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Trigon Hill Landfill and Materials Recovery Facility

Technical Standards and Best Available Techniques

Valencia Waste Management Limited

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1 Introduction

1.1 Report Objectives

This report has been prepared by ByrneLooby Partners (UK) Limited (ByrneLooby) on behalf of Valencia Waste Management Limited (Valencia) in support of a variation application of the existing Trigon Hill Landfill permit referenced EPR/BX4054ID to include a new Materials Recovery Facility (MRF).

The MRF will have an annual throughput of up to 250,000 tonnes of predominantly mixed commercial and industrial wastes, which will be separated into fractions that can be made into a refuse derived fuel (RDF) or Solid Recovered Fuel (SRF) and recyclables including ferrous and non-ferrous metal, plastics and wood. Separated aggregates and soil may be utilised on the landfill for cover or use in constructing temporary roads.

The proposed MRF is listed in Schedule 1 of the Environmental Permitting (England and Wales) Regulations 2016 under Section 5.4 Part A (1) (b) (ii) Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day (or 100 tonnes per day if the only waste treatment activity is anaerobic digestion) involving pre-treatment of waste for incineration or co-incineration.

Directly associated activities include, the storage of raw materials, surface water management and separation of recyclable materials.

The MRF requires the extension of the permit boundary to the east, which also forms part of this variation application.

All wastes will be treated within a new building located upon an impermeable surface with sealed drainage. Existing roads within the landfill permit boundary will be utilised for access and egress. . The location of the new MRF is shown on drawing referenced K0485/1/001 and proposed layout is shown on drawing referenced TRI-088

The revised permit boundary is shown on drawing referenced K0485/1/001 and includes the proposed extension area.

This Technical Standards and Best Available Techniques (BAT) report has been prepared to support the permit variation application for the MRF and considers only the MRF activities. References have been made to following guidance:

- Environment Agency: Non-hazardous and inert waste: appropriate measures for permitted facilities. 12 July 2021[1]

[1] https://www.gov.uk/guidance/non-hazardous-and-inert-waste-appropriate-measures-for-permitted-facilities/1-when-appropriate-measures-apply

- Best available techniques (BAT) conclusions for waste treatment, under Directive 2010/75/EU of the European Parliament and of the Council. 10 August 2018.[2]
- Best available techniques (BAT) reference document for waste treatment (BREF), Industrial Emissions Directive 2010/75/EU (Integrated Pollution Prevention and Control) October 2018[3]
- Environment Agency. Sector Guidance Note SGN5.06 Guidance for the recovery and disposal of hazardous and non-hazardous waste. Issue 5. May 2013.[4]
- DEFRA: Industrial emissions Directive EPR Guidance on Part A installations. February 2013[5].

A BAT assessment has been undertaken in accordance with BAT conclusions for waste treatment, under Directive 2010/75/EU of the European Parliament and of the Council, 10 August 2018. This is provided at Section 10.

The structure of this report follows that detailed in the non-hazardous and inert waste: appropriate measures for permitted facilities and BAT conclusions for waste treatment guidance.

[2] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018D1147
[3] https://eippcb.jrc.ec.europa.eu/reference/waste-treatment-0
[4] https://www.gov.uk/government/publications/sector-guidance-note-s506-recovery-and-disposal-of-hazardous-and-non-hazardous-waste
[5]https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/221044/pb13898-epr-guidance-part-a-130222.pdf

2 General Management Appropriate Measures

2.1 Management System

BAT 1 of BAT Conclusions provides a list of features required to be incorporated into an environmental management system. Section 2 of the appropriate measures guidance specifies the required management system features. The Operator is committed to managing the activities in an environmentally responsible manner and operates an Environmental Management System (EMS) at other sites. The existing EMS will be updated to include the proposed MRF.

2.1.1 Operations and Maintenance

The EMS will address the management of the MRF and will provide: procedures to control operations; a maintenance regime for all plant, infrastructure and equipment; and procedures for monitoring emissions and impacts. The recycling plant has been specifically designed to be fit for purpose. The design process included consideration of process hazards and a hazard assessment of possible chemical reactions prevention and protective measures.

Procedures will be audited at regular intervals, at least annually, in accordance with the EMS.

2.1.2 Accidents / Incidents / Non-conformance

The EMS will set out the Accident Management Plan and procedures for incident reporting and investigation.

2.2 Staff Competence

2.2.1 Competence and Training

Section 2.2 of the appropriate measures' guidance requires the MRF to be operated by an adequate number of staff with appropriate qualifications and competence. All staff will have clearly defined roles and responsibilities. A training record will be kept up to date as part of the EMS.

The EMS states that where appropriate teams will operate 24/7 with remote control of assets.

The EMS will contain the training records for all MRF staff.

2.3 Accident Management Plan

The MRF will have a formal structured Accident Management Plan (AMP) as part of the EMS addressing the requirements of Section 2.3 of appropriate measures guidance.

Accident management requires a review of three key components:

- Identification of the hazards posed by the MRF/activity.
- Assessment of the risks (hazard x probability) of accidents / incidents and their possible consequences; and
- Implementation of measures to reduce the risk of accidents and contingency plans for any accidents that do occur.

Procedures are in place to address accidents / incidents and/or abnormal operations, along with reporting lines internally and externally, and timeframes for making reports or notifications. The relevant permit conditions for reporting requirements for accidental releases due to spillages or abnormal operating conditions will apply to the MRF.

The operator will maintain the AMP which as part of the EMS will be reviewed, at least annually, to account for potential accidents, incidents and their consequences.

2.3.1 Accident Prevention

Section 2.3 of the appropriate measures' guidance requires measures to be taken, where appropriate, to prevent events that may lead to an accident.

There are a number of hazards that have been identified at the Site:

- Incompatible wastes
- Security and vandalism
- Loss of containment
- Plant Failure
- Fire

Polluting substances proposed to be stored / may arise will comprise the following:

- fuels and lubricating oils for mobile/stationary plant;
- process water;
- emergency firefighting water.

The EMS will contain a maintenance regime for all plant and equipment in accordance with manufacturers recommendations. As detailed in Section 2.1.1 inspection and maintenance procedures are in place to ensure that all plant and equipment are operating as designed and are in good repair.

Fuels and associated lubricating oils will be stored in accordance with the Oil Storage Regulations which requires all to be stored within a double skinned and bunded to 110% capacity container located on impermeable hardstanding.

Spill kits will be located within the MRF building. In the event of the spillage of polluting materials, immediate action will be taken to contain the spillage. The spillage will be reported to the Site

Manager, who will assess the situation and decide upon the most appropriate course of action. If the spillage cannot be contained, specialist contractors will be employed. The action taken will depend upon the size of the spillage, the location of the spillage in relation to sensitive receptors and the nature of the spilled material.

The MRF surface, building, roofed areas, fixed and temporary bays and containers will be visually inspected at least weekly to ensure continuing integrity and fitness for purpose. The inspection and any necessary maintenance required will be recorded. In the event that any damage breaches the integrity of the engineered containment so that it no longer meets the required standards, necessary remedial work will be completed as soon as practicable. The drainage system at the MRF will be subject to weekly visual inspections to ensure effective operation and integrity of the system. This includes inspection and maintenance of associated equipment and infrastructure (pipes, bunds, concrete hard standing). Maintenance will be undertaken to ensure the effective operation and defects will be rectified as soon as possible.

Accident preventative measures are included in the AMP which forms part of the EMS and is subject to periodic review for potential accidents, incidents and their consequences.

Due to the nature of the waste types proposed to be accepted at the MRF, a Fire Prevention Plan has been prepared, referenced K0485-BLP-R-ENV-00003.

Procedures in the event of a fire form part of the MRF contingency plans.

2.4 Contingency Plans and Procedures

The MRF will have a Contingency Plan detailing procedures for permit compliance in the event of on-site maintenance, shut down or in the event of an accident. This will comprise the above accident preventative measures to ensure critical infrastructure and plant are adequately maintained and appropriate spare parts are held. A list of approved suppliers will be maintained. The MRF forms part of the landfill and if required and if suitable for acceptance wastes may be diverted for landfilling in the event of an accident.

2.5 MRF Decommissioning

Decommissioning of the MRF will be considered during the design stage of the new MRF with suitable plans made specifically for decommissioning. A site condition report has been prepared for the new MRF facility (K0485-BLP-R-ENV-00002).

The MRF is proposed to be operational during the lifetime of the landfill at which point the MRF will cease operations and will be decommissioned.

3 Waste Pre-Acceptance, Acceptance and Tracking

3.1 Waste acceptance

Waste pre-acceptance procedures will be in place at the MRF to ensure that prior to acceptance all waste is assessed for suitability for the proposed treatment operations. This includes the procedures for collecting information about waste input, waste sampling and characterisation.

The following information will be requested from the customer on enquiry:

- Details of the waste producer including organisation name, address and contact details.
- The specific source of the waste (including nature and variability of waste production process).
- A description of the waste including its physical form, composition and quantity (and odour if any).
- History of the of the producer site (if relevant)
- The List of Waste code (European Waste Classification, EWC, code).
- If the waste has an EWC code showing it is a non-hazardous mirror entry, evidence of the assessment from the producer.
- Any hazardous properties or whether it contains any regulated chemicals.

The objectives of the pre-acceptance procedures are to ensure that the MRF can accept and treat the wastes safely, the source of the waste can be identified, and any potential risks posed from the waste can be identified.

Where there is insufficient information to adequately characterise the waste, the Operator may attend the source site to undertake a pre-acceptance assessment. This will include a visual inspection of the waste.

All wastes received will be scheduled for receipt in advance of delivery, scheduling will be planned to ensure sufficient storage and treatment capacity. Wastes will not be accepted unless sufficient capacity is available at the MRF.

All waste pre-acceptance will be undertaken by a competently trained person.

All records pertaining to pre-acceptance assessment will be kept at the MRF for a minimum of 3 years.

3.2 Waste Acceptance

Prior to arrival at the MRF, all waste will be weighed at the landfill weighbridge and all appropriate duty of care documentation checked.

Where possible a visual inspection of the waste (using CCTV) will be undertaken to ensure the waste reflects the duty of care documentation and permit requirements.

Offloading and reception areas are located within the MRF building and will be comprised of impermeable surfacing with self-contained drainage.

At point of discharge the waste will be inspected to confirm its description complies with the description provided during pre-acceptance. All duty of care documentation will be kept on the waste tracking system as detailed below. In the event that the waste does not meet the acceptance criteria the waste will be rejected in accordance with the Site Waste Rejection Procedures.

3.3 Quarantine

The proposed MRF layout includes a designated quarantine bay located within the building on an impermeable surface with sealed drainage. Waste present within the quarantine area will be managed in accordance with the relevant waste rejection procedures contained within the EMS.

