Environmental Risk Assessment

Bespoke Facility:	Waste Operation: Recycling and storage facility for non hazardous and hazardous waste.
Location:	Site Clear Solutions, Eco House, 12-13 Conduit Road, Norton Canes, Cannock, WS11 9TJ
Location of environmentally sensitive sites (km / m):	Less than 250m (see below)
Risk assessment carried out by:	Leisl Heath
Date:	17-Jan-25

Data and information				Judgement				Action (by permitting)	
Receptor	**Source**	**Harm**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
What is at risk? What do I wish to protect?	**What is the agent or process with potential to cause harm?**	**What are the harmful consequences if things go wrong?**	**How might the receptor come into contact with the source?**	**How likely is this contact?**	**How severe will the consequences be if this occurs?**	**What is the overall magnitude of the risk?**	**On what did I base my judgement?**	**How can I best manage the risk to reduce the magnitude?**	**What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment).**
Local human population	Releases of particulate matter (dusts) and micro-organisms (bioaerosols).	Harm to human health - respiratory irritation and illness.	Air transport then inhalation.	Low	Low	**Low**	Permitted waste types do not include dusts, powders or loose fibres but some of the treatment activities may produce particulate matter so a medium magnitude risk is estimated. The site does accept forms of hazardous waste including WEEE, asbestos, batteries, resins, solvents, and clinical waste. The aerobic digester and the shredder are located externally. Following shredding of the offensive clinical wastes, the wastes will be transferred to it via a fully enclosed auger. The digester is a fully enclosed and sealed vessel constructed out of 304 Stainless Steel. This limits the release of bioaerosols from the treatment process. The postprocess floc generated by the machine will be stored in a compressor, which is fully covered to prevent any dust emissions. Ambient monitoring of bioaerosols at the site of an Advetec aerobic digestion plant, at Cribbs Causeway Shopping Centre, found bio-aerosols to be below levels of detection, or very low, in all samples. The bioaerosol risk assessment concluded that the risk anticipated at the nearest receptor will be in the low to negligible range. However, should levels not be acceptable in practice when operation commences then Advetec engineers will design, build and fit suitable abatement technology to the XO22 Unit. Analysis of the post XO process floc, shows that the floc meets with SRF requirements.	Dust supression is to be used on all plant, vehicles and concrete surfaces via hose and sweeping on a weekly basis or immediately after an incident. Site management will undertake site inspections at the start and end of each day, including the base of the perimeter, and any dust identified will be swept immediately.The site does accept forms of hazardous waste including WEEE, asbestos, batteries, resins, solvents, and clinical waste. A small amount of dust will be produced through the granulation process which is undertaken in an enclosed area within the building which is equipped with roller shutter doors. This area operates in strict accordance with the daily cleaning procedure of vacuuming and sweeping in line with the insurance recommendations. The vacuuming will ensure the dust produced is captured and stored securely. The shredding of the bagged offensive non-hazardous waste, on the external yard, prior to it being fed into the digester can also produce dust, however, the shredders low speed cutting shafts minimise dust and noise from this operation. The repackaging of hazardous waste will occur in the covered bay to the north of the yard. Asbestos will be double bagged and stored in appropriate containers. The site is surfaced entirely with concrete, and enclosing all waste treatment operations indoors and the majority of waste storage under cover significantly reduces the risk of an adverse impact on nearby sensitive receptors including the SSSI, SAC, LWS and Protected Habitats. The above measures will prevent solid waste, liquid waste, potentially contaminated water, and potential fumes from leaving the site or entering groundwater. Site surfaces, bays, walkways, and plant are cleaned on a weekly basis or immediately following an incident. A mechanical sweeper is empoyed on a weekly basis to keep site access roads free from dust/mud. Daily visual inspections shall be undertaken at all areas of the site to check for conditions potentially affecting bioaerosol release. Records of the findings are recorded in the site diary.	Low
