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Executive Summary

Royal HaskoningDHV is one of Europe’s leading independent project management, engineering and consultancy service providers. The company carries out some 30,000 projects every year in planning and transport, infrastructure, water, maritime, aviation, industry, energy, mining and buildings. In combination with its international office network, Royal HaskoningDHV delivers world-class solutions locally to clients around the globe, for the public and private sector.

Recognised as market leaders in our specialist fields, Royal HaskoningDHV provides innovative solutions that enhance society together. Specialising in management, engineering, environmental and advisory services, our team undertakes projects through every stage in the project life cycle, from conception and construction to completion, and from feasibility to financial close.

We combine expert knowledge of the waste regulatory framework with in-house design capability, and effective environmental management.

Our specialist waste sectors include:
- Integrated Waste Management facilities (IWM)
- Energy from Waste (EfW)
- Anaerobic Digestion (AD)
- Material Recovery Facilities (MRF)
- Mechanical Biological Treatment (MBT)
- Advance Thermal Treatment (ATT)
- Solid Recovery Fuels (SRF)
- Refuse Derived Fuels (RDF)
- Sustainable Landfill
- Composting and In-Vessel Composting (IVC)
- Fuel and Resource Handling and Management
- Combined Heat and Power (CHP) and District Heating (DH)

In the Netherlands, Royal HaskoningDHV has been involved in 80 per cent of waste incinerators and waste to energy plants.

Projects include:
- Specialist environmental burden services for 3,800 closed landfill sites
- Groundwater surveys at 2,500 closed landfill sites
- Natural attenuation surveys at 166 sites
- Designing approximately 200ha of new landfills
Feasibility

Royal HaskoningDHV provides practical and comprehensive feasibility study services. Our early involvement in aspects such as the proposed waste management technologies, regulatory and logistical constraints and project costings ensure optimal solutions for clients.

During the feasibility process Royal HaskoningDHV uses its extensive experience of waste hierarchy regulations and waste treatment process options, throughout all stages of a project, to improve clients’ environmental performance.

Our experience also ensures a comprehensive understanding of the environmental, technical and economical viability of a proposed scheme, based on capital and operational investment. Our feasibility studies define the parameters of a waste treatment plant, as well as measures required to fulfil pre-conditions requested by our clients.

Royal HaskoningDHV is also able to undertake strategic environment assessments within the feasibility study for all levels of government and industry, to encompass a wide range of waste management plans and programmes. We advise industry, governments and agencies regarding the regulatory procedures and integrate comprehensive assessments into our environmental appraisal work.

Strategic advice
Waste characterisation and profiling
Site selection and evaluation
Business case
Market testing
Stakeholder engagement
Strategic environmental assessments
Outline design
Due diligence
Technical and commercial appraisal
Planning and transport
Environmental and regulatory compliance

Business case development
A viable business case is a vital aspect of every project. When completing a business case Royal HaskoningDHV assesses:

- Capital expenditure (CAPEX)
- Operating expenses (OPEX)
- Net present values (NPV)
- Return on investment (ROI)
- Risk analysis.
- Regulatory compliance
- Environmental Impact Assessments (EIA)
- Site selection and evaluation
- Options appraisal
- Pollution prevention and control

- Stakeholder consultation
- Planning application and support
- Architectural detailing
- Landscaping
Planning

Royal HaskoningDHV offers the full range of services required to support planning permission for a range of waste management facilities, from anaerobic digestion facilities to complex energy from waste plants, transfer stations and integrated waste facilities.

EIA and Environmental Statements
Royal HaskoningDHV prepares EIA scoping documents and Environmental Statements for waste and renewable energy facilities, and has experience of the IPC process. We are able to cover the whole spectrum of environmental disciplines in the EIA process.

Sustainability
Our team has an extensive track record of preparing sustainable waste management statements for wide range of facilities, to support planning applications. We have a wealth of experience in the preparation of permit applications, negotiation on permit conditions and compliance assessments.

Waste characterisation
Our waste experts have reliable knowledge on waste composition, which is necessary to compile a sound business case, optimise installations, finalise acceptance tests, monitor efficiency of waste policies and adhere to the legal framework for waste in both treatment and use of waste products.

Planning services include:
- Options appraisal
- Environmental Impact Assessments and Environmental Statement Chapters
- Best Practicable Environmental Options (BPEO)
- Site selection & evaluation
- Consultation & community engagement
- Waste management statements
- Waste characterisation
- Environmental Impact Assessments
- Environmental permits
- Waste regulation

- Waste management and operation
- Permit applications and appeals
- Monitoring and compliance
Permitting and Consenting

Royal HaskoningDHV’s knowledge of Environmental Permitting Regulations, and the permit application procedures required by the UK regulators, ensures it has the expertise to efficiently prepare applications for environmental permits and exemptions.

