RISK REGISTER

Client Name: Great Southern Waste Technology
Project Name: Dandenong South WtE Facility

					Initial Values without treatment			Treatment	Design Phase	Residual values after treatment			Treatment
Type	Project Phase	Description of Risk	Causes	Impact	Likelihood	Consequence	Score	Strategy	Description of Action to be Undertaken	Likelihood	Consequence	Score	Strategy
Environmental	Construction	Noise emissions	Earthworks and Excavation Operation of general plant and equipment Vehicle movements to and from site	Health impacts to flora and fauna Community complaints Pollution Abatement Notice from EPA	Possible	Moderate	High	Mitigate	Operation of vehicles and noisy equipment during designated work hours (Monday to Friday: 7am-5pm; Saturday: 7am-1pm) Shut down of individual plant components when not in use Ensure CEMP complies with *Noise Control Guidelines* (EPA Publication 1254) Site location within industrial zone reduces the incidence of impacts to sensitive receptors Notify noise receptors during exceptionally noisy activities Boring of piers for bunker pits to be conducted during the week and nearby occupants notified	Unlikely	Minor	Low	Accept
Environmental	Construction	Cultural Heritage	Excavation resulting in impacts to cultural heritage places and/or artefacts	Fees and penalties due to breach of the Aboriginal Heritage Act 2006	Possible	Significant	High	Mitigate	Cultural Heritage due diligence assessment (Biosis, 2019) indicates no potential for Aboriginal cultural heritage within the study area	Rare	Insignificant	Low	Accept
Social	Construction	Traffic impact	Earthworks and Excavation Operation of general plant and equipment	Disruption of traffic flows Damage to roads and road infrastructure	Almost Certain	Minor	High	Mitigate	Construction management plan detailing traffic movements to ensure minimal queuing of waste construction vehicles Construction traffic management during lane closure	Almost Certain	Insignificant	Low	Accept
Environmental	Construction	Water Quality	Spills, leaks and releases (fuel, oil, chemicals, concrete, construction materials) Erosion of exposed surfaces resulting in sedimentation Vehicles tracking dirt offsite Excavation	Contamination of stormwater	Possible	Moderate	High	Mitigate	CEMP to incorporate sediment and erosion controls as required Project staging to minimise time and extent of ground exposure Vehicle refuelling to be conducted offsite (preferred) or on constructed bunded hardstand	Possible	Insignificant	Low	Accept
Environmental	Construction	Air Quality	Excavation and dust generation Plant and vehicle emissions	Health and amenity impacts Community complaints	Possible	Moderate	High	Mitigate	Switch off all plant and equipment when not in use Use of dust suppression as required Soil stockpiles to be constructed with no slope greater than 2:1 (horizontal to vertical) Soil stockpiles to be seeded if maintained onsite for >28 days Silt fences and windbreaks to be used if required Concrete to be mixed and prepared offsite Mechanical maintenance of plant and vehicle to reduce exhaust emissions	Unlikely	Moderate	Medium	Accept
Environmental	Construction	Soil and Water Quality	Exposure of existing soil contamination during site demolition and excavation Exposure of contaminated groundwater during excavation Demolition waste	Health and amenity impacts to site workers Ecological impacts	Possible	Significant	High	Mitigate	Preliminary Site Investigation (SMEC, 2018) identified potential onsite sources of soil and/or groundwater contamination. A NEPM-compliant Detailed Site Investigation will be conducted prior to commencement of construction works to identify and manage onsite contamination Geotechnical assessment to be conducted to determine site suitability for below ground excavation and construction Dewatered groundwater is to be stored for treatment and offsite disposal to surface water/trade waste (subject to groundwater quality) Soil for offsite disposal to be classified and managed in accordance with the *Industrial Waste Resource Guidelines* Construction and demolition waste (C&D) to be managed in accordance with EPA guidelines	Unlikely	Significant	Medium	Mitigate
Environmental	Non-routine operation	Plant shutdown resulting in excessive waste volumes stored onsite	Unexpected/emergency plant shutdown Significant variation in feedstock quality/quantity required plant shutdown	Accumulation of feedstock waste onsite resulting in environmental impacts (fire risk, noise, odour)	Likely	Moderate	High	Mitigate	Contingency plan in place to notify waste transporters and divert waste to alternative disposal facilities in the event of unexpected plant shutdown Fuel samples collected and analysed regularly to monitor feedstock quality	Likely	Insignificant	Low	Accept
