



**Severn Road Resource Recovery Centre**

**Statutory Instrument 1999 No.293  
The Town and Country Planning (Environmental Impact Assessment  
(England and Wales) Regulations 1999.**

**Regulation 10: Request for a Scoping Opinion**

**402.0036.00374**

**Viridor Ltd**

**Viridor**

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## 1.0 INTRODUCTION

Viridor Ltd is proposing to develop a Resource Recovery Centre at the Sevalco site to the north of Severn Road at Avonmouth, Bristol. The site location is shown in Plans 001 and 002 in Appendix A and Appendix B.

The development will involve the construction of a state of the art Resource Recovery Centre (RRC) that incorporates a Materials Recycling Facility (MRF) to process up to 150 000 tonnes of waste per annum, a state of the art Energy from Waste facility (EfW) capable of treating up to 350,000 tonnes of waste per annum and an Incinerator Bottom Ash Recycling Facility producing secondary aggregates for the construction industry from the residues produced by the EfW. The full description of development is set out below for clarity.

“The construction and operation of a Resource Recovery Centre including a Materials Recycling Facility, an Energy from Waste and Bottom Ash Facility, associated Office, Visitor Centre with new access road and weighbridge facilities with associated landscaping and surface water attenuation features.”

The development will be known as the Severn Road Resource Recovery Centre (SRRRC).

This report marks the first formal stage in the preparation of a planning application and is intended to provide the Planning Authority (Bristol City Council) and any external bodies it may consult, with sufficient information to provide a formal ‘Scoping Opinion’ on the likely environmental effects that need to be addressed by the required Environmental Impact Assessment (EIA).

The following sections provide an overview of the site, the development proposals, the intended scope of the environmental impact assessments and policy context which are relevant to the proposed development in this location.

### 1.1 Viridor Ltd

Viridor Limited is owned by the Pennon Group, is part of a major PLC that is focused on the water and waste management industries. Viridor is one of the UK’s leading waste management companies that operate 25 regional landfill sites, numerous regional recycling facilities and over 189 waste processing sites throughout the United Kingdom. The company is at the forefront of high quality environmental performance and over 100 of its operational centres are accredited to the ISO14001 Environmental Management System, the highest recognised industry standard.

Waste Management services offered by Viridor include:

- Material Recycling Facilities (MRF);
- Bulking and Transfer Stations;
- Material collection;
- Glass reprocessing;
- Composting (Windrow and In-Vessel);
- Waste Treatment;
- Transportation;
- Household Waste Recycling Centres (HWRC);
- Product destruction/recovery;
- Residual waste disposal;

- Landfill Gas Utilisation; and
- Energy from Waste (EfW)
- Marketing of recyclable materials to end markets

## **1.2 Background to the Proposal**

The West of England suffers from a shortage of facilities for dealing with residual waste. Residual waste is the waste which is not, or cannot be, re-used, recycled or composted. Until now it has been sent to landfill sites elsewhere in the country. This clearly is a waste of resources and subsequently damaging to the environment in a number of ways which do not reciprocate the government's vision of sustainability. It is also an increasingly expensive method as European laws will soon impose heavy fines on councils who send too much biodegradable waste to landfill.

The West of England Partnership has carried out a vast amount of research on future capacity levels of waste arisings throughout the area. Their research has revealed that by 2020 there will be in the region of 800,000 tonnes of waste every year needing to be dealt with through recovery facilities.

The Partnership is currently preparing a Development Plan Document detailing the planning strategy for managing waste within the West of England and identifying where the large scale waste management facilities required by the strategy should be located. The latest consultation document, - the Preferred Options document has identified three different options for meeting the future waste management requirements for the West of England:

- Option A: Two recovery facilities which will each handle 400,000 tonnes annually;
- Option B: Eight recovery facilities each handling 100,000 tonnes annually; and
- Option C: A combination of different scale facilities suiting the density of the surrounding area.

Option C (the combination of small, medium and large scale facilities) is the preferred option of the West of England Partnership. It is proposed that the large scale facility identified by this Option will be located in Avonmouth. The document also identifies specific sites that are considered suitable sites for these strategic waste management facilities. The Sevalco site subject to this Scoping Opinion request is identified as one of the sites considered suitable for this strategic waste management facility.

## 2.0 BENEFITS OF THE DEVELOPMENT

The Severn Road Resource Recovery Centre has the potential to make an important contribution to waste management in and around the surrounding area of Bristol and fulfil the West of England Partnership's aspirations on future waste management. The operation of the Centre will result in a move away from reliance on landfill as the means of disposing of waste towards a system that recovers valuable resources in an effective and efficient manner. The latest technology will be employed to separate and recover materials for recycling in the on-site material recycling facility (MRF) while residual wastes will be burnt at high temperatures in the EfW to recover energy in the form of heat and power with residues from the EfW process treated to create secondary aggregates for use by the construction industry.

The facility will provide a number of benefits including:

- The facility will maximise the recovery of resources through recycling and production of energy in the form of electricity and heat
- The CHP design will present opportunities for the development of additional commercial development. The heat produced by the facility can be converted to 'cold' energy for cold stores etc.
- The facility offers a safe and sustainable alternative to landfill for the waste residues from local homes and businesses that are left after recycling and composting;
- Approximately 30MW of electricity will be supplied to the National Grid;
- The facility will offer employment for approximately 50 new permanent staff when it is operational as well as over 200 jobs for the three year construction period;
- The proposal will help to achieve local targets on landfill diversion, to be met or even exceeded and therefore avoid costly fines;
- EfW offsets the significant economic impact of landfill tax (£40 per tonne in 2009 rising to £72 in 2013), which would otherwise be passed onto council tax payers; and
- The local economy will benefit from increased employment opportunities, sustained by wages and salaries received and spent in the local economy by people directly employed at the facility and through the use of local services.
- The Resource Recovery Centre will provide cost effective, efficient and reliable solutions for dealing with recyclable and non-recyclable wastes.

## 3.0 ENVIRONMENTAL IMPACT ASSESSMENT

For any significant development it is important to establish if an Environmental Impact Assessment is required at the outset. The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999, as amended by the Town and Country Planning (Environmental Impact Assessment) (England and Wales) (Amendment) Regulations 2000, (hereafter jointly referred to as the EIA Regulations) implement Council Directive No 85/337/EEC (as amended) on the assessment of the potential effects of specified development proposals on the environment. Prior to the granting of a planning permission in respect of any proposal to which the EIA Regulations apply an Environmental Impact Assessment (EIA) is required. Responsibility for compiling information regarding environmental effects lies with the developer, and the information is presented as an 'Environmental Statement'.

The EIA Regulations specify the types of development for which an EIA is mandatory (Schedule 1 Projects) and categories of development where an EIA may be required

(Schedule 2 Projects). In connection with the proposal at the Sevalco site at Avonmouth, it is considered to be a Schedule 1 development:

“waste disposal installations for the incineration...of non-hazardous waste with a capacity exceeding 100 tonnes per day”. (Category 10)

In light of the above, Viridor has commissioned SLR Consulting Ltd to prepare an Environmental Statement to accompany the planning application currently being prepared.

