

# Attachments D

## Infrastructure & Operation




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## D.1. Infrastructure



The following table contains details of the site infrastructure and appropriate documentation as necessary. The Information provided follows the sequence, and uses the headings, established in Table D.1 of the waste licence application form.

Appropriately scaled drawings ( $\leq A3$ ) have also been provided showing the location and relevant details with respect to site infrastructure (Refer to Figure D.1.1).

<p><b>D.1.a</b></p>	<p><b>Site security arrangements including gates and fencing</b></p> <p>The boundaries of the site are secure being established hedgerows and stock proof fencing. The site benefits from being bounded to the east by the local county road, to the west by agricultural lands. The lands to the north and south are of pasture and a variety of agriculture type activity. The application site is freehold and owned by James V Kiernan and James Kiernan of Kiernan Sand &amp; Gravel Ltd. The site entrance gates are locked outside of normal working hours and public warning notices are posted at appropriate locations along the site boundary.</p> <div data-bbox="762 952 1018 1281" style="text-align: center;"> </div> <p style="text-align: center;"><i>Existing On Site Security Camera</i></p>
<p><b>D.1.b</b></p>	<p><b>Designs for site roads</b></p> <p>Access to the site will be gained through the existing entrance onto the CR468 Country Road. The site entrance has been adequately set-back and splayed. All materials will be transported to and from the application site using heavy goods vehicles (HGV's).</p> <p>Imported clean construction and demolition waste (concrete and brick) is used to construct internal haul roads as required and the remainder is recycled and sold off site.</p>
<p><b>D.1.c</b></p>	<p><b>Design of hardstanding areas</b></p> <p>The only hardstanding area on site relates to the existing workshop on site. The edge of the pavement is finished above or flush with the surrounding ground to allow the water to run-off. The surrounding ground being sand and gravel has adequate soakage capacity to allow for infiltration of surface run-off.</p> <p>The main site area is of a compacted insitu gravel surface with the effect that there will effectively be no surface run-off at the site and allows the return of runoff to the natural drainage system as soon as possible</p>

<p><b>D.1.d</b></p>	<p><b>Plant</b></p> <p>A Bulldozer, excavator, loading shovel (Sand &amp; Gravel Pit) and sweeper are all used intermittently on site (Refer to following photographs).</p> <div style="display: flex; justify-content: space-around;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;">   </div> <p>There is no weighbridge on site. Trucks entering the site are typically 4 axle 9 cu.m capacity rigid bodied tippers. Details with respect to truck loads and volume of inert materials received are recorded in a log book at the site inspection office.</p>
<p><b>D.1.e</b></p>	<p><b>Wheel-wash</b></p> <p>The site is serviced by an existing wheelwash unit situated at the entrance to the site.</p> <div style="text-align: center;">  <p><i>Existing wheelwash facility</i></p> </div> <p>The wheelwash facility is constructed of reinforced concrete type structure (refer to photo above), with access ramps and corrugated shaker bar over a trough type structure which all trucks are required to pass through leaving the site. As trucks enter the wheelwash a number of shaker bars aid the release of mud from tyre grooves.</p> <p>Water supply is sourced from an on-site dug well. Water level within the trough is controlled by a ball-cock device and overflow pipe. The wash-water is recycled through a system of containment tanks. The tanks will be periodically cleaned and the silt will be used within the restoration of the site.</p>

<p><b>D.1.f</b></p>	<p><b>Laboratory facilities</b></p> <p>Laboratory facilities on site will not be required as the services of an external accredited lab will be used when required.</p>
<p><b>D.1.g</b></p>	<p><b>Design and location of fuel storage areas</b></p>  <p><i>Typical Bunded Fuel Bowser (Example Photo)</i></p> <p>Our client is proposing to replace the existing bunded fuel storage tank on site with a mobile double skinned (integrated bunding) fuel bowser to refuel mobile plant on site. The bowser will be provided with a Spill tray and spill kit.</p> <p>Oil and Waste oil products are stored under cover. All oil barrels and lubricants will be stored on spill pallets/ spill trays.</p> <p>Spill kits will also be maintained on site and the Company will put in place an emergency response procedure for hydrocarbon spills and appropriate training of site staff in its implementation.</p> <p>Waste oils are disposed of by a licensed waste contractor and removed off site.</p>
<p><b>D.1.h</b></p>	<p><b>Waste quarantine areas</b></p> <p>The site has a designated area for the quarantine of any inappropriate materials which may be found within loads accepted at the site. Skips have been provided within the designated quarantine area for the temporary storage of any inappropriate materials discovered (e.g. glass, plastic, timber, steel, etc). The materials are routinely removed by a licensed waste disposal contractor to an appropriate disposal facility.</p>
<p><b>D.1.i</b></p>	<p><b>Waste inspection areas</b></p> <p>All truck loads entering the site are given a preliminary inspection from the site office at the entrance (See D.1.e above).</p> <p>Secondary inspection is carried out after each load is tipped at the restoration infill area within the site. Should a load of material indicate contamination of non inert material on inspection, the material is reloaded and the driver instructed to remove the load offsite to an approved facility.</p> <p>Occasionally a load will contain minor contaminants (e.g. plastics, rebar, wood and paper). These items are removed on inspection by a site operative and stored in skips in a designated quarantine area pending removal offsite by a licensed waste disposal contractor to an appropriate disposal facility.</p>

