Meeting: 12 February 2009
Agenda Item: 3
Report No: LTGDC/09/PC05

PLANNING COMMITTEE MEETING: 12 February 2009

PLANNING APPLICATION FOR DETERMINATION BY THE LTGDC

REPORT OF THE DIRECTOR OF PLANNING

UDC CASE NUMBER:	LTGDC-08-094-FUL	**DATE MADE VALID:**	02/06/2008
APPLICATION NUMBER:	U0005.08/LBHG	**TARGET DATE:**	01/09/2008

APPLICANT:	Thames Water Utilities Ltd
AGENT:	Adams Hendry Consulting Ltd
PROPOSAL:	New sewage sludge advanced digestion facility, including refurbishment of existing digesters. Sludge reception tanks; sludge thickening plant, thermal hydrolysis plant, anaerobic digestion plant, sludge dewatering and storage facilities, gas holders, combined heat and power plant, waste gas burner, odour control plant and associated works and structures; pipework; internal access roads; relocation of leachate reception facilities.
LOCATION:	Riverside Sewage Treatment Works, Ferry Lane North, off Lamson Road, Rainham, Essex RM13 8RL

1. SUMMARY

1.1 Currently sludge generated by the Riverside Sewage Treatment Works (STW) is pumped via an 8 kilometre existing underground pipeline to Beckton STW for disposal.

1.2 Sludge is the bi-product of the biological treatment of wastewater. To address the growing demands arising from higher than predicted population growth rates within the catchment areas of Riverside STW and Beckton STW, and to meet current requirements in wastewater

improvements, Thames Water is proposing to re-introduce the sludge digestion process to Riverside STW. The proposed works will also allow Riverside STW to treat 10-25% of sludge generated from Beckton STW for an interim period until a long-term strategy for treatment of Beckton's sludge at Beckton STW has been identified and delivered.

1.3 The process will produce a beneficial end product that will be exported from Riverside STW and recycled to agricultural land. Additional energy recovery will also occur through the proposed combined heat and power (CHP) facility on the site.

1.4 The proposal will provide for a long-term solution to the increasing demand for sewage treatment capacity in the catchment area.

1.5 Conditions are recommended to be attached to any planning permission granted to ensure that odour control measures are installed, implemented, regularly tested, and maintained to provide for an odour neutral position as a minimum, or an improved odour situation at the site.

1.6 It is considered that the proposals accord with the relevant policies of Havering's LDF Core Strategy and Development Control Policies Development Plan Documents.

1.7 The application is recommended for approval subject to any direction from the Mayor of London, the conditions attached to this report, and the completion of a S106 legal agreement.

1.8 A S106 legal agreement should secure:

a) the submission and agreement of an Odour Management Plan (OMP) for the site prior to commissioning of the development and for the site to be operated in accordance with the OMP which may be modified and updated from time to time in agreement with the Local Planning Authority;

b) land for a potential future public right of way along the eastern boundary of the site from 'Ferry Lane North', south through to the A13;

c) a contribution of £10,000 towards a local employment scheme such as Job Net or an equivalent; and

d) that recruitment is sought through Job Net or a similar scheme.

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2. SITE AND PROPOSAL

2.1 The application site is referred to as Riverside Sewage Treatment Works (Riverside STW) and is located off Ferry Lane North approximately 500 metres south-west of Rainham Village. The site is situated immediately

east of the Beam Reach 5 Business Park and west of the Ferry Lane Industrial Estate.

2.2 The site is bounded to the north by the Barking – Southend c2c Railway and the Channel Tunnel Rail Link (CTRL). The A13 defines the southern boundary of Riverside STW. The east and west boundaries are bounded by existing watercourses, namely Rainham Creek and Havering Sewer. Rainham Creek is a Site of Importance for Nature Conservation (SINC) of metropolitan importance directly affected by the tidal flow of the River Thames. Havering Sewer is a SINC of Grade 2 borough importance. A SINC of borough importance is also located within the old sludge lagoons of the site. The River Thames is located approximately 850 metres south-west of the STW.

2.3 The character of the surrounding landscape is dominated by industry and commerce, with large industrial estates, depots, factories and works to the north, east and south of the STW.

2.4 The closest residential properties are located on Creekside. These 8 properties are owned by Thames Water and are situated on the eastern boundary of the site, approximately 250 metres from the location of the proposed sludge digestion facility and within 100 metres of the boundary of the Riverside STW site.

2.5 Larger residential areas exist to the north of the A1306 and to the east of Bridge Road. There are also current planning applications and master planning work that seek to provide further residential properties in the vicinity of the A1306. London Borough of Havering's Local Development Framework Site Specific Allocations Development Plan Document identifies SSA 12: Rainham West in close proximity to the site, north of the railway line, as being suitable for residential and ancillary community, retail, recreation, educational and leisure uses, and appropriate employment uses.

2.6 A sewage treatment works has been located at Riverside since the 1920s. The main buildings of the sewage works were located in the eastern section of the site and included a laboratory, tanks, pump house, and engine house, settling tanks, precipitation tanks and aqueducts. The western area of the site mainly comprised sludge beds. Between 1970 and 1977 the sewage works was modified and a large number of tanks were constructed.

2.7 Prior to 1997, sludge was digested at Riverside STW and then piped to Beckton STW to be barged to the North Sea for disposal. This practice of disposal to sea was banned in 1998. Since 1997, sewage sludge produced at Riverside STW has been transferred via a pipeline for treatment through the Sludge Powered Generator (SPG) at Thames Water's Beckton STW.

2.8 Riverside STW serves the equivalent of approximately 415,000 people and deals with a daily average flow of 113,000 m^3/day of wastewater. The wastewater that arrives at Riverside STW via the combined sewers is a mix of domestic sewage, industrial effluent and rainfall. Riverside STW currently serves an area which includes Romford, Hornchurch, Dagenham, Brentwood and Rainham.

2.9 The sludge (1750 m^3/day) produced at Riverside STW is piped along an 8 kilometre underground pipeline to Beckton STW for treatment in the Beckton SPG.

2.10 The whole of the Riverside STW site is approximately 24 hectares in size and includes buildings and structures involved in the existing STW operational process, disused sludge lagoons and areas of redundant buildings/structures.

2.11 The majority of the working areas of the site are located in the north and east and comprise concrete, brick and steel structures including settlement tanks, aeration tanks, blower buildings, and ancillary buildings. These are connected by a network of concrete roads and hard standing, interlaced with areas of amenity grass with a limited number of trees around the edges of the site. Offices, parking and storage facilities are predominantly located to the north-east of the operational STW site.

2.12 The final effluent resulting from the sewage treatment process flows down an 'Outer Effluent Channel' and discharges into Rainham Creek which is a tributary of the River Thames.

2.13 Some of the structures and buildings on the STW site are not in current operational use. These include the primary digesters, gas holding tanks, heater house, secondary digesters, and a sludge pumping station in the north-west of the site. These were previously used for sludge digestion but became redundant in 1997 following commencement of the transfer of sludge to Beckton. The two oldest, small digesters have been brought back into use; one as a final effluent storage tank for washwater, and the other as a sludge storage tank for periods when sludge cannot be transferred to Beckton.

2.14 In the south and west of the operational STW site there are two large disused sludge lagoons.

2.15 The current application seeks planning permission to undertake various works to re-instate sludge digestion at Riverside STW to meet the sewage treatment demand arising from the current and predicted population growth, and improvements to wastewater treatment processes within the catchment area.

2.16 The proposed sludge digestion facility will be located in the north-west corner of the STW on the site of the existing digestion facilities. This is an

area of approximately 1 hectare. There are, at present, eight secondary digesters and a pumping station located in this part of the site that are currently not used and will be demolished. Adjacent to these, on the south-eastern edge of the main proposed development area, there are four existing large digesters also currently not being used, which will be renovated and used for the anaerobic digestion process. The existing heater house and gas holders located between the existing digesters will also be demolished, allowing space for construction of two new gas holders. An odour control unit is to be located amongst the existing STW infrastructure.

2.17 Part of the proposed development area, close to the existing secondary digesters, is currently utilised by Viridor Waste Management for the disposal of leachate for treatment through the sewage treatment works. To enable a compact layout for the proposed sludge digestion facility it is proposed to relocate the Viridor operation to a new part of the site north of the STW access road, between the car park to the east of the existing fuel storage area and the currently unused office block.

