ATTACHMENT D1 – SITE INFRASTRUCTURE

Site Security Arrangements D1.a

Vehicular access to Roadstone Ltd.'s property at Calary Quarry and the application site is directly off the R755 Regional Road which runs along the western site perimeter. There is no other vehicular access to the quarry or application site.

At the present time, the quarry / property boundary is secured by post and wire fencing and/or hedgerow. Prior to commencement of the proposed guarry backfilling and restoration activities, a survey of the entire property boundary will be undertaken and where necessary, new boundary fencing will be erected, existing fencing will be repaired and/or replaced and hedgerows will be strengthened or fortified by additional planting.

All heavy good vehicles (HGVs) importing inert soil and stone to the proposed recovery facility will be required to pass over a weighbridge to be installed along the access road leading into the former quarry / proposed waste recovery facility. CCTV cameras will be installed around the weighbridge and used to inspect all soil waste being imported for recovery at the facility.

D1.b Design for Site Roads

All trucks delivering inert soil for quarry restoration purposes will be confined within the Applicant's landholding. Trucks will turn into the site from the R755 Regional Road and travel north over a short section of paved roadway within the application site towards a weighbridge which is to be installed at the existing infrastructure area on the western side of the quarry.

After being weighed, the HGV's will turn southwards and trave over an existing unpaved haul road into the former quarry void, after which they will travel over a network of temporary haul roads leading to the active backfilling area. Existing paved and unpaved have read around the application site are shown in Drawing D1.1. **D1.c Design of Hardstanding Areas** At the present time, within the application areas there are concrete aprons and sealed hardstanding areas

located around existing / former site infrastructure at the upper level on the western side of the quarry. These paved areas will remain in place for the duration of the waste recovery activities at the site.

The concrete apron installed at the quarry access runs in excess of 30m to the infrastructure area. Routing exiting traffic over this surface will help minimise the volume of clay and dust transported out of the proposed recovery facility onto the public road network.

Adequate provision for car parking by potential future employees and visitors will be provided at the infrastructure area, as indicated in Drawing D1.1.

D1.d Plant

Plant maintained on site will principally comprise mechanical excavators and/or tracked dozer. Mobile plant and equipment undertaking quarry backfilling works will be refuelled from mobile, double skin fuel bowsers or at a refuelling area in front of the fuel storage tank.

D1.e Wheelwash

In order to prevent transport of clay and dust onto the public road network, a wheelwash will be installed along an egress route to be delineated over existing paved surfaces. All HGV and tipper trucks exiting the proposed facility will be required to pass through the proposed wheelwash, the location of which is indicated on the proposed site infrastructure layout in Drawing D1.1

Plans and elevations of the proposed wheelwash are provided in Drawing D1.2 while those for the associated pumphouse, storage tank and settlement lagoon are provided in Drawing D1.3.

D1.f Laboratory Facilities

Laboratory testing of soil, surface water, groundwater and soil water percolate (leachate) will be undertaken off-site at an ILAB / UKAS accredited geo-environmental laboratory. Any validation testing and laboratory testing, required to confirm inert classification of waste soil, will also be undertaken by the same laboratory. All samples taken on-site will be forwarded to the laboratory and test results will typically be forwarded to site within seven to ten working days.

It is not intended to store environmental monitoring equipment such as pH and temperature meters. conductivity meters and dissolved oxygen meters at the site office. Any such equipment will be brought to site by an in-house environmental scientist and/or independent environmental consultant as and when required.

D1.g Design and Location of Fuel Storage Areas

A proposed new auto diesel fuel storage tank to be erected at the site infrastructure area will be constructed over a concrete slab and will be surrounded by a perimeter bund providing a storage volume equivalent to 110% of the tank storage volume. Details of the fuel storage tank and bund are shown on Drawing D1.4.

Mobile plant and equipment undertaking quarry backfilling works will be refuelled from mobile, double skin fuel bowsers within the quarry void or at a dedicated refuelling area on a concrete slab constructed adjacent to the proposed new fuel storage tank, as shown on the site layout drawing on Drawing D1.1.

The refuelling area will be underlain by a sealed concrete slab which will fall toward a central drain / gully. All surface water run-off over this slab will flow via the on-site hydrocarbon interceptor (fitted with silt trap) for treatment prior to discharge off-site, refer to the site services layout shown on Drawing D1.5.

All oil and lubricant changes or routine servicing of wheeled or macked plant will be undertaken over the concrete slab at the refuelling area. Oils and lubricants (and waste oils) will be stored in tanks and/or drums in a container to be placed over a concrete slab at the location indicated on Drawing D1.1. All surface water run-off from this slab will be captured by gullies and drains which will carry it to an on-site hydrocarbon interceptor for treatment prior to discharge off-site, as shown on the site services layout in - work of the owner Drawing D1.1.