Local human population	As above	Nuisance - dust on cars, clothing etc.	Air transport then deposition	Low	Low	**Low**	Local residents mainly comprise of employees in various industrial operations. The nearest domestic residences are some 250m distant.	As above	Low

Local human population, livestock and wildlife.	Litter	Nuisance, loss of amenity and harm to animal health	Air transport then deposition	Low	Low	**Low**	Local residents mainly comprise of employees in various industrial operations. The nearest domestic residences are some 250m distant.	All clinical waste is sealed stored within yellow wheelie bins within the clinical waste transfer station. The sealed containment of clinical waste at all times signfiicantly reduces the risk of adverse impacts on surrounding receptors. Bagged offensive waste is only moved to be fed into the shredder, which is then fully contained to be fed into the aerobic digester, through to the end process when the flocs are fed and stored into a compactor unit. There are no exposed wastes stored within storage bays, wastes are all within containers and covered with plastic. Exposed wastes are only within skips. The site perimeter consists of palisade fencing, chain link fencing and firewalls and forms an effective litter barrier. The twice-daily site inspections undertaken by site management will highlight any potential litter which will be swept immediately. The site is surfaced entirely with concrete, and enclosing all waste treatment operations indoors and the majority of waste storage under cover significantly reduces the risk of an adverse impact on nearby sensitive receptors including the SSSI, SAC, LWS and Protected Habitats.	Low
Local human population	Waste, litter and mud on local roads	Nuisance, loss of amenity, road traffic accidents.	Vehicles entering and leaving site.	Low	Low	**Low**	Road safety, local residents mainly comprise of employees in various industrial operations. The nearest domestic residences are some 250m distant.	As above. In addition a mechanical sweeper will be employed on a weekly basis to keep site access roads free from dust/mud.	Low
Local human population	Odour	Nuisance, loss of amenity	Air transport then inhalation.	Low	Low	**Low**	The site does accept forms of hazardous waste including WEEE, asbestos, batteries, resins, solvents, and clinical waste which may have the potential for odours. The non-hazardous waste accepted on site with the potential for odour includes biodegradable waste (including bagged offensive waste) and green waste. Bagged offensive waste will be processed in the aerobic biodigestion unit. The aerobic digester and the shredder are located externally. Shredding of the bagged offensive waste can potentially give rise to odour, however, the shredding speed and particle size will be adjusted to be optimal to minimise the release of volatile compounds. Drop heights will be adjusted to reduce the disruption of possible odorous chemicals within the waste. Following shredding of the offensive clinical wastes, the wastes will be transferred to it via a fully enclosed auger. The digester is a fully enclosed and sealed vessel. This limits the release of odour from the treatment process. The postprocess floc generated by the machine will be stored in a compressor, which is fully enclosed to prevent any odour emissions. There are two point source emissions to air from the aerobic digester, via vents located at the outfeed end of the process, which is where water vapour, carbon dioxide and condensate are vented - these will no release any odour.	The site will accept hazardous and non-hazardous waste, of which some are odorous or have the potential to be odorous. Such wastes include green waste, clinical waste, biodegradable waste, solvents, paints etc. Minimal amounts of this waste are stored on site, and when stored, are within covered bays or enclosed within the building. The repackaging of hazardous waste will occur within the covered hazardous waste repackaging area bay to the north of the site. Liquid wastes will be stored on bunds to prevent any potential leakages into the rest of the external yard. Asbestos will be double-bagged and stored in appropriate containers. Batteries and other corrosive wastes will be stored in acid resistant containers, and batteries will be stored in separate suitable containers according to battery type. Fridges will be stored in stockpile 14 only, on the impermeable concrete surface with a sealed drainage system, therefore removing the risk of an adverse impact from this waste stream. No clinical waste is treated, it is only bulked and stored awaiting removal to a suitable permitted facility. All clinical waste is sealed stored within yellow wheelie bins within the clinical