

Risk Assessment - 243213/RA

Table 1. Assessment of odour risks

Hazard	Receptors	Harm	Pathway	Probability of Exposure	Consequence	Magnitude	Justification	Risk Management	Residual Risk
<p>Odour from imported waste. Fugitive emissions from:</p> <ul style="list-style-type: none"> Recovery (placement) activities Storage of imported and recovered material Transfer and delivery activities 	<p>Residential properties in close proximity to the site boundary.</p> <p>Agricultural land adjacent to the site.</p> <p>Temporary construction workers.</p> <p>Users of the Public Right of Way.</p> <p>Flora and fauna surrounding the site.</p>	<p>Nuisance, harm to health and loss of amenity value.</p>	<p>Atmospheric (fugitive). Air transport then inhalation.</p>	<p>Low</p>	<p>Medium</p>	<p>Low</p>	<p>Imported materials will predominantly be from construction and demolition sites and will not include odour generating wastes (putrescible waste).</p>	<p>Strict waste acceptance procedures and controls on the type of waste streams accepted, as stated in the Importation Protocol. No other permitted waste types are to be accepted, therefore will not biodegrade to produce offensive odours.</p> <p>Recording any complaints and implementing controls, as outlined in the Operational Working Plan (OP).</p>	<p>Very Low</p>

Risk Assessment - 243213/RA

Table 2. Assessment of noise and vibration risks

Hazard	Receptors	Harm	Pathway	Probability of Exposure	Consequence	Magnitude	Justification	Risk Management	Residual Risk
<p>Noise and vibration emissions from haulage (road deliveries), unloading and placement activities.</p> <p>Small scale crushing and screening of aggregates, sub soils.</p>	<p>Residential properties in close proximity to the site boundary.</p> <p>Agricultural land adjacent to the site.</p> <p>Temporary construction workers.</p> <p>Users of the Public Right of Way.</p> <p>Flora and fauna surrounding the site.</p>	<p>Levels of noise that cause loss of amenity and nuisance to users and residents in the locale.</p>	Airborne	Medium	Medium	Low	<p>Works will adhere to operating hours in line with the OP.</p> <p>There is no fixed plant and instead mobile construction plant only. Only standard construction plant or machinery will be operated.</p> <p>Any noise will be related to temporary construction activity.</p> <p>The site and surrounding area have a high noise baseline due to the M5 motorway. No residential dwelling within 450 m of the processing activity.</p>	<p>All operatives inducted on the requirement to reduce noise emissions and adherence to the site's working hours.</p> <p>All plant and vehicles will meet current guidance and will be maintained in line with manufacturer's requirements.</p> <p>All equipment and vehicles, when not in regular use, shall be switched off.</p> <p>Controls as set out in Chapter 6 of the Environmental Statement (TR010063/APP/6.4, Noise and Vibration). All construction works will be undertaken in accordance with noise controls stipulated in a CEMP. This is a national infrastructure project which has been assessed and signed off. The recovery activity forms part of the earthworks phase.</p>	Low

Risk Assessment - 243213/RA

Table 3. Assessment of fugitive emissions (other than odour, noise and vibration)

Hazard	Receptors	Harm	Pathway	Probability of Exposure	Consequence	Magnitude	Justification	Risk Management	Residual Risk
To Air									
Dust from on and off-site vehicle operations, unloading, placement and handling of waste, and use of internal haul routes.	Residential properties in close proximity to the site boundary.	Harm to human health, respiratory irritation, and illness.	Airborne then inhalation.	Low	Medium	Low	Operations have the potential to generate dusts from off-site movements during prolonged dry periods. The risk of dust emissions comes from HGV's, and the movement and placement of waste.	Measures to control dust are set out in the DEMP.	Low
	Agricultural land adjacent to the site.	Nuisance – deposit on cars, homes, clothing etc.	Airborne then deposit.	Very Low	Low	Very Low			
	Temporary construction workers.	Harm to ecosystem – dust deposit of vegetation.	Airborne then inhalation.	Low	Medium	Low			
	Users of the Public Right of Way.								
	Flora and fauna surrounding the site.								
To Controlled Waters									
Run-off from site surfaces or spillages.	River Severn Flood Plain Surrounding surface water courses, e.g. Hatherley Brook, River Chelt, Leigh Brook and River Swilgate Underlying groundwater within strata. Secondary A aquifer	Passive leaching to ground or existing land drains, from contamination or spillages on hardstanding surface and directly entering drainage system.	Land then surface water drainage systems.	Medium	High	Medium	Waste material is being imported to site and without control may contain leachable contaminants. Spillages of oils onto surface could enter the drainage network causing pollution. Temporary surface water management will be undertaken in line with best construction practices during development, deeming it low risk.	Controls on types of wastes accepted through the implementation of the Importation Protocol. All fuel storage areas will be bunded to 110 % capacity. Spill kits will be provided on site. Inspection and management regime as per OP. All staff and operatives will be trained as per pollution prevention requirements.	Low