Environmental	Non-routine operation	Air Quality	Blow-out of flue gas Emergency shutdown Loss of power/water supply	Exceedance in the flue gas emission limits Non-compliance with SEPP (Air Quality Management) and/or EPA operating licence	Unlikely	Significant	Medium	Mitigate	ESD / PSD system that will ensure personnel, equipment and environment at incidents that can lead to hazardous conditions in the process (high pressure in the furnace which can lead to blow-out of flue gas, high steam pressure which can lead to leakage / breakage in steam tubes) and possibly flue gas emissions (CEMS measurements are monitored and the process stopped if limit values are exceeded). It is required that a flue gas incident be corrected within 4 hours. Plant shutdown will occur if correction of incident not achieved within 4 hours. Emergency generator automatically starts with priority power given to important components	Unlikely	Moderate	Medium	Accept
Social	Non-routine operation	Fire	Ignition of waste and/or oils and chemicals resulting in fire	Radiant heat rendering fire protection systems inoperable Impacts to human health and nearby occupants	Possible	Significant	High	Mitigate	Fire risk assessment undertaken (RiskCon, 2019) identified control measures to mitigate fire risk including but not limited to: • Fire sprinkler and water cannon system installed in waste shredder and waste and fuel bunkers, connected to a thermal and/or IR detection system, providing full coverage of waste; • Waste hall walls clad to prevent dust build up and air extraction system installed; • High temperature detection within the fuel hopper and chute triggers deluge and automatic closure of the guillotine and chutes • ESD triggers restriction of air flow into the gasification chamber starving fire of oxygen • Design of PAC storage Silo and electrical equipment in accordance with AS/NZA60079 • Dilution of combustible PAC with non-combustible particulates	Unlikely	Significant	Medium	Accept
Environmental	Non-routine operation	Noise emissions	Emergency shut down	Steam blows releasing high pressure steam to the atmosphere	Possible	Insignificant	Low	Accept	The maximum duration of approximately 2 days is not likely to cause significant amenity impact	Possible	Insignificant	Low	Accept

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Environmental	Operation	Noise emissions	Vehicle movements to and from site Vehicle movements onsite during feedstock receival Vehicle movements onsite during removal of waste products Operation of tools and machinery for plant maintenance Noisy equipment	Health impacts to flora and fauna Community complaints Pollution Abatement Notice from EPA	Likely	Minor	Medium	Mitigate	Waste receival anticipated to occur between 7:30am - 4:30pm in accordance with collection activities. Occasional weekend collection will occur. Shut down of individual plant components when not in use Ensure OEMP complies with *Noise Control Guidelines* (EPA Publication 1254) Noise assessment (WMG, 2019) indicates compliance with SEPP N-1 noise limits Noise control strategies to be implemented at the Site are detailed in Section 8 of the Nosie assessment (WMG, 2019) Site location within industrial zone reduces the incidence of impacts to sensitive receptors	Possible	Insignificant	Low	Accept
Social	Operation	Traffic impact	Vehicle movements to and from site Vehicle movements onsite during feedstock receival Vehicle movements onsite during removal of waste products	Impacts to other vehicles and pedestrians	Possible	Minor	Medium	Mitigate	Traffic Impact Assessment completed (SMEC, 2019) to determine traffic impacts Basic Left Turn and Basic Right Turn to be implemented to mitigate queuing behind turning vehicles No queuing on Ordish Road required based on traffic assessment Management of onsite road surfaces and access points The site layout plan accommodates the vehicles accessing the Site, with all vehicles entering and exiting in a forward direction High visibility pedestrian crossover Onsite speed restrictions and associated signage	Unlikely	Minor	Low	Accept
Environmental	Operation	Water Quality Soil Contamination	Spills, leaks and release of hazardous materials and chemicals onsite Discharge of hazardous chemical offsite via surface water and groundwater	Health impacts to site personnel, flora and fauna Health and amenity impacts to offsite humans, flora and fauna	Unlikely	Severe	High	Mitigate	Plant and facilities located on hardstand to reduce pervious surfaces Chemicals, fuels and waste stored on site will be kept in a bunded and covered storage areas Storage and spill management practices will be implemented to ensure that no environmental damage can result from the escape or spillage of chemicals or fuels Minimal quantities of chemicals, fuels and other dangerous/ hazardous substances will be kept on site at any time Chemicals and other dangerous/ hazardous substances will be correctly labelled and securely stored within the site compound along with any relevant materials safety data sheets (MSDS) Impervious surface incorporating a bund will be provided for any waste storage areas and emergency power generator refuelling area Spill kits will be kept on site and will be operated by appropriately trained personnel in the event of a chemical or fuel spill Standard Operating Procedures (SOPs) to be developed for fuelling operations and chemical storage Training to be provided in the identification and handling of hazardous substances where require No vehicle refuelling to be undertaken onsite	Unlikely	Moderate	Medium	Accept