3.4 Waste Tracking

All waste accepted at the MRF is to be tracked. All documentation (including producer, waste code, any hazardous properties) and details of receipt, acceptance and deposit location will be maintained on the waste tracking system.

The following records will be made for the wastes received and dispatched from site:

- Date accepted / dispatched.
- Details of the waste producer.
- Pre-acceptance information.
- Waste acceptance information.
- The proposed treatment i.e. recovery or disposal route.
- Nature, quantity and location of waste present at site.
- Identification of main hazards present at site.
- Identifying the staff who have taken any decisions about accepting or rejecting waste streams

- Details that link waste to relevant transfer notes.
- Details of any non-conformances and rejections, including consignment notes for waste rejected because it is hazardous.

The tracking system will comply with Environment Agency guidance and is able to report the following:

- Total quantity of waste present at any one time.
- Breakdown by type of the waste quantities currently being stored prior to treatment or transfer.
- Quantity of waste on site compared with the limits authorised by your permit.
- Period of time the waste has been on site compared with the limits authorised by your permit.

Records will be stored in accordance with the EMS for a minimum of two years after treatment or removal off-site.

4 Waste Storage

Reference has been made to appropriate measures waste storage, segregation and handling where applicable.

Waste will be managed in accordance with the waste storage and handling procedures. The storage areas are to be located within the MRF building therefore reducing the unnecessary handling of waste. Only trained, competent staff permitted to handle waste using appropriate equipment i.e. loading shovel. Wastes to be accepted at the MRF comprise commercial and industrial wastes, and small amounts of construction and demolition wastes only and do not therefore require any specific handling procedures. Recycling operations within the MRF will be fully automated thus removing requirements for handling of waste.

Waste will be stored in a secure building with sealed drainage to ensure there is no potential impact on sensitive receptors or watercourses. Waste will be stored in clearly labelled areas accordance with the approved Fire Prevention Plan with the maximum capacities clarified in the EMS. Waste will be processed based on the first-in-first-out principle.

Storage times of refuse derived fuel (RDF) and solid recovered fuel (SRF) will be minimised with an auditable identification system in place so that RDF/SRF can be removed based on age. RDF/SRF will be stored loose internally within the MRF building for a maximum of 48 hours to reduce any potential odour, associated pests and water ingress.

Housekeeping of storage bays and containers will be undertaken regularly in accordance with the EMS. All containers, storage areas and infrastructure utilised at the MRF will be subject to regular inspection in accordance with the EMS and will be fit for purpose. Records of inspections will be kept in accordance with the EMS.

Waste will be stored for no longer than 72 hours prior to processing.

4.1 Segregation

Waste types will be segregated where possible if there is a risk of recovery being prevented due to contamination.

Waste prior to treatment will not be segregated due to the nature of the waste types proposed to be accepted for treatment. Wastes stored post-treatment will be separated based on waste type in independent, clearly labelled bays or containers

5 Waste Treatment

Reference has been made to appropriate measures for waste treatment, where applicable.

Waste within the MRF will either: produce residue suitable for use as a fuel as RDF or SRF; metals, plastic and wood will be segregated for recovery, aggregates and soil type wastes will be used to support the construction of landfill site roads and provide restoration or cover materials. Unsuitable residue will be disposed of to landfill.

The proposed treatment activities will be undertaken in accordance with the flow diagram below in Figure 1.

Waste will either be delivered into the system via a shredder (0 to 300mm) or the shredder bypass belt feeder (0 to 300mm) prior to processing via the long part separator; inline magnet; and combi screen. The above three processes separate out the long parts and ferrous metal prior to entering the combi screen. The combi screen (50mm/10mm) separates the waste further into 3 different sizes: 0 to 10mm as fines (output); 0 to 50mm (for further treatment in the fan blower); and 50 to 300mm (for further treatment in the three-way separator).

The 0 to 50mm is processed via the fan blower which produces the lights/ solid recovered fuel (SRF) (10 to 50 mm). Heavier fractions have lighter fractions (10 to 50mm) separated out via the waterbath process. The ferrous and non-ferrous metals are separated out by an inline magnet and an eddy current separator respectively. Any mid-size heavies are input into quality control for the heavies as per the flow diagram (Figure 1).

The 50 to 300mm material is processed via the three-way separator which further sorts the waste into light, mid-heavy, and heavy fractions. The light fractions will be processed further by a spray bar prior to the output of lights/RDF. The mid-heavy fraction is processed via an optical sorter which identifies and propels objects that are not suitable for this waste stream out of the waste. The heavy fractions are sorted via an inline magnet. All three fractions are subject to quality control prior to the final outputs of: heavies; residue; wood; and plastic/other.

The equipment inventory including plant type and design parameters has been provided in Appendix A. A summary of the operating and maintenance procedures including any abnormal operating conditions is provided within the EMS.

5.1 Waste Treatment Outputs

The appropriate duty of care documentation will accompany any outputs from the MRF.

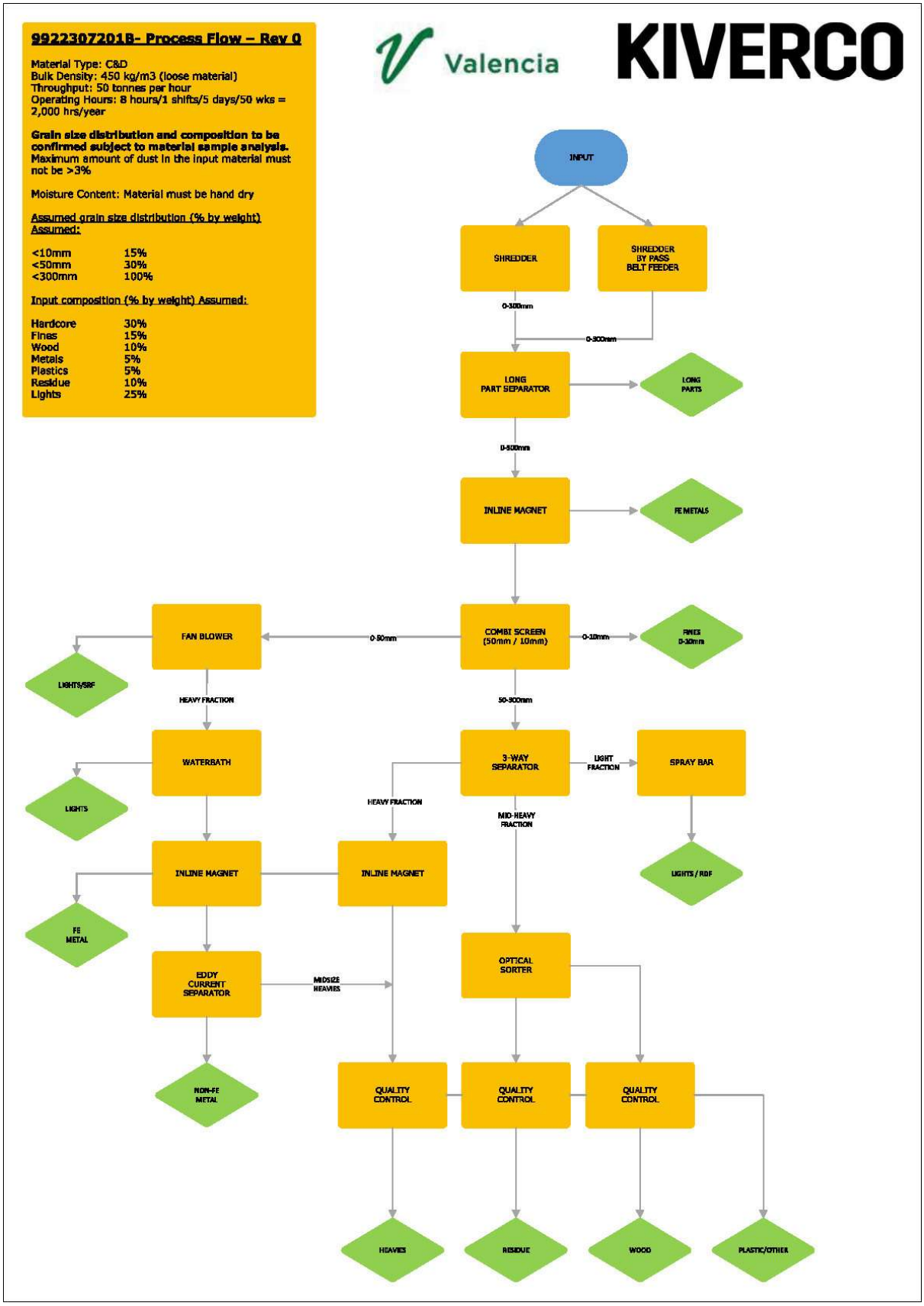
A portion of recovered material comprising aggregates and soil type wastes may be utilised in the adjacent landfill for daily cover and construction of in cell tracks.

Output quality will be monitored to ensure the performance of the waste treatment is maintained. This will include visual inspections of the recovered fractions and the proportion of any unrecovered fractions in the outputs. A review of the typical percentage outputs will be undertaken routinely to inform the performance of the plant to screen, separate and remove recyclables and recoverable components. For residues suitable for RDF/SRF testing will be undertaken to determine calorific value. The RDF/SRF is not proposed to be produced to a specific fuel grade. Any testing will be undertaken in accordance with relevant EN standards. If required additional testing of the RDF /SRF will be undertaken to customer specification.

Any waste outputs will be classified in accordance with WM3[6]. If required testing will be undertaken on the waste to facilitate classification. Any change in waste inputs that has the potential to impact on waste output classification will facilitate an Operator review and testing where required to confirm classification.

[6] Environment Agency. Technical Guidance WM3: Waste Classification – Guidance on the classification and assessment of waste. Version 1.2. October 2021.

Figure 1.Flow Chart of Waste Treatment Process in MRF



6 Emissions Control

Reference has been made to appropriate measures for emissions control including identification of point source and fugitive emissions from the proposed MRF and control measures to be implemented at the MRF.

6.1 Enclosure within a Building

The Environmental Risk Assessment (ERA) referenced K0485-BLP-R-ENV-00004 reviews the potential sensitive receptors and potential emissions from the MRF. The MRF (and associated treatment, storage and handling of waste) will be enclosed within a building to minimise any potential dust, odours or noise and vibration to surrounding sensitive receptors.

A dust suppression system is to be installed within the building, the design and installation to be confirmed on construction of the building and appropriate liaison with a specialist contractor.

The integrity of the building will be reviewed regularly in accordance with British Standard BS EN ISO 9972:2015 to confirm any potential faults within the building that could affect the integrity of the building. A regular a maintenance programme will be implemented for the building in accordance with the EMS.