D1.h Waste Quarantine Areas

For The proposed waste inspection and quarantine facility, which essentially comprises a covered shed, will be constructed over a sealed concrete slab and located north of the site offices, at the location indicated in Drawing D1.1. Plans and elevations of the proposed structure are provided on Drawing D1.6.

As incipient rainfall will not come into contact with consignments of suspected contaminated waste stored at the covered shed, it is considered that there is no requirement to install drainage infrastructure to provide for the separate collection and storage of potentially contaminated surface water run-off arising at this location.

Should any inspection or testing of suspect soil waste identify any non-inert material which cannot be accepted or re-used in the restoration of this site, it will be segregated and temporarily stockpiled (quarantined) at this facility pending removal off-site by permitted waste collectors to an authorised offsite waste disposal or recovery facility.

Waste Inspection Areas D1.i

Visual inspection, in-situ monitoring and chemical testing of imported soil will be undertaken by the Applicant's site staff as it is end-tipped at the active infill / restoration area. Any imported waste which is accepted at the facility but subsequently suspected to be non-compliant with waste acceptance criteria for the facility will be re-loaded onto HGV trucks and transferred across the application site to the proposed waste inspection and guarantine facility for closer examination and/or testing. Plans and elevations of the proposed structure are provided on Drawing D1.6.

D1.j Traffic Control

Planning permission for upgrading of the existing site access at Calary Quarry, to provide improved sightlines and visibility along the R755 Regional Road to both the north and south, was granted in 2008 on foot of a planning application for the continued operation of Calary Quarry (Planning Permission Ref. No. 06/6189 / An Bord Pleanála Ref. No. PL27.224400).

It is envisaged that upgrading work to the existing site access, in line with the previously approved design details, will be undertaken following grant of planning permission and a waste licence for the recovery facility and prior to commencement of any on-site recovery activity.

Road signage and road markings along the R755 Regional Road leading to/from the site were upgraded previously, in accordance with Condition No. 24 of the 2008 planning permission. Notices along the R755 provided advance warning to drivers of a quarry facility ahead (in accordance with Condition No. 25 of the same permission). Where appropriate, roadside notices will be replaced or reinstated as part of the proposed development of a recovery facility at the same site.

Internally, within the proposed waste recovery facility, warning notices, direction signs and speed restriction signs will be erected where appropriate along paved and/or unpaved roads leading to and from the active restoration area and/or the waste inspection and quarantine area.

All HGV traffic entering the application site will be required to pass over the proposed weighbridge, while all egressing HGV traffic will be routed through a planned wheelwash facility. Car and HGV / truck traffic routing through the proposed facility is indicated in Drawing D1.1.

D1.k Sewerage and Surface Water Drainage Infrastructure

Staff at the waste recovery facility will use toilet, hand washing and welfare facilities which will be provided at the new site offices and canteen. The location of these facilities and the existing on-site septic tank servicing them are shown in Drawing D1.1 and Drawing D1.5.

An existing septic tank is located to the south-east of the proposed site offices (at the location indicated on Drawing D1.5). Effluent from the tank is treated at a raised treatment / percolation area, located close to the haul road / descent leading down to the former quarry floor, prior to being discharged to ground.

Prior to the suspension of quarry operations in 2010, the water management system comprised a series of sumps on the quarry floor which pumped surface water run-off to a series of overground settlement tanks at the infrastructure area at the upper level. These tanks facilitated settlement of suspended solids / sediment prior to discharge off-site via 6 0.38m (15") diameter concrete pipe.

At a point approximately 200m north of the site offices, the existing discharge pipe emerges into a drainage ditch running along the eastern verge of the R755 Regional Road which also collects surface water run-off from the western slopes of the Sugar Loaf. After a short distance, this drainage ditch enters a culvert which carries the flow under the R755 and discharges to another ditch running downslope to a tributary stream of the Killough River.

There is currently no existing surface water drainage infrastructure across the application site. Surface water run-off over any existing paved or hardstand surfaces at the infrastructure area currently falls eastward and either

- flows through unsealed ground into the underlying bedrock and ultimately intercepts groundwater or
- flows into worked-out quarry.

Once it hits the groundwater body, any recharge is likely to follow regional groundwater flow westwards, down to the Killough River flowing along the valley floor.

When the recovery facility is operational, any surface water run-off over sealed ground and hardstanding areas around the proposed infrastructure area will be captured by gullies and buried drains and passed through a hydrocarbon interceptor (fitted with a silt trap) prior to discharge off-site via the existing concrete pipe. All off-site drainage will flow via the drainage ditch along the western site boundary to the Killough River.

Lowering of Water Level in Worked Out Quarry

A discharge licence was previously issued by Wicklow County Council (Ref. No WPL87) in October 2008 and by An Bord Pleanála (on foot of a first party appeal) in December 2010. The licence provided for the discharge of treated process water from the quarry to the tributary stream of the Killough River.