SLR is a multi-disciplinary environmental consultant to, amongst others, the minerals and waste management industries and also provides advice to local authorities and the Environmental Agency on strategic issues. SLR is a registered Environmental Impact Assessor Member of the Institute of Environmental Management and Assessment (IEMA).

### **3.1 Scoping Exercise**

Having established that an Environmental Statement is required to be prepared to accompany the planning application, the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (EIA Regulations) stipulate that the Applicant (Viridor Ltd) may make a request for a formal Scoping Opinion (Part IV Regulation 10) from the Local Planning Authority as to the information which should be provided in the Environmental Statement

This report therefore forms Viridor’s written request to the Local Planning Authority, Bristol City Council, under Regulation 10 of the EIA Regulations, for its opinion as to the information to be provided in the Environmental Statement. Regulation 10 (1) of the EIA Regulations provides for a developer to obtain a formal ‘Scoping Opinion’ from the relevant Planning Authority on the topics that should be focused upon in the Environmental Statement (ES) prior to embarking on an EIA. Referring to Regulation 10 (2), requests for Scoping Opinions should be accompanied by:

- a plan sufficient to identify the land;
- a brief description of the nature and purpose of the development and of its possible effects on the environment; and
- such other information or representations as the person making the request may wish to provide or make”

The three main purposes of the Scoping exercise are considered to be:

- to focus the EIA on the environmental issues and potential impacts which need the most thought and attention;
- to provide a means to discuss methods of impact assessment and reach agreement on the most appropriate way forward;
- to identify those which are unlikely to need detailed study.

The following sections are intended to provide Bristol City Council and the relevant consultees with the information necessary to come to an opinion on the issues that should be addressed in the ES. The value of the statutory consultees in inputting to the Scoping Opinion is recognised by Viridor and SLR and both parties will be pleased to discuss any aspect of the proposed scheme with any organisation.

### **3.2 Planning and Pollution Control**

Once constructed the SRRRC will need to operate under an Environmental Permit (EP). However, this can only be issued after planning permission has been granted. In addition to commissioning an EIA and submitting the requisite Environmental Statement, an application for an EP will be prepared in parallel with the planning application. This approach ensures that there is consistency between the data gathering and assessment stages of both planning and permitting regimes during the design exercise and the preparation of documents.

## 4.0 SITE DESCRIPTION AND SURROUNDING AREA

### 4.1 The Site

The development site consists of the northern part of the Sevalco Plant which historically operated across two sites separated by Severn Road. The site is located at National Grid Reference 353797, 181739 around 7 miles outside of Bristol City Centre. The application site comprises about 8.3 hectares of land located adjacent to Severn Road and about 230 metres east of Chittening Road, which is the main road providing a north/south connection within the Avonmouth industrial area. The site is shown in its local context on the aerial photograph<sup>1</sup> set out below.

**Fig 1.0 Aerial Photograph of Proposed Site at Avonmouth**



### 4.2 Avonmouth Industrial Estate

Avonmouth is an extensive, long established industrial area that serves the West of England sub region and beyond. It hosts a wide range of general industrial uses, specialist industries, port facilities, storage and distribution, power generation and waste management uses and has excellent links to the strategic route network.

### 4.3 Surrounding Area

The Avonmouth area is clearly defined as part of the Severn and Avon flood plains separated from the rest of Bristol to the south east by the M5 Motorway. As an established

<sup>1</sup> [www.googleearth.com](http://www.googleearth.com)

industrial area it is well separated from residential development with only a few isolated properties to the east of the site on Minor's Lane approximately 1000 metres away.

#### **4.4 Access**

The site is currently served from Severn Road via two priority T-Junctions. At our time of writing, SLR are investigating access improvements to the site in order to better accommodate HGV'S that will use the facility. To the west of the site, Severn Road joins with the A403 via an at grade T junction, with the major road of the junction passing through a near 90 degree bend, with the minor arm being on the apex of the bend.

#### **4.5 Air Quality**

The site falls within an Air Quality Management Zone.

#### **4.6 Geology**

The geology of the site is discussed based on geological map "Bristol District", 1:63,360 Solid and Drift published by the British Geological Survey; and the map indicates that the site is underlain the following sequence of strata:

- Alluvium.
- Mercia Mudstone.

At greater depth are the following deposits:

- Upper Coal Measures (Upper Coal Series – the Avonmouth No. 1 and No. 2 seams are reportedly present under the site).
- Pennant Sandstone.

The site is not within a Radon affected area.

#### **4.7 Land Quality**

The site comprises the following features/facilities:

- Former carbon black production plants – these two plants are located in the north western portion of the site. The plants formerly produced 'Industrial Carbon Black' and carbon black using a 'Medium Thermal Plant' which was a batch production process. These two plants remain in situ with no specific demolition having taken place. It should be noted that these plants are likely to contain both solidified feedstock oil and carbon black residues;
- Former power plant – this is located in the south western portion of the site and contained two boilers that combusted 'tail gas' from the carbon black production plants, but could also be fired using natural gas;
- Product warehouse – this is a modern, steel framed structure with metal cladding. It is used for the storage of bulk bags of various grades of carbon black.

- Surface water settlement tanks/lagoons – located in the eastern portion of the site (two tanks are located in the north western area of the site adjacent to the former Medium Thermal Plant) and comprise a large lagoon excavated an estimated 3m into the ground, 4 concrete lined settlement tanks, an overflow tank and a single tank for storage of water prior to discharge to a surface water rhine. Treatment of surface water is understood to comprise the settlement of fines (primarily carbon black) prior to re-use within the production plant or discharge to surface water.
- Oil storage tanks – these are located at the eastern end of the site and comprise two above ground tanks (each estimated at 8,000-12,000 tonnes) constructed from steel. It is reported that only one of the tanks may have actually been used for the storage of feedstock oil ('Cracker' oil).
- Compressor house/electricity sub station – these are small brick built structures located in the south western portion of the site. It is understood the electricity sub station is to remain on the site.

It is anticipated that the demolition of redundant plant and equipment at the site will include the need to safely remove and dispose of asbestos containing materials and solidified feedstock oil and carbon black within the pipe network.

#### **4.8 Landscape and Visual**

The Avonmouth area is identified as a target area for regeneration, including regeneration through the development of waste management and energy production industries. It is not covered by any statutory landscape designations.

#### **4.9 Nature Conservation**

The site itself is not covered by any nature conservation designations but issues likely to be of interest are the water network around the site and site's proximity to the Ramsar/SPA/SAC/SSSI of the Severn Estuary.

#### **4.10 Topography**

The site elevation is approximately 6-7m Above Ordnance Datum (AOD) with the surrounding area being essentially flat with no significant topographic changes.

#### **4.11 Water Environment**

The groundwater at this site is classified by the Environment Agency (EA) as a non aquifer (Mercia Mudstone). The site is not located within a Source Protection Zone. Information from the Envirocheck® Report indicates there no licensed groundwater abstractions listed within 1km of the site. It is considered feasible that private water abstractions could be present in the general site area, but it is unlikely that any exist in the immediate site area given its industrial setting.