<p><b>D.1.j</b></p>	<p><b>Traffic control</b></p> <p>Car parking including visitors parking will be provided at the main site entrance in front of the site office. Trucks entering the site report to the site office where each load will inspected as to its suitability to be recovered on site.</p> <p>All trucks exiting the site will leave through the existing wheelwash facility.</p> <p>Traffic direction signs, warning signs, speed limit signs are established throughout the site.</p> <div style="display: flex; justify-content: space-around; align-items: center;">    </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;">    </div> <p style="text-align: center;"><i>Examples of Existing Signage</i></p>
<p><b>D.1.k</b></p>	<p><b>Sewerage and surface water drainage infrastructure</b></p> <p>Existing temporary portacabin offices and toilet will be retained on site for the duration of the works. The portacabins will function as the site office and canteen for the duration of the operations.</p> <p>As only inert materials are to be imported to site there will be no source of possible contamination of surface waters. There are no surface water courses adjoining the site. Surface water-off within the site percolates to ground through the floor of the sand and gravel pit into the underlying limestone bedrock.</p> <p>Ground water quality monitoring can be carried out in accordance with any monitoring programme agreed with the EPA.</p>
<p><b>D.1.l</b></p>	<p><b>All other services</b></p> <p>It is proposed to supply the site inspection office facility with heating and lighting from the local ESB network.</p>
<p><b>D.1.m</b></p>	<p><b>Plant sheds, garages and equipment compound</b></p> <p>Oil and Waste oil products are stored within the existing workshop on site. All oil barrels and lubricants will be stored on spill pallets/ spill trays.</p> <p>No major vehicle servicing/repairs are carried out on site.</p>

<p><b>D.1.n</b></p>	<p><b>Site accommodation</b></p> <p>The existing site inspection office accommodation comprises of a portacabin (approx 3m x 3m).</p>  <p style="text-align: center;"><i>Existing portacabin</i></p>
<p><b>D.1.o</b></p>	<p><b>A fire control system, including water supply.</b></p> <p>In the event of a fire, the employee on the scene shall raise the alarm with all staff in the immediate area and confirm that all staff are present and accounted for. Assist in containing the fire using the appropriate extinguisher – only if it is safe and they are confident to do so. All personnel will have also undergone appropriate training and will be aware of potential hazards on site.</p> <p>In the event where a fire cannot be controlled the appropriate emergency services will be contacted either by dialling “999 or 112” and informing the operator of which service is required. An emergency contact list shall be maintained at the site office.</p> <p>The incident will also be reported immediately to the Site Foreman/Operations Manager.</p> <p>If the fire is located adjacent to explosive or further flammable materials the area should be vacated immediately and personnel should retreat a safe distance. Emergency services should be made aware of any potential hazards on site when they arrive.</p>
<p><b>D.1.p</b></p>	<p><b>Civic amenity facilities</b></p> <p>Not Applicable to this site.</p>
<p><b>D.1.q</b></p>	<p><b>Any other waste recovery infrastructure</b></p> <p>Refer to previous sections and the attached Infrastructure Plan D 1.1.</p>
<p><b>D.1.r</b></p>	<p><b>Composting infrastructure</b></p> <p>Not Applicable to this site.</p>