2.18 The proposed sludge digestion plant will have a maximum handling capacity of 110 tonnes of dry solids (sludge cake) per day. The following plant, structures and other ancillary works are required to process and digest sludge at Riverside STW and these are included in the current application:

- Reception Tanks (new)
- Thermal Hydrolysis Plant (THP) Slab and THP (new)
- Digesters (refurbished)
- Digested Sludge Buffer Tanks (new)
- Dewatering and Sludge Storage Building (new)
- Combined Heat and Power (CHP) Building (new)
- Gas Holders (new)
- Waste Gas Burner (new)
- Roads (new)
- Pipe work and cabling (new)
- Works drainage and liquor returns
- Surface Water Drainage

2.19 Based on population forecasts undertaken in the early 1990s, the Sludge Powered Generator (SPG) at Beckton STW was expected to meet the demands of the Beckton and Riverside catchments up to 2015. However, growth in the catchments has been much greater than anticipated and there is now a need to provide additional sludge treatment capacity to treat sludge arising from the Riverside catchment.

2.20 An improved digestion process is proposed to allow for the recycling of digested sludge to agricultural land. This is expected to meet the long-term sludge treatment needs of the Riverside catchment taking account of

predicted growth in the population equivalent of the catchment in the future.

2.21 The biogas generated from the digestion process will be used to generate renewable energy in a new Combined Heat and Power facility on the site.

2.22 Separately from these proposals at Riverside STW, Thames Water is proposing to extend its Beckton STW in order to meet the requirements of the Urban Wastewater Treatment Directive. Those proposals will lead to an increased volume of sludge being produced at Beckton. They are the subject of a separate planning application which is under consideration by the Corporation. The existing Beckton SPG will continue to treat sludge generated within the Beckton catchment up to the maximum capacity of the generator but in the short to medium term a proportion of Beckton's sludge is to be transferred from Beckton to Riverside by pipeline to be digested in the proposed sludge digestion facility at Riverside STW. This will be an interim measure until a long-term strategy for treatment of Beckton sludge at Beckton STW has been identified and delivered.

2.23 Thames Water has advised that a company-wide sludge strategy and associated Strategic Environmental Assessment is currently being developed which will set out the options for the long-term treatment of sludge arising from the Beckton catchment. Whilst the conclusions of that work cannot be prejudged, the long-term solution for Beckton cannot be delivered in a timeframe which will avoid the need for the interim measure of transferring some sludge (approximately 10-25% of sludge generated at Beckton STW) to the proposed digestion facility at Riverside STW.

3. MAIN ISSUES

3.1 The key issues to be considered are:

- Design and appearance
- Odour
- Noise
- Surface Water and Flood Risk
- Landscaping and Ecology
- Contamination
- Energy
- Traffic
- Employment
- Pedestrian Access

4. RELEVANT SITE HISTORY

4.1 Sewage works have occupied this site since the 1920s. An application

for a blower house was granted permission in February 2000 under Planning Permission Reference No. P1643.99.

4.2 An application for an additional blower house and associated remedial works was recently approved (Application No. U0004.08) subject to the completion of a S106 legal agreement (still to be finalised and signed) which also includes further works associated with the Tidal Thames Quality Improvement (TTQI) scheme to improve water quality. The blower house S106 agreement will secure adequate ecological management of a new proposed wetland which is the subject of permitted development.

5. CONSULTATIONS/NOTIFICATIONS

GLA – A Stage 1 Report was referred to the Mayor on 23 July 2008. The report identified that the following areas of the scheme needed to be addressed in order to remedy deficiencies in the application:

Design – The design is unimaginative and contrary to Policy 4B.1. The design should be more legible and produce a more attractive collection of buildings on this very visible site from the railway.

Sustainable Design and Construction – Regard should be had to the Mayor's supplementary planning guidance on sustainable design and construction; the planning application should demonstrate how it meets the Mayor's essential, and where possible, preferred standards as listed in that document relating not only to energy efficiency but also water efficiency, waste, biodiversity, and other issues. The GLA also aim to ensure that future developments meet the highest standards of sustainable design and construction by testing against principles in Policy 4A.3. Drawings exploring the potential green treatment to the roof and walls are recommended along with rainwater harvesting. Details of this and the treatment of the site boundaries should be worked up in more detail.

Flooding Mitigation – The flood risk assessment should be updated to examine the residual flood risk and determine what impacts would occur if the site did flood. Appropriate mitigation should be provided in line with Policy 4A.13. Further advice should be taken from the Environment Agency.

Transport – The applicant should ensure that potential pedestrian and heavy goods vehicles conflict along Lamson Road and Ferry Lane is considered and that interventions are made, where necessary. A significant number of vehicular movements, as well as pedestrian access, are anticipated throughout the day, and the satisfactory design of the access arrangements is important to the acceptability of the proposal. The applicant should ensure that the pedestrian access arrangements provide an inclusive, clear, direct and legible approach to the site, that is safe, well lit, appropriately landscaped and adheres to secured

by design principles, at all times of day. Pedestrian access points and circulation around the site should be illustrated on plan revisions.

Energy – The London Plan Policy 4A.1 requires developments to make the fullest contribution to tackling climate change by minimising carbon dioxide, adopting sustainable design and construction and prioritising decentralised energy including the adoption of on-site renewable energy systems with a target of reducing carbon dioxide emissions by 20%. A series of policies are set out in chapter 4A, which expand on how developers should deliver the above. There are numerous questions raised in the energy section of the report that will need to be addressed in greater detail.

Air Quality – The odour management plan explains that a mitigation facility will be located at the site for preventing odours and for dealing with odour problems when they arise. Relevant contingencies should be put in place to demonstrate how odour problems would be managed should faults in the machinery occur. The likely health implications should be considered should excess toxins be released into the air. Compliance with Policy 4A.19 is required to be demonstrated.

(Since the GLA Stage 1 Report was issued there have been revisions to the scheme and the applicant has sought to address the comments made by the GLA in further correspondence. Confirmation is awaited as to whether the GLA Officer is satisfied that all of the points in the Stage 1 Report have been dealt with adequately. An update will be provided to members at committee.)

London Fire Brigade – Have requested that 11 private hydrants be installed (a plan has been provided by the Fire Brigade identifying suitable locations).

LFEPA - No objection. Access should comply with Section 16 of Approved Document B (ADB). 16.5, Tables 19 & 20.

National Grid – There are gas pipelines in near vicinity with a moderate risk and therefore there is a need for Thames Water to consult National Grid prior to construction. There is electricity nearby, however this is considered to be a negligible risk.

Environment Agency - Conditions to be imposed regarding flood storage, surface water drainage details, external lighting, planting, and landscaping.

English Heritage - No significant finds in desktop based assessment. No objection.

Thames Water - No objection.

LB of Havering Highways - No objection.

LB of Havering Environmental Health - Phase I, II, and III contamination condition to be imposed.

LB of Havering Building Control – Need to ensure Environment Agency and Fire Brigade are consulted.

National Trust - No objection. There is a need to consider adequate landscaping to the northern boundary.

6. APPLICATION PUBLICITY

6.1 **Site Notice Expiry:** 7 July 2008

6.2 **Press Notice Expiry:** 14 July 2008

6.3 **Neighbour Notification:** 4 July 2008. Further consultation undertaken on 28 October 2008 following amendments to the scheme.

7. REPRESENTATIONS

7.1 2948 notification letters were sent out to coincide with the letter drop and consultation process Thames Water ran prior to submission.

7.2 6 letters of objection were received in response to the first round of consultation letters sent regarding the planning application. 2 additional letters of objection were received following the second round of consultation letters that were sent regarding amendment of the application.

7.3 Objections relate to traffic impact; air pollution; odour issues; visual impact from new buildings; wrong use for the site; and local roads worsened by heavy traffic; as discussed below.

Individual Comment:	**Response to Comment:**
Traffic impact	The proposed development will generate on average 10 additional two-way HGV movements per day. Transport for London has confirmed that this will not give rise to any significant effects on the road network. Riverside STW is well located for access to the A13 and the wider trunk road network.
Air pollution and odour issues	Odour and air quality assessments have been prepared in connection with the planning application. These conclude that there will be no adverse

	impacts on the local population. The additional odour control measures proposed as part of the scheme and secured by condition/S106 legal agreement will help to ensure that there is no increase in odour emissions from the site.
Visual impact from new buildings	The scheme will involve the redevelopment of part of the STW where much of the plant is disused and redundant and in some instances in a poor state of repair. There will therefore be an improvement in the appearance of the site. The visual and landscape assessment confirms that views of the site are limited.
Wrong use for the site	The main driver for the scheme is to enable Riverside STW to treat sludge generated within its own catchment rather than exporting it to Beckton STW in Newham for treatment. The proposed development will be undertaken entirely within the boundary of the existing STW. It will not occupy any additional land that otherwise would be used for employment purposes.
Site is unsuitable for what is proposed	The planning application and supporting environmental information demonstrate that Riverside STW is suitable and subject to relevant conditions can accommodate the proposed advanced digestion facility without detriment to the environment and local residents.