#### **4.12 Planning History**

The complete planning history for the application site is set out in Table 1 below:

**Table 1 PLANNING HISTORY**

<b>Application No.</b>	<b>Description</b>	<b>Decision</b>
<b>Application No. 58/01701/U_U</b>	Erection of new gatehouse and ambulance room	Granted
<b>Application No. 66/38133/62U_U</b>	Erect a temporary sectional timber building for offices and small drawing office.	Granted subject to conditions.
<b>Application No. 66/38133/62U_U</b>	Description – Construction of a Jones Gas Process Plant with control and storage buildings.	Granted
<b>Application No. 68/04063/U_U</b>	Description – Erect a temporary works conference room and training centre where meetings can be held	Granted subject to conditions.
<b>Application No. 76/02253/U_N</b>	Extension to the existing switchroom for additional switchgear	Granted
<b>Application No. 77/01815/P_N</b>	Temporary wooden “Pratten” building	Granted
<b>Application No. 78/02587/P_N</b>	Description – Drilling of a borehole for water supply and installation of pumping equipment and pipe work.	Granted
<b>Application No. 79/01537/U_N</b>	Erection of building to contain air compression equipment.	Granted
<b>Application No. 81/03219/T_N</b>	Erection of sectional temporary building for offices	Granted subject to conditions.
<b>Application No. 90/00310/F</b>	Erection of 2no. storage tanks, 6.5m high, for the storage of waste water.	Granted subject to conditions.

<b>Application No. 92/01654/F</b>	Description – Sevalco Limited, Severn Road, Avonmouth, Bristol. Demolish existing production office and replace with new process control centre and engineers office	Granted subject to conditions.
<b>Application No. 96/02455/F</b>	New Carbon Black production line, 2 x 65m chimneys, warehouse; laboratory extension...; new power plant and cooling unit.	Granted subject to conditions.
<b>Application No. 98/01794/F</b>	Erection of a 12m post with a warning siren array mounted on top	Granted subject to conditions.
<b>Application No. 08/03940/W</b>	Hazardous Substances consent application for Fluidised Catalytic Crack feedstock, Coal Tar Oil feedstock.	Application cancelled

## 5.0 DESCRIPTION OF DEVELOPMENT

The development of the Severn Road Resource Recovery Centre will consist of the following:

- Materials Recycling Facility(MRF) to accept up to 150 000 tonnes per annum of waste
- 350,000 tonnes per annum (tpa) Energy from Waste Facility (including ancillary buildings, parking facilities etc);
- On site incinerator bottom ash (IBA) treatment and recycling facility; and
- Improved access from Severn Road.

Auxiliary and support infrastructure will include:

- Weighbridge and offices – for monitoring and recording all wastes coming onto and leaving the site;
- Visitor centre;
- Transformer House – contains the metres, circuit breakers and step-up transformers necessary to export electricity;
- CHP infrastructure; and

- Storage bays – for APCR's and IBA skips and containers awaiting collection plus empty skips.

## 5.1 Transport

The assessments will assume that all waste will be transported by road, although the option of rail transport is being investigated. Imports will comprise a range of vehicle types including direct delivery by refuse collection vehicles (RCV) and articulated bulk imports from waste transfer facilities.

The proposed MRF will have an estimated capacity of up to 150,000 tpa. At this maximum throughput the facility will generate an estimated additional 200 daily trips with a similar trip pattern to the EfW detailed below. Of the 150 000 tonnes delivered to the MRF around 60,000 tonnes of waste will be transferred to the EfW and this accounts for the relatively low number of lorry movements for the EfW, when compared to the MRF.

It is anticipated that the EfW will receive approximately 350,000 tonnes of waste per annum, from both municipal and commercial and industrial sources. Assuming a roughly even split of RCV/bulk deliveries, it is estimated that the development will generate around 80 HGV trips a day (160 two-way movements); this figure is based on an average of 8 tonne loads for RCV's, 20 tonne loads for bulk imports and a 5 and half day working week. Waste is likely to be evenly spread throughout the day and will not peak in line with traffic on the surrounding road network. It is expected that the development will generate negligible light vehicle movements.

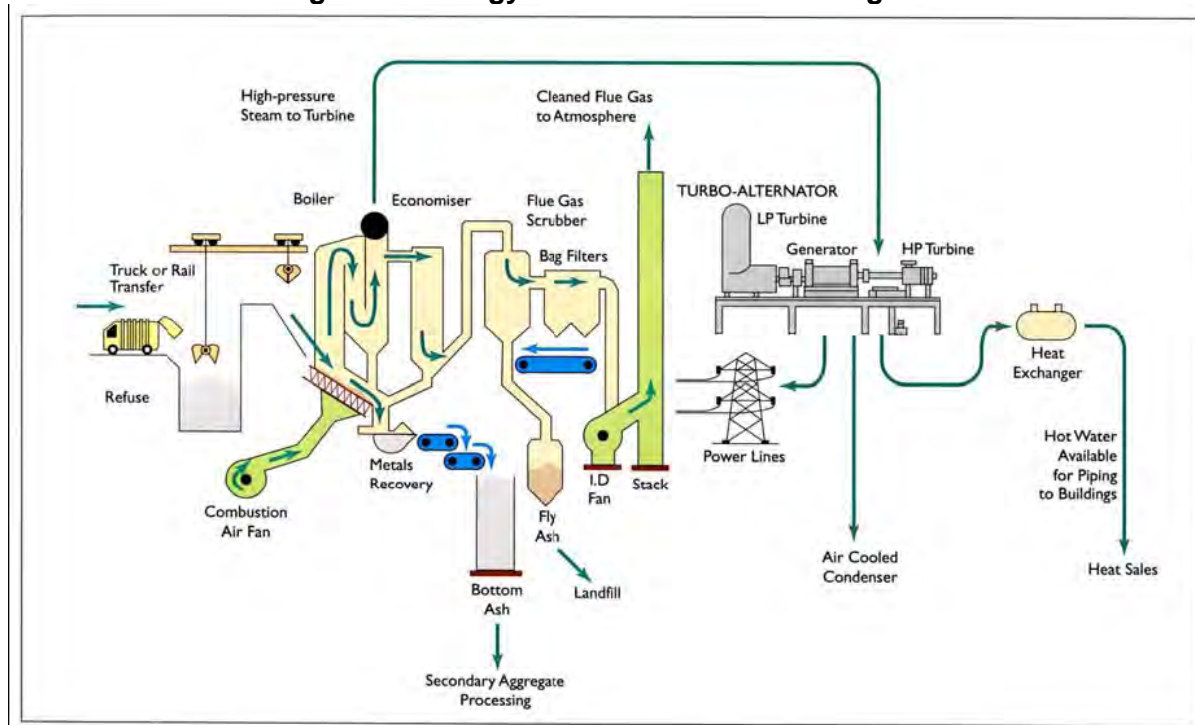
## 5.2 Operation of the Facility

All waste reception, processing and storage activities associated with the operation of the MRF will be contained within the proposed building with a floor space of approximately 11 000m<sup>2</sup>.

The proposed EfW will also be totally enclosed within a purpose-built new building that is appropriately designed for its surroundings. The proposed EfW will have an approximate length of 180m and width of 100m, a height of 40m (subject to detailed design) and the proposed stack will be 90m.