We have a detailed working knowledge of UK environmental legislation and can assist permit holders faced with enforcement issues against their permit. We have successfully assisted waste management companies to lift suspension notices issued by regulators, provided crucial expert witness reports in court cases and negotiated with regulators to improve site conditions.

Royal HaskoningDHV’s consultants provide expert technical advice in a number of specialist environmental disciplines, including air quality, noise and vibration monitoring, and water and land quality.

Services include:

- Full Environmental Permit Application (standard and bespoke)
- Minor or substantial variation applications
- Vary or Transfer and surrender of bespoke Environmental Permit Applications (PPC or WML)
- Odour management plans
- Emissions risk assessments (air quality, noise & vibration)
- Best Practicable Environmental Options (BPEO)
- Hi and Best Available Technique (BAT) assessments
- Site Condition Reports
- Statutory compliance and audits
- Expert witness
- Waste characterisation and profiling
- Waste classification
- Training
- Contractor management
- Land contamination and remediation
- Waste hierarchy solutions
- Due diligence
- Consultation and engagement
Regulatory Compliance

Royal HaskoningDHV’s waste specialists are involved in advising industrial and commercial clients across a variety of regulatory issues.

We have worked across a diverse range of industrial and commercial sectors and our services include detailed audits of hazardous waste treatment facilities; energy from waste facilities and petroleum decommissioning.

Our detailed knowledge of the waste regulatory system is demonstrated by our capability to undertake compliance audits and act as expert witness in court. Our experience enables our clients to defend their waste management actions in the face of regulatory scrutiny, as well as to prepare appeals against enforcement and regulatory decisions.

The assessment process to determine whether waste is hazardous is extremely complex. Royal HaskoningDHV assists with the delivery of regulatory technical guidance, used by all UK environmental regulators, to classify wastes and has developed a unique in-house model to facilitate the calculation process required to identify the hazardous properties associated with waste.

The services we provide for clients include:
- Contaminated land investigation:
  - Phase 1 Desk Study
  - Phase 2 Site Investigation
  - Phase 3 Remediation - preliminary & detailed design
- Environmental sampling
- Risk assessment and groundwater modelling
- Supervision of works
- Contract and project management
- Waste classification of excavated material
- Definition of waste assessment & use of the CL:AIRE CoP
- Expert witness
- Training
Transport Planning

Royal HaskoningDHV provides highways, traffic and transport planning consultancy services to the waste industry throughout the UK and the Netherlands, from a network of strategically located offices.

Royal HaskoningDHV’s transport planning expertise identifies and quantifies risks to proposed schemes, working to manage, remove or reduce them. These could include physical constraints, environmental regulation, uncooperative planning authorities, organised local community opposition, and uncoordinated and excessive demands for contributions to off-site infrastructure.

Our approach involves engaging collaboratively with planning, highway and other regulatory and delivery authorities at an early stage, alongside other stakeholders, in order to identify where risks might arise and exploring a range of acceptable solutions. This engagement, together with our understanding of the main risks for the client on a project, enables us to design innovative and cost effective highways, traffic and transport solutions while managing and meeting stakeholders’ expectations.

Working in multi-disciplinary teams, we provide highways, traffic and transport planning consultancy advice at all stages in a project’s lifecycle, from initial feasibility, to site selection, bidding, consultation, planning application, and detailed design.

- Site access studies and design
- Expert witness
- Site layout
- Traffic management
- Impact assessments and mitigation
- Planning application support
- Stakeholder consultation
- Detail design
- Condition discharge
- Logistics
- Site access studies and design
- Site layout
- Traffic management
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- Condition discharge
- Logistics
Sustainability

**Strategic approach**
Sustainability is at the very core of modern business. This is due to current and emerging legislative need, reputational drivers in the market place and, ultimately, the desire to deliver innovative approaches, reduce costs and deliver benefits to organisations, stakeholders, society and the environment.

Royal HaskoningDHV is a leading company driving and enabling sustainable development and we use every opportunity to create sustainable value, with clients and in our internal processes.

Our full engagement with sustainability principles comes through applying integrated systems thinking to projects ranging from high-level strategy to on-the-ground delivery, for a wide range of clients in a variety of sectors.

We are advising development agencies and local government in the UK and Europe, projects led by the European Commission, and working with industry and infrastructure operators to benchmark and improve their sustainability performance.