At the present time, surface water run-off and minor groundwater inflows have created a large pond within the existing quarry void. Available survey data suggests that the depth of water in the flooded quarry void is up to 25m deep at its deepest point. Prior to commencement of backfilling, it will be necessary to dewater the quarry void by pumping. It is envisaged that the lowering of the existing groundwater pond will be undertaken over an extended period of time, most likely in the time following grant of planning permission and/or waste licence and commencement of quarry backfilling and restoration activities.

Ponded water in the quarry will be pumped up to the proposed infrastructure area at the top of the quarry via flexible piping. Should it be necessary to treat the ponded water to achieve discharge quality standards set by the existing discharge licence (or EPA waste licence), it will be routed through proposed new settlement ponds and a hydrocarbon interceptor (fitted with a silt trap), both of which have yet to be installed. Thereafter, it will flow under gravity to the existing concrete pipe which discharges off-site.

Surface Water Management during Quarry Backfilling

As backfilling of the quarry proceeds over the short-to-medium term, the flow of surface water run-off into the quarry will be minimised wherever possible by the construction of drainage channels around the edge of the quarry. These channels will collect some over ground surface water flows from higher ground and divert them directly (without further treatment) to the existing natural drainage network surrounding the quarry.

During the backfilling operations, the upper surface of the backfilled soil will be graded so as to ensure that surface water run-off falling over the quarry footprint falls to sumps at temporary low points. Any groundwater daylighting in the quarry faces during the backfilling phase will also be permitted to flow into the quarry and to run over filled ground to these sumps.

The temporary sumps will effectively function as primary settlement ponds and water collecting in them will be pumped (causing minimum agitation to ponded water) to the proposed new settlement ponds and hydrocarbon interceptor to be installed on the northern side of the infrastructure area at the upper level and will be retained there for sufficient time to allow sediments / suspended solids to fall out of solution. Thereafter run-off will be passed though the proposed hydrocarbon interceptor before being discharged off-site to the existing drainage network leading to the Kilough River.

All surface water discharges from the proposed recovery facility to the Killough River will comply with the emission limits set by the existing discharge licence or those which may supersede them in any waste licence issued by the EPA.

In the longer term, toward the end of the quarry backfilling works, ground contours within and around the backfilled quarry void will be modified to ensure that surface water run-off across the area is directed to a drainage ditch / channel to be developed along the western site boundary, as indicated in the proposed final quarry restoration plan provided in Drawing D1.7

D1.I All Other Services

Electrical power is currently provided to the application site and there is an existing (blockwork) transformer hut located at the application site, to the west of the proposed site office location (refer to Drawing D1.1). Electricity will provide the principal source of energy for office lighting and heating.

Overhead electricity transmission cables run along the floor of the valley immediately west of Calary Quarry, with a spur line running east and upslope to the transformer hut at the application site. Fixed telephone lines run along the western side of the Roadstone landholding, along the side of the R755 Regional Road.

Apart from short lengths of water supply and sewerage pipes running to or from existing infrastructure, no other buried water or waste water service pipes are present at the application site.

As part of the proposed development, new power connections will be made from the existing transformer hut to the site office, weighbridge office, staff welfare facilities and proposed wheel wash and fuel storage facilities. The plan layout of existing and/or proposed site services is shown on Drawing D1.5.

A potable water supply for the proposed facility will be provided by a pre-existing groundwater supply well, designated GW3, indicated in Drawing D1.5. As the supply well may have collapsed, it is envisaged that it, together with other groundwater monitoring wells, will be re-drilled if required prior to commencement of waste recovery activities at the application site.

D1.m Plant Sheds, Garages and Equipment Compound

Plant and equipment used in the quarry backfilling and soil recovery activities will be stored on unsealed hardstand areas at the infrastructure area on the western side of the quarry. Given the restricted access into Calary Quarry, it is not considered necessary to provide a secure compound for plant and equipment servicing the waste recovery facility.

All routine servicing or maintenance of plant or equipment will be undertaken over the concrete slab to be constructed adjacent to the bunded re-fuelling tanks, at the location indicated on Drawing D1.1. Any plant and equipment requiring more specialist repair or overhaul will be taken off-site via low loader to an appropriate maintenance and servicing facility.

Any small items of mobile or hand-held plant and equipment required at the proposed facility will be stored as required in a large container which will be brought to site and placed over a concrete slab at the location indicated in Drawing D1.1. Plans and elevations of the proposed storage shed are provided in Drawing D1.8.

D1.n Site Accommodation

The proposed site office, weighbridge office and staff welfare facilities will comprise a series of demountable / reusable 'portacabin' structures, all of which will remain in place for the duration of the site restoration and soil recovery activities. Plans and elevations of the proposed offices and welfare facilities are provided in Drawing D1.9.

The site office will house all administration and management functions for the waste recovery facility. The staff changing, washing and cooking facilities will be provided at a staff welfare / canteen unit, which will also house toilets / handwashing facilities. Sinks will be supplied with water pumped from the groundwater wells to a