8. RELEVANT PLANNING POLICY

8.1 National Planning Policy Guidance:

PPS1 – Delivering Sustainable Development
PPS9 – Biological and Geological Conservation
PPS10 - Planning for Sustainable Waste Management
PPG13 - Transport
PPG16 - Archaeology and Planning

PPS22 – Renewable Energy
PPS23 – Planning and Pollution Control
PPG24 – Planning and Noise
PPS25 – Development and Flood Risk

8.2 The London Plan (adopted February 2008):

Policy 2A.1 – Sustainability Criteria
Policy 2A.2 – Spatial Strategy for Development
Policy 3B.10 – Environmental Industries
Policy 3C.2 - Matching Development to Transport Capacity
Policy 3C.17 - Tackling Congestion and Reducing Traffic
Policy 3D.8 - Realising the Value of Open Space and Green Infrastructure
Policy 3D.14 – Biodiversity and Nature Conservation
Policy 3D.15 – Trees and Woodland
Policy 4A.1 – Tackling Climate Change
Policy 4A.2 – Mitigating Climate Change
Policy 4A.3 – Sustainable Design and Construction
Policy 4A.4 – Energy Assessment
Policy 4A.5 – Provision of Heating and Cooling Networks
Policy 4A.6 – Decentralised Energy: Heating, Cooling and Power
Policy 4A.7 – Renewable Energy
Policy 4A.9 – Adaptation to Climate Change
Policy 4A.10 - Overheating
Policy 4A.11 - Living Roofs and Walls
Policy 4A.12 - Flooding
Policy 4A.13 – Flood Risk Management
Policy 4A.14 – Sustainable Drainage
Policy 4A.17 – Water Quality
Policy 4A.18 – Water and Sewerage Infrastructure
Policy 4A.19 – Improving Air Quality
Policy 4A.20 – Reducing Noise and Enhancing Soundscapes
Policy 4A.21 – Waste Strategic Policy and Targets
Policy 4A.23 – Criteria for Selection of Sites for Waste Management and Disposal
Policy 4A.28 – Construction, Excavation and Demolition Waste
Policy 4A.33 – Bringing Contaminated Land Into Beneficial Use
Policy 4B.1 – Design Principles for a Compact City
Policy 4B.2 – Promoting World-Class Architecture and Design
Policy 4B.5 – Creating and Inclusive Environment
Policy 4B.6 – Safety, Security and Fire Prevention and Protection
Policy 4B.8 – Respect Local Context and Communities
Policy 4B.15 – Archaeology
Policy 4C.1 – Strategic Importance of the Blue Ribbon Network
Policy 4C.2 - Context for Sustainable Growth
Policy 4C.3 - The Natural Value of the Blue Ribbon Network
Policy 4C.22 - Rivers, Brooks and Streams
Policy 5C.1 - The Strategic Priorities for North East London

Policy 5C.3 - Opportunity Areas in North East London

8.3 LB of Havering Local Development Framework (LDF):

LDF Core Strategy Development Plan Document:

Policy CP3 – Employment
Policy CP10 – Sustainable Transport
Policy CP11 – Sustainable Waste Management
Policy CP15 – Environmental Management
Policy CP16 – Biodiversity and Geodiversity
Policy CP17 – Design

LDF Development Control Policies Development Plan Document:

Policy DC9 – Strategic Industrial Locations
Policy DC13 - Access to Employment Opportunities)
Policy DC32 – The Road Network
Policy DC33 – Car Parking
Policy DC36 - Servicing
Policy DC48 – Flood Risk
Policy DC49 – Sustainable Design and Construction
Policy DC50 – Renewable Energy
Policy DC51 – Water Supply, Drainage and Quality
Policy DC52 – Air Quality
Policy DC53 – Contaminated Land
Policy DC55 – Noise
Policy DC56 - Light
Policy DC58 – Biodiversity and Geodiversity
Policy DC59 – Biodiversity in New Developments
Policy DC61 – Urban Design
Policy DC62 - Access
Policy DC63 – Delivering Safer Places
Policy DC66 – Tall Buildings and Structures
Policy DC70 – Archaeology and Ancient Monuments
Policy DC72 – Planning Obligations

LDF Site Specific Allocations Development Plan Document (adopted 23 July 2008):

Policy SSA 12 – Rainham West:
The Rainham West area which comprises land to the west of Bridge Road, north of the London Tilbury Southend Line and east of the Victor Engineering Site, including the strip of mixed uses north of the A1306 is designated for: residential and ancillary community, retail, recreation, educational and leisure uses, and appropriate employment uses.

9. ASSESSMENT OF MAIN ISSUES

9.1 The Sludge Digestion Process

9.1.1 Thames Water has advised that treated sewage sludge (commonly known as biosolids) has been safely utilised on agricultural land for a substantial number of years and is recognised as the Best Practicable Environmental Option in most circumstances by the European Union and United Kingdom Government at the current time. Application of treated sewage sludge to agricultural land provides a flexible solution to sludge management. Unlike incineration or other thermal destruction technologies, agricultural sites can be changed or sourced relatively quickly in order to meet changing sludge management needs.

9.1.2 A pre-treatment process will be used at Riverside STW prior to conventional anaerobic digestion. This kills all pathogens and enables the sludge to be processed to a higher quality than conventional anaerobic digestion. The resulting sludge dewaters more effectively than other pre-treated sludges, reducing its volume so a smaller sludge storage area is required and fewer vehicle movements are needed to take the sludge to agricultural land. This in turn reduces energy consumption and emissions associated with distribution of the digested sludge to receiving farmland.

9.1.3 The 8 key components of the proposed sludge digestion process to be adopted at Riverside STW are described below.

(1) **Sludge Reception** – The sludge digestion plant will have a maximum handling capacity of 110 tonnes of dry solids per day. During the period when sludge will be pumped from Beckton STW to Riverside STW, the sludge will be pumped to new reception tanks (which will be covered and odour-controlled) using the pipeline that currently conveys sludge from Riverside STW to Beckton STW. The Riverside sludge will also be pumped, after screening, to the new reception tanks and mixed and blended with the Beckton sludge. The blended sludge will then undergo the following process stages 2 to 8.

(2) **Sludge Thickening** – Sludge will be thickened by enclosed and odour controlled centrifuges which will be housed in an enclosed and ventilated dewatering and sludge storage building.

(3) **Pre-treatment** – The thickened sludge will be passed through a Thermal Hydrolysis Plant (THP) where it will be pre-treated in batch reactors at a temperature of about 165°C and a pressure of approximately 6 bar to hydrolyse the sludges. This breaks down and solubilises the sludge so that the products are more easily and

completely digested.

(4) **Anaerobic Digestion** – The pre-treated sludge will be digested by bacteria in enclosed tanks. The digested sludge will be stored in new tanks.

(5) **Renewable Energy Production** – The biogas produced from the digestion process will be used to produce renewable energy by a combined heat and power (CHP) plant.

(6) **Dewatering** – Subsequent to digestion, the sludge will be dewatered in filter belt presses to a dry solids content of around 30%. Water will be removed from the sludge by enclosed, odour controlled equipment (filter belt press dewaterers) housed in an enclosed, ventilated building.

(7) **Storage** – Treated and dewatered sludge (sludge cake) will be stored in an enclosed and ventilated building (dewatering and sludge storage building) for a period of 5 days. This allows further evaporation, helping to reduce the amount of sludge to be transported off-site.

(8) **Transportation** – Treated sludge will be transferred to agricultural land by covered heavy goods vehicles.

9.2 The Proposed Works

9.2.1 The details of the plant, structures and other ancillary works proposed by the current application are set out below:

Reception Tanks (New):
These will be constructed with a base slab at existing ground level, will be covered and odour-controlled, and will be used to receive the sludge from both Riverside and Beckton STW. The tanks will have a diameter of 15 metres and a height of 7.5 metres.

Thermal Hydrolysis Plant (THP) Slab and THP (New):
The THP slab will support the THP, which is composed of a range of structures including, vessels, pumps, coolers and tanks. The THP plant will have a height of approximately 10 metres.

Digesters (Refurbished):
The existing digesters will be stripped of their existing pipework and fittings, cleaned out, and refitted with fixed roofs and new pipework and mixing equipment. They will support the pre-treatment stage of the process. The existing digesters have a 26 metre diameter and a height of 23 metres including the new roofs.