The Bottom Ash Facility will be in the region of 200m long and 90m wide and will handle approximately 85,000 tpa.

Vehicles delivering residual waste will be weighed on arrival at site, and then enter the building and discharge their loads in the fully enclosed reception hall. A summary explanation of the process is illustrated in the diagram below.

**Figure 1 - Energy from Waste Process Diagram**

### 5.3 Waste Reception

The waste will be delivered to a dedicated handling area using bulk transfer and street refuse collection vehicles (RCV's). All vehicles delivering residual waste will be weighed when entering the site and proceed to a vehicle delivery and tipping hall where they will back up and discharge the waste into a pit or storage hopper. From here the waste is transferred to the two parallel "energy-from-waste" process lines and to each combustion chamber via dedicated feed chute and airlock section using grab cranes.

The cranes are also used to mix and break-up the incoming materials to ensure homogeneity of feed to the combustion chambers. A shredder is provided to process any bulky household waste received in the hoppers and to reduce material to an appropriate size prior to the combustion process.

Air is extracted from the waste reception hall and used as waste combustion air which helps control odours arising in this area. The reception area is enclosed with access doors and air louvers to manage traffic and control air movements;

### 5.4 Waste Combustion

Combustion takes place in two stages, with primary combustion undertaken on a moving mechanical grate to promote the mixing of burning/unburnt wastes. There are four generic types of moving grate; reciprocating, counter reciprocating, roller and oscillating, each with particular advantages/disadvantages associated with the degree of pre-preparation of waste required prior to combustion and the scale of the waste throughput. The combustion gas from the primary stage will be heated in the secondary combustion chamber to reach its specified temperature (850 degrees for a minimum of two seconds). Afterwards the residue from primary combustion on the moving grate is removed as incinerator bottom ash (IBA).

## **5.5 Energy Recovery**

The heat from combustion of the waste is recovered initially to form steam and ultimately as electrical energy at approximately 20 megawatts. The heat that is produced is recovered within a waste boiler to form high pressure steam, which is used to drive turbines to generate electricity. A proportion of this site generated energy will be used within the facility itself, but the majority will be exported to the National Grid.

The design of the heat recovery boiler is particularly suited to waste combustion and incorporates facilities to minimise dust carry-over and for online cleaning through rapping systems and soot blowers to minimise maintenance impacts. Dust collected from the boilers is discharged as fly ash and collected with the flue gas treatment residues.

The power generation and auxiliary equipment include turbine/generator sets, air condensers and a facility with the potential to extract further value from the partially cooled steam or hot water after it has been through the turbines. This can be used to provide heating or process heat for homes and businesses within a reasonable proximity to the site.

## **5.6 Air Pollution Control (APC)**

Air Pollution Control is an essential element of any modern incinerator. The air pollution control system forms an integral part of the plant and will ensure that the emissions from the plant will meet the stringent ES Waste Incineration Directive (WID) (2000/76/EC) standards. Residues from the process are classified as hazardous waste and these will be removed from site in sealed tankers for treatment and disposal at a suitably licensed facility.

## **5.7 Incinerator Bottom Ash Recycling**

Subject to detailed design it is proposed that Incinerator Bottom Ash will be treated and recycled to produce aggregate material at an on site plant adjoining the EfW. At full capacity it is estimated that the plant will produce approximately 85,000 tpa of recycled aggregate for the local market. The screening, maturation and storage of this material will take place under cover in the northern part of the site.

## **5.8 Hours of Operation**

The EfW process will be a continual one but it is expected that waste will mainly be delivered to the SRRRC between 7am and 7pm.

## **5.9 Employment**

Once operational, the SRRRC will employ an estimated 50 full time equivalents.

## **5.10 Timescales**

Estimated timescales for the proposed development are as follows:

2011 to 2013 - construction of MRF and EfW;

2014 - MRF and EfW operational;

## **6.0 POTENTIAL ENVIRONMENTAL IMPACTS**

### **6.1 Introduction**

This section outlines some of the potential environmental impacts and considerations of the proposed development and considers the scope of the EIA required to accompany the proposed planning application.

This section is intended to provide Bristol City Council and relevant consultees with a breakdown of the various different environmental impacts which need to be addressed in the Environmental Impact Assessment, and the scope of their consideration.

The range of information proposed for each topic is based on the experience of Viridor in proposing and operating schemes of similar nature; the technical knowledge of SLR in relation to Energy from Waste and Recycling facilities and a joint understanding of the regulatory system and the issues associated with the site and the surrounding area. Regulation 2 (1) specifies that an Environmental Statement is a statement “ which includes such information referred to in part 1 of Schedule 4 as is reasonably required to assess the environmental effects of the development...” The information described in Schedule 4 includes at paragraph 3 to Part 1 the following requirement:

“A description of the aspects of the environment likely to be significantly affected by the development, including, in particular, population, fauna, flora, soil, water, air, climate factors, material assets, including the architectural and archaeological heritage, landscape and inter-relationship between the above factors”

This scoping report identifies a range of potential environmental issues, which may be: temporary or permanent; direct or indirect; and positive or negative.

### **6.2 Temporary/Permanent Effects**

The potential for effects to occur is dependent on the two key periods associated with the development: the potential disturbance as a result of the construction period; and the longer term influence of the operational SRRRC.

### **6.3 Direct/Indirect Effects**

The proposed development could have indirect effects upon nearby properties and settlements, together with the environment as a whole in relation to issues such as air quality, noise and the changing appearance of the site. Direct impacts will most likely be centred around Traffic flow and Hydrogeology and Hydrology issues.

### **6.4 Positive/Negative**

The proposed development has the potential to generate benefits as well as negative effects. These benefits might include the reduction of volumes of waste that will otherwise be disposed of to landfill, the potential to generate energy from waste as opposed to by means of burning fossil fuels; the effective use of otherwise vacant land, and the potential socio-economic benefits of the development.

Having considered the above issues, and taking into account the guidance contained in the DTLR publication “Environmental Impact Assessment: A Guide to Procedures”

the potential environmental effects resulting from the proposed development have been identified below along with intended assessment methodologies.

SLR considers the following potential environmental impacts below to be of significance in relation to the proposed site and SRRRC.

- Air Quality
- Transport
- Land Quality
- Ecology
- Water Environment
- Landscape and Visual Impact
- Noise
- Cultural Heritage
- Socio Economic Assessment
- Cumulative Impacts
- Climate Change
- Alternative Technologies/Site/Need

These are considered in more detail below:

## **6.5 Air Quality**

### *Aspects of Proposed Development giving Rise To Potential Impact*

The potential air quality impacts of the proposed development will be as follows:

- generation of dust during the construction and operation of the development and the potential to cause a nuisance;
- emissions of pollutants from combustion sources;
- odour and bio-aerosol emissions during the operation of the SRRRC; and
- pollution generated by construction and operational traffic.