The building will be appropriately ventilated and will be designed by an appropriately qualified engineer to include needs of the occupants working in the building; the heat release; and the dust generated.

The building will have fast acting roller shutter doors that will only be opened and closed during receipt of waste and will remain shut at all other times. Acoustic seals will be installed on the doors and windows within the MRF where required as advised by an acoustic specialist.

6.2 Point Source Emissions to Air (Channelled Emissions)

There will be no channelled point source emissions to air from the proposed MRF.

6.3 Fugitive Emissions to Air

Reference has been made to indicative BAT requirements for the control of fugitive emissions to air. Fugitive emissions to air include dust, mud and litter, odour and noise and vibration.

All proposed treatment and storage of the proposed waste types is to be undertaken within the purpose built MRF building with two 8 m wide vehicular fast acting roller shutter doors. Doors will remain closed unless access is required.

Fugitive emissions to air will be minimised in accordance with the appropriate measures specified in the Environmental Risk Assessment (K0485-BLP-R-ENV-00004) and the associated management plans for odour (K0485-BLP-R-ENV-00006) and noise and vibration (K0485-BLP-R-ENV-00007).

Waste pre-acceptance, acceptance and site inspection checks will inform procedures to manage any potential waste types prone to giving rise to fugitive emissions. The waste types accepted at the MRF will be stored in the MRF building in accordance with the proposed Fire Prevention Plan (K0485-BLP-R-ENV-00003).

The MRF building will be subject to routine inspection and maintenance programme as detailed in the EMS.

6.3.1 Particulates and Litter

An ERA (K0485-BLP-R-ENV-00004) including mitigation measures for dust, mud and litter is provided in support of this application.

The waste types to be accepted, limited to commercial and industrial waste have the potential to produce fugitive dust emissions. Storage and treatment are undertaken in an enclosed building with fast acting roller shutter doors which will remain closed unless access is required. The dust suppression system will be in place within the MRF building, the design and installation to be confirmed on construction of the building and appropriate liaison with a specialist contractor. .

All waste is delivered directly into the waste reception area within the building. The doors will be fast-acting roller shutter doors and are only opened for entry and exist.

The Fugitive Emissions Management Plan for Dust (FEMP) (K0485-BLP-R-ENV-00008) details in full the proposed control measures to be put in place and the risk assessment for the proposed recovery activity In the unlikely event that unacceptable dust emissions arise from the MRF, or a complaint is received the procedures in the Site's EMS will be followed. The risks from fugitive emissions of dust and proposed management measures are discussed further in the DEMP.

6.3.2 Odour

Reference has been made to indicative BAT requirements for odour control where applicable.

All proposed treatment and storage of the proposed waste types is to be undertaken within the purpose built MRF building. The odour management plan (K0485-BLP-R-ENV-00006) includes monitoring and management procedures for ensuring odour is contained with no potential for escaping the MRF building. Odour will be managed by the following procedures:

- Waste arriving/leaving the MRF will be in covered/enclosed vehicles.
- Potentially highly odorous waste will be excluded as part of the pre-acceptance procedures.
- Any odorous wastes accepted will be removed within one working day of receipt.

6.3.3 Noise and Vibration

Reference has been made to appropriate measures for emissions of noise and vibration where applicable. The appropriate measures require the operator to consider and reduce the impacts associated with noise and vibration and ensure potential sources of noise are away from sensitive receptors and boundaries. The proposed MRF is within the wider Trigon Hill landfill site which comprises a non-hazardous landfill.

All proposed treatment and storage of the proposed waste types is to be undertaken within the purpose built MRF building which is surrounded by woodland.

The most likely sources of noise and vibration would be recycling plant along with noise associated with vehicle movements.

A Noise Impact Assessment (NIA) was undertaken in by Rappor Consulting as summarised in the Planning Statement[7]. The results indicated that the proposed MRF will generate noise below the existing background level and therefore will have a low impact. The transport assessment indicated that the proposed development would result in an increase of 2dB in HGV noise. The NIA concluded that this was not significant and that there would be no significant impact on sensitive receptors. A noise and vibration management plan (NVMP) (referenced: K0485-BLP-R-ENV-00007) has been submitted with this application and highlights noise control mechanisms to be employed in the MRF in order to minimise the noise and vibration.

6.4 Point Source Emissions to Water (including Sewer)

Process water and clean surface water run will be segregated in accordance with the BAT.

Reference has been made to appropriate measures for point source emissions to water and sewer. The volume of effluent generated by the activities on MRF is limited by prioritising the reuse and recirculation of process water.

The following principles are to be applied to control emissions to water:

- Water use should be minimised and wastewater be reused where possible.
- Contamination risk of process or surface water should be minimised.
- Where any potentially harmful materials are used, measures should be taken to prevent them entering the water circuit.

Any contaminated runoff within the MRF will be collected by the sealed drainage system. Clean, uncontaminated runoff from the MRF roof will drain to the rain water tank and any surplus and runoff from external areas will be discharged via the existing on-site surface water infrastructure.

[7] INNOV8PLANNING (2023) Supporting Planning Statement (including the design and access statement, statement of community involvement, EIA screening statement), for Materials Recovery Facility, Trigon Landfill site, July 2023

6.4.1 Point Source Emissions to Water

There are no direct releases off-site other than via the existing surface water drainage system which accepts uncontaminated site source water from roofs and other non-operational areas of external to the MRF. Site drainage will be discharged via an interceptor where appropriate.

6.4.2 Point Source Emissions to Sewer

There will be no point source emissions to sewer proposed as part of this permit variation.

6.5 Fugitive Emissions to Land and Water

Reference has been made to appropriate measures for control of potential fugitive emissions to land and water to make sure they do not cause pollution. This comprises pollution containment measures. In accordance with appropriate measures all, surfaces and above ground tanks containing liquids are adequately designed to ensure they are impermeable.

Impermeable surfacing comprises steel reinforced concrete with sealed drainage. All areas are bunded and have drainage runs to allow all process water to collected.

Potential fugitive emissions to land will be mitigated due to the purpose built MRF building and site and the segregated surface water management system in place.

Ongoing inspection and maintenance procedures are in place to ensure structural integrity of all MRF surfacing and any containment facilities.

A spillage response plan is in place for the MRF and forms part of the EMS.

6.6 Pests

Household waste and similar materials, with a high proportion of food waste or other putrescible material will not be accepted at the MRF and will be directed to the landfill. EWC 20 03 02 will be accepted at the site however this will not include putrescible waste. Only wastes with a low putrescible content, such as construction and demolition wastes and some commercial and industrial wastes, will be accepted at the MRF. It is therefore not deemed necessary to implement a pest management plan or require specific waste handling procedures for pests at the MRF. However, the MRF will employ pest control in the unlikely event that it is required. A list of pest contractors is held as part of the management system.

7 Emissions Monitoring and Limits

Reference has been made to appropriate measures for emissions monitoring and limit where applicable.

No emissions monitoring is proposed to be undertaken within the proposed MRF. Emissions Monitoring at the Landfill is undertaken in accordance with Schedule 3 of the Environmental Permit An emissions inventory of point source emissions to air and water (including emissions to sewer) is kept and updated for the MRF.

The fugitive emissions management plan (FEMP), noise management plan (NMP) and odour management plan (OMP) provide procedures for the prevention, control and monitoring of dust, odour and noise at the MRF.

7.1 Emissions to Air

There are no proposed emissions to air as part of the proposed permit variation.

7.2 Emissions to Water and Sewer

There are no proposed emissions to water or sewer as part of the proposed permit variation. Clean, uncontaminated runoff from the MRF roof will drain to the rain water tank and any surplus and runoff from external areas will be discharged via the existing on-site surface water infrastructure.

8 Process Efficiency Appropriate Measures

Reference has been made to appropriate measures for process efficiency where applicable. The MRF is required to monitor and review the annual quantity of water, energy and raw materials used and the amount of residues and wastewater produced.

8.1 Energy Efficiency

Energy consumption at the MRF is limited to the following:

- Mobile plant – combination of diesel, petrol and hybrid (diesel/petrol/electrical).
- Lighting and welfare – electrical.
- Recycling plant within MRF building – electrical.

The Operator will produce a report annually on energy consumption to include the MRF. Energy specification and consumption of each unit operation for the MRF treatment equipment will be described within the EMS. Four yearly energy audits will be undertaken in compliance with the permit. Areas where new technology provides an opportunity for energy reduction will be identified and incorporated into the EMS.

An energy efficiency plan (forms part of the EMS) will be implemented for the MRF and will calculate the approximate energy consumption for the activities undertaken on waste streams accepted, set performance indicators and plan periodic improvement targets for the MRF. The energy efficiency plan will be reviewed and updated on a regular basis.

To ensure energy efficiency all plant and equipment will be operated and maintained accordingly to maximise energy efficiency. This will include turning off process equipment when not in use.

Consideration will be given to the energy efficiency of any new equipment. Staff will be trained in energy saving techniques including the closing of windows and doors as well as ensuring air condition or heating is kept as low as possible. Measures will be employed at the MRF to limit the amount of energy or heated water used wastefully.

8.2 Raw Materials

The Operator is committed to the following measures:

- Reduce the use of any chemicals and raw materials where applicable.
- Substitute with materials presenting lower risks to the environment; and,
- Understand the fate of by-products and contaminants and their environmental impact.

The Operator will maintain a list of raw materials and their properties with associated procedures to control the specification of those types of raw materials which have the main potential to cause an adverse environmental impact. Quality assurance procedures will be in place to ensure the quality of the raw materials being used is maintained. Four yearly review of alternative raw materials is to be carried out with regard to environmental impact and best available techniques.

8.3 Water Use

Reference has been made to indicative BAT requirements for water efficiency.

Where possible water is re-used/ recirculated in the MRF.

A water efficiency audit of the water use is carried out at the MRF. Water will be re-used in the MRF where appropriate. All activities are undertaken on impermeable surface with sealed drainage to minimise the risk of contamination of surface waters and groundwaters.

9 Waste Minimisation, Recovery and Disposal

Appropriate measures requires Operators to instigate effective waste management practices throughout the day-to-day operation of their activities. This should include:

- minimises the generation of residues from waste treatment.
- optimises the reuse, regeneration, recycling or energy recovery of residues, including packaging.
- makes sure you properly dispose of residues where recovery is technically or economically impractical.

The purpose of the MRF is to recover material otherwise destination for landfill with the recycling plant designed specifically to allow for maximum recovery of materials. The MRF will separate out fractions allowing for recycling and recovery of different materials.

9.1 Waste Minimisation

As described above, the overall purpose of the MRF is to that the maximum volume of materials can be recovered within any residues limited.

Waste minimisation through recycling and reuse is applied where possible. As discussed previously waste process water is recirculated where possible.