Digested Sludge Buffer Tanks (New):
These will be constructed with a base slab at existing ground level; these

tanks will store the digested sludge prior to the anaerobic digestion process. These tanks will be covered and off-gas from the tanks will be odour controlled. The tanks will have a diameter of 7 metres and a height of 8 metres.

Dewatering and Sludge Storage Building (New):
This will be a single storey building with a mezzanine level. The building will consist of a concrete floor slab at ground level, concrete walls at the lower level, topped by flat steel sheet walls and a curved roof. It will provide sludge thickening, sludge dewatering, and storage for the sludge prior to its recycling to agricultural land as fertiliser. The mezzanine level will contain centrifuges for thickening the sludges, and filter belt presses for dewatering the digested sludge and producing sludge cake. The sludge cake is suitable for application to land as soon as it has been dewatered, but storage on site for a period of 5 days allows further evaporation, thus reducing the amount of sludge to be transported off-site. The dewatering and sludge storage building will have plan dimensions of approximately 87 metres x 28 metres and a height of approximately 15 metres. The exhaust stack for the dewatering and sludge storage building is 23 metres high and has been located to the south-east of the refurbished digestors to improve odour dispersion.

Combined Heat and Power (CHP) Building (New):
This will be a single storey steel-framed building with floor slab, containing generator sets and associated combination heat recovery/supplementary fuel boilers to generate the steam for the THP plant. The CHP building will have plan dimensions of approximately 26 metres x 37 metres and a height of approximately 11 metres with a pitched roof. The CHP plant is subject to the requirements of the Environmental Permitting Regulations (2007) and a permit will be sought prior to operation.

Gas Holders (New):
These will be constructed with a base slab at existing ground level. These are used to store the biogas produced in the digestion process and provide a feed to the CHP plant. The new gas holders will have a diameter of 22 metres and a height of 16 metres.

Waste Gas Burner (New):
This will be set upon a concrete base slab set at existing ground level. This is necessary to flare off any excess gas produced that cannot be used in the CHP plant. Use of this should be a very rare occurrence. The stack of the burner will have a height of approximately 5 metres.

Roads (New):
A network of new site roads will be constructed for the new plant and will connect to the existing site access roads for the purpose of access, maintenance, and the export of digested sludge.

Pipework and Cabling (New):
Under and over ground pipework and cabling will also be installed together with associated manholes and access ducts.

Works Drainage and Liquor Returns:
The sludge liquors generated from the thickening and dewatering stages will be returned to the existing STW inlet works for treatment, via a new underground gravity drainage system.

Surface Water Drainage:
As with the existing STW, surface water run-off from all paved surfaces within the new works, which is potentially contaminated, will be drained via new and existing works drainage culverts to the STW inlet works for treatment along with other incoming flows. Discharges to the drainage culverts will be by gravity.

Surface water run-off from the roofs of the thickening and dewatering building, the CHP building and the cake storage building, which will be uncontaminated, will be directed to a new wetland feature in the western lagoon. The new wetland area is to be created as part of a strategy of ecological mitigation and flood attenuation measures related to the Riverside STW Tidal Thames Quality Improvement works for which a land drainage consent application and planning application have been submitted.

9.2.2 Part of the proposed development area, close to the existing secondary digesters, is currently utilised by Viridor Waste Management for the disposal of leachate for treatment through the sewage treatment works. To enable a compact layout for the proposed sludge digestion facility it is proposed to relocate the Viridor operation to a new part of the site north of the STW access road, between the car park to the east of the existing fuel storage area and the currently unused office block.

9.2.3 The relocated Viridor works will comprise the following elements:

- Tanker unloading bay, bunded and drained to the STW inlet works. A wash water supply shall be provided adjacent to the tanker unloading bay.

- A paved and kerbed tanker parking area for parking 4 tankers - each bay shall be 5 metres wide and suitable for a 12 metre long tanker.

- Office accommodation - a ‘Portacabin’ type unit will be provided which will contain a toilet, a shower, a mess room, a kitchen area and an office; the unit will be connected to the potable water supply, the foul drains and will have a suitably rated electricity supply.

9.3 Design and Appearance

9.3.1 The range of buildings and plant vary in sizes as set out in Paragraph 9.2.1 of this report. The largest of these is the proposed dewatering and sludge storage building being 87 metres wide x 28 metres deep x 15 metres high. Most of the equipment and buildings to be installed range in height from 2 metres to 10 metres with the exception of the existing digesters to be refurbished which are 23 metres high, six exhaust stacks from the CHP plant which are approximately 15 metres high, two gas holders which are 16 metres high, and a ventilation stack which is 23 metres high.

9.3.2 Most of the new buildings would not be visible from the public domain due to a combination of their location amongst existing infrastructure and the separation distances, inclusive of the CTRL and c2c corridor. It is considered that the design and appearance of the new buildings and plant are acceptable within the setting of the STW.

9.3.3 The design of the dewatering and sludge storage building has incorporated the existing 1950s industrial design reflected in nearby development and has incorporated a modernistic approach, proposing a curved roof and mezzanine level to reduce the visual bulk of the structure. The new building can therefore be described as comprising two sections, being 6.5 metres in height to the northern lower section and some 15 metres in height at its highest point to the southern mezzanine. Materials are proposed to match those elsewhere on the site, with galvanised steel cladding, Moorland green cladding and concrete walls. Located adjacent to the existing digesters which are 23 metres high, the new dewatering and sludge storage building is considered to fit well within the scale of the buildings in the immediate vicinity.

9.3.4 Other physical works involve the installation of steel capping to the existing remaining four digesters which will form part of the odour management for the proposed works. The new caps will match one of the existing structures adjacent which has had capping previously fitted. They will be matching in design and colour.

9.3.5 The majority of other physical works relate to numerous smaller structures located behind the dewatering and sludge storage building and digesters. These are not visible from the public domain, but will be constructed in a matching design and materials to existing structures on the site.

9.3.6 There are a number of exhaust stacks proposed as part of the development. Six exhaust stacks with a height of approximately 15 metres each are related to the CHP unit. These are located behind the 15 metre high dewatering and sludge storage building and are largely hidden from the public domain. The dewatering and sludge storage building vent stack with a height of 23 metres has been proposed

attached to the existing digesters which are of a similar height.

9.3.7 It is considered that the design of the new buildings and structures is acceptable and that the proposed additions provide a satisfactory development in this location and setting.

9.4 Odour

9.4.1 The re-introduction of sludge processing to Riverside STW poses a risk of an increase in odour emissions from the site if the process is not controlled effectively.

9.4.2 The applicant has undertaken a detailed odour assessment to understand the potential odour impact of the proposed development. As part of the scheme, various measures are proposed which would achieve an odour neutral position as a minimum. It is expected, however, that there will be a small improvement in existing odour emissions from the site.

9.4.3 The following odour control measures are to be provided on the proposed sludge digestion facility:

- The new sludge reception tanks will be fitted with covers and extracted to an odour control unit.

- The new centrifuge units will be individually extracted and treated through the same odour control unit as serving the sludge reception tanks.

- The ventilation air from the dewatering and sludge storage building will be dispersed through a 23 metre stack.

- Gas from the thermal hydrolysis process will be collected and stored in two gas holders. The gas will be used to run the CHP engines.

9.4.4 The proposed development will also include the following measures on the existing works:

- Covering the inlet channels leading to the detritors from the pumping station with extraction of odorous air to an odour control unit prior to discharge via an 8 metre stack; and

- Covering of the sludge collection chambers serving the primary sedimentation tanks with extraction of odorous air to the same odour control unit.

9.4.5 The key results of the odour assessment carried out by Thames Water's odour consultant are summarised below:

- Due to the inclusion of odour control on both the proposed digestion plant and on the existing inlet channels total odour emissions from the STW site will decrease by approximately 5.7% compared to the existing situation and approximately 11% compared to the situation in 2010 if the proposed sludge digestion facility was not implemented.

- The number of dwellings within the 5 ou^E/m^3 contour will reduce by 6 (54.5%) compared to the existing situation and by 7 (58.3%) compared to the situation in 2010 if the proposed sludge digestion facility was not implemented.

- The number of dwellings within the 1.5 ou^E/m^3 contour will reduce by 73 (32.2%) compared to the existing situation and by 86 (35.8%) compared to the situation in 2010 if the proposed sludge digestion facility was not implemented.