## **6.6 Scope of Assessment**

The impact of atmospheric emissions will be predicted using approved air dispersion modelling software that takes account of the concentration of a range of pollutants (as specified in the WID), the height and exit diameter of the flue, the exit velocity of the gases and local meteorological and topographical conditions. The effect of nearby buildings on plume dispersion is also taken into account by the modelling software. The model calculates ground level concentrations of different pollutants and these can be added to the baseline concentrations of pollutants and compared to Air Quality Standards. The Air Quality Standards are protective of human health and the environment. The dispersion modelling will be extended to include any European designated ecological sites within 10km of the site, so that the potential effect of stack emissions on these sensitive sites can be predicted and assessed.

The baseline local air quality would be derived from data obtained from published sources and measurements as appropriate. Existing air quality data would be used and supplemented, as appropriate, by additional baseline monitoring carried out specifically for this planning application to obtain baseline local air quality data.

Subject to monitoring being required in support of the assessment, baseline air quality will be monitored for a period of 3 months in relation to nitrogen dioxide (and oxide), sulphur dioxide, hydrogen chloride, hydrogen fluoride and VOCs (BTEX, trichloromethane, vinyl chloride and total VOC's). Monitoring will be undertaken using passive absorption tube techniques with data ratification in line with the requirements of LAQM TG(03) where applicable.

Although there are no residential properties within this distance, other sensitive receptors may be evident from the land-use survey undertaken. Where appropriate, measures to minimise the potential impact on dust generation from the construction of the integrated waste management facility will be recommended. This is considered particularly important in this area as SLR is aware of previous dust complaints from major car manufacturers who have large car storage facilities in close proximity to the proposed site.

An air quality assessment will be undertaken that will include the following:

- a review of air quality standards and guidelines of relevance to the EfW emissions;
- a review of the existing air quality in the area of the EfW emissions. This will include a summary of the monitoring data obtained from the local authority, national networks and other air quality monitoring data of relevance to the development, including site specific monitoring;
- a review of the status of the local authorities' air quality review(s) for the area and the implications of the review findings for the project;
- dispersion modelling of the stack emissions from the EfW. The type of model used and level of detail with respect to the number of years of meteorological data to be used will be dependent on the requirements of consultees (EA and Local Authority for example) but it is expected that an advanced dispersion model will be employed, such as US EPA AERMOD. The averaging period for the dispersion model results will be selected to enable comparison with relevant UK air quality standards;
- dispersion modelling of the cumulative impact of the EfW plant with other significant emission sources in the locality, where appropriate;
- comparison of predicted ground level concentrations with existing air quality and relevant air quality standards and guidelines; and
- recommendation of mitigation measures for minimising any residual air quality impacts

## 6.7 Odours and Bioaerosols

The potential impact of the proposed development on the generation of odours and bioaerosols will be assessed qualitatively with reference to the location of sensitive receptors and the local climate. Each of these issues will be covered in terms of the potential for release and the effectiveness of the design in mitigation to demonstrate why impacts are not predicted to be significant at this location (i.e. screened out).

## 6.8 Transportation Emissions

The impact of the vehicular emissions on the receptors near the primary road links to the site (such as Severn Road, A403 and Chittinging Road) will be screened using the most appropriate regulatory tools, such as;

- Design Manual for Roads and Bridges (DMRB)
- Department for Transport's Website for guidance on the conduct of transport studies (WebTAG); and
- Guidance from the Joint Environment Agency, English Nature and CCW Air Quality Technical Advisory Group (AQTAG)

This issue will be covered in terms of the potential for release and impact and, based upon the result:

- Why impacts are not predicted to be significant at this location (i.e. screened out); or
- Proceed to detailed monitoring

If the impacts cannot be screened out, detailed modelling (BREEZE Roads CAL3QCHR or ADMS Roads) will be undertaken.

## 6.9 Human Health Impact Assessment

An assessment of the potential effects of the EfW on human health will predominately focus on emissions from the combustion process.

A preliminary risk assessment will seek to examine the significance of each pathway in order to determine whether more detailed quantitative risk assessment (QRA) is required. These will include direct inhalation of gaseous emissions and particulate matter or deposition of particulates to soil followed by direct ingestion and dermal contact or incorporation into the food chain. However, indirect effects can occur following deposition of the emissions onto soil, water, etc and uptake into plants and animals. SLR will undertake food chain modelling of the dioxins and furans and trace metals based on standard methodologies.

A regional analysis of the local physical environment, meteorology and the local population, i.e. determine population size and demographic breakdown based on distribution by age, sex etc in order to identify potentially sensitive members of the population, will be undertaken. Existing, background levels of pollution, will also be assessed to inform any prognosis for additional pollution based on the activities/output of similar facilities.

The prognosis of the health impact assessment will therefore be based on a QRA, which will be informed by air quality and dispersion modelling, modelling of indirect exposure following deposition and comparison of predicted pollutant intake rates to threshold limit values (e.g. published health criteria values) and agreed levels of acceptable risk for non-threshold toxicological effect pollutants.

## 6.10 Transport

### *Aspects of Proposed Development Giving Rise to Potential Impact*

- Vehicle movements associated with site preparation and construction works;
- Vehicle movements associated with waste imports and exports from site.

### *Potential Impacts*

- Loss of amenity/disturbance to other homes and businesses in area;
- Capacity of surrounding road networks and junctions to accommodate changes in traffic levels.

### *Scope of Assessment*

The Transport Assessment (TA) will consider the issues relating to transport impact, including a review of the baseline situation, details of existing trip generation, baseline traffic levels and records of recorded accidents within a suitable study area. The TA will also assess likely future trip generation, the likely impact caused by these trips on the transport network and undertake any junction capacity assessments required.

Existing traffic and accident data will have to be collected and collated for an agreed study area road network. The key issues that will need to be considered in detail as part of the TA include, but may not be limited to:

- Requirement for any improvements which may be required to the Severn Road / A403 junction.
- Confirming the proposed access junction layout onto Severn Road
- Demonstrating that adequate capacity exists on the highway network.
- Potential traffic calming signage or measures to address any observed speed related issues along the main road.
- Demonstrating that there is no adverse effect on the wider road network caused by vehicles accessing the development.

A Travel Plan may also be required to accompany the TA. For necessary road traffic, it may be possible for employee trips to be reduced, depending on the availability of public transport, or the opportunities for car sharing or use of work buses. This will be highlighted and discussed in the TA.

## 6.11 Land Quality

### *Aspects of Proposed Development Giving Rise to Potential Impacts:*

- Site preparation and construction works.

### *Potential Impacts*

- Effects of excavations and construction of prevailing ground conditions.

### *Scope of Assessment*

The site comprises the following facilities/features;

- feedstock – the storage and distribution around the site may have left a legacy of localized contamination. The physical properties of the feedstock (it forms a solid at ambient temperatures) will suggest extensive lateral or vertical migration of contamination is unlikely.
- Carbon black – the physical properties of this solid and generally insoluble product will suggest extensive lateral and vertical soil contamination is unlikely. Localized areas of contamination, particularly if burial or disposal of materials has taken place on the site, could be present.
- Solvents/ancillary petroleum hydrocarbons – no evidence of extensive use of such materials (steam was normally applied to clean production lines), but localized areas of contamination could be present.
- Contaminated Infill – no direct evidence of landfilling or infilling has been identified or reported at the site.
- Settlement lagoon/tanks – these will need to be dredged of accumulated carbon black with subsequent off site disposal.

