

ATTACHMENT G1 – RESOURCE USE AND ENERGY EFFICIENCY

Raw Materials and Substances

The waste recovered at this waste facility generally comprises inert soil and stone. No process related raw materials, chemicals, solid or liquid wastes intermediates or products etc. will be consumed or generated by the proposed waste recovery activities at the application site. In the absence of any putrescible waste at the facility, there will be no requirement to use rodenticides and insecticides to control vermin and insects.

The only material requirement in respect of the proposed restoration scheme is excess inert soil, stone and rock waste to be used in backfilling the existing quarry void. It is envisaged that these materials will be generated by construction and development related activities in the South Dublin, Dun-Laoghaire-Rathdown and North Wicklow areas. The total volume of soil and stone required to backfill the quarry void and create the restored landform is approximately 1,830,000m³. The backfilled materials will be subject to a degree of compactive effort (by tracked bulldozer) and materials placed at the bottom of the quarry will be further compacted by the weight of overlying material.

No construction or demolition waste will be imported to or accepted at the proposed waste recovery facility. In the absence of any 'End of Waste' criteria for recycled (or secondary) aggregates, it is currently envisaged that no recycled construction and demolition waste (produced from intermixed concrete, brick, block, tiles etc.) will be imported (over the initial period of operations at least) for construction of temporary internal haul roads over backfilled clay materials and as such, only 'virgin' aggregate will be imported to the facility initially for haul road construction purposes. This may be subject to review at a later stage, subject to conditions attaching to any waste licence which may be issued by the Environmental Protection Agency (EPA) in respect of the proposed facility.

An estimate of the material quantities required to complete backfilling of the application site at Calary Quarry is provided below:

Table G1
Material Requirements

Material	Quantity (tonnes)	Source
Inert soil, stones and rock	3,230,000	Imported
Stockpiled soil	20,000	In-situ
Aggregate / Recycled Aggregate	10,000	Imported
Topsoil (150mm)	40,000	Imported

Energy Consumption

The operation of the facility will consume a relatively minor amount of electrical power / energy, principally on account of lighting and heating at the site office, weighbridge office, canteen and staff welfare facilities and use of pumping equipment at the quarry floor and proposed wheelwash facility. The amount of electrical energy consumed at the facility once it becomes operational is expected to be broadly similar to that consumed previously (up to 2010), when the application site operated as a quarry (ie. of the order of 2200 kW per week). Over a projected 15 year operating period, the total consumption of electricity (in the absence of any improvement in efficiency) would be of the order of 1,716,000 kW (or 1.7MW).

Earthworks equipment placing and compacting the imported soil and stone will be powered by diesel fuel. Refuelling of all mobile plant (bulldozers / mechanical excavators) will take place on-site over impermeable (sealed) concrete surfaces at the proposed fuel storage tanks or using double skin bowsters.

Assuming inert waste is imported, placed and recycled at the application site for 50 weeks each year over a 15 year period (750 weeks) the diesel fuel consumed by the placement, compaction and recovery of inert waste and ancillary activities (based on consumption as other recovery facilities) is assessed as follows:

	Fuel Consumption	Fuel Consumed
Waste Placement and Compaction		
Bulldozer	700 litres / week	525,000
Mechanical Excavator	500 litres / week	375,000
Other		
Site Vehicles (1 No.)	50 litres / week	37,500
Total Fuel Consumption	1250 litres / week	937,500 litres

Note that the assessed fuel consumption is based on the following assumptions :

- (i) there will no improvement in fuel efficiency of mechanical plant and site vehicles over the operational life of the facility
- (ii) no alternatives to diesel fuel will become commercially available over the operational life of the facility.

The proposed placement, compaction and recovery of approximately 3,830,000 tonnes of inert soil and stone over an assumed 15 year period is therefore estimated to consume a total of 937,500 litres of diesel fuel.

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