9.4.6 The LTGDC appointed an odour consultant to review the submitted odour assessment and advise on appropriate odour control measures which will ensure that the proposed development will not result in an increase in odour emissions from the site.

9.4.7 Conditions are recommended to be attached to any planning permission granted to ensure that odour control measures are installed, implemented, regularly tested, and maintained to provide for an odour neutral position as a minimum, or an improved odour situation at the site. A S106 legal agreement should also secure the submission and agreement of an Odour Management Plan (OMP) for the site prior to commissioning of the development and for the site to be operated in accordance with the OMP which may be modified and updated from time to time in agreement with the Local Planning Authority.

9.5 Noise

9.5.1 The proposed development is in close proximity to existing industrial properties. A small number of residential properties exist to the immediate east of the site and within the Riverside STW site itself. A noise assessment has been undertaken on behalf of Thames Water which confirms that the current operations achieve an acceptable level of noise. Through additional controls proposed to the new installations, the existing noise levels are not expected to be exceeded.

9.5.2 Subject to adequate noise conditions being imposed on any planning permission granted, the proposals are considered to be in compliance with Policy DC55 (Noise) of Havering Council's Development Control Policies Development Plan Document, Policy CP15 (Environmental Management) of Havering Council's Local Development Framework Core Strategy Development Plan Document, and PPG24 (Planning and

Noise).

9.6 Surface Water and Flood Risk

9.6.1 The site is within the flood risk zone of the river known as the Havering New Sewer.

9.6.2 A full Flood Risk Assessment (FRA) was submitted by the applicant. The FRA concludes that the works would not create further impact subject to on-site flood compensation being incorporated, and the proposed buildings being constructed above flood levels.

9.6.3 The site has adequate provision for flood compensation and building floor levels are raised above the flood level. Whilst the level of impervious surfacing will slightly increase, this is considered to be minimal.

9.6.4 The Environment Agency has raised no objections to the proposals on flood risk or surface water management grounds. Conditions are recommended to be attached to any planning permission granted.

9.6.5 It is considered that adequate flood storage compensation and surface water management could be achieved and the proposal would achieve the aims and objectives of Policy DC48 (Flood Risk) of Havering Council's Development Control Policies Development Plan Document and PPS25 (Development and Flood Risk).

9.7 Landscaping and Ecology

9.7.1 The area to be developed predominantly consists of unused buildings and mown amenity grassland. The Havering New Sewer runs along the northern and eastern boundary of the site, which together with the land immediately east and south of the site is designated as a Site of Borough Importance for Nature Conservation. The proposed development is sufficiently distant from these areas and therefore any impact is considered to be minimal.

9.7.2 An ecological assessment was submitted with the application wherein it was concluded that the proposals would have negligible impact on the flora and fauna of the site.

9.7.3 The implementation of the proposed development will result in the loss of an existing conifer belt and established mature trees along the northern boundary adjacent to the CTRL and c2c lines. These trees are not the subject of a Tree Preservation Order and are not of such ecological or visual value to warrant their retention. The removal of these trees is required to undertake the development and represents less than 5% of the mature trees on the site. Nevertheless, additional tree planting and

landscaping works are proposed to reflect the local ecology of the immediate area and to further enhance the site.

9.7.4 A condition to reduce the impact of flood lighting and light spillage to protected neighbouring sites of importance is recommended to be attached to any planning permission granted.

9.8 Contamination

9.8.1 The site has been used as a sewage treatment works since the 1920s and the potential for land contamination specifically reflects this. The site is underlain by a minor sub-aquifer and therefore before any soils are excavated or piled these are to be tested and adequately treated as part of the works.

9.8.2 A condition requiring the submission of a Phase II and III contamination assessment and remediation plan is recommended to be attached to any planning permission granted.

9.9 Energy

9.9.1 Policy DC50 (Renewable Energy) of Havering Council's Development Control Policies Development Plan Document, PPS1 (Delivering Sustainable Development), PPS22 (Renewable Energy), and Policy 4A.7 (Renewable Energy) of the London Plan, promote sustainable design and construction and seek to ensure that all new developments achieve a 20% reduction in carbon emissions.

9.9.2 The Energy Statement submitted with the application states that there will be biogas produced by the proposed anaerobic digestion process and this will be collected and stored in gas holders, and used to feed a CHP plant for site electricity generation and for provision of heat to the digestion process.

9.9.3 The annual electricity generation from the CHP plant will displace approximately 4,614 tonnes of carbon per annum. This will allow the applicant to achieve, as a minimum, a reduction in carbon dioxide emissions of 20% from on-site renewable energy generation.

9.9.4 The energy proposals are considered satisfactory and a condition is recommended on any planning permission granted to secure a 20% reduction in carbon emissions from on-site renewable energy provision.

9.10 Traffic

9.10.1 The Riverside STW site is currently accessed via Lamson Road by

maintenance and staff vehicles. The existing STW employs 10 staff, and other site traffic movements are currently limited to general maintenance vehicles and those associated with the Viridor leachate treatment facility. This equates to approximately 25 two-way vehicle movements per day (cars and heavy goods vehicles (HGV's)). The traffic generation of the existing site is therefore considered negligible.

9.10.2 The proposed development will require the transfer of the digested sludge to agricultural land. This will result in a maximum of 10 additional two-way HGV movements per day, Monday to Friday.

9.10.3 The treated sludge will be a compost-like friable solid cake with low odour. Sludge disposal is managed by Thames Water's Bio-Recycling Group which specialises in the recycling of organic waste materials to agricultural land. The sludge is to be transported via covered HGVs to a network of farms in Essex, Hertfordshire, Cambridge, and Sussex where it will then be spread on land as fertiliser.

9.10.4 It is envisaged that the proposed sludge digestion facility will require a total of 7 additional staff on site at any one time for the operation, monitoring, and maintenance of the process. These staff will work in shifts to cover the 24 hour a day, seven day a week operation of the proposed sludge digestion facility. The additional staffing element will therefore generate an additional 7 two-way vehicle trips per day, assuming that all staff drive to the site.

9.10.5 The current staff parking provision of 20 spaces is considered to be sufficient to accommodate the forecast staff demand for the site and it is not proposed to expand car parking provision as part of the current application.

9.10.5 The proposed vehicle routing is as per the existing via Lamson Road and Ferry Lane to the A13, with access to the M25.

9.10.6 The additional operational vehicle movements are considered to be minimal and it is considered that there will be negligible impact on the surrounding area and road network.

9.10.7 A 24 month construction programme is envisaged for the sludge digestion facility. Construction activities such as compound installation, demolition activities, and material stockpiling will be contained within the proposed development site. It is proposed that construction materials and equipment will be transported onto the site via the existing Lamson Road site access.

9.10.8 Monthly construction traffic volumes are anticipated to peak at 960 two-way vehicle trips in October 2009, with an average of 576 two-way vehicle trips per month over the construction period as a whole. Based on 22 working days a month, the average daily two-way traffic flow during

the October 2009 peak equates to 44 vehicles per day, with the average daily flow throughout the construction period forecast to be approximately 26 vehicles per day.

9.10.9 It is recommended that a condition be imposed on any planning permission granted requiring a Construction Environmental Management Plan to be submitted for the works. This plan should incorporate, amongst other things, proposals for construction vehicle movements and the location of wheel washing facilities.

9.11 Employment

9.11.1 The proposed sludge digestion facility would provide for 15 new full time positions, together with those required during the construction process.

9.11.2 The applicant has agreed to utilise local employment schemes such as Job Net and additionally to contribute financially towards the existing Job Net scheme or an equivalent. A S106 legal agreement would secure these matters.

9.11.3 The proposals will provide a higher level of local employment than existing and would help to deliver the aims and objectives of Policies DC9 (Strategic Industrial Locations) and DC13 (Access to Employment Opportunities) of Havering Council's Development Control Policies Development Plan Document.

9.12 Pedestrian Access

9.12.1 Recent infrastructure developments in the immediate vicinity of Rainham Village, including the upgrade of Ferry Lane North, have provided pedestrian linkages from Rainham Village and Rainham Station to the site for both foot and cycle access.

9.12.2 Whilst no further provision is required, there is potential to continue this public access through the site towards the A13 and ultimately to CEME and beyond. This provision would be in line with recent improvements and the East London Green Grid Document which aspires to link Rainham Village with the Thames.

9.12.3 The LTGDC and London Borough of Havering have discussed the issue of pedestrian access adjacent to the site with the applicant. Following discussions, it is recommended that a S106 legal agreement secures provision for a future pathway along the edge of the site on land within Thames Water ownership. The exact details of access have yet to be agreed and at the time of writing this report, further information is required from the applicant in this respect. An update will be provided to members at committee.