Overall, no significant constraints for development have been identified to date, but further quantitative risk assessment and consultation with the regulators is required to determine the extent of ground remediation that may be required at the site.

## 6.12 Ecology

### *Aspects of Proposed Development Giving Rise to Potential Impacts*

- Site preparation;
- Operation of the Facilities;
- Emissions from the stack on surrounding habitats.

### *Potential Impacts*

- Potential damage to designated wildlife sites;
- Loss of habitat.

### *Scope of Assessment*

The ecological impact assessment will follow the data gathering guidelines recommended by the Institute of Environment Assessment and the most recent guidance on site evaluation and impact assessment, as issued by the Institute of Ecology and Environmental Management. It is proposed that the assessment will comprise of:

- Desk top study – data on statutory and non statutory wildlife sites will be obtained from relevant bodies and the local biological records centre/county ecologist. Data on protected, notable and rare species will also be obtained from these organisations as well as local specialist groups (where appropriate). Relevant web based data will also be sought and compiled. SLR's ecology team are familiar with ecological sensitivities in the Avonmouth area. Issues likely to be of key concern are water voles associated with the water network around the site and site's proximity to the Ramsar/SPA/SAC/SSSI of the Severn Estuary.

- An extended Phase 1 Habitat Survey of the site has been undertaken. During this survey, an appraisal of the likelihood of any protected species being associated with the site and the habitats present, was carried out.

The Ecological Impact Assessment will use IEEM methodology and identify the significance of any impacts. The findings and any critical constraints will contribute to the refinement of the proposed site layout and the report will recommend mitigation measures for any residual impacts where appropriate. It will pay particular attention to assessing the potential of aerial deposition of nitrogen dioxide and sulphur dioxide from the proposed EfW upon any potentially sensitive ecological receptors, in close liaison with SLR's in house air quality team.

### **6.13 Water**

#### *Aspects of Proposed Development Giving Rise to Potential Impacts*

- Potential pollution of surface and groundwater from site operations;
- Alteration of catchment areas and surface water flows.

#### *Potential Impacts*

- Contamination of surface water by pollutants;
- Adverse impacts on groundwater and surface water regime;
- Risk of flooding;
- Indirect impacts on ecological interests in nearby water bodies.

#### *Scope of Assessment*

It will be a requirement of the EIA and subsequent Environmental Permit to determine the baseline environmental conditions at the site. Previous site investigations and available monitoring data will be used to review site conditions and existing site investigation information will be reported together with an assessment of any potential adverse impacts of the proposed development operations. Remedial and mitigation measures will be presented as appropriate.

A review of ground water conditions will be completed in order to establish the characteristics of the background groundwater quality, particularly since it could potentially be impacted by neighbouring land uses. Reference will be made to published information held by the British Geological Survey and the EA, together with any information held at the site.

Surface water around or on the site will be identified and the potential for any impact on these surface waters during site redevelopment or operation will be assessed. The construction works will need to be carried out in manner that prevents the deliberate and accidental discharge of potential contaminants, such as silt, cement, oil etc, into the surface water courses and measures to achieve this goal will be identified and assessed.

The following issues will need to be considered within the planning application:

- Potential sources of flooding to the proposed development could include fluvial, overland flow and high ground water levels;

- Mitigation measures including outline design of sustainable drainage techniques for the management of surface water runoff and site design measures to mitigate against potential sources of flooding.

The following tasks are envisaged in order to address these identified issues within the Environmental Statement that will support the planning application for the proposed development:

- A site visit to assess the hydrogeological and hydrological site setting, identify suitable surface water gauging/monitoring points and complete surveys of adjacent water features;
- All site investigation data, geological and hydrogeological information, reports and monitoring data for the site;
- Hydrogeological and hydrological information including licensed abstractions, surface water flows, flooding, rainfall data, water quality and groundwater hydrographs if available (Environment Agency and or Lower Severn Drainage Board) Catchment Abstraction Strategy Report and Strategic Flood Risk Assessment;
- Information regarding private unlicensed abstractions (local council); and the design of the development, including proposed water management.

All information gathered will be used to develop a conceptual hydrogeological model for the site and identify the baseline (predevelopment) conditions, with the following objectives:

- Identify the characteristics of the site's hydrogeology and hydrology, and detail the relevant interactions;
- Present the appropriate source-pathway-target receptors that will need to be considered within the environmental impact assessment;
- Provide a basis for the assessment of the potential site impacts; and
- Identify water management options and licensing requirements.

The baseline hydrological conditions and potential impacts of the development on the hydrology and flood risk will be determined as follows:

- Description of the existing surface water regime;
- Description of the mitigation and monitoring measures to reduce the impacts on the environment (engineered flow control, silt settlement, interceptors, monitoring regime etc);
- Assessment of the impact of any discharges on receptors.

A surface water management plan will be provided to demonstrate how surface water runoff will be controlled and attenuated to pre-development greenfield rates through the use of sustainable drainage techniques. Attenuation / infiltration features will be sized and an outline drainage scheme provided.

A comprehensive Flood Risk Assessment, compliant with the requirements of PPS25 – Development and Flood Risk, will be included.

## **6.14 Landscape and Visual**

### *Aspects of Proposed Development Giving Rise to Potential Impacts*

- Erection of new buildings and chimney stack
- Movement of plant and vehicles within the site
- Lighting associated with 24 hour operation

### *Potential Impacts*

- Loss of visual amenity from public areas

### *Scope of Assessment*

The LVIA will consider the effects of the proposed development during construction and operation stages on the landscape and visual receptors identified within an agreed study area.

The assessment will be based on the Guidelines for Landscape and Visual impact assessment produced by the Landscape Institute and Institute of Environmental Management and Assessment (GLVIA) (2002) and Landscape Character Assessment (The Countryside Agency and Scottish Natural Heritage, 2002).

The detailed LVIA will identify the predicted visibility of the proposed EfW/MRF in the study area, and assess the residual landscape and visual impacts arising. Potential cumulative effects associated with the establishment of the EfW/MRF will also be assessed.

The LVIA report will include the following sections:

- Introduction;
- Methodology, including reference to the agreed assessment methodology and study area;
- Baseline landscape character and visual amenity to include a description of the principal land-uses, character of the study area and extent of inter-visibility across it;
- Landscape planning policy of relevance to the development;
- Landscape designations and classifications of relevance to the development;
- Project description;
- Mitigation, including matters pertaining to the configuration and appearance of the development;
- Assessment of residual effects including possible cumulative effects – including visibility analysis, and assessment of effects on landscape and visual receptors; and
- Conclusions and discussion.

The LVIA will be supported by the following illustrations:

- Landscape Character Plan for the study area based on a combination of national *Landmap* data and field verification;
- Landscape Designation Plan for the study area;
- A Zone of Theoretical Visibility drawing or Visual Analysis drawing; and
- Photo-real photomontages

### **6.15 Noise**

*Aspects of Proposed Development Giving Rise to Potential Impacts:*

- Site preparation and construction works;
- Lorry movements associated with waste transportation from site; and
- Generation of noise from SRRRC processes.