waste transfer station. The sealed containment of clinical waste at all times signfiicantly reduces the risk of adverse impacts on surrounding receptors. The roller shutter doors are also sealed and closed at the end of each working day. Odorous and potentially odorous waste is stored on site for bulking purposes only and will be removed after a maximum of 1 month. Odorous and potentially odorous wastes arrived on site sealed in containers such as wheelie bins and drums and remain within sealed containers whilst they are stored on site. Rejection procedures are in place to ensure any non-conforming odorous waste is not accepted on site. In the event non-conforming odorous waste is accepted on site, it will be transferred to the non-conforming waste bay immediately, contained within a suitable container and removed from site as soon as is practicable. The site will be surfaced entirely with concrete and the majority of waste storage under cover significantly reduces the risk of an adverse impact on nearby sensitive receptors including the SSSI, SAC, LWS and Protected Habitats. The above measures will prevent solid waste, liquid waste, potentially contaminated water, and potential fumes from leaving the site or entering groundwater.	Low
Local human population	Noise and vibration	Nuisance, loss of amenity, loss of sleep.	Noise through the air and vibration through the ground.	Low	Low	**Low**	Local residents mainly comprise of employees in various industrial operations. The nearest domestic residences are some 250m distant. The nature of the mitigation measures on site will not result in noise nuisance.	Granulation takes place within the building which will enclose any potential noise from the granulation activities. The roller shutter doors are also sealed and closed at the end of each working day. Externally, the aerobic biodigester will be operated, however, due to their small scale (less than 8 tonnes per day) noise or vibrations from the unit will not be significant. Drop heights of the waste into the hoppers will be minimised to minimise the handling of waste and therefore reduce the potential for noise. The site has a 4m high concrete panel wall which lines the eastern boundary, and northeast and southeast corners which acts as a noise barrier for the sensitive receptors to the north, east, and south. There will be a speed limit of 5mph on site at all times to reduce the risk of noise nuisance from vehicle and plant movements. It is crucial to note that the site is located on an industrial estate and surrounded by similar industrial and commercial operations which will produce noise including Ranton Building Supplies, Marcote UK Industrial Coatings, and DG Automotive.	Low

Local human population	Scavenging animals and scavenging birds	Harm to human health - from waste carried off site and faeces. Nuisance and loss of amenity.	Air transport and over land	Medium	Medium	**Medium**	The majority of the non-hazardous and hazardous wastest accepted on site will not provide a suitable home for pests. However, the presence of biodegredable waste (including bagged offensive waste) on site may have the potential to result in a pest issue if mitigation measures are not in place. The addition of the Advetec unit will reduce storage time for the offensive bagged waste on site thereby reducing the risk of attracting birds or scavenging animals.	The majority of waste stored on site does not make for a suitable habitat for pests. There is no food waste accepted on site, excluding small stockpiles of waste under the EWC code 20 01 25. Green waste has the potential to be a suitable habitat for pests, however it at far less risk of becoming an issue with pests e.g. flies than food waste. Bagged offensive wastes are stored in the building, until they are taken outside to be shredded, prior to them being fed into the aerobic digester. Retention times of biodegradable waste will be strictly adhered to in order to prevent the waste approaching the stage of rotting which would attract scavanging animals / pests. The use of commercial products of a specialist pest control sub-contractor if scavenging animals / pests are detected will also mitigate the risk.	Very low