The MRF has a Residues Management Plan which forms part of the EMS. The process of waste minimisation will be reviewed on at least an annual basis.

9.2 Waste Reuse, Recovery, Recycling or Disposal

As described above, the overall purpose of the MRF is to that the maximum volume of materials can be recovered within any residues limited.

A review of the best environmental management options for the waste streams generated will be carried out annually. Records will be maintained to monitor the following characteristics of waste produced at the MRF in addition to the Duty of Care where applicable:

- quantity nature and origin of the waste.
- the physical description of the waste.
- a description of the composition of the waste.
- any relevant hazardous properties (hazard and risk phrases).
- European Waste Catalogue code.

- handling precautions and substances with which it cannot be mixed; and
- disposal routes for each waste category.

10 Best Available Techniques

BAT Assessment	Description	Comments
1. General BAT Conclusions		
1.1 Overall Environmental Performance		
BAT 1	In order to improve the overall environmental performance, BAT is to implement and adhere to an environmental management system (EMS) that incorporates features listed in I -XV.	The Operator will have an EMS comprising the features listed in BAT 1 I-XV. The Operator will have an Environmental Policy in place which states the commitment to legal compliance and continuous improvement. The EMS includes documented management procedures for all activities undertaken at the wider site (including landfill and proposed MRF).
BAT 2	In order to improve the overall environmental performance of the plant, BAT is to use all of the techniques given in a – g a) Waste characterisation and pre-acceptance procedures b) Waste acceptance procedures c) Waste tracking system d) Output quality management system e) Waste segregation f) Waste compatibility	The MRF has formal waste pre-acceptance, acceptance procedures as detailed in Section 3. The MRF operates a waste tracking system which will track the waste streams from pre-acceptance to output. Output quality will be monitored to ensure the performance of the waste treatment is maintained. This will include visual inspections of the recovered fractions and the proportion of any unrecovered fractions in the outputs. A review of the typical percentage outputs will be undertaken routinely to inform the performance of the plant to screen, separate and remove recyclables and recoverable components. For residues suitable for RDF/SRF testing will be undertaken to determine calorific value. The RDF/SRF is not proposed to be produced to a specific fuel grade. Any testing will be undertaken in accordance with relevant EN standards. If required

BAT Assessment	Description	Comments
	g) Sorting incoming waste	additional testing of the RDF /SRF will be undertaken to customer specification.
BAT 3	In order to facilitate the reduction of emissions to water and air, BAT is to establish and to maintain an inventory of wastewater and waste gas streams, as part of the environmental management system (see BAT 1)	Any process water utilised during the process will be re-used until no long appropriate before being removed via tanker. If applicable, monitoring will be undertaken on any channelled emissions to air. An inventory will be maintained where required. Process water from the waterbath will be monitored to inform the required recirculation or replenishment. All records of monitoring results are kept to inform the emissions inventory as part of the EMS.
BAT 4	In order to reduce the environmental risk associated with the storage of waste, BAT is to use all of the techniques given in a. - d. a) Optimised storage location b) Adequate storage capacity c) Safe storage capacity	The MRF has been purpose built to optimise the required storage capacities. Waste is stored pre and post treatment in designated storage areas with maximum capacities applied in accordance with the FPP. The MRF has adequate capacity for treatment and storage which is managed via the waste tracking system. Wastes stored are part of the waste tracking system allowing tonnages and storage durations to be monitored at all times. This is an integral part of the business and

BAT Assessment	Description	Comments
	d) Separate area for storage and handling of packaged hazardous waste	ensures there is adequate storage capacity at the MRF. There will not be any hazardous waste received at the MRF.
BAT 5	In order to reduce the environmental risk associated with the handling and transfer of waste, BAT is to set up and implement handling and transfer procedures.	Only appropriately trained and competent staff can handle and/or transfer waste at the MRF. Waste will be managed in accordance with the waste storage and handling procedures. The storage areas are to be located within the MRF building therefore reducing the unnecessary handling of waste. Only trained, competent staff permitted to handle waste using appropriate equipment i.e. loading shovel. Wastes to be accepted at the MRF comprise commercial and industrial wastes, and small amounts of construction and demolition wastes only and do not therefore require any specific handling procedures. Recycling operations within the MRF will be fully automated thus removing requirements for handling of waste.
1.2 Monitoring		
BAT 6	For relevant emissions to water as identified by the inventory of waste water streams (see BAT 3), BAT is to monitor key process parameters (e.g., waste water flow, pH, temperature, conductivity, BOD) at key locations (e.g., at the inlet and/or outlet of the pretreatment, at the inlet to the final treatment, at the point where the emission leaves the installation).	Not applicable – there are no proposed emissions to water from the MRF other than clean, uncontaminated water being discharged to the existing on-site infrastructure.

BAT Assessment	Description	Comments
BAT 7	BAT is to monitor emissions to water with at least the frequency given below, and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.	Not applicable – there are no proposed emissions to water from the MRF other than clean, uncontaminated water being discharged to the existing on-site infrastructure
BAT 8	BAT is to monitor channelled emissions to air with at least the frequency given below, and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality	Not applicable – there are no proposed channelled emissions to air as part of this permit variation.
BAT 9	BAT is to monitor diffuse emissions of organic compounds to air from the regeneration of spent solvents, the decontamination of equipment containing POPs with solvents, and the physico-chemical treatment of solvents for the recovery of their calorific value, at least once per year using one or a combination of the techniques given below.	Not applicable
BAT 10	BAT is to periodically monitor odour emissions	Off-site olfactory monitoring will also be carried out with reference to the protocol in Appendix 1 of the Environment Agency H4 Odour Management Guidance. Monitoring procedures are detailed in Section 6.2 of the Sites Odour Management Plan (Report Ref: K0485-BLA-R-ENV-00006).
BAT 11	BAT is to monitor the annual consumption of water, energy and raw materials as well as the annual generation of residues and waste water, with a frequency of at least once per year	In accordance with the appropriate measures guidance for waste treatment water, energy usage and raw materials and the generation of residues and waste water is required to be assessed and reported

BAT Assessment	Description	Comments
		on an annual basis. Internal audits are to be undertaken in accordance with the EMS.
1. 3 Emissions to Air		
BAT 12	In order to prevent or, where that is not practicable, to reduce odour emissions, BAT is to set up, implement and regularly review an odour management plan, as part of the environmental management system (see BAT 1)	An Odour Management Plan forms part of the Environmental Permit Operating Techniques. The OMP has been updated in support of this variation application (Report Ref: K0485-BLP-R-ENV-00006). The OMP is subject to regular review as part of the EMS. Any amendments required to the OMP will be agreed with the Agency.
BAT 13	In order to prevent or, where that is not practicable, to reduce odour emissions, BAT is to use one or a combination of the techniques given in a) to c) a) Minimising residence times b) Using chemical treatment c) Optimising aerobic treatment Only point a) above is relevant to the proposed operations.	Residence times for storage are limited. Waste will be processed based on the first-in-first-out principle. However, non-inert waste will be processed within 72 hours. Any stockpile that creates an odour will be prioritised for removal from the MRF within one working day. There are no proposed channelled emissions to air as part of this permit variation.
BAT 14	In order to prevent or, where that is not practicable, to reduce diffuse emissions to air, in particular of dust, organic compounds and odour, BAT is to use an appropriate combination of the techniques given below.	All proposed treatment and storage of waste will be undertaken within the purpose-built MRF building with fast acting roller doors and dust suppression system. The building and associate

BAT Assessment	Description	Comments
	a) minimising the number of potential diffuse emission sources b) selection and use of high integrity equipment c) corrosion prevention d) containment, collection and treatment of diffuse emissions e) dampening f) maintenance g) cleaning of waste treatment and storage areas h) leak detection and repair programme	infrastructure will be maintained as appropriate in accordance with the EMS. The MRF has a Fugitive Emissions Management Plan which forms part of the Environmental Permit operating techniques. The FEMP has been updated in support of this variation application (Report Ref: K0485-BLA-R-ENV-00008). The FEMP is subject to regular review as part of the EMS. Any changes to the FEMP will be agreed with the Agency. The FEMP contains procedures for minimising the potential for diffuse emissions to air and management procedures for controlling any diffuse emissions to air associated with the waste treatment activities and waste storage. Plant, equipment and infrastructure are subject to regular inspection and maintenance programme in accordance with the EMS. The Operator utilises the following controls to limit diffuse emissions to air from the MRF activities: 1. The Management System contains maintenance procedures for all mobile and fixed plant, infrastructure, and equipment. 2. Regular cleaning of all operational areas, plant and equipment

BAT Assessment	Description	Comments
		3. All equipment and ductwork are subject to regular inspections in accordance with the manufacturer's recommendations and repairs made as necessary. 4. All wastes will be accepted, treated and stored within a purpose-built enclosed building enclosed with fast acting roller shutter doors shut when not in use. 5. Olfactory/visual monitoring regime in place for dust and odour as specified in the FEMP and OMP.
BAT 15	BAT is to use flaring only for safety reasons or for non-routine operating conditions (e.g., start-ups, shutdowns) by using both of the techniques given in a. – b. a) Correct plant design b) Plant management	Not applicable
BAT 16	In order to reduce emissions to air from flares when flaring is unavoidable, BAT is to use both of the techniques given in a. – b. a) Correct design of flaring devices b) Monitoring and recording as part of flare management	Not applicable
1.4 Noise and Vibrations		

BAT Assessment	Description	Comments
BAT 17	In order to prevent or, where that is not practicable, to reduce noise and vibration emissions, BAT is to set up, implement and regularly review a noise and vibration management plan, as part of the environmental management system (see BAT 1), that includes all of the elements contained in I – IV. I. Protocol containing actions / timelines II. Protocol for conducting noise and vibration monitoring. III. Protocol for response to identified noise and vibration events e.g., complaints IV. A noise and vibration reduction programme	All proposed treatment and storage of waste will be undertaken within the purpose-built MRF building with fast acting roller doors The building and associate infrastructure will be maintained as appropriate in accordance with the EMS. A Noise Impact Assessment (NIA) was undertaken by Rappor Consulting as summarised in the Planning Statement. The NIA indicates that the proposed MRF noise and vibration will not be an issue beyond the MRF boundary. The NMP supports this variation application (Report Ref: K0485-BLA-R-ENV-00007). This comprises the procedures for control and reducing noise and vibration from the activities undertaken at the MRF. The NMP is subject to regular review as part of the EMS. Any changes to the NMP will be agreed with the Environment Agency. As part of the EMS the plant, infrastructure and equipment used in the MRF is subject to routine audits and replacements.
BAT 18	In order to prevent or, where that is not practicable, to reduce noise and vibration emissions, BAT is to use one or a combination of the techniques given in a. – e. a) Appropriate location of equipment and buildings b) Operational measures	Please see response to BAT 17.