<p><b>D.1.s</b></p>	<p><b>Construction and Demolition waste infrastructure</b></p> <p>Recovery and re-cycling activities at the application site involves tipping of previously stockpiled 'unprocessed' material into a semi-mobile crushing &amp; processing plant using a front-end loader. Material produced by the plant is then transported by front-end loader to 'processed' stockpiles. Recycled material is used for internal haul roads and/or dispatched offsite. Currently this material is being used at the neighbouring Arthurstown Landfill Facility,</p> <p>No sorting of materials other than separation of rebar from concrete will be undertaken on site as all material will be sorted and segregated at source before being brought to the application site. Rebar (reinforced steel) separated from concrete will be stored in the designated quarantine area awaiting removal off-site by a licensed scrap merchant.</p> <div data-bbox="614 654 1200 1043" data-label="Image"> </div> <p><i>Primary Crusher on site (relocate as necessary)</i></p>
<p><b>D.1.t</b></p>	<p><b>Incineration infrastructure (if applicable).</b>  <b>Provide information to fulfil Article 4 (2) &amp; (3) of the Incineration of Waste Directive</b></p> <p>Not Applicable to this site.</p>
<p><b>D.1.u</b></p>	<p><b>Any other infrastructure</b></p> <p>There is no other infrastructure proposed.</p>

## **D.2 Facility Operations**

### **D.2.(a). Unit operations**

The attached Site Infrastructure Plan (Refer to Figure D.1.1) indicates the location of all activities and identifies all buildings and facilities at the Recovery Facility.

#### **Delivery, Inspection & Acceptance**

Materials to be recovered will only be accepted from approved Contractors who are aware of the need for and who undertake strict segregation and sorting of waste prior to transporting it to the application site;

The applicant will endeavour to visit the construction sites to ensure materials are being properly sorted and segregated at source.

Typically loads of up to 9 cu.m will be imported to site. Only hauliers with the appropriate Waste Collection Permits will be accepted.

All truck loads entering the site will be given a preliminary visual inspection at the site office at the entrance. If the material is not considered acceptable the haulier will be refused entry and directed to an appropriate Waste Management Facility.

Any Contractor who persistently carries unacceptable waste to the application site will be denied further use of the facility.

Details of all truckloads entering the site are entered into a logbook maintained by the operator. A designated internal haul road will be maintained to direct site traffic to the tipping area.

Accepted materials will be subject to a Second inspection after each load is tipped at the restoration infill area within the site. Should a load of material indicate contamination of non inert material on inspection, the material is reloaded and the driver instructed to remove the load offsite to an approved facility.

#### **Quarantine**

Occasionally a load will contain minor contaminants (e.g. plastics, rebar, wood and paper). These items are removed on inspection by a site operative and stored in skips in a designated quarantine area pending removal offsite by a licensed waste disposal contractor to an appropriate disposal facility.



## Recovery of Soils

Following the second inspection the material will be accepted and placed within the restoration (placement by bulldozer) area or in the case of topsoil placed in temporary storage awaiting final placement.

## Phasing of Restoration Works

The phased scheme for final restoration of the area is shown by Figures B.2.1 & B.2.4. The volume of material required to be imported to the site to complete the proposed restoration scheme has been calculated (using the Digital Terrain Modelling Software Package LSS) and is shown below.

### Volume of Void Space Remaining at Kiernan Sand & Gravel Ltd, Foxtown, Co. Meath

Phase	Void Space m <sup>3</sup>	*Compacted Volume m <sup>3</sup>	**tonnes	Life Span
1	67,000	73,700	147,400	1
	67,000	73,700	147,400	2
	67,000	73,700	147,400	3
2	67,000	73,700	147,400	4
	67,000	73,700	147,400	5
	67,000	73,700	147,400	6
3	67,000	73,700	147,400	7
	33,500	36,850	73,700	7.5
<b>Totals</b>	<b>502,500</b>	<b>552,750</b>	<b>1,105,500</b>	<b>7.5</b>

#### Notes:

\* An approximate settlement factor of 10% has been assumed following placement of materials.

\* Assumes 67,000 m<sup>3</sup> recovered per annum (subject to market conditions).

\*\* Assumes density of imported soils as 2 tonnes/m<sup>3</sup>

The lands are to be restored to Forestry by importation and recovery of inert materials in accordance with a phased restoration scheme. It is the intention to restore the lands to woodland. Each phase will be for a duration of about 2-3 years (Refer to Figures B.2.1 & B.2.4).

A bulldozer is used to appropriately grade and compact the material to the desired profile as shown by the detailed plans and sections (Refer to Figures B.2.4 and B.2.5). Typically the soil is placed in 2-3 metre lifts with fill slopes of a safe angle of repose of 1:2.

Good quality imported soil will be conserved wherever possible to provide the subsoil/topsoil capping. These topsoil's/subsoil's will be handled under dry conditions to minimise compaction. For the purpose of restoration to agricultural/forestry the restored soil profile (capping) shall comprise 300mm topsoil over 1200-1350mm of subsoil.