Local human population	Pests (e.g. flies)	Harm to human health, nuisance, loss of amenity	Air transport and over land	Medium	Medium	**Medium**	The majority of the non-hazardous and hazardous wastest accepted on site will not provide a suitable home for pests. However, the presence of biodegredable waste (including bagged offensive waste) on site may have the potential to result in a pest issue if mitigation measures are not in place. The addition of the Advetec unit will reduce storage time for the offensive bagged waste on site thereby reducing the risk of attracting pests.	As above. Additionally, the shredding of bagged offensive waste on the yard will require the area immediately surrounding the shredder to be cleaned regularly, to reduce the risk of odour and dust build up on the surfaces. The site's concrete surface makes it easy to clean regularly in accordance with the cleaning schedule provided in Appendix B of the Dust and Emissions Management Plan, using a manual or mechanical sweeper if any accumulation of dust becomes visible, or any odours become evident.	Very Low
Local human population and local environment	Flooding of site	If waste is washed off site it may contaminate buildings / gardens / natural habitats downstream.	Flood waters	Low	Medium	**Low**	The site is in a Flood Zone 1. The site does accept forms of hazardous waste including WEEE, asbestos, batteries, resins, solvents, and clinical waste. All waste processing remains enclosed within the building and all wastes will be stored on the impermeable concrete surface. The site has a sealed drainage system that links to the sewer. There is also an ACO drain to the front of bay 2.	The sealed drainage system and ACO drain will direct water and runoff from the concrete surface to the linking sewer. In the event of a fire, fire water will be contained by deploying the hydrosnakes and water gate barriers throughout the site. The site drains will also be covered with clay mats. All non-hazardous and hazardous waste will be stored on the impermeable concrete surface. Liquid wastes stored in the hazardous processing area will be stored on bunds. Asbestos will be double-bagged and stored in appropriate containers. Batteries and other corrosive wastes will be stored in acid resistant containers, and batteries will be stored in separate suitable containers according to battery type. Fridges will be stored in stockpile 14 only, on the impermeable concrete surface with a sealed drainage system, therefore removing the risk of an adverse impact from this waste stream. All clinical waste is sealed stored within yellow wheelie bins within the clinical waste transfer station. The sealed containment of clinical waste at all times signfiicantly reduces the risk of adverse impacts on surrounding receptors. Hydrosnake and watergate barriers will be deployed in the event of a flood to prevent flood water entering the site or the building and increasing the risk of the spread of contaminated water. The site will be surfaced entirely with concrete, and with these water containment measures in place, there will be no pollution pathways to neighbouring sensitive receptors including the SSSI, SAC, LWS and Protected Habitats. The above measures will prevent solid waste, liquid waste, potentially contaminated water, and potential fumes from leaving the site or entering groundwater.	Very low
Local human population and / or livestock after gaining unauthorised access to the waste operation	All on-site hazards: wastes; machinery and vehicles.	Bodily injury	Direct physical contact	Medium	Medium	**Medium**	Permitted waste types are mostly non-hazardous, however a portion are hazardous so a medium magnitude risk is estimated.	Security measures are in place to prevent the risk of an intrusion including CCTV cameras distributed throughout the site indoors and in the external yard. The site is surrounded by 2.1m palisade fencing and a 4m concrete panel wall which further reduces the risk of an intrusion. Site management will undertake toolbox talks on an annual basis or immediately after an incident on health and safety procedures.	Low

Local human population and local environment.	Arson and / or vandalism causing the release of polluting materials to air (smoke or fumes), water or land.	Respiratory irritation, illness and nuisance to local population. Injury to staff, firefighters or arsonists/vandals. Pollution of water or land.	Air transport of smoke. Spillages and contaminated firewater by direct run-off from site and via surface water drains and ditches.	Medium	Medium	**Medium**	Permitted waste types are mostly non-hazardous.The site does accept forms of hazardous waste including WEEE, asbestos, batteries, resins, solvents, and clinical waste.	