*Potential Impacts*

- Loss of amenity at/disturbance to noise sensitive properties in the vicinity of the site.

*Scope of Assessment*

It is proposed that SLR will undertake a noise survey at up to six of the noise-sensitive receptors closest to the site during a representative mid-week period. The noise survey will cover daytime and night-time periods. The noise survey will be attended throughout by SLR staff to ensure that the measured noise levels are attributed to the correct noise sources.

An assessment of the construction and operation of the proposed facility will be carried out in accordance with national guidance and where appropriate, in accordance with any guidance stipulated by the local planning authority. The assessment will indicate whether the noise emission levels from the site are likely to generate complaints from the occupants of the closest noise-sensitive properties.

Where necessary and feasible, mitigation measures will be outlined and any residual impacts identified.

### **6.16 Cultural Heritage**

*Aspects of Proposed Development Giving Rise to Potential Impacts*

- Change in Cultural Heritage setting.

*Potential Impacts*

- Potential visual impact of development;
- Damage to archaeological remains.

*Scope of Assessment*

Given the current developed nature of the site, a desk-top study will be undertaken to provide a baseline upon which an assessment of potential impacts can be made. It is

considered that little historical interest or archaeological finds will be identified from this assessment.

## **6.17 Socio-economic**

### *Aspects of Proposed Development Giving Rise to Potential Impacts*

- Opportunities for regeneration;
- Opportunities for employment and training;
- Impact on amenity from SRRRC processes.

### *Scope of Assessment*

The proposed development will represent inward investment to the area and will generate both short-term employment during the construction phase, and long-term employment during the operational phase. In addition, indirect benefits to the local area will flow from the provision of services and materials to the proposed facility.

A review of the existing economic and employment profile within the local area will be undertaken, together with any proposals as put forward in the Development Plan and economic strategies. Against this baseline the potential direct and indirect, positive and negative impacts that will arise as a result of the proposed development will be considered. In particular attention will be given to the perceived effect of the proposals on the socio economic aspirations of the area.

## **6.18 Cumulative Impact**

### *Aspects of Proposed Development Giving Rise to Potential Impacts*

- Opportunities for additional development;
- Potential cumulative impacts on local environment.

### *Scope of Assessment*

The consideration of cumulative impacts is an integral part of the EIA process. It is customary to assess all the effects that have the potential to arise from the combination of activities at a development site (e.g. noise and transport) and those that might occur from different developments (e.g. cumulative traffic impacts) in a particular area.

The cumulative impacts will generally be considered on a qualitative basis and will apply equally to the construction and operational phases of the development. In the case of transport movements and emissions, qualitative modelling will be implemented where necessary. These will be undertaken in accordance with best practice.

In the event that cumulative impacts are identified, mitigation measures will be proposed where necessary and practicable to address any issues that arise.

## **6.19 Climate Change**

### *Aspects of Proposed Development Giving Rise to Potential Impacts*

- Potential impacts of construction and operation of SRRRC on climate change.

### *Scope of Assessment*

SLR Consulting will assess the potential impact of the proposed SRRRC on climate change. The potential impact of the development on climate change and the reduction of risk for the SRRRC from climate change will be considered throughout the design of the proposal, with particular regard to the following;

- Building Research Establishment Environmental Assessment Method (BREEAM) and/or the Civil Engineers Environmental Quality Assessment (CEEQUAL);
- WRATE – Life cycle assessment of EfW facility;
- Heat Plan – potential for the use of heat generated by the EfW facility;
- Surface water management;
- Design and materials used to minimise energy consumption and carbon dioxide emissions; and
- Traffic – impact of emissions arising from traffic generation

## **6.20 Heat Plan**

### *Scope of Assessment*

The West of England Partnership undertook a Heat Demand Survey to assess whether there is sufficient potential heat demand in proximity to an identified site to justify CHP in addition to an EfW facility. It is considered that the application site and location offers excellent potential for the utilisation of the heat from the process and it is proposed to carry out a comprehensive assessment to establish whether the carbon footprint of the EfW can be further reduced by the utilisation of waste heat, and to quantify the additional carbon savings that may be achieved.

The feasibility of a Combined Heat and Power (CHP) scheme relies on a consistent market for the heat supplied by the plant. In order to determine the existing potential market for heat in the Avonmouth area, a baseline assessment will be carried out which will involve looking at facilities in the local area such as industry, hospitals, schools, local authority housing and large commercial premises, all of which could provide an essential base load for the proposed CHP scheme.

A baseline study assessing the feasibility of a CHP scheme in Avonmouth with the following five key considerations taken into account:

- Potential heat users;
- Retrofitting;
- Feasibility of obtaining planning for connection;
- Potential cost; and
- Disruption

## **6.21 Sustainability Assessment**

### *Scope of Assessment*

Concern over the growing amount of waste by society has prompted a number of important policy initiatives by Government. Tackling the waste problem is seen as a crucial part of the strategy to deliver sustainable development. Sustainable development has become a cornerstone of Government policy in the UK, since its conception at the Rio Summit of 1992.

SLR will ensure that the proposed scheme accords with the general principles of sustainability during the design process, the facility's construction and throughout its operational life.

A sustainability report will be undertaken which will represent an assessment of generic sustainability indicator criteria set out in relevant national, regional and local policy.

The sustainability report will consider the following:

- the energy efficiency of the proposed development, covering both;
- operational energy and CO2 issues and consideration of options for renewable energy;
- the environmental implications of the use of the building materials (and use of recycled materials) proposed in the development;
- use of sustainable drainage systems and water efficiency; and
- use of previously developed sites/existing waste management facility

## **6.22 Alternative Technologies/Sites/Need**

### *Scope of Assessment*

The requirement to consider the needs and alternatives for a development is a core principle of the preparation of an Environmental Statement. In consideration of the proposed development at Avonmouth, an assessment of potential alternative sites will be undertaken, as well as the consideration of alternative waste management technology.

### *Need Assessment*

All four unitary authorities have identified a need to change the way they manage and dispose of their waste. Future waste requirements across the West of England partnership area have all revealed that there is a need for strategic waste management facilities with one preferred large facility to handle the majority of residual waste in the area. SLR will provide a full need analysis building on the work already undertaken by the West of England partnership.

## **6.23 Policy Review**

### *Scope of Assessment*

The planning application will be accompanied by a full review of relevant planning policy, including the following;

#### **International Policies**

European Community (EC) Landfill Directive 1999/31/EC; and

EC Framework Directive for Waste 75/442/EEC as amended by 91/156/EEC.

#### **National Policies**

PPS1 – Delivering Sustainable Development (2005);

Planning and Policy Statement: Planning and Climate Change (supplement to Planning Policy Statement 1) (2007);

PPS9 – Biodiversity and Geological Conservation (2005);

PPS10 – Planning for Sustainable Waste Management (2005);

PPG 13 – Transport (2001)

PPS22 – Renewable Energy (2004);

PPS23 – Planning and Pollution Control (2004);

PPS25 – Flooding (2006) and

Waste Strategy (2007).

### **Regional Policies**

- The Draft Regional Spatial Strategy (RSS) for the South West; and
- RPG 10 - Regional Planning Guidance for the South West.