10. CONCLUSION AND REASONS FOR APPROVAL

10.1 The proposal to re-instate the processing of sludge at Riverside STW, including the processing of approximately 10-25% of sludge generated at Beckton STW for a number of years, is considered to be acceptable in principle as it would comply with Havering's LDF Core Strategy and Development Control Policies, the London Plan, and draft Joint Waste Plan objectives for waste management within the Borough.

10.2 Although the process is a potentially odorous one, odour reducing measures and odour control units are proposed as part of the scheme to achieve an odour neutral position as a minimum, and possibly to provide a small improvement in existing odour emissions from the site.

10.3 Conditions are recommended to be attached to any planning permission granted to ensure that odour control measures are installed, implemented, regularly tested, and maintained to provide for an odour neutral position as a minimum, or an improved odour situation at the site. A S106 agreement should also secure the submission and agreement of an Odour Management Plan (OMP) for the site prior to commissioning of the development and for the site to be operated in accordance with the OMP which may be modified and updated from time to time in agreement with the Local Planning Authority.

10.4 Subject to adequate conditions and a S106 legal agreement as outlined in this report, it is considered that the proposal would accord with the aims and objectives of National Planning Policies, the London Plan, and Havering's LDF Core Strategy and Development Control Policies Development Plan Documents.

11. RECOMMENDATION

That the application be delegated to the Director of Planning to APPROVE subject to:

(1) any direction from the Mayor of London, and

(2) the conditions listed below (with any amendment that might be necessary up to the issue of the decision), and

(3) the completion of a S106 Agreement:

a) to secure the submission and agreement of an Odour Management Plan (OMP) for the site prior to commissioning of the development and for the site to be operated in accordance with the OMP which may be modified and updated from time to time in agreement with the Local Planning

Authority;

b) to secure land for a potential future public right of way along the eastern boundary of the site from 'Ferry Lane North', south through to the A13;

c) to secure a contribution of £10,000 towards a local employment scheme such as Job Net or an equivalent; and

d) to ensure recruitment is sought through Job Net or a similar scheme.

12. CONDITIONS AND REASONS

1. The development to which this permission relates must be commenced not later than three years from the date of this permission.

Reasons: To comply with the requirements of Section 91 of the Town and Country Planning Act 1990 (as amended by Section 51 of the Planning and Compulsory Purchase Act 2004).

2. All works are to be completed in accordance with the following Drawing Numbers:

Figure 1 – Location Plan
Figure 2a – Riverside STW Ownership Area and Planning Application Plan
Drawing No. 9RTG-YY-02001 Rev A – Existing Site Plan and Environs
Drawing No. 9RTG-YY-02000 Rev A – Existing Site Plan
Drawing No. 9RTG-YY-02006 Rev B – Proposed Site Plan
Drawing No. 9RTG-YY-02005 Rev A – Contractors Working Area
Drawing No. 9RTG-YY-02010 Rev B – Site Plan Sludge Digestion
Drawing No. 9RTG-YY-02011 Rev B – Sludge Digestion Plant Sheet 1 of 2
Drawing No. 9RTG-YY-02012 Rev B – Sludge Digestion Plant Sheet 2 of 2
Drawing No. 9RTG-YY-02015 Rev A – Relocated Leachate Reception Facilities and Odour Control Unit Number 2
Drawing No. 9RTG-YY-02007 Rev B – Planning Application – Sections 1
Drawing No. 9RTG-YY-02008 Rev B – Planning Application – Sections 2
Drawing No. 9RTG-YY-02061 Rev B – CHP Building External Elevations
Drawing No. 9RTG-YY-02060 Rev B – CHP Building Plan and Sectional Elevations
Drawing No. 9RTG-YY-02032 Rev B – Dewatering and Sludge Storage Building External Elevations
Drawing No. 9RTG-YY-02031 Rev B – Dewatering and Sludge Storage Building Plan and Elevations
Drawing No. 9RTG-YY-02030 Rev B – Dewatering and Sludge Storage Building Plan
Drawing No. 9RTG-YY-02055 Rev A – Digester MCC
Drawing No. 9RTG-YY-02080 Rev A – Leachate Reception Facilities Office
Drawing No. 9RTG-YY-02090 Rev A – Typical Detail of Odour Control Units 1 &

2.

No further drawings apply, unless otherwise approved in writing by the Local Planning Authority.

Reasons: The Local Planning Authority consider it essential that the whole of the development is carried out and that no departure whatsoever is made from the details approved, since the development would not necessarily be acceptable if partly carried out or carried out differently in any degree from the details submitted. Also, in order that the development accords with Policy DC61 (Urban Design) of London Borough of Havering's Development Control Policies Development Plan Document and Policy 4B.1 (Design Principles for a Compact City) of the London Plan (adopted February 2008).

3. No development shall commence until the developer has submitted for the written approval of the Local Planning Authority:

a) A Phase I (Site Investigation) Report. If the Phase I Report confirms the possibility of a significant risk to any sensitive receptors, a Phase II (Site Investigation) Report shall be submitted to and approved in writing by the Local Planning Authority. This Phase II (Site Investigation) Report is an intrusive site investigation including factors such as chemical testing, quantitative risk assessment and a description of the sites ground conditions. An updated Site Conceptual Model should be included showing all the potential pollutant linkages and an assessment of risk to identified receptors.

b) A Phase III (Risk Management Strategy) Report if the Phase II Report confirms the presence of a significant pollutant linkage requiring remediation. The report will comprise of two parts:

Part A - Remediation Scheme which will be fully implemented before it is first occupied. Any variation to the scheme shall be agreed in writing with the Local Planning Authority in advance of works being undertaken. The Remediation Scheme is to include consideration and proposals to deal with situations where, during works on site, contamination is encountered which has not previously been identified. Any further contamination shall be fully assessed and an appropriate remediation scheme submitted to the Local Planning Authority for written approval.

Part B - Following completion of the remediation works in accordance with the Remediation Scheme a Validation Report must be submitted demonstrating that the works have been carried out satisfactorily and remediation targets have been achieved.

c) If during development works any contamination should be encountered which was not previously identified and is derived from a different source and/or of a different type to those included in the contamination proposals then revised contamination proposals shall be submitted to the Local Planning Authority; and

d) If during development work, site contaminants are found in areas previously expected to be clean, then their remediation shall be carried out in line with the agreed contamination proposals.

For further guidance see the London Borough of Havering's leaflet titled, 'Land Contamination and the Planning Process'.

Reasons: To protect those engaged in construction and occupation of the development from potential contamination in accordance with Policy DC53 (Contaminated Land) of London Borough of Havering's Development Control Policies Development Plan Document and Policy 4A.33 (Bringing Contaminated Land Into Beneficial Use) of the London Plan (adopted February 2008).

4. No development shall commence until a scheme has been submitted to and approved in writing by the Local Planning Authority making provision for a Construction Method Statement to control the adverse impact of the development on the amenity of the public and nearby occupiers. The Construction Method statement shall include details of:

a) parking of vehicles of site personnel and visitors;

b) storage of plant and materials;

c) dust management controls;

d) measures for minimising the impact of noise and, if appropriate, vibration arising from construction activities;

e) predicted noise and, if appropriate, vibration levels for construction using methodologies and at points agreed with the Local Planning Authority;

f) scheme for monitoring noise and, if appropriate, vibration levels using methodologies and at points agreed with the Local Planning Authority;

g) siting and design of temporary buildings;

h) scheme for security fencing/hoardings, depicting a readily visible 24-hour contact number for queries or emergencies;

i) details of disposal of waste arising from the construction programme, including final disposal points. The burning of waste on the site at any time is specifically precluded.

And the development shall be carried out in accordance with the approved scheme and statement.

Reasons: To protect residential amenity in accordance with Policy DC61

(Urban Design) of London Borough of Havering's Development Control Policies Development Plan Document and Policy 4B.1 (Design Principles for a Compact City) of the London Plan (adopted February 2008).

5. No development shall commence until samples of all materials to be used in the external construction of the building(s) have been submitted to and approved in writing by the Local Planning Authority and thereafter the development shall be constructed with the approved materials.

Reasons: To ensure that the appearance of the proposed development will harmonise with the character of the surrounding area in accordance with Policy DC61 (Urban Design) of London Borough of Havering's Development Control Policies Development Plan Document and Policy 4B.1 (Design Principles for a Compact City) of the London Plan (adopted February 2008).