As above. Spread of fire restricted by control of stock piles and firebreaks or separation distances shall be maintained in accordance with Environment Agency guidance. The building also has a comprehensive fire alarm system. Fire extinguishers are situated throughout the site. Spill kits are stored within the building, and in the event of a spill site mangement will be alerted immediately and the spill will be dealt with in situ. The hazardous waste repackaging area to the north of the site is covered, and liquid wastes are stored on bunds. This area is used for the repackaging of hazardous waste only and will be cleared twice a week. Asbestos will be double-bagged and stored in appropriate containers. Batteries and other corrosive wastes will be stored in acid resistant containers, and batteries will be stored in separate suitable containers according to battery type. Fridges will be stored in stockpile 14 only, on the impermeable concrete surface with a sealed drainage system, therefore removing the risk of an adverse impact from this waste stream. Hydrosnake and watergate barriers will be deployed in the event of a fire to prevent the risk of the spread of contaminated water. The site will be surfaced entirely with concrete, and with these water containment measures in place, there will be no pollution pathways to neighbouring sensitive receptors including the SSSI, SAC, LWS and Protected Habitats.The above measures will prevent solid waste, liquid waste, potentially contaminated water, and potential fumes from leaving the site or entering groundwater.	Low
Local human population and local environment	Accidental fire causing the release of polluting materials to air (smoke or fumes), water or land.	Respiratory irritation, illness and nuisance to local population. Injury to staff or firefighters. Pollution of water or land.	As above.	Medium	Medium	**Medium**	Risk of accidental combustion of waste is moderate.	As above.	Low
All surface waters close to and downstream of site.	Spillage of liquids, leachate from waste, contaminated rainwater run-off from waste e.g. containing suspended solids.	Acute effects: oxygen depletion, fish kill and algal blooms	Direct run-off from site across ground surface, via surface water drains, ditches etc.	Medium	Medium	**Medium**	Permitted waste types are mostly non-hazardous and so the risk is moderate.The site does accept forms of hazardous waste including WEEE, asbestos, batteries, resins, solvents, and clinical waste.	All liquids arrive to site in sealed containers and are stored on site within sealed wheelie bins or drums. Spill kits are stored within the building, and in the event of a spill site mangement will be alerted immediately and the spill will be dealt with in situ. The hazardous waste repackaging area to the north of the site is within a covered bay and liquid wastes are stored on bunds. This area is used for the repackaging of hazardous waste only and will be cleared twice a week. The roller shutter doors are also sealed and closed at the end of each working day. Asbestos will be double-bagged and stored in appropriate containers. Batteries and other corrosive wastes will be stored in acid resistant containers, and batteries will be stored in separate suitable containers according to battery type. Fridges will be stored in stockpile 14 only, on the impermeable concrete surface with a sealed drainage system, therefore removing the risk of an adverse impact from this waste stream. All clinical waste is sealed stored within yellow wheelie bins within the clinical waste transfer station. The sealed containment of clinical waste at all times signfiicantly reduces the risk of adverse impacts on surrounding receptors. Hydrosnake and watergate barriers will be deployed in the event of a fire or flood to prevent the risk of the spread of contaminated water. The site will be surfaced entirely with concrete, and with these water containment measures in place, there will be no pollution pathways to neighbouring sensitive receptors including the SSSI, SAC, LWS and Protected Habitats. The above measures will prevent solid waste, liquid waste, potentially contaminated water, and potential fumes from leaving the site or entering groundwater during or outside of working hours.	Very low

All surface waters close to and downstream of site.	As above	Chronic effects: deterioration of water quality	As above. Indirect run-off via the soil layer	Medium	Low	**Low**	Permitted waste types are mostly non-hazardous and so the risk is moderate.The site does accept forms of hazardous waste including WEEE, asbestos, batteries, resins, solvents, and clinical waste. It is crucial to note that there are no sensitive waters nearby.	As above	Low
Abstraction from watercourse downstream of facility (for agricultural or potable use).	As above	Acute effects, closure of abstraction intakes.	Direct run-off from site across ground surface, via surface water drains, ditches etc. then abstraction.	Low	Medium	**Medium**	Watercourse must have medium / high flow for abstraction to be permitted, which will dilute contaminated run-off.	As above.	Low