### **Local Policies**

- Joint Replacement Structure Plan 2002;
- Bristol Local Plan 1997 (saved policies);
- First Deposit Proposed Alterations to the Bristol Local Plan Feb 2003 (Draft for Consultation) – This document is considered to have very limited weight but has been identified because it does contain waste management policies;
- Joint Residual Municipal Waste Management Strategy;
- Preferred Options Consultation Document – Joint Waste Core Strategy Development Plan Document, January 2009; and
- Draft Bristol Development Framework – Core Strategy Preferred Options January 2008.

## 7.0 SUMMARY AND CONCLUSION

Viridor Limited is proposing to develop a Resource Recovery Centre at the Sevalco site on Severn Road, Avonmouth, Bristol. The development will involve the construction of a 150,000 tonne MRF, a modern energy from waste facility that will accept some 350,000 tonnes of residual non-hazardous waste per annum and a bottom ash recycling facility. This facility has the potential to make an important contribution to waste management in and around the surrounding area of Bristol and fulfil the West of England Partnership's aspirations on future waste management for the following reasons:

- It will meet an identified need for waste management technology that diverts waste from landfill and will enable the West of England to demonstrate that they are meeting their waste management needs within their own boundaries;
- It is in accordance with the preferred strategy of the West of England Joint Waste Development Plan Document;
- It is located on previously developed, brownfield land in an established industrial area which is remote from residential properties and has excellent transport links; and
- It has excellent potential to be developed as a combined heat and power plant.

While not exhaustive, this Scoping Report has been prepared to provide Bristol City Council and other relevant bodies with the key environmental issues that are anticipated to be associated with the proposal to enable the scope of the EIA to be finalised. The design of the scheme, in terms of appearance, technology, footprint and relationship with the wider environs is an iterative process that will form an integral part of the EIA process. The principal significant effects that have been identified as a result of this Scoping Report are considered to be:

- Transport;
- Air Quality;
- Hydrology (including flood risk);
- Land Quality; and
- Ecology.

Other environmental effects which will also be considered are noise, landscape and visual, cultural heritage and socio-economic impacts, climate change and sustainability.

Although the formation of a Scoping Opinion by the Planning Authority is a statutory process, both Viridor and SLR value the input of the statutory consultees and stakeholders and will be pleased to discuss any aspect of the proposed scheme with any organisation or individual. SLR Consulting Limited is contactable at:

SLR Consulting Limited, Treenwood House, Rowden Lane, Bradford on Avon, Wiltshire BA15 2AU

Tel: 01225 309 400 Email: [cherbert@slrconsulting.com](mailto:cherbert@slrconsulting.com) and or [jfreyther@slrconsulting.com](mailto:jfreyther@slrconsulting.com).

## **DRAWINGS**

**Appendix A**

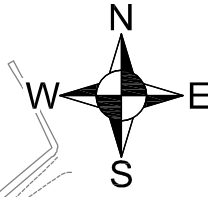
**Site Location Plan 1;50,000**



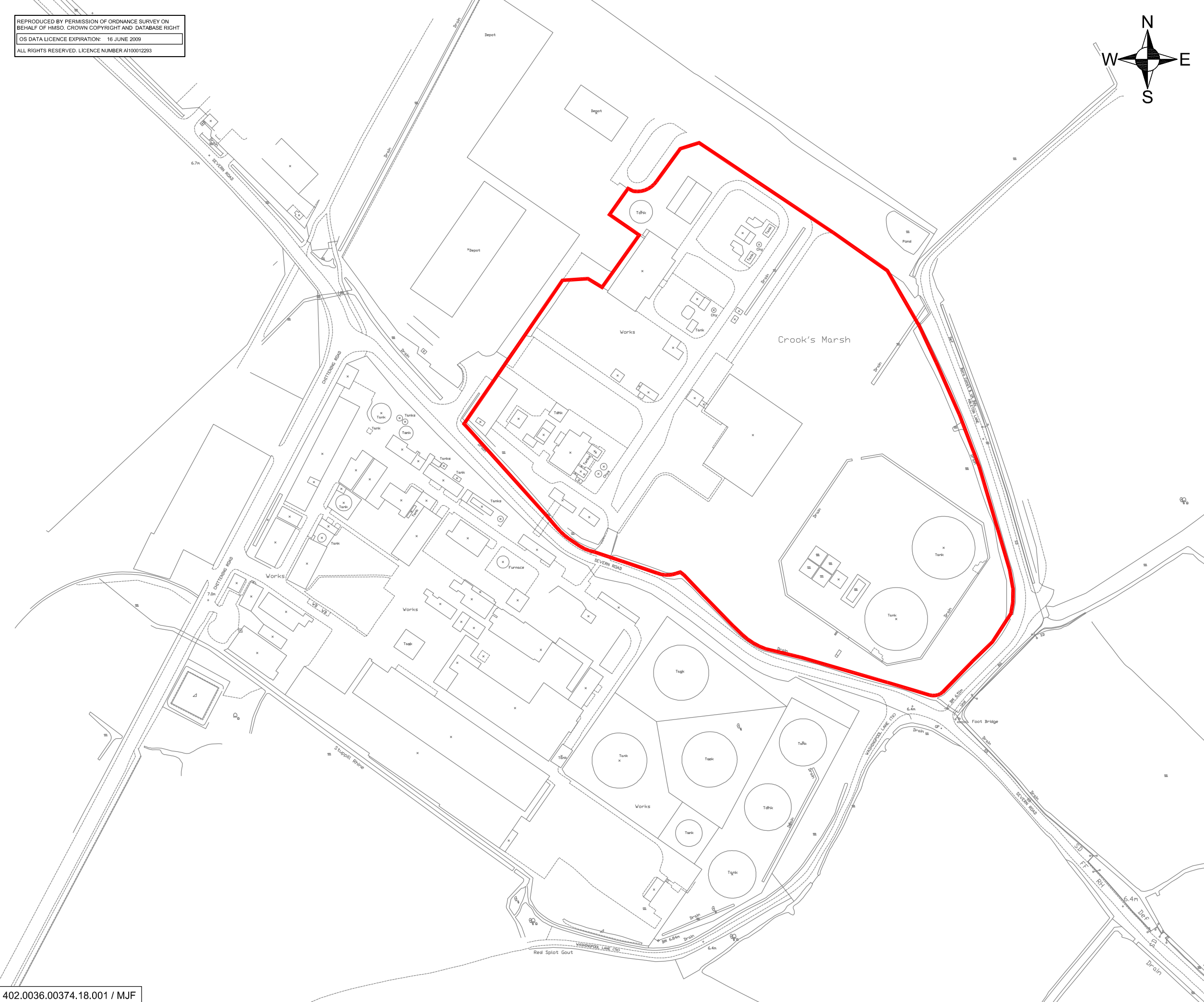
**Appendix B**

**Site Context Plan 1:25,000**

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LEGEND  
SITE BOUNDARY



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SEVERN ROAD RESOURCE  
RECOVERY CENTRE  
SCOPING REPORT  
SITE CONTEXT PLAN

**DRAWING 1**

Scale 1:2,500 @ A3 Date MAY 2009