BAT Assessment	Description	Comments
	c) Low-noise equipment d) Noise and vibration control equipment e) Noise attenuation	
1.5 Emissions to Water		
BAT 19	In order to optimise water consumption, to reduce the volume of waste water generated and to prevent or, where that is not practicable, to reduce emissions to soil and water, BAT is to use an appropriate combination of the techniques given in a. – i. a) Water management b) Water recirculation c) Impermeable surface d) Techniques to reduce the likelihood and impact of overflows and failures from tanks and vessels e) Roofing of waste storage and treatment areas f) Segregation of water streams g) Adequate drainage infrastructure	Water, where required, will be recirculated at the MRF until it is not longer usable. The MRF building will contain all waste to be stored, treated and will comprise steel reinforced concrete impermeable surfacing with sealed drainage. The MRF infrastructure will be designed and maintained (in accordance with the EMS) to ensure any repairs or leaks are identified. All tanks utilised within the MRF will be designed to ensure the likelihood and impact of overflows and failures are minimised. Any runoff from the waste activities will be collected via the sealed surface drainage system. Runoff from the waste activities is understood to be minimal due to the treatment of waste within the MRF building. Uncontaminated site water from roofs and other non-operational areas of the site will be discharged via the on-site surface water infrastructure.

BAT Assessment	Description	Comments
	h) Design and maintenance provisions for detection and repair of leaks i) Appropriate buffer storage capacity	
BAT 20	In order to reduce emissions to water, BAT is to treat waste water using an appropriate combination of the techniques given below.	Waste water runoff is will be considered likely to be minimal due to the waste types proposed to be accepted, the limited time that waste will be stored at site and the activities being undertaken within a building Any minimal runoff will be contained within the MRF building.
1.6 Emissions from Accidents and Incidents		
BAT 21	In order to prevent or limit the environmental consequences of accidents and incidents, BAT is to use all of the techniques given below, as part of the accident management plan (see BAT 1). a) Protection measures b) Management of incidental / accidental emissions c) Incident / accident registration and assessment system	The MRF will have a formal structured Accident Management Plan (AMP) as part of their Environmental Management System addressing the requirements of Section 2.3 of appropriate measures guidance. Accident management requires a review of 3 key components: • Identification of the hazards posed by the MRF/activity; • Assessment of the risks (hazard x probability) of accidents / incidents and their possible consequences; and • Implementation of measures to reduce the risk of accidents and contingency plans for any accidents that do occur.

BAT Assessment	Description	Comments
		Procedures are in place to address accidents / incidents and/or abnormal operations, along with reporting lines internally and externally, and timeframes for making reports or notifications.
1.7 Material Efficiency		
BAT 22	In order to use materials efficiently, BAT is to substitute materials with waste.	The MRF will produce outputs that can be utilised instead of raw materials e.g. recovered aggregates, soil type material and SRF and RDF.
1.8 Energy Efficiency		
BAT 23	In order to use energy efficiently, BAT is to use both of the techniques given below. a) energy efficiency plan b) energy balance record	Energy and fuel used is recorded. Review of energy use and the potential for savings is one of the Objectives and Targets in the EMS. Energy usage will be reported to the Environment Agency on an annual basis in accordance with section 8 of the appropriate measures.
1.9 Reuse of Packaging		
BAT 24	In order to reduce the quantity of waste sent for disposal, BAT is to maximise the reuse of packaging, as part of the residues management plan (see BAT 1).	Not applicable
2. BAT Conclusions for the Mechanical Treatment of Waste		
2.1 General BAT Conclusions for the Mechanical Treatment of Waste		

BAT Assessment	Description	Comments
2.1.1 Emissions to Air		
BAT 25	In order to reduce emissions to air of dust, and of particulate bound metals, PCDD/F and dioxin like PCBs, BAT is to apply BAT 14d and to use one or a combination of the techniques given below: a) Cyclone b) Fabric Filter c) Wet Scrubbing d) Injection of water into the shredder	There are no proposed channelled emissions to air as part of the permit variation. The Operator proposes to install a dust suppression system in the MRF building. The MRF has a Fugitive Emissions Management Plan which forms part of the Environmental Permit operating techniques. The FEMP has been updated in support of this variation application (Report Ref: K0485-BLA-R-ENV-00008).
2.2 BAT conclusions for the mechanical treatment in shredders of metal waste		
2.2.1. Overall Environmental Performance		
BAT 26 to 28	BAT conclusions for the mechanical treatment in shredders of metal waste.	Not applicable.
2.3 BAT conclusions for the treatment of WEEE containing VFCs and/or VHCs		
2.3.1 Emissions to Air		
BAT 29 to 30	BAT conclusions for the treatment of WEEE containing VFCs and/or VHCs	Not applicable

BAT Assessment	Description	Comments
2.4 BAT conclusions for the mechanical treatment of waste with calorific value		
2.4.1 Emissions to Air		
BAT 31	BAT 31. In order to reduce emissions to air of organic compounds, BAT is to apply BAT 14d and to use one or a combination of the techniques given in a) to d) a) Adsorption b) Biofilter c) Thermal oxidation d) Wet scrubbing	There are no proposed channelled emissions to air as part of the permit variation.
2.5 BAT conclusions for the mechanical treatment of WEEE containing mercury		
2.5.1 Emissions to Air		
BAT 32	In order to reduce mercury emissions to air, BAT is to collect mercury emissions at source, to send them to abatement and to carry out adequate monitoring	Not applicable
3. BAT conclusions for the biological treatment of waste		
3.1 General BAT conclusions for the biological treatment of waste		
3.1.1 Overall Environmental Performance		

BAT Assessment	Description	Comments
BAT 33 to 35	BAT conclusions for the biological treatment of waste	Not applicable
3.2. BAT conclusions for the aerobic treatment of waste		
3.2.1 Overall Environmental Performance		
BAT 36 to 37	BAT conclusions for the aerobic treatment of waste	Not applicable
3.3 BAT conclusions for the anaerobic treatment of waste		
3.3.1 Emissions to Air		
BAT 38	BAT conclusions for the anaerobic treatment of waste	Not applicable
3.4. BAT conclusions for the mechanical biological treatment (MBT) of waste		
3.3.1 Emissions to Air		
BAT 39	BAT conclusions for the mechanical biological treatment (MBT) of waste	Not applicable
4 BAT conclusions for the physico-chemical treatment of waste		
4.1 BAT conclusions for the physico-chemical treatment of solid and/or pasty waste		
4.1.1 Overall environmental performance		
BAT 40 to 41	BAT conclusions for the physico-chemical treatment of solid and/or pasty waste	Not applicable

BAT Assessment	Description	Comments
4.2 BAT conclusions for the re-refining of waste oil		
4.2.1 Overall environmental performance		
BAT 42 to 44	BAT conclusions for the re-refining of waste oil	Not applicable
4.3 BAT conclusions for the physico-chemical treatment of waste with calorific value		
4.3.1 Emissions to air		
BAT 45	BAT conclusions for the physico-chemical treatment of waste with calorific value	There are no proposed channelled emissions to air as part of the permit variation.
4.4 BAT conclusions for the regeneration of spent solvents		
4.4.1 Overall environmental performance		
BAT 46 to 47	BAT conclusions for the regeneration of spent solvents	Not applicable
4.6 BAT conclusions for the thermal treatment of spent activated carbon, waste catalysts and excavated contaminated soil		
BAT 48 to 49	BAT conclusions for the thermal treatment of spent activated carbon, waste catalysts and excavated contaminated soil	Not applicable
4.7 BAT conclusions for the water washing of excavated contaminated soil		
4.7.1 Emissions to Air		

BAT Assessment	Description	Comments
BAT 50	BAT conclusions for the water washing of excavated contaminated soil	Not applicable
4.8 BAT conclusions for the decontamination of equipment containing PCBs		
4.8.1 Overall environmental performance		
BAT 51	BAT conclusions for the decontamination of equipment containing PCBs	Not applicable
5. BAT conclusions for the treatment of water-based liquid waste		
5.1 Overall Environmental Performance		
BAT 52	In order to improve the overall environmental performance, BAT is to monitor the waste input as part of the waste pre-acceptance and acceptance procedures (see BAT 2).	Not applicable
5.2 Emissions to Air		
BAT 53	In order to reduce emissions of HCl, NH3 and organic compounds to air, BAT is to apply BAT 14d and to use one or a combination of the techniques given below a) adsorption b) biofilter c) thermal oxidation	Not applicable

BAT Assessment	Description	Comments
	d) wet scrubbing	

Drawings

A1

GENERAL NOTES

LEGEND

1. DO NOT SCALE
2. ALL DIMENSIONS ARE IN MILLIMETRES AND ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM
3. ANY ANOMALIES ON THIS DRAWING ARE TO BE BROUGHT TO THE ATTENTION OF BYRNE LOOBY LTD

KEY

- PERMIT BOUNDARY PLAN
- PROPOSED MRF LOCATION
- PROPOSED EXTENSION TO THE PERMIT BOUNDARY

Rev	Date	Description	By	Chk	App

BYRNELOOBY

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IRELAND | UK | UAE | BAHRAIN | KSA