Increasingly inspired by Cradle to Cradle® and similar advanced concepts, Royal HaskoningDHV’s approach to sustainability is positive and ambitious. Much current interpretation of sustainability focuses above all on being less harmful (e.g. lower carbon footprint, reduced emissions). Rather than being ‘less bad’, our approach focuses on having a positive footprint from the earliest stages.

**Resource recovery and sustainability**
Incorporating sustainability into waste projects primarily involves using waste as a resource in a development’s operational processes. Our experienced consultants have designed a wide range of integrated waste management facilities that incorporate sustainable features.
- Process review and selection
- Technical due diligence
- Independent certification
- Process engineering
- Technical and commercial appraisal
- Building and asset integration
- Expert witness
Technical Advice and Due Diligence

Technical advice - process selection
Royal HaskoningDHV’s expert consultants have an unparalleled technical knowledge of many waste treatment technologies. Our team is experienced at advising clients on these technologies to enable them to select the most viable, sustainable and cost-effective technology and process options.

The technical advice services we have provided for clients include:

- Feasibility study
- Business case
- Bankable documents
- Conceptual design
- Cost estimation
- Budget inquiries
- Process selection
- Tender and procurement
- Supervision
- Commissioning

Due diligence
Royal HaskoningDHV’s in-depth knowledge of all aspects of the waste hierarchy, project lifecycle and waste treatment processes, mean that we are ideally placed to undertake a range of due diligence studies to audit potential investments. Our expertise covers:

Technical due diligence
Vital for determining and selecting the preferred waste treatment process, services include optimising operating performance, providing accurate expectations of future operational potential and risks, and formulating expected future investments.

Environmental due diligence
Royal HaskoningDHV investigates performance of the operation in relation to environmental permits. Thorough investigation is necessary to ensure the process is fulfilling permit requirements.

Financial due diligence
The potential of the company or process under consideration is analysed, as well as the risks. Contracts with suppliers and clients are reviewed and expectations in market fluctuations are translated to risks in revenues and costs.
- Mechanical & electrical engineering
- Process review and selection
- Technical due diligence
- Independent certification
- Process engineering
- Technical and commercial appraisal
Process Engineering

Royal HaskoningDHV’s process engineering capabilities encompass the technological and technical design of energy from waste, anaerobic digestion, materials handling and recovery, biomass and biogas facilities.

Our waste facilities have been implemented across the globe, from the UK and Netherlands to Vietnam, Colombia, India, Pakistan, and Egypt. Projects include system and process selection, site selection, preliminary and definitive design, construction supervision and start-up and commissioning.

In the waste sector we undertake technical due diligence for specialist technologies including anaerobic digestion (AD) solutions and thermal treatment solutions, summarising the following key themes:

- Technology bankability
- Technology reliability
- CAPEX / OPEX effectiveness
- View on the residual process risks
- Testing and commissioning requirements
- View on the footprint, building interfaces and buildability
- Technology license implications
- Building and engineering standards compliance
- Regulatory compliance

Royal HaskoningDHV offers in-house capabilities for civil, structural, mechanical and electrical engineering designs. We also specialise in process and instrumentation detailing, mass balance detailing and process interface management. Our team investigates both the feed flow and product flow as part of a process review, thereby bringing visibility and surety to the preferred solution.
Procurement

Royal HaskoningDHV has supplied procurement services for a wide range of prestigious waste management schemes, both in the UK and mainland Europe.

Our extensive experience spans the entire procurement process and often involves undertaking responsibility for procuring several hundred million pounds of engineering components.

Procurement strategy
Royal HaskoningDHV’s procurement experience involves preparation of output specifications and supporting documentation for a wide variety of procurement frameworks. These include Public Private Partnership (PPP), Private Finance Initiative (PFI) projects, and merchant facilities.

Contractor selection
Royal HaskoningDHV has the experience and knowledge to provide all supporting documentation to procure contractors for waste infrastructure schemes.

Royal HaskoningDHV’s capabilities in relation to contractor selection include full assistance in the tendering process, including management, preparation and issuing of tender documents, bidder meetings, tender clarifications, tender evaluation, tender negotiations and recommendations for appointment.

Stakeholders
Our public to client interface covers the full range of waste management issues open to consultation. We have a track record in successfully delivering projects where public reaction has been challenging and the public consultation process complex, drawing upon considerable skills in partnership with our clients.
Contract Management

Royal HaskoningDHV has leading experience in contract management. We are familiar with all of the main forms of contract used in the waste sector and are one of the first consultants in the UK to develop a construction contract based on DEFRA’s WIDP (Waste Infrastructure Delivery Programme) standard form.

