phase I and II Environment assessment of the site in January 2003 and details can be found in that report.

| Date | Scale | Description |
|-------------------|---------------------|--|
| 1873 – 1874 | 1:2,500 | On site: Airport site is undeveloped. Railway does not appear on map. |
| 1880 | 1:10,560 | On site: Airport site is undeveloped. Railway line runs through site in south east end and adjacent to the east boundary, running north – south. Off site: Village of Rochford is located to the north and Sutton to the east within 1km. Also, River Roach indicated to the north east within 1km flowing in east – south direction. |
| 1897 -98 | 1:10,560 | On site: No change Off site: No change |
| 1923 | 1:10,560 1:2,500 | On site: No change Off site: Built up area expands to the east and surrounding areas. Unmarked developments (small rectangular buildings on a regular grid layout) shown immediately south of current terminal buildings. |
| 1938 - 1947 | 1:2,500 1:10,560 | On site: No change Off site: Unmarked developments immediately south of current terminal buildings now gone. Housing shown in their place. |
| 1950 - 1973 | 1:2,500 1:1,250 | Ponds shown on site adjacent to railway line. Small development on site. 1955 map shows some airport features and small buildings associated with current light aircraft operations. Engineering works shown north of site (1973 maps) |
| 1960 - 1961 | 1:10,560 | Airport site indicated as Southend Municipal Airport, with runway indicated in centre of the airport site. Terminal buildings shown. Access road in east of the site now shown, with small buildings between the road and the railway. Building and loop-road shown in area of fuel tanks. |
| 1965 - 1967 | 1:10,560 | Site unchanged. Built up area to the east expands more. |
| 1971 - 1978 | 1:10,000 | On site: Access roads develop. Fuel tanks marked as 'Tanks'. Off site: Built up area to the east expands more. Industrial estate to north of site is shown. |

| Date | Scale | Description |
|-------------------|--------------------|--|
| 1971 | 1:2,500 | Airport terminal buildings extended. |
| 1981 - 1982 | 1:2,500 1:1,250 | Ponds no longer shown on site. Many of small buildings between airport and railway are no longer shown. Other larger buildings now on site. Electricity substation shown to the western edge of the railway station |
| 1978 - 1990 | 1:10,000 | On Site: Small properties south of St Lawrence and All Saints Church no longer shown. Off site: increase in number of buildings at industrial estate to the north. |
| 1999 | 1:10,000 | On Site: no change. Off site: increase in number of buildings at industrial estate to the north. |
| 2007 | 1:10,000 | Unchanged. |

Table C-1 Historical Review – Based on Historical Maps within the Envirocheck report

Onsite and offsite in this historical review refer to areas within and outside the development foot prints – Area A, B, and C as shown in drawing No. B1199200/SK-002.

Summary from Southend Airport Website

(<http://www.southendairport.com/pages/history.htm>)

The Airport has a fascinating and varied history. Periods of busy activity have been followed by quiet years and threats of extinction leading to its current new dawn with re-investment, redevelopment and plans for an exciting future serving a regenerated Southend and expanding London Gateway.

A more detailed, year-by-year account of the Airport's history is being prepared and will be available from this site – please keep watching.

The birth

The First World War saw the birth of Southend as a flying base when the War Office listed the site as a potential landing ground in 1914. The first flight followed in 1915 when Flight Sub Lieutenant A.W. Robinson took off in a Bleriot aircraft in an (unsuccessful) attempt to intercept a German Army Zeppelin. This modest beginning led to regular RFC activity at Southend over the course of the War until 1919 when the recently formed RAF derequisitioned the airfield and the land reverted to farming.

Interest in flying increased in the early 1930's and the old RAF site was purchased by Southend Council in 1933 and flying returned. The airfield was officially opened in 1935 and regular scheduled flights to Rochester soon followed.

Another War

At the outbreak of WW2 the Airport was again requisitioned by the RAF and all civil flying ceased. Over the course of the War a number of Squadrons featuring a variety of nationalities were based at the Airport. Spitfires, Hurricanes, Lysanders, Beaufighters, Mustangs and other famous warplanes all saw action.

After the War, Southend Council again took over the running of the Airport, with a modest number of scheduled services running in the late 1940's to The Channel Islands and Ostend.

Peacetime prosperity

In the mid-1950's two runways were laid and this led to a new level of commercial flying at the Airport for both passenger and cargo operations. Viking, Viscount, DC3 and Carvair aircraft all featured heavily. In 1967 British Air Ferries was formed and for many years became the airline synonymous with Southend Airport. 1967 also saw a record number of passengers using the Airport – a remarkable 692, 686. It could be said that the 1960's and early 1970's was the Airport's golden era.