Environmental	Operation	Litter	Onsite storage of feedstock waste Transport of feedstock waste to site Transport of feed waste to site Staff general waste	Impacts to land and surface water, flora and fauna	Possible	Minor	Medium	Mitigate	Waste loads entering the site to be kept covered until vehicle reaches the indoor waste delivery area On-site and fenceline litter patrols and collection of litter that escapes from the active waste processing area All site facilities to be maintained in excellent condition and fit for intended purpose All areas of the site to be kept clean, tidy and free of litter, this includes regular removal of waste, litter and surplus materials At source segregation of general waste and recycling Landscaped areas and any screen plantings to be maintained as necessary to enhance aesthetics and provide visual buffer.	Unlikely	Minor	Low	Accept
Environmental	Operation	Water Quality	Spills, leaks and releases (fuel, oil, chemicals)	Contamination of storm water or groundwater by waste generated at the facility or other operational activities undertaken on site, affecting onsite personnel and impacting upon human health and the environment offsite	Possible	Significant	High	Mitigate	No landfill leachate will be generated at the site Process water will be treated for onsite reuse A Stormwater Management Plan (SMP) for the proposed facility has been prepared for the site, as follows: • Runoff from outdoor areas frequently trafficked by vehicles will be discharged offsite. There is to be no contamination of runoff with leachate or process water, as an indoor bunded area will be utilised for the unloading of waste trucks • Runoff from processing and vehicle washdown areas will be contained within an enclosed building. Bunding of the vehicle wash areas will be installed in accordance with EPA Publication 347.1 Bunding to segregate contaminated water (including water contaminated during a fire) from uncontaminated stormwater runoff. • Stormwater runoff from outdoor impervious areas will be diverted towards a discharge point at the south-east corner of the site. The stormwater runoff will be conveyed to the Melbourne Water stormwater drains located on the eastern side of Ordish Road • Runoff from paved areas does not require treatment prior to discharge. Operational management strategies: • Stormwater diversion drains and litter entrapment devices should be inspected prior to and after major rainfall events and regularly maintained to ensure they are not impaired • Operational procedures for dealing with spills, and appropriate equipment and materials should be available (e.g. dry mulch, sand or other absorbents) in the event of a spill.	Possible	Minor	Medium	Accept
Environmental	Operation	Air Quality Odour	Vehicle movements to and from site Vehicle movements onsite during receival of feedstock and materials (i.e.. Lime and carbon) Vehicle movements onsite during removal of waste products Plant and vehicle emissions Storage of odorous waste onsite Incomplete combustion of feedstock Failure of plant components	Health and amenity impacts Community complaints	Possible	Moderate	High	Mitigate	Indoor enclosed waste bunker and waste receival area Materials for offsite disposal to be stored within sealed containers Mechanical maintenance of plant and vehicle to reduce exhaust emissions Fuel bunker air used as process air for gasification and high temperature oxidation process Emergency power generating unit Waste bunker and waste receival areas maintained at negative pressure and air transferred to boiler room for use as combustion air	Unlikely	Moderate	Medium	Accept

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Environmental	Operation	Air Quality	Flue gas emissions during start-up and operations	Health and amenity impacts	Possible	Moderate	High	Mitigate	Air emissions assessment (Synergetics, 2019) indicates compliance with EU emission limits for all parameters during start-up and operation, except for NO2 which may occasionally exceed the emission limits Continuous emissions monitoring system (CEMS) measurement of the flue gas used to control lime and PAC supplied to the flue gas abatement system	Unlikely	Moderate	Medium	Accept