Progressive restoration involving tree planting and grass seeding of restored area's shall be carried out on a staged basis to reduce the effects of soil erosion, windblown dust, to aid ground stabilisation and as an effective means of weed control. On completion of each phase of development final restoration including grading, planting/seeding and landscaping will be carried out. Final restoration is dependent on the availability of good topsoil/subsoil and subject to suitable weather conditions. In order to allow for continuity of operations it is necessary to have a certain overlap between phases. The final contours and topography for the site is shown by the Final Landform Plan Figure B.2.4 and Cross Sections B.2.5.

Initially for each phase the void will be backfilled to the level of the adjoining public road. These workings will be screened from outside views by the existing steep natural bank running along the public road. The second stage will involve construction of an esker like feature to the final profile as shown by Figures B.2.4 & B.2.5. In general material will be placed in a series of 2 metre lifts to ensure that the material is properly compacted on placement. The outer berm along the public road will be constructed first and subsequently grassed to provide additional screening of the workings from the nearest residences.

In order to access the pit floor the haul roads shall be constructed using suitable imported material (i.e. brick, block, concrete and stone). The proper construction of the haul road will help minimise the amount of mud and dust generated by lorries entering and leaving the site.

The final landform will comprise a ridge running northwest to southeast which will be similar in profile to the original esker ridge that ran through the lands (Refer to Figure B.2.4).

### ***Decommissioning***

Redundant structures, plant equipment and stockpiles will be removed from site on cessation of pit activity. Plant and machinery will either be utilised by the operators on other sites, or be sold as working machinery or scrap. Any hard standing areas shall be broken

up and the material incorporated into the final restoration scheme. The site access will be retained as agricultural access to the restored lands.

As part of the decommissioning process, all fuel and oil storage tanks will be removed from the site by a licensed waste contractor. The septic tank will also be removed from the site. Therefore there will be no potential for fuel, oil or sewage to cause long-term water pollution following cessation of extraction activities

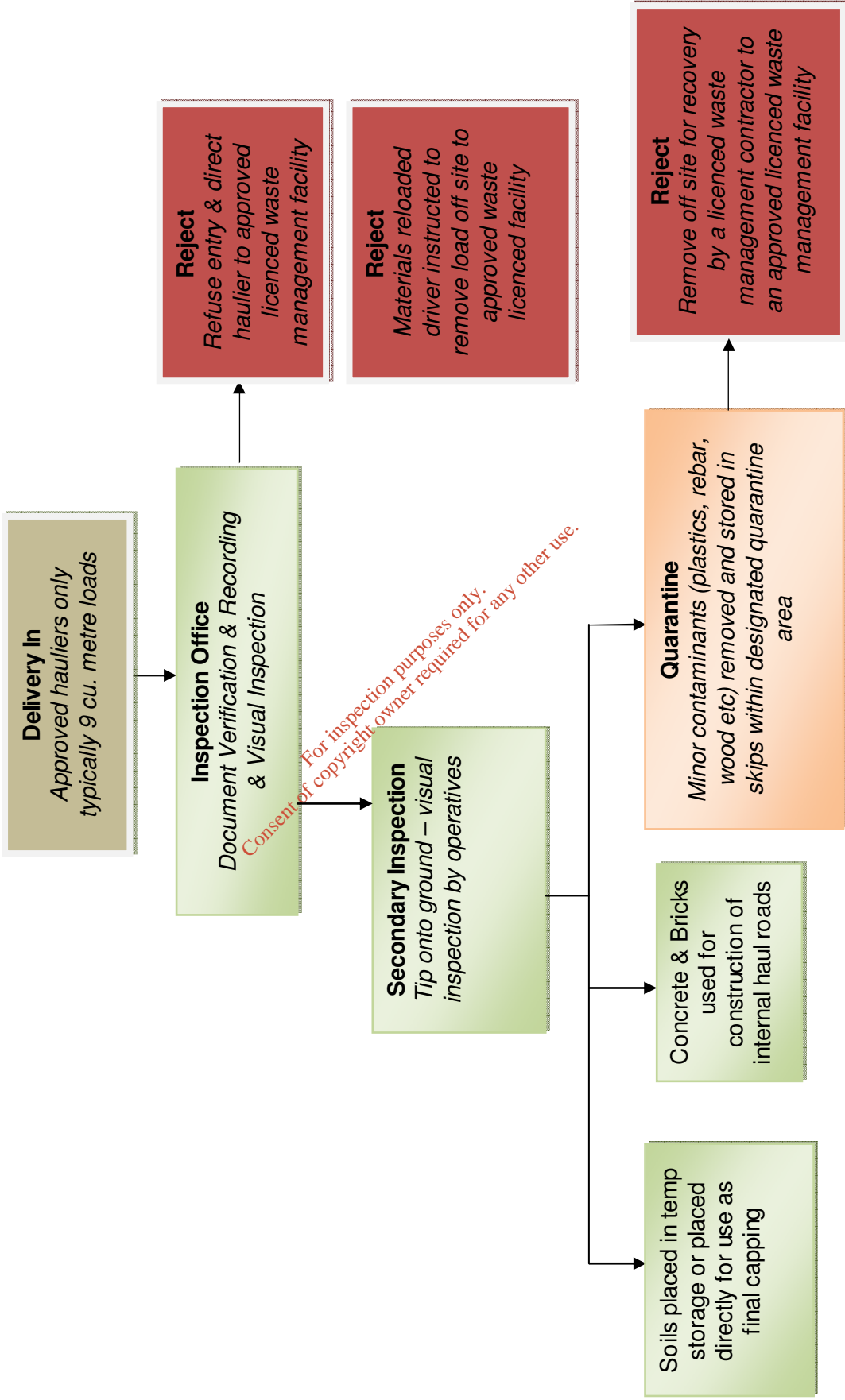
### **Recovery of Construction Materials**