By the mid-1970's traffic at the Airport was in decline, however BAF and, later, Air UK continued to run scheduled services to a variety of European destinations and the Channel Islands. Holiday companies and their related airlines also used the Airport on a regular basis. Engineering and maintenance operations become an increasing part of the Airport's business. Over the period commercial jets such as the 737, 727 and, by the early 1990's, the BAe 146, take over from turbo-prop stalwarts like the Viscount and Herald.

New owners

In the 1994 Southend Council – after considering closing the Airport – sold it to the current owners, Regional Airports Ltd. RAL set about refurbishing the Airport and resurfacing the runway. Passenger flights are by now a small part of the Airport's activities with the Jersey airline Flybe being the only operator.

A new dawn

In 1998 the government gave the go-ahead for London Southend Airport to build a new passenger terminal and railway station. The first phase of the Airport's redevelopment is now aimed for completion in 2009. This includes a new control tower and 4-star hotel.

Currently the Airport employs around 100 people. Some 50 tenant companies on the site involved in aviation related businesses employ a further 1,300 people.

Appendix D – Regulatory Consultation

Response from Rochford District Council attached below.



Ifeyinwa Madueke
Jacobs Engineering U.K. Limited
Jacobs House, London Road,
Reading, Berkshire
RG6 1BL

**Directorate of External Services
Head of Environmental Services**
Richard Evans, MCIEH, DMS, MBA

Ask for : Romero Okikiade
Phone : 01702 546366
Ask for Ext : 3600
Email: romero.okikiade@rochford.gov.uk

My Ref :09/02732/EPEIR
Your Ref :HD/B1199200

8th May 2009

Dear Sirs,

Request for Environmental Information
Freedom of Information Act 2000
Environmental Information Regulations 2004

Re: Southend Airport Runway

Thank you for your complete enquiry received at this authority on the 7th May 2009 regarding the above proposed development site. The environmental health records have been searched and have the following answers to your queries:

With regard to the area designated on the proposed plan as Part A;

1. No contaminated land has been determined by Rochford District Council under Part2A of the Environmental Protection Act 1990 at or within 250m radius of the proposed development site.
2. Rochford District Council has no records and is not aware of any contamination investigations at or within 250m radius of the proposed development site.
3. Rochford District Council has no records and is not aware of any operating or closed landfill sites or waste disposal facilities at or within 500m radius of the site. The Environment Agency are the waste regulatory authority and Essex County Council the waste disposal authority. I recommend that you also seek their advice regarding any waste disposal sites in this area.
4. Rochford District Council has records of a pollution incident within 250m of the proposed development site. The pollution incident involved kerosene spillage which occurred on 02/12/97 at TQ878892. I recommend that you speak to the Environment Agency regarding this incident.
5. Rochford District Council has no records or information on any groundwater contamination, licensed abstractions and discharge consents at or within 250m radius of the proposed development site. I recommend that you speak to the environment agency regarding any groundwater contamination matters at or within 250m radius of the site.

Council Offices, South Street, Rochford, Essex SS4 1BW
Telephone: 01702 546366 Facsimile: 01702 545737 DX: 39751
Website: <http://www.rochford.gov.uk>



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6. In the 1990's, the eastern corner of Southend Airport was redeveloped for retail use. At this time, limited areas of contamination by petroleum hydrocarbons from an unknown source were found in the soil and underlying groundwater in this part of the site. It was recommended that contaminated soils were excavated and removed from the site, and replaced with suitable inert fill. At this time, a disused underground oil fuel tank was found within the retail redevelopment area, which was removed during the works. These decontamination works were carried out to the satisfaction of the Environment Agency and Rochford District Council's Chief Environmental Health Officer, in 1997. There are no known records relating to the condition of the remainder of the Southend Airport site. It is not known if there are any other underground petroleum storage tanks on, or adjacent to, the site. I recommend that you contact the petroleum officers at Essex County Council Trading Standards for further information.

With regard to the area designated on the proposed plan as Part B;

1. No contaminated land has been determined by Rochford District Council under Part 2A of the Environmental Protection Act 1990 at or within 250m radius of the proposed development site.
2. Rochford District Council has no records and is not aware of any contamination investigations at or within 250m radius of the proposed development site.
3. Rochford District Council has no records and is not aware of any operating or closed landfill sites or waste disposal facilities at or within 500m radius of the site. The Environment Agency are the waste regulatory authority and Essex County Council the waste disposal authority. I recommend that you also seek their advice regarding any waste disposal sites in this area.
4. Rochford District Council has records of two pollution incidents within 250m of the proposed development site. One pollution incident (Environment Agency Incident Number- **1412**) occurred on 24/02/92 at TQ867894 while the other (Environment Agency Incident Number- **1883**) occurred on 19/04/93 at TQ866893. I recommend that you speak to the Environment Agency regarding these incidents because they both involved Eastwood Brook.
5. Rochford District Council has no records or information on any groundwater contamination, licensed abstractions and discharge consents at or within 250m radius of the proposed development site. I recommend that you speak to the environment agency regarding any groundwater contamination matters at or within 250m radius of the site.