6. Prior to the occupation of any part of the development, the renewable energy system shall be installed in strict accordance with the agreed details and operational to the satisfaction of the Local Planning Authority and maintained in good working order. The development shall achieve a minimum 20% carbon savings through the use of renewable energy technologies.

Reasons: In the interests of energy efficiency and sustainability in accordance with the London Borough of Havering's Interim Planning Guidance on Sustainable Design and Construction and Policies 4A.4 (Energy Assessment) and 4A.7 (Renewable Energy) of the London Plan (adopted February 2008).

7. No development shall commence until details of the flood storage compensation scheme have been submitted to and approved in writing by the Local Planning Authority. The scheme shall be completed in accordance with the approved plans.

Reasons: To prevent the increased risk of flooding to the site and third parties in accordance with Policy DC51 (Water Supply, Drainage and Quality) of London Borough of Havering's Development Control Policies Development Plan Document and Policy 4A.14 (Sustainable Drainage) of the London Plan (adopted February 2008).

8. No development shall commence until a surface water drainage scheme for the site, based on sustainable drainage principles and an assessment of the hydrological and hydro geological context of the development, has been submitted to and approved in writing by the Local Planning Authority. The scheme shall subsequently be implemented in accordance with the approved details before the development is completed.

Reasons: To reduce the risk of flooding to the proposed development, future

occupants and elsewhere in accordance with Policy DC51 (Water Supply, Drainage and Quality) of London Borough of Havering's Development Control Policies Development Plan Document and Policy 4A.14 (Sustainable Drainage) of the London Plan (adopted February 2008).

9. No development shall commence until a scheme for the provision and management of a buffer zone alongside the Havering New Sewer has been submitted to and approved in writing by the Local Planning Authority. Thereafter the development shall be carried out in accordance with the approved scheme and any subsequent amendments shall be agreed in writing with the Local Planning Authority. The scheme shall include:

- plans showing the extent and layout of the buffer zone
- details of the planting scheme (for example, native species)
- details demonstrating how the buffer zone will be protected during development and managed/maintained over the longer term
- details of any footpaths, fencing, lighting etc.

Reasons: Development that encroaches on watercourses has a potentially severe impact on their ecological value. This is contrary to Government policy in Planning Policy Statement 1 (Delivering Sustainable Development) and Planning Policy Statement 9 (Biological and Geological Conservation), and to the UK Biodiversity Action Plan.

10. Details of any floodlighting shall be submitted to and approved in writing by the Local Planning Authority before any of the buildings are first occupied and the works shall be carried out in accordance with the approved details.

Reasons: To ensure that light spillage does not adversely affect amenity and nature conservation interests.

11. No development shall commence until there has been submitted to and approved in writing by the Local Planning Authority a scheme of hard and soft landscaping, which shall include indications of all existing trees and shrubs on the site, and details of any to be retained, together with measures for the protection in the course of development. All planting, seeding or turfing comprised within the scheme shall be carried out in the first planting season following completion of the development and any trees or plants which within a period of 5 years from completion of the development die, are removed or become seriously damaged or diseased shall be replaced in the next planting season with others of a similar size and species, unless otherwise agreed in writing by the Local Planning Authority.

Reasons: In accordance with Section 197 of the Town and Country Planning Act 1990 and Policy DC61 (Urban Design) of London Borough of Havering's Development Control Policies Development Plan Document, and to enhance the

visual amenities of the development.

12. No goods or materials shall be stored on the site in the open above a height of 4 metres without the prior consent of the Local Planning Authority in writing.

Reasons: To protect the visual amenity of the local area in accordance with Policy DC61 (Urban Design) of London Borough of Havering's Development Control Policies Development Plan Document and Policy 4B.1 (Design Principles for a Compact City) of the London Plan (adopted February 2008).

13. No development shall commence until details of wheel scrubbing/wash down facilities to prevent mud being deposited onto the public highway during construction works have been submitted to and approved in writing by the Local Planning Authority. The approved facilities shall be permanently retained and used at relevant entrances to the site throughout the course of construction works.

Reasons: In order to prevent materials from the site being deposited on the adjoining public highway, in the interests of highway safety and the amenity of the surrounding area, and in order that the development accords with Policies DC32 (The Road Network) and DC61 (Urban Design) of London Borough of Havering's Development Control Policies Development Plan Document.

14. Before the development hereby permitted is brought into use, a scheme for any new plant or machinery associated with the development shall be submitted to the Local Planning Authority for their written approval, to achieve the following standard. Noise levels (expressed as the equivalent continuous sound level, {LAeq {1hr}}) when calculated at the boundary with the nearest noise sensitive premises shall not exceed L_{A90} -5dB.

Reasons: To protect local amenity in accordance with Policy DC55 (Noise) of the London Borough of Havering's Development Control Policies Development Plan Document and Policy 4A.20 (Reducing Noise and Enhancing Soundscapes) of the London Plan (adopted February 2008).

15. No construction works or deliveries into the site shall take place other than between the hours of 08.00 to 18.00 on Monday to Friday and 08.00 to 13.00 on Saturdays unless agreed in writing with the Local Planning Authority. No construction works or deliveries shall take place on Sundays, Bank or Public Holidays unless otherwise agreed in writing by the Local Planning Authority.

Reasons: To protect residential amenity, and in order that the development accords with Policy DC61 (Urban Design) of London Borough of Havering's Development Control Policies Development Plan Document.

16. No development shall commence until details of the surface water drainage works have been submitted to and approved in writing by the Local Planning Authority. The scheme shall be completed in accordance with the approved plans.

Reasons: To prevent the increased risk of flooding to third parties, to the site itself, to improve water quality and to enhance biodiversity in accordance with Policy DC51 (Water Supply, Drainage and Quality) of London Borough of Havering's Development Control Policies Development Plan Document and Policy 4A.14 (Sustainable Drainage) of the London Plan (adopted February 2008).

17. No soakaways shall be constructed in contaminated ground.

Reasons: To prevent pollution of the local water environment in accordance with Policy DC51 (Water Supply, Drainage and Quality) of London Borough of Havering's Development Control Policies Development Plan Document and Policy 4A.14 (Sustainable Drainage) of the London Plan (adopted February 2008).

18. Prior to the commencement of operation of the development hereby approved there shall be fitted to the exhausts from all odour control units and the sludge cake store building stack hydrogen sulphide monitoring instruments with a resolution of 1ppb. These monitoring systems will measure and record outlet hydrogen sulphide concentrations at a frequency of not less than 1 reading per hour and the records of monitoring shall be maintained for a period of at least 24 months, and will be available for inspection by the Local Planning Authority. The instruments shall be maintained in working order.

The emissions monitoring systems shall be "calibrated", by reference to the annual olfactometric tests described in Condition 25, so that the operators can set "alarm" hydrogen sulphide concentration levels for each of the odour control and stack emission releases to warn of deteriorations in abatement performance. The resulting hydrogen sulphide calibration calculations and emission limits shall be updated on an annual basis as further odour concentration data becomes available.

Reasons: To enable the emissions from the development to be properly monitored so that any necessary remedial action can be taken promptly if emissions exceed target levels.

19. The vehicle access doors to the sludge cake store shall be kept closed at all times except when vehicles are entering or exiting the building.

Reasons: To minimise the escape of odorous air.

20. The sludge cake store will be maintained at all times (other than when vehicles are entering or exiting) under negative pressure. The developer shall demonstrate to the Local Planning Authority at least annually that this is the case through testing and monitoring. The Local Planning Authority shall be given at least 7 days notice of all testing and will be supplied with the results of all testing within 30 days.

Reasons: To minimise the escape of odorous air.

21. No temporary or permanent sludge/sludge cake liming, or any other mechanical or chemical treatment involving raw or digested sludge cake shall be carried on within the sludge cake store at any time without the written agreement of the Local Planning Authority.

Reasons: To minimise odour emissions from the development.

22. No temporary or permanent sludge/sludge cake liming, or any other mechanical or chemical treatment involving raw or digested sludge cake shall be carried out anywhere in Riverside Sewage Treatment Works other than as described in the application, and in any case shall only be carried out within fully enclosed and odour extracted and abated/mitigated facilities. No such sludge or sludge cake treatments will be undertaken outside or in the open.

Reasons: To minimise odour emissions from the development.

23. No sludge or sludge cake will be stored within Riverside Sewage Treatment Works on a temporary or permanent basis otherwise than within fully enclosed and odour extracted and odour abated or mitigated facilities. No sludge or sludge cake will be stored outside or in the open.

Reasons: To minimise odour emissions from the development.