Groundwater	As above	Chronic effects: contamination of groundwater, requiring treatment of water or closure of borehole.	Transport through soil/groundwater then extraction at borehole.	Low	Medium	**Medium**	There is potential for contaminated rainwater run-off or leachate from permitted waste types.	As above. The site will be surfaced entirely with concrete and has water containment measures in place that will be strictly adhered to in the event of a fire or flood. The site drains will be covered with clay mats and the water gate barriers and hydrosnakes will be deployed to contain any potentially contaminated water. Spill kits are stored within the building, and in the event of a spill site mangement will be alerted immediately and the spill will be dealt with in situ. The hazardous waste repackaging area to the north of the site is within a covered bay and liquid wastes are stored on bunds. This area is used for the repackaging of hazardous waste only and will be cleared twice a week. Asbestos will be double-bagged and stored in appropriate containers. Batteries and other corrosive wastes will be stored in acid resistant containers, and batteries will be stored in separate suitable containers according to battery type. Fridges will be stored in stockpile 14 only, on the impermeable concrete surface with a sealed drainage system, therefore removing the risk of an adverse impact from this waste stream. All clinical waste is sealed stored within yellow wheelie bins within the clinical waste transfer station. The sealed containment of clinical waste at all times signfiicantly reduces the risk of adverse impacts on surrounding receptors. Therefore, there are no contamination pollution pathways for neighbouring sensitive receptors including the SSSI, SAC, LWS amd Protected Habitats. The above measures will prevent solid waste, liquid waste, potentially contaminated water, and potential fumes from leaving the site or entering groundwater.	Low
Local human population	Contaminated waters used for recreational purposes	Harm to human health - skin damage or gastro-intestinal illness.	Direct contact or ingestion	Low	Medium	**Low**	Unlikely to occur due to distances involved, but might restrict recreational use in extreme case.	As above.	Very low

Protected sites - European sites and SSSIs	Any	Harm to protected site through toxic contamination, nutrient enrichment, smothering, disturbance, predation etc.	Any	Low	Very low	**Low**	The site is situated approximately 877m to the west of the SSSI Chasewater and the Southern Staffordshire Coalfield Heaths, 1km to the north of Cannock Extension Canal SSSI and SAC, 367m to the north of a Local Wildlife Site (LWS) and is immediately adjacent to a Protected Habitats site that is located to the east and south east of the site.	The risk to these protected sites comes from potential pollution and loss of funtionality linked land. The site is not linked hydraulically with any of the protected sites and the surrounding land will not be affected by the enclosed operations proposed. As stated above, site drains will be covered with clay mats, and hydrosnakes and water gate barriers will be deployed in the event of a fire or flood to contain any potentially contaminated water within the concrete surface. The hazardous waste repackaging area to the north of the site is within a covered bay and liquid wastes are stored on bunds. This area is used for the repackaging of hazardous waste only and will be cleared twice a week. Asbestos will be double-bagged and stored in appropriate containers. Batteries and other corrosive wastes will be stored in acid resistant containers, and batteries will be stored in separate suitable containers according to battery type. Fridges will be stored in stockpile 14 only, on the impermeable concrete surface with a sealed drainage system, therefore removing the risk of an adverse impact from this waste stream. All clinical waste is sealed stored within yellow wheelie bins within the clinical waste transfer station. The sealed containment of clinical waste at all times signfiicantly reduces the risk of adverse impacts on surrounding receptors. These containment methods remove the risk of an adverse impact on the characteristics of the SSSI's, SAC, LWS and protected habitats. Airbourne pollution via dust is possible, however, as detailed within the Dust & Emissions Management Plan, the mitigation measures will be strictly adhered to throughout all operations. Therefore, there are no practical pollution pathways for dusts to impact on the identified protected sites.	Very low

Notes: Red triangle indicates comment containing supporting information

Yellow columns contain drop down menus that allow automatic evaluation of risk in green column