CLIENT:
Valencia Waste Management Limited

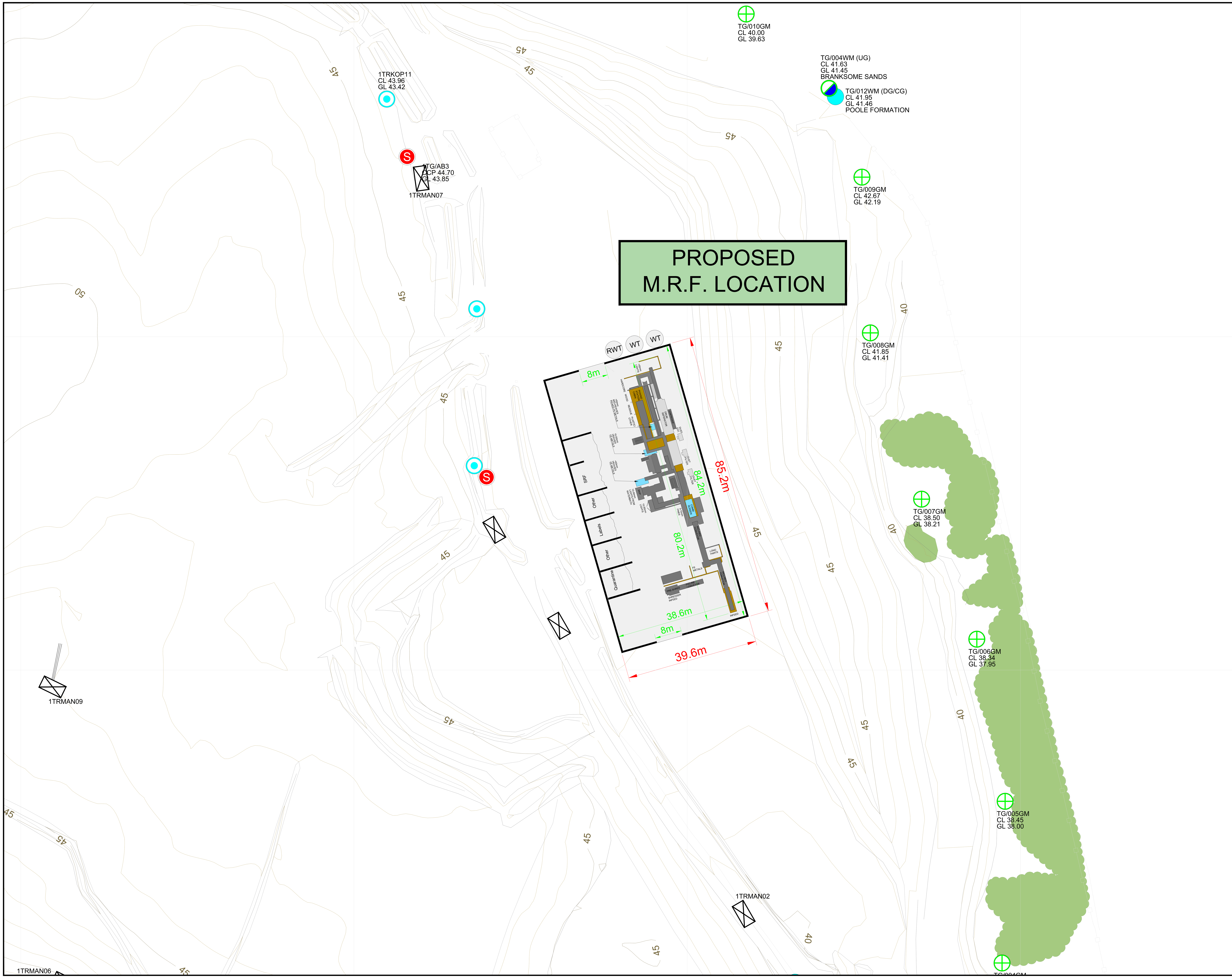
PROJECT:
TRIGON

DRAWING TITLE:
PERMIT BOUNDARY PLAN

STATUS:
FINAL

Date: 02.11.23	Scale: 1:3000	Drawn: JM	Chk: GH	App: JB

Project No:	Drg. No:	Rev:
K0483	K0485.1.001	00



PROPOSED
M.R.F. LOCATION
TG/010GM
CL 40.00
GL 39.63
TG/004WM (UG)
CL 41.63
GL 41.45
BRANKSOME SANDS
TG/012WM (DG/CG)
CL 41.95
GL 41.46
POOLE FORMATION
1TRKOP11
CL 43.96
GL 43.42
TG/AB3
CP 44.70
GL 43.85
1TRMAN07
TG/009GM
CL 42.67
GL 42.19
TG/008GM
CL 41.85
GL 41.41
TG/007GM
CL 38.50
GL 38.21
TG/006GM
CL 38.34
GL 37.95
TG/005GM
CL 38.45
GL 38.00
RWT
WT
WT
8m
85.2m
84.2m
80.2m
38.6m
8m
39.6m
SRF
Other
Labels
Other
Quarantine
1TRMAN09
1TRMAN02
1TRMAN06
N
E
S
W

Valencia

SITE NAME
TRIGON LANDFILL

DRAWING TITLE
PROPOSED MRF LOCATION

DRAWING NUMBER
TRI 088

TASK NUMBER 21343

SCALE	1:500 @ A1	REVISION	
O/DRN	R.L.Meaden	R/DRN	
O/DATE	17.05.2023	R/DATE	
O/APP	L.Edmonds	R/APP	
OA/DATE	19.06.2023	RA/DATE	

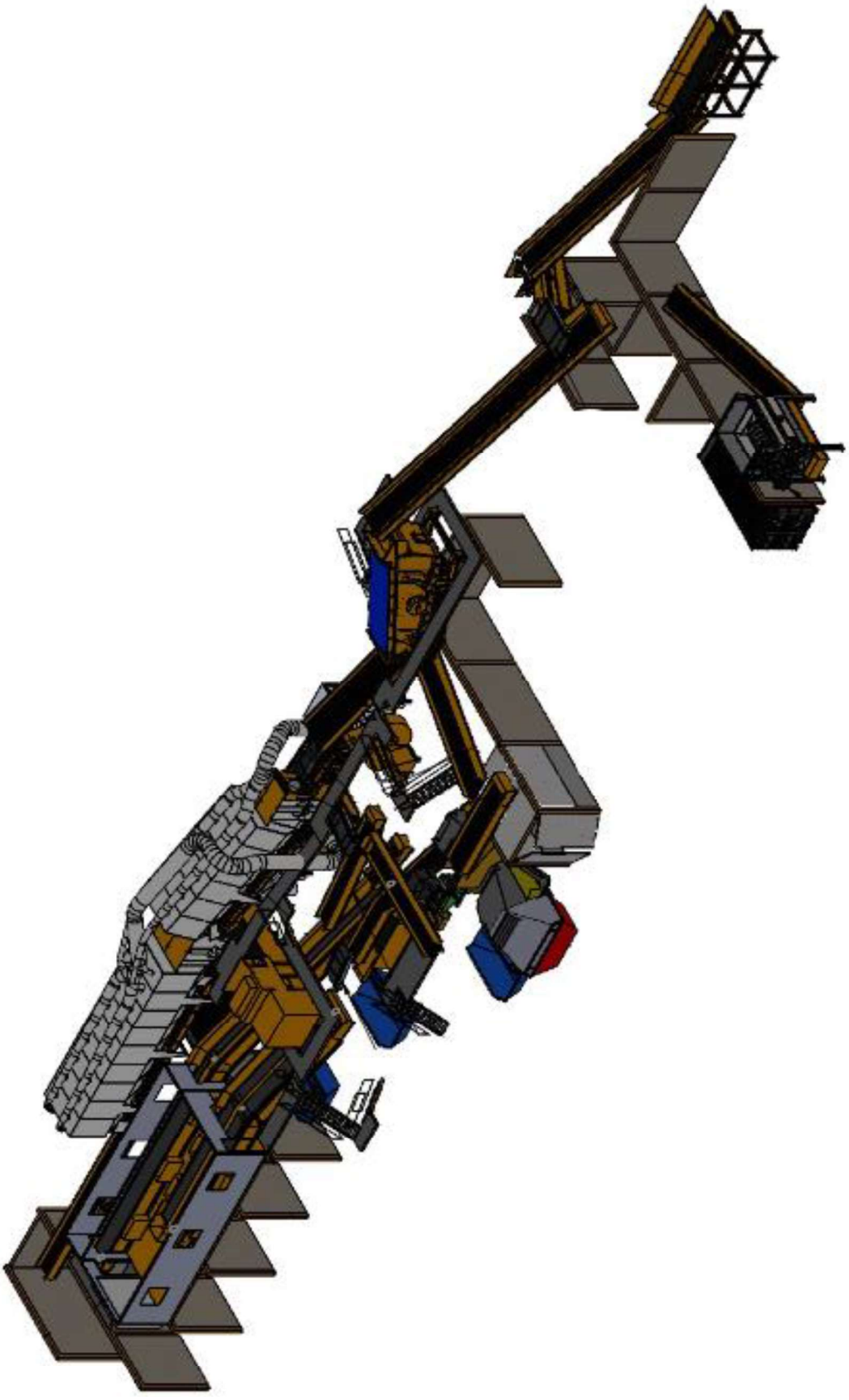
INFORMATION TAKEN FROM

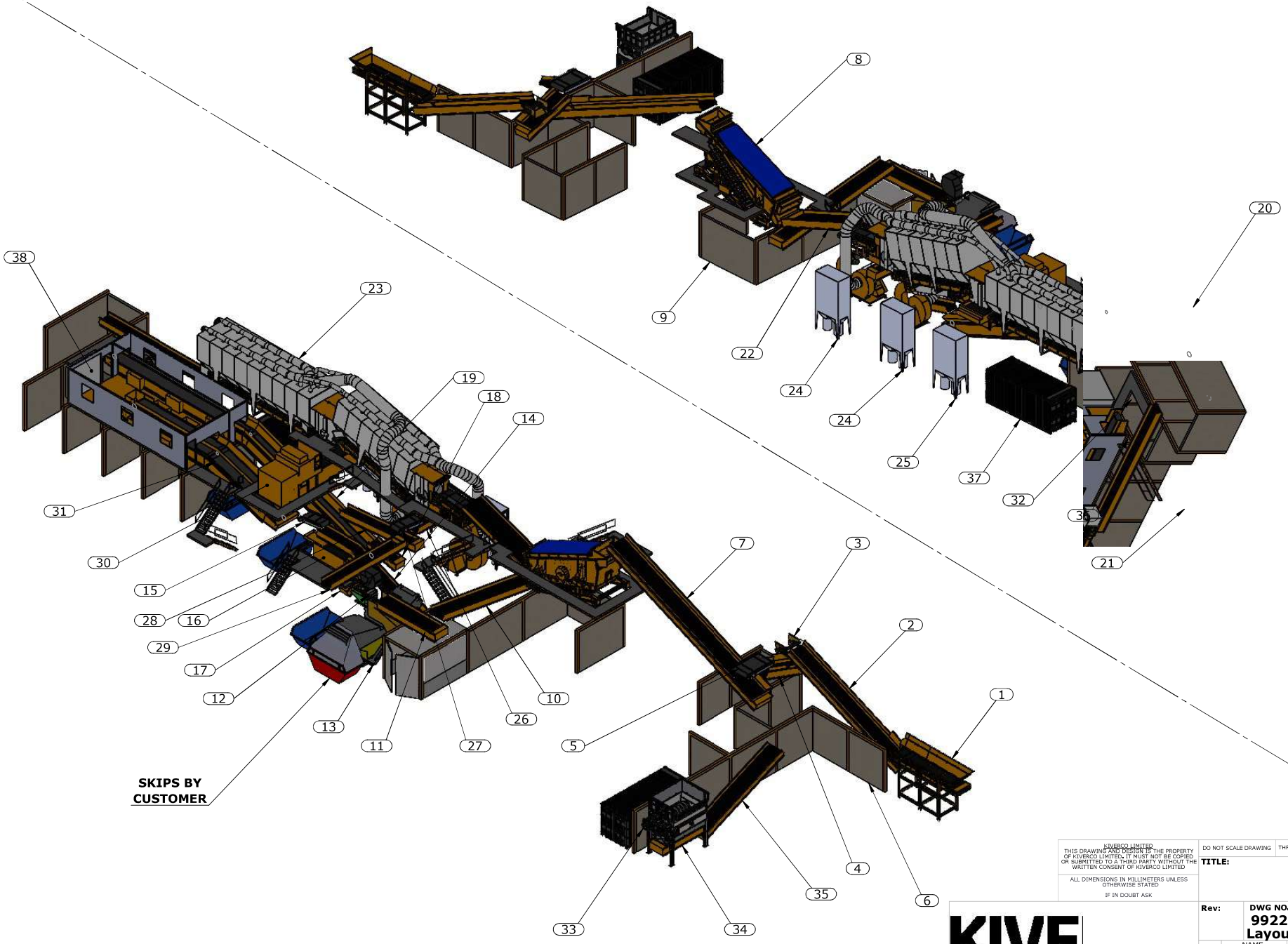
SURVEY Tri078s-Mar'2021 Rev A

SERVICES MASTER FILE

OTHER DRAWINGS

Appendix A – Plant Type and Design





ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE STATED

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TITLE:

KIVE

Rev:

DWG NO. 9922307201B - Plant Layout - Rev 0

	NAME	SIGNATURE	DATE
DRAWN	Stephen.McKenna		01/02/2023
APPV'D			

A3

SCALE: NTS

SHEET 1 OF 4

Item	Detail	Width (m)	Length (m)	Item Installed Power (kW)	Control
1	Belt Feeder Conveyor 1.2m x 6m	1.20	6.00	2.2	Kiverco Control Panel
2	Incline Conveyor	1.20	12.00	5.5	Kiverco Control Panel
3	Long Part Separator			1.5	Kiverco Control Panel
4	Transfer Conveyor	1.20	4.00	5.5	Kiverco Control Panel
5	ConveyorTek Inline Magnet			2.2	Kiverco Control Panel
6	FE Metals, Longs & Retaining Walls				
7	Screen Feed Conveyor	1.40	15.00	7.5	Kiverco Control Panel
8	Combi Screen	2.0	7.0	45	Kiverco Control Panel
9	Fines Bay & Lights Cage				
10	10-50mm Collection Conveyor	1.20	10.50	5.5	Kiverco Control Panel
11	10-50mm Transfer Conveyor	1.20	5.50	5.5	Kiverco Control Panel
12	Fan Blower c/ w Lights Fraction Collection Cage			15	Kiverco Control Panel
13	Water Bath				
14	10-50mm Heavies Collection Conveyor	0.80	9.50	5.5	Kiverco Control Panel
15	ConveyorTek Inline Magnet			2.2	Kiverco Control Panel
16	Conveyortek Eddycurrent Separator			12.3	Kiverco Control Panel
17	ECS Residue Collection Conveyor	0.80	4.00	5.5	Kiverco Control Panel
18	ECS Residue Transfer Conveyor	0.80	2.50	5.5	Kiverco Control Panel
19	Heavies Picking Station Conveyor	0.90	25.00	3	Kiverco Control Panel
20	3 Bay Twin Line Picking Station Cabin			4.68	Kiverco Control Panel
21	Picking Station & Lights Bay				
22	+50mm Collection Conveyor	1.60	6.00	5.5	Kiverco Control Panel
23	Walair 3-Way Drum Separator				Kiverco Control Panel
24	Walair Dust Filter			0.28	Kiverco Control Panel
25	Walair Dust Extraction			7.5	Kiverco Control Panel
26	+50mm Heavies Collection Conveyor	0.80	3.50	5.5	Kiverco Control Panel
27	ConveyorTek Inline Magnet			2.2	Kiverco Control Panel
28	+50mm Heavies Transfer Conveyor	0.80	7.00	5.5	Kiverco Control Panel
29	+50mm Metals Collection Conveyor	0.80	7.00	5.5	Kiverco Control Panel
30	Mistral+ 2000 Connect Full package			7.55	Pellenc Control Panel
31	Mid-Heavies Picking Station Conveyor	1.80	15.00	3	Kiverco Control Panel
32	Oversize Lights Collection Conveyor	0.80	11.00	5.5	Kiverco Control Panel
33	M&J PreShred P250			401.1	Metso Control Panel
34	Shredder Collection Conveyor	1.20	4.00	5.5	Kiverco Control Panel
35	Shredder Incline Conveyor	1.20	8.00	5.5	Kiverco Control Panel
36	Stair Access & Walkways				
37	Compressed Air System			35.5	Airwise Control Panel
38	Control Panel				
		Total Installed Power		629.71	kW

DO NOT SCALE DRAWING | THRID ANGLE PROJECTION

TITLE:

KIVERCO

Rev: | DWG NO.

	NAME	SIGNATURE	DATE
DRAWN	Stephen.McKenna		01/02/2023
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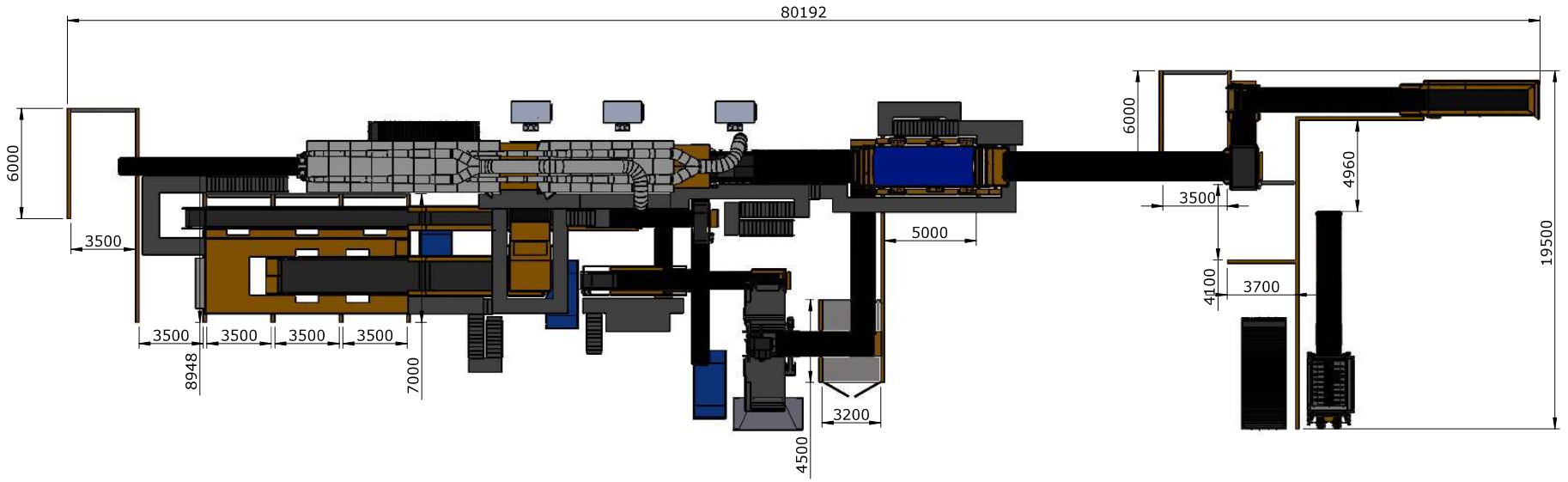
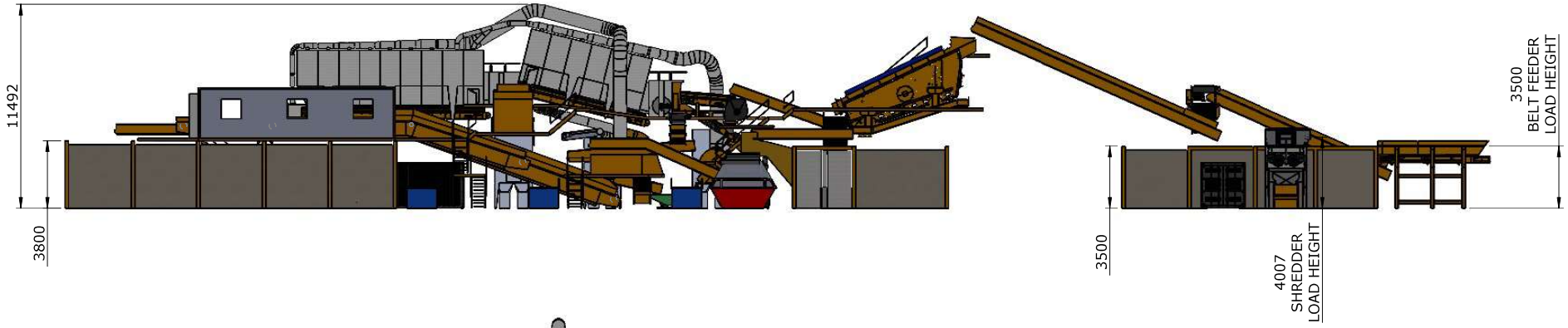
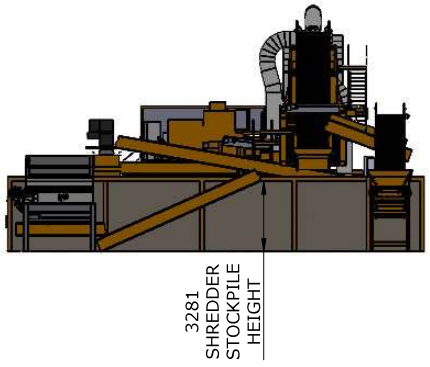
A3

SCALE: NTS | SHEET 2 OF 4







DO NOT SCALE DRAWING | THRID ANGLE PROJECTION

TITLE:

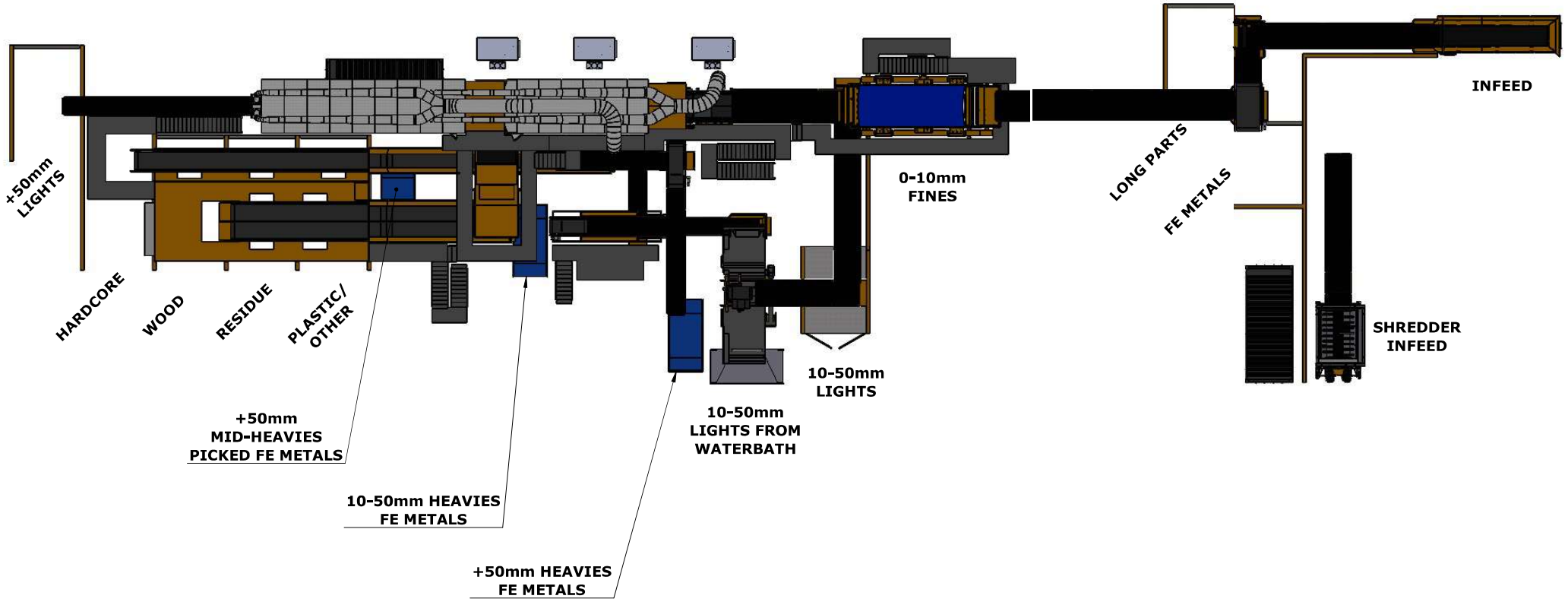
KIVERCO

Rev: | **DWG NO.** 9922307201B - Plant Layout - Rev 0

	NAME	SIGNATURE	DATE
DRAWN	Stephen.McKenna		01/02/2023
APPV'D			

A3

SCALE: NTS



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TITLE:

KIVERCO

Rev:

DWG NO. 9922307201B - Plant Layout - Rev 0

	NAME	SIGNATURE	DATE
DRAWN	Stephen.McKenna		01/02/2023
APPV'D			

A3

SCALE: NTS

SHEET 4 OF 4

9922307201B- Process Flow – Rev 0

Material Type: C&D
Bulk Density: 450 kg/m3 (loose material)
Throughput: 50 tonnes per hour
Operating Hours: 8 hours/1 shifts/5 days/50 wks = 2,000 hrs/year

Grain size distribution and composition to be confirmed subject to material sample analysis.
Maximum amount of dust in the input material must not be >3%

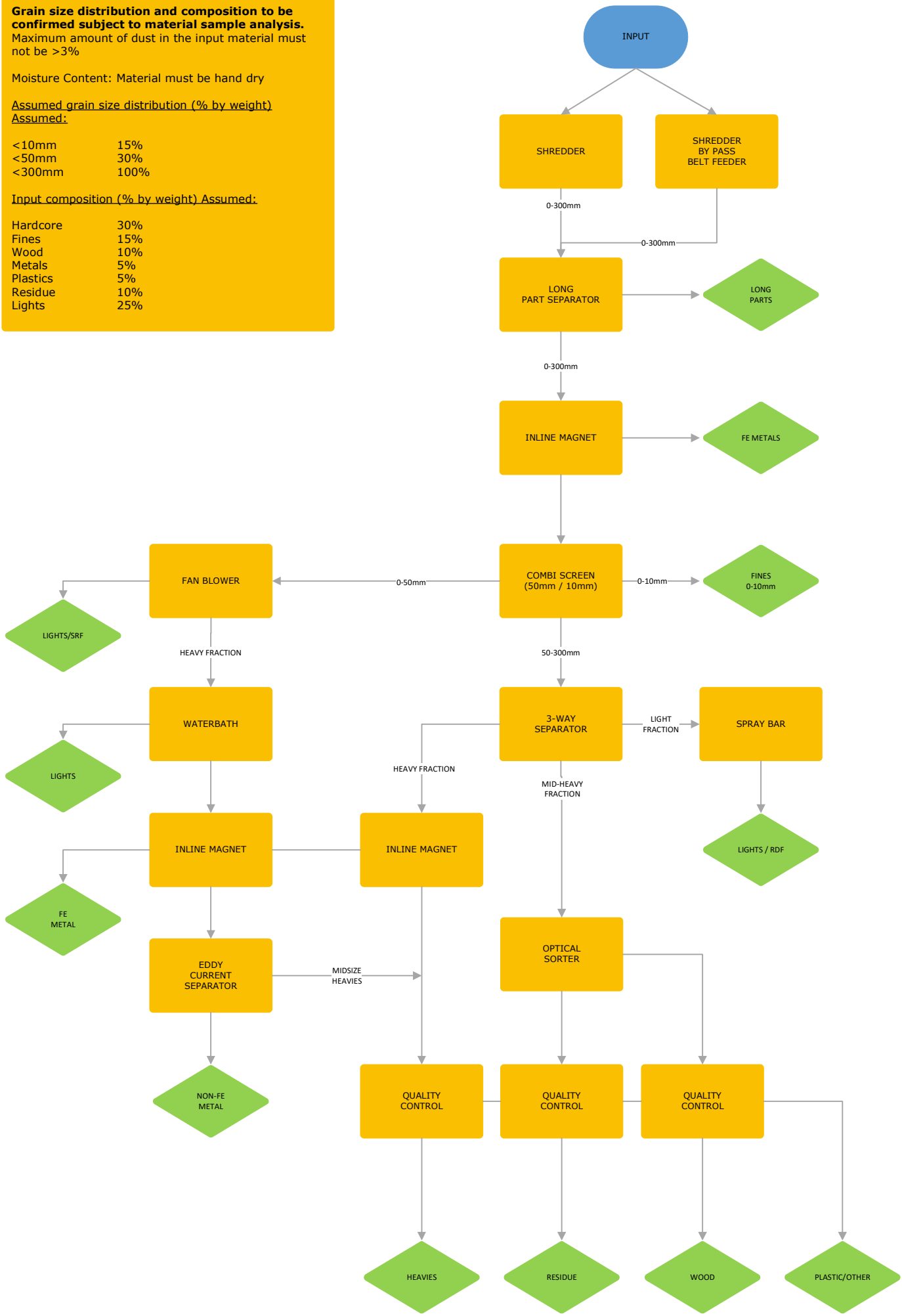
Moisture Content: Material must be hand dry

Assumed grain size distribution (% by weight) Assumed:

<10mm	15%
<50mm	30%
<300mm	100%

Input composition (% by weight) Assumed:

Hardcore	30%
Fines	15%
Wood	10%
Metals	5%
Plastics	5%
Residue	10%
Lights	25%



TECHNICAL SPECIFICATION

RECYCLING PLANT

Item	Qty	Product	Detail	Width (m)	Length (m)	Height (m)	Area
1	1	Belt Feeder	Belt Feeder Conveyor 1.2m x 4m				
2	1	Conveyor	Incline Conveyor	1.2	11.0		
3	1	Long Part Separator	Long Part Separator				
4	1	Conveyor	Transfer Conveyor	1.2	4.0		
5	1	**ConveyorTek** Magnet	**CORE 1200 x 1050E + 250mm extension**	**Permanent In-Line**			
6	1	FE Metals, Longs & Retaining Walls	FE Metals, Longs & Retaining Walls				
7	1	Conveyor	Screen Feed Conveyor	1.4	13.5		
8	1	**Spaleck** Screen	**SZWS 2000 x 7000 High Step**	**3D Combi Screen**			
9	1	Fines Bay & Lights Cage	Fines Bay & Lights Cage				
10	1	Conveyor	10-50mm Collection Conveyor	1.0	8.5		
11	1	Fan Blower	Fan Blower (15kW)				
12	1	Conveyor	10-50mm Bi-Directional Conveyor	1.2	5.5		
13	1	Wash-Bear	Wash-bear Pro 190				
14	1	Conveyor	10-50mm Heavies Collection Conveyor	0.8	15.5		
15	1	**ConveyorTek** Magnet	**CORE 800 TP E**	**Permanent Overband**			
16	1	**ConveyorTek** Eddy current Separator	**CORE 1000ECS - M**				
17	1	Conveyor	ECS Residue Collection Conveyor	0.8	5.5		
19	1	**3 Bay Twin Line Picking Station Cabin**	3 Bay Twin Line Picking Station Cabin				
20	1	Picking Station & Lights Bay	Picking Station & Lights Bay				
21	1	Conveyor	+50mm Collection Conveyor	1.6	6.0		
22	1	**Walair** 3-Way Separator	**3-Way Drum Separator 1400/1600**				
23	1	**Walair** Filter	**Dust Filter**				
24	1	Conveyor	+50mm Heavies Collection Conveyor	0.8	6.0		
25	1	**ConveyorTek** Magnet	**CORE 1200 x 850E**	**Permanent In-Line**			

Item	Qty	Product	Detail	Width (m)	Length (m)	Height (m)	Area
26	1	Conveyor	Heavies Transfer Conveyor	0.8	7.0		
27	1	**Pellenc Optical Sorter 2000**	Optical Sorter				
29	1	**Metso** Shredder	M&J P250-9 HDC				
30	1	Conveyor	Shredder Collection Conveyor	1.2	4.0		
32	1	Conveyor	Shredder Incline Conveyor	1.2	8.0		
34	1	Compressed Air System	L26-10A Fixed Speed Compressor				

Plant Paint Colour: Kiverco Tan

Plant Electrical Control System

Services Included.... ** See Project task responsibilities section for further clarification **

Mechanical & Electrical Installation to include labour, all associated installation consumables, travel and accommodation during the installation period.

Lifting, Rigging & Safe Access Equipment Hire {to include, Crane, Fork Lift, Stair Lift Hire etc.}

Transport of above plant only to site by Kiverco appointed haulier

Documentation Included....

Plant Layout Approval Drawings {to be finalised on receipt of order}

Electrical / Power requirements documentation *{in English language}*

Load / Container schedule prior to dispatch *{in English language}*

Full Installation Schedule documentation *{in English language}*

Installation Lifting plans *{in English language}*

Method statement & risk assessment documentation

Certificate of Conformity prior to dispatch

Plant Commissioning & Hand Over documents during commissioning

Standard Plant Operational & Service Manuals

Technology | Engineering | Consulting

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