Clean construction and demolition waste will either be placed directly on haul roads or temporarily placed in storage awaiting recovery.

Recovery and re-cycling activities at the application site involves tipping of previously stockpiled 'unprocessed' material into a crushing & processing plant using a front-end loader (Refer to Figure D.1.1). The processing is undertaken periodically as materials are required using the existing semi mobile crushing and screening plant on site. Material produced by the plant is then transported by front-end loader from production stockpiles around the plant to 'processed' stockpiles. Recycled material will be loaded and dispatched from 'processed' stockpiles.

No sorting of materials other than separation of rebar from concrete will be undertaken on site as all material will be sorted and segregated at source before being brought to the application site. Rebar (reinforced steel) separated from concrete will be stored in a skip prior in the designated quarantine area awaiting removal off-site by a licensed scrap merchant.

D.2.(b). Flow diagram of the whole process, along with a brief description (*italics*) detailing its management and maintenance plans.



**D.2.(c). Aspects of the facility operation that can cause emissions to the environment during normal operation**

The main potential sources of emissions from an inert waste recovery facility would be from noise or dust associated with the movement, handling and placement of materials. Possible other emissions to the atmosphere would be from machinery exhaust fumes and also possible emissions to surface and/or groundwater in the event of a fuel spillage. Full descriptions of possible emissions, means of abatement and treatment measures are contained in Attachments E & F.

**D.2.(d). Brief details of the activities carried on in laboratory facilities associated with the activity (if relevant).**

A laboratory is not required on site as the facility will only accept inert material. Any laboratory analysis (e.g. soils, surface & groundwater, dust) required will be carried out by an accredited laboratory off site.

**D.2.(e). For Incineration facilities (if applicable), provide information to fulfil Article 6 of the Incineration of Waste Directive.**

Not Applicable to the proposed site.

**D.3 Liner System**

No liner system is required as only inert material is being used to restore the lands.

**D.4 Leachate Management**

As only inert materials are being used to restore the lands, no leachate will be created and therefore no leachate management is required.

A groundwater monitoring programme will also be put in place to ensure that there is no impact on water quality as a result of the recovery operations.

**D.5 Landfill Gas Management**

As only inert materials are being used to restore the lands there will be no landfill gas generated as result of the recovery activity on site.

## D.6 Capping System

It is proposed to reclaim the lands to a condition and profile suitable for forestry/agricultural use. For the purpose of restoration to agriculture the restored soil profile (capping) shall comprise 300mm topsoil over 1200-1350mm of subsoil.

The applicant is an experienced earthmoving contractor. Soils will be handled in accordance with accepted guidelines and good practice.

Good quality soil material for final capping will be placed in temporary storage areas. Topsoil and subsoil will be stockpiled separately to maintain the integrity of the soil.

To ensure that damage to these materials is kept to a minimum, movement and placement of topsoil and subsoil for final restoration will only take place during appropriate weather conditions and when the soils are in the optimum condition. This optimum soil condition may be described as moist but friable. No soils will be moved when they are too dry or when there are unusually windy weather conditions. This will help to prevent erosion and any consequential creation of dust. Conversely, soils will not be handled in wet conditions or when the moisture content of the soils is too high. This will ensure that smearing of the soils does not take place and that the soil retains its structure.

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