Project Management
Royal HaskoningDHV is one of Europe’s leading project management, engineering and consultancy providers. Our strong record in design management, and coordination of a range of multidisciplinary waste projects, ensures we are ideally positioned to provide clients with high quality project management services.

Our team believes that strong project management and leadership is essential for the successful design and delivery of waste handling facilities. Our overarching project management philosophy is based on communication, integrated working and delivery.

Site supervision
Royal HaskoningDHV has supervised the construction, installation and commissioning of some of the largest and most complex energy-from-waste projects constructed in the UK. We undertake site supervision services on behalf of many different clients, including local authorities, waste companies, EPC contractors, private companies, and insurance companies and contractors.

- Contract support and management
- Project management
- Cost control
- Design and interface management
- Stakeholder engineering support
- Design coordination
- Site management and inspection
- Project administration
- Claim assessment and mitigation
- H&S and CDM
- Civil and structural engineering
- Geotechnical, hydro-geological
- Architectural
- Building and asset integration
- Utility integration and liaison
- BIM

- Tender support
- Detail engineering
- Design integration and management
- Highway design
- 3D visualisation
Engineering and Design (Civil and Infrastructure)

Studies and surveys
Royal HaskoningDHV has the expertise to specify and manage the whole topographical survey process including: selecting appropriate contractors, the tendering process, contract management and technical direction of on-site investigations.

Ground investigation
We manage the entire ground investigation process including: desk studies, risk assessments, site visits, preliminary surveys, planning, design, tender preparation, contractor selection and contract procurement.

Tender design
Royal HaskoningDHV has experience in providing tender designs for both EPCM and more traditional contractors. We also have a full understanding of the requirements and interfaces of the technology to be housed by the structure, and the necessary infrastructure associated with waste sites.

BIM (Building Information Modelling)
Royal HaskoningDHV uses BIM (Building Information Modeling) to assess key interfaces, including civil, structural and process engineering, using 3D digital visualisation.

Geotechnical engineering
Our geotechnical services range from site characterisation to sophisticated soil-structure interaction computations to provide cost-efficient design of complex structures.

Foundation analysis and design
Royal HaskoningDHV designs and analyses foundations for all types of waste-related structures and facilities, including bunkers, turbines, pushwalls, storage tanks, retaining walls and building foundations.

Detail engineering
Royal HaskoningDHV has 25 years experience in the design and detailing of waste projects. We provide cost-effective and innovative solutions, and pride ourselves on a proactive approach to client care, quality, and delivery on schedule.
Engineering and Design (Mechanical and Electrical)

Royal HaskoningDHV has the in-house capabilities, experience and expertise to provide M&E building services, as well as MEICA engineering services, for waste facilities. Our reputation is based on the successful projects we have delivered for facility operators, process providers, and engineering, procurement and construction contractors. These appointments often involve early BREEAM, CEEQUAL and LEED assessments to maximise the green credentials of a new facility.

Our experience includes:–
- Energy from waste facilities
- Material re-cycling facilities
- Waste transfer stations
- Mechanical biological treatment and anaerobic digestion facilities
- Combined heat and power interlinked with district heating schemes
- Pyrolosis and gasification facilities
- BREEAM, CEEQUAL and LEED assessments

Building services
Royal HaskoningDHV’s dedicated M&E team offers a complete range of services for clients. We strive to reduce air, noise and light pollution wherever possible, using sustainable technology such as solar thermal hot water, photovoltaic panels, ground source heat pumps, air source heat pumps, grey water recycling, rainwater harvesting, green/sedum roofing, heat recovery, sustainable urban drainage systems, and building management systems.

MEICA engineering services
Royal HaskoningDHV’s team includes experienced in-house Mechanical, Electrical, Instrumentation Control and Automation (MEICA) engineers. These combine to provide a unified process and a one stop ‘industrial’ process solution.

Power networks
Our expertise regarding electrical power networks and distribution has been applied to a range of projects, including power plants, waste plants, renewables power schemes, transmission networks, localised distribution networks, heavy industry clients and process manufacturing clients, as well as ports and container terminals.

- Mechanical engineering
- Electrical engineering
- Process engineering
- Building services
- Integrated renewable technology
With its headquarters in Amersfoort, The Netherlands, Royal HaskoningDHV is an independent, international project management, engineering and consultancy service provider. Ranking globally in the top 10 of independently owned, non-listed companies and top 40 overall, the Company’s 7,000 staff provide services across the world from more than 100 offices in over 35 countries. For more information regarding waste, energy and resource recovery please contact: Andrew Dyne, Director Business Development, M: +44 7867 506503 E: andrew.dyne@rhdhv.com