24. The development shall be operated at all times such that the odour emission rates of air released from the odour control units is maintained at or below the predicted levels specified in the Odour Impact Assessment (OIA) dated May 2008 (and updates of October 2008). Emissions will be discharged to atmosphere through stacks as described (stack heights and air speeds) in the OIA.

Reasons: To minimise odour emissions from the development and their off-site impact in the local area.

25. The developer shall at least annually carry out olfactometric tests of the emissions from all odour control unit stacks, and the sludge cake (and sludge centrifuge/pressing) building stacks within the development in accordance with the methodology set out in Condition 26. The first such test shall be carried out within 30 days of first operation of the development. The Local Planning Authority shall be given at least 7 days notice of all testing and will be supplied with the results of all testing within 30 days.

Reasons: To ensure emissions stay within acceptable limits.

26. All tests pursuant to Condition 25 and Condition 27 shall be conducted in accordance with the following methodology. Three representative odour samples of treated/outlet air will be collected whilst the sewage and sludge treatment plants are operating under normal conditions. The odour samples collected shall be analysed in accordance with the BSEN 13725 standard techniques and an outlet odour concentration will be calculated as the geometric mean of the individual results for each of the three samples. Emission rates for each stack will be calculated by multiplying the outlet odour concentration by a measured air flow rate. The Local Planning Authority shall be given at least 7 days notice of all testing and will be supplied with the results of all testing within 30 days.

Reasons: To ensure emissions stay within acceptable limits.

27. In the event that the results of a test pursuant to Condition 25 or this condition shows that emissions are exceeding the levels set out in the OIA dated May 2008 (and updates of October 2008) accompanying the application for the development, the developer shall immediately take such steps as shall reasonably be required to ensure that emission levels are no higher than those set out in the OIA. Following the taking of such steps the developer shall immediately demonstrate compliance by further olfactometric testing (as provided for in Condition 25) and supply the Local Planning Authority with the results of the test as required by Condition 25.

Reasons: To ensure emissions stay within acceptable limits.

28. Emissions from the sludge cake store (and sludge press/centrifuge) building extract stack shall be exhausted to atmosphere at a velocity of at least 15 metres per second as set out in the OIA and with an odour emission rate not exceeding 17,750 ou_E/s. The developer shall arrange for initial commissioning tests for outlet odour concentrations in the stack within three months of the plant becoming operational and thereafter annually. These tests shall be based on triplicate samples of outlet air collected whilst the plant is operating under normal conditions with at least 10 days sludge cake throughput stored in the building. Samples shall be analysed in accordance with the BSEN 13725 standard techniques. The Local Planning Authority shall be given at least 7

days notice of all testing and will be supplied with the results of all testing within 30 days.

Reasons: To ensure emissions stay within acceptable limits.

29. In the event that the sludge cake store (and sludge press/centrifuge) building extract stack odour emission rate exceeds the 17,750 ou_E/s emission limit, as demonstrated by three or more test failures within 120 days (with each test to comprise three outlet odour samples) in any calendar year, then the developer will install an appropriate abatement system, in accordance with details to be submitted to and approved by the Local Planning Authority prior to installation, to meet the emission rates modelled (maximum emissions rate of 17,750 ou_E/s) within 12 months of the exceedance. Such abatement equipment will then be subject to a commissioning test to demonstrate compliance within 30 days of commissioning. Subsequently any such abatement plant installed as a result of this requirement will be subject to at least annual olfactometric testing to demonstrate compliance with the emission rate limit in the same way as the other odour control units (as at Condition 25 above) and there will also be the same requirement for remedial measures in the event of any failures as set out for abatement plants at Condition 27). The Local Planning Authority shall be given at least 7 days notice of all testing and will be supplied with the results of all testing within 30 days.

Reasons: To ensure emissions stay within acceptable limits.

30. If abatement plant is installed on the Cake Store (and sludge centrifuge/pressing) building exhaust, and if the outlet odour emissions exceed the emission limit of 17,750 ou_E/s in any commissioning or annual performance test, then the plant shall be repaired or rectified and re-tested within 60 days of the failed test unless the 12 month period for installation of an abatement plant has been triggered.

Reasons: To ensure emissions stay within acceptable limits.

31. The existing inlet channels leading from the pumping station to the detritors and the sludge collection chambers serving the primary sedimentation tanks shall be covered and emissions from them extracted to an odour control unit (the “Inlet Pumping Station OCU”).

Reasons: To ensure emissions stay within acceptable limits.

32. The developer shall ensure that the Primary Settlement Tanks (PSTs) are operated at all times after the proposed development is completed with a sludge depth not exceeding 30 centimetres.

Reasons: To ensure reliable operation of the plant and to minimise odour emissions from the development.

33. The dissolved sulphide concentration (un-ionised) and pH of samples of sewage extracted from the surface of all of the PSTs will be determined on at least a monthly basis for a period of at least 12 months prior to the commissioning of the proposed sludge plant development. The results of these analyses will be provided to the Local Planning Authority on a monthly basis. This data will be used to define the proportion of hydrogen sulphide available for release to atmosphere and to assess the likely range and variation under the current operational conditions. The results of these analyses and subsequent calculations will be provided to the Local Planning Authority within 30 days of the completion of the sampling programme.

Reasons: To establish a baseline of current odour emissions so that the effects of any increased emissions after the development can be assessed. To provide an objective means to establish if mitigation measures will be required to control any increase in odour emissions from the PSTs as a result of the return of sludge centrate and filtrate from the proposed sludge plant.

34. The dissolved sulphide concentration (un-ionised) and pH of samples of sewage (normal influent sewage mixed with sludge return liquors) extracted from the surface of all of the PSTs will be determined on at least a monthly basis for a period of at least 12 months after completion of commissioning of the proposed sludge plant. These tests will in any case start within 6 months of the plant becoming operational and sampling will be undertaken with all parts of the sludge plant operational for at least three hours prior to the samples being collected. The results of these analyses will be provided to the Local Planning Authority on a monthly basis, and will be used by the applicant to define the proportion of hydrogen sulphide available for release to atmosphere and to assess if there has been any significant increase in sulphide concentrations and odour emissions as a result of the new operational conditions. The results of these analyses and calculations will be provided to the Local Planning Authority with 30 days of completion of the sampling programme.

Reasons: To enable the Local Planning Authority to assess any change in odourous dissolved sulphide concentrations.

35. If a comparison of the results of the dissolved sulphide measurements set out in Conditions 33 and 34 above demonstrate an increase in dissolved sulphides of 20% or more, the developer shall immediately put in place mitigation measures to reduce odour emissions from the PSTs to a level comparable with the pre-development baseline. Following the taking of such steps the developer shall immediately demonstrate compliance by further testing and supply the Local Planning Authority with the results of the test as required by Condition 34.

Reasons: To ensure emissions stay within acceptable limits.

13. INFORMATIVES

1. 11 No. private fire hydrants are required to be installed for fire fighting purposes. These are detailed in the plan provided by the London Fire Brigade and are to conform to BS 750:1984 and be indicated with a hydrant indicator plate conforming to BS 3251:1976.

The London Fire Brigade has a policy of free annual inspections/tests. Please contact Mark Lyne on 0208 555 1200 for more information.

Access for the fire brigade vehicles should comply with Section 16 of ADB 16.5, Tables 19 and 20. Please call K.E. Davies for more information on 0207 587 2133.

2. There are high pressure gas lines and electricity lines which are in near vicinity / cross the site. Please contact National Grid for information on working in near proximity to these prior to works commencing. Further details are attached to the guidance note provided by National Grid. Please contact Sarah Robinson on 0800 7312961 for more information.

3. Under the Water Resources Act 1991 and the Thames Region Land Drainage Byelaws 1981, the prior written consent of the Environment Agency is required for any works or structures in, over, under or within 8 metres of the top of the bank of the Havering New Sewer, designated a 'main river'. This is irrespective of any planning permission granted.

The buffer zone needs to be 8 metres, measured from bank top of the Havering New Sewer, for the whole extent of the site. Bank top is defined as the point at which the bank meets normal land levels / the edge of the wetland as designated on a site plan. This zone should be without structures (except for those shown on the plan 9RTG-YY-02010 Rev B), hard standing, footpaths, fences or overhanging development. The buffer zone needs to be designed and managed to develop this natural character and planted with locally native shrubs and grasses, of UK genetic provenance.

CASE OFFICER: Adele Williamson

Appendix 1: Site Location Plans

Appendix 2: Existing Site Layout Plans

Appendix 3: Proposed Site Layout and Floor Plans

Appendix 4: Proposed Elevations

Appendix 5: Proposed Sections

Appendix 6: Odour Contour Map