Risk Assessment - 243213/RA

Hazard	Receptors	Harm	Pathway	Probability of Exposure	Consequence	Magnitude	Justification	Risk Management	Residual Risk
								Refer to Chapter 8 'Road Drainage and the Water Environment' in the Environmental Statement (TR010063/APP 6.6), the Flood Risk Assessment (TR010063/APP/6.15, Appendix 8.1) and the WFD Surface Water Impact Assessment (TR010063/APP/6.15, Appendix 8.2A) for further information.	
Run-off and infiltration from site surfaces or spillages.	River Severn Flood Plain Surrounding surface water courses, e.g. Hatherley Brook, River Chelt, Leigh Brook and River Swilgate Underlying groundwater within strata. Secondary A aquifer	Pollution to aquifer.	Land infiltration through free draining hardstanding.	Medium	High	Medium	Permitted waste types do not include leachates or liquids.	Controls on types of wastes accepted and placed on site. All staff and operatives will be trained as per pollution prevention requirements. Refer to Chapter 8 'Road Drainage and the Water Environment' in the Environmental Statement (TR010063/APP 6.6), the Flood Risk Assessment (TR010063/APP/6.15, Appendix 8.1) and the WFD Surface Water Impact Assessment (TR010063/APP/6.15, Appendix 8.2A) for further information.	Low
Fugitive emission of waste through entrainment in flood waters.	River Severn Flood Plain Surrounding surface water courses, e.g. Hatherley Brook, River Chelt, Leigh Brook and River Swilgate	Nuisance, health implications and pollution/ contamination.	Flood waters	Moderate	Unlikely	Low	The majority of the site lies within Flood Zone 2 and 3 and thus at a medium to high risk of flooding. Part of the development is the re-alignment of the River Chelt. This will be undertaken in	Controls on types of materials accepted. Only acceptable engineering fill material will be imported on to the site. Permitted wastes/materials are at low risk from entrainment.	Very Low

Risk Assessment - 243213/RA

Hazard	Receptors	Harm	Pathway	Probability of Exposure	Consequence	Magnitude	Justification	Risk Management	Residual Risk
	Underlying groundwater within strata. Secondary A aquifer						accordance with the DCO and associated documents. Refer to the Environmental Management Plan, Annex B17 (TR010063/APP/9.88) for further information.		
Mud and litter									
Litter from storage areas and mud from site operation.	Local human population (as per odour). Local flora and fauna. Drainage network.	Nuisance, loss of amenity and reduced safety.	Air, land, mud on vehicles, runoff to ground.	Low	Medium	Low	Permitted wastes have low litter potential. No municipal wastes accepted. Site will be accessed from a hard-standing haul road.	All visible litter on site boundaries will be cleared. Controls as set out in the OP. Internal and external haulage routes will be maintained by mechanical sweeping or road sweepers to ensure mud is not generated. Inspection and corrective action regime will be undertaken in line with site management system.	Low
Pests and vermin									
Storage of waste attracting pests and vermin.	Local human population (as per odour).	Can cause increase populations and infestations of rats, mice, flies and other vermin. Result is harm to health, loss of amenity and nuisance.	Air transport and over land.	Low	Low	Low	All of the waste has low to negligible risk of organic / litter content to attract pests and vermin.	Adherence to waste acceptance procedures. Inspection of site by Site Manager on frequent basis. Implementation of controls as required.	Low
Ecological									
Damage to ecology (flora and fauna).	No SAC, AONB, National Parks, Marine Conservation Zones, SSSIs, LNR, Special	Destruction and/or damage to flora / fauna.	Direct contact, over land and airborne.	Moderate	Possible	High	The proposed construction activity relates to an existing road network.	All control measures and mitigation will be in accordance with the OP.	Low

Risk Assessment - 243213/RA

Hazard	Receptors	Harm	Pathway	Probability of Exposure	Consequence	Magnitude	Justification	Risk Management	Residual Risk
	Protection Areas or Ramsae sites within 1 km of the site.	Disturbance of invasive species leading to human health exposure.						Chapter 7 (Biodiversity, TR010063/APP/6.5) of the Environmental Statement details mitigation and ongoing controls that will be implemented and managed under the DCO conditions.	