Council Offices, South Street, Rochford, Essex SS4 1BW
Telephone: 01702 546366 Facsimile: 01702 545737 DX: 39751
Website: <http://www.rochford.gov.uk>



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With regard to the area designated on the proposed plan as Part C;

1. No contaminated land has been determined by Rochford District Council under Part2A of the Environmental Protection Act 1990 at or within 250m radius of the proposed development site.
2. Rochford District Council has no records and is not aware of any contamination investigations at or within 250m radius of the proposed development site.
3. Rochford District Council has no records and is not aware of any operating or closed landfill sites or waste disposal facilities at or within 500m radius of the site. Essex County Council granted planning permission to 14.42 hectares of land on Cherry Orchard Lane for mineral extraction but Rochford District Council is not aware of any actual extraction carried out on the site. The Environment Agency are the waste regulatory authority and Essex County Council the waste disposal authority. I recommend that you also seek their advice regarding any waste disposal sites in this area.
4. Rochford District Council has records of a pollution incident within 250m of the proposed development site. The pollution occurred on 09/07/99 at TQ860890. I recommend that you speak to the Environment Agency regarding this incident.
5. Rochford District Council has no records or information on any groundwater contamination, licensed abstractions and discharge consents at or within 250m radius of the proposed development site. I recommend that you speak to the environment agency regarding any groundwater contamination matters at or within 250m radius of the site.
6. As London Southend Airport is adjacent to the boundary with Southend-on-Sea, I therefore recommend that you contact Southend-on-Sea Borough Council for additional information regarding the proposed development (see attached addresses).



Rochford District Council cannot guarantee and provides no warranty express or implied that the information provided to you is current and accurate.

The information requested may be out of date, may have been produced by third parties, may be unfinished or in the course of being completed and Rochford District Council can therefore accept no responsibility for its accuracy, timeliness, correctness, or for any consequences of relying on it.

Any reliance you may place on the information provided is entirely at your own risk and in no event will Rochford District Council be liable for direct, special, incidental, or consequential damages arising directly or indirectly from the use of or reliance on the information.

If we have refused all or part of your request for information, and you wish to appeal against our decision, or you are dissatisfied with the way in which your request has been dealt with, Rochford District Council employs an internal complaints procedure, and you should contact us for further details in the first instance. It is also possible to appeal through the Information Commissioner. For more details, see the Information Commissioner's website at:

www.informationcommissioner.gov.uk

or write to the Commissioner at the following address:

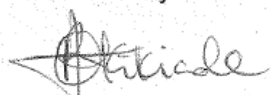
EIR/FOI Complaints
Information Commissioner's Office
Wycliffe House
Water Lane
Wilmslow
Cheshire
SK9 5AF

General queries:

Tel: 01625 545 745
Fax: 01625 525 510

Should you have any queries, or require further information or advice, please do not hesitate to contact me at this office.

Yours faithfully



Romero Okikiade

Contaminated Land Officer

Council Offices, South Street, Rochford, Essex SS4 1BW
Telephone: 01702 546366 Facsimile: 01702 545737 DX: 39751
Website: <http://www.rochford.gov.uk>



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Environment Agency

Eastern Area Office
Cobham Road
Ipswich
Suffolk
IP3 9JE

Tel: 08708 506506

Essex County Council

County Hall
Chelmsford
Essex CM1 1LF

Tel: 01245 492211

- a) For Waste Planning matters contact: County Planner
- b) For Waste Disposal Matters contact: Highways and Transportation
Waste Management Department

Trading Standards

2 Beaufort Road, New Dukes Way
Chelmsford
Essex
CM2 6PS

E-mail address: trading.standards@essexcc.gov.uk
Telephone: 08456 03 76 26

Southend-on-Sea Borough Council

Civic Centre
Victoria Avenue
Southend-on-Sea
Essex SS2 6ER

Tel: 01702 215000

Council Offices, South Street, Rochford, Essex SS4 1BW
Telephone: 01702 546366 Facsimile: 01702 545737 DX: 39751
Website: <http://www.rochford.gov.uk>



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