Risk Assessment - 243213/RA

Table 4. Foreseeable Accident risk assessment and management

Hazard	Receptors	Harm	Pathway	Probability of Exposure	Consequence	Magnitude	Justification	Risk Management	Residual Risk
Fire (accidental, arson) and smoke.	Local human population (as per odour) and environment.	Damage and loss of amenity, nuisance and carcinogenic particulates.	Direct contact, airborne.	Low	Severe	Medium	<p>In the event of a major incident, there is a serious health risk.</p> <p>Wastes to be imported or re-used are non-combustible soils only.</p> <p>No fire or burning on-site is permitted.</p>	<p>No wastes will be burned on site.</p> <p>All storage of waste and plant in accordance with existing EMS.</p> <p>Incidents to be recorded in the Site Diary.</p> <p>Site will be secured at all times during development.</p> <p>In event of fire, controls specified in site Accident Management Plan (AMP) and Fire Brigade notified, as necessary. Incidents recorded in the Site Diary.</p>	Low
<p>Spillage of fuels, oils, or polluting material.</p> <p>Fugitive release of VOC from storage activities</p>	<p>Soil, surface water and groundwater.</p> <p>Local population.</p> <p>Local flora and fauna.</p>	Pollution and/or contamination.	Land and drainage systems.	Low	High	Medium	<p>Oils and fuels will be locked in a sealed container, when not in use.</p> <p>No hazardous or liquid wastes will be accepted on site.</p>	<p>A spill response and accident prevention plan will form part of the site's specific Construction Environmental Management Plan (CEMP).</p> <p>All staff will be trained on controls.</p>	Low
Spillage of waste.	<p>Human health (as per odour).</p> <p>Surface water drainage.</p> <p>Groundwater.</p>	Loss of amenity and nuisance, pollution and/or contamination.	Land, drain and air.	Low	High	Medium	<p>Uncontrolled release could cause health or pollution issues.</p> <p>No hazardous or liquid wastes will be accepted on site.</p>	<p>All vehicles accessing the site will be sheeted or fully enclosed.</p> <p>Unloading and loading will be controlled at all times.</p> <p>Incidents recorded in the Site Diary.</p> <p>The Accident Management Plan will incorporate spillage of waste from vehicles in the event of a Road Traffic Accident.</p>	Low

Risk Assessment - 243213/RA

Hazard	Receptors	Harm	Pathway	Probability of Exposure	Consequence	Magnitude	Justification	Risk Management	Residual Risk
Direct physical contact between humans and all wastes, machinery and vehicles.	Human health (site operatives and local population).	Bodily harm.	Direct contact.	Medium	High	Medium	No public access during works. All wastes will adhere to the Importation Protocol and appropriate human health limits.	Activities to be managed in accordance with site health and safety management system. Access to wastes to be restricted to trained and competent personnel. Delineation of activities and personnel.	Low
Instability of proposed earthworks design causing subsistence / damage	Surrounding area, fauna / flora, end users. Construction workers	Bodily harm. Pollution to surrounding land. Loss of amenity, nuisance, pollution and / or contamination.	Land	Severe	Unlikely	High	Permitted wastes will be cohesive mineral / aggregate material and the risk of instability is considered low. The proposed design is approved with the local Authority through a DCO.	Given the accepted waste types are limited to mineral / aggregate only, the risk of instability is not considered significant. The works will be in accordance with an approved design. The Operator will use well known earthworks compaction techniques to ensure material is suitably compacted during landfilling. During construction, earthworks will be kept at safe angles of repose.	Low

Risk Assessment - 243213/RA

Table 5. Assessment of ground gas risks

Hazard	Receptors	Harm	Pathway	Probability of Exposure	Consequence	Magnitude	Justification	Risk Management	Residual Risk
<p>Inhalation of ground gases generated by waste deposit beneath the proposed earthworks.</p> <p>Inhalation of ground gases generated by soils from proposed earthworks</p> <p>Inhalation of volatile vapours with elevated concentrations of determinants.</p> <p>Explosive risk from bio-gas/ground gases.</p>	<p>On site land users (agricultural)</p> <p>Temporary construction staff.</p>	<p>Intoxication</p> <p>Explosion</p> <p>Nuisance/loss of amenity</p>	Emissions from existing Made Ground or imported material to air.	Severe	Negligible	Low	<p>The imported waste material will be of mineral / soil content with low organic content. The risk of ground gas generation deposited waste is negligible.</p> <p>Some CO2 may develop within the imported fill due to microbial activity, but it will passively release from the soils and rapidly disperse.</p> <p>Any methane and CO2 will passively release from the surface of the above ground deposit and not accumulate.</p> <p>In the event gas did migrate from the soils, it would laterally or vertically emerge from the ground and dissipate. There is no direct pathway for it to enter nearby properties and enclosures. Hence, there is no viable pathway and risk is negligible.</p>	<p>Waste acceptance procedures to ensure material is of low organic content.</p> <p>Waste acceptance procedures will be in accordance with the Importation Protocol.</p>	Very Low
	<p>Off-site land users (public right of way)</p> <p>Residential properties in close proximity to the site boundary.</p>	<p>Intoxication</p> <p>Explosion</p> <p>Nuisance/loss of amenity</p>	Emissions from existing Made Ground or imported material to surrounding ground to air.	Severe	Negligible	Low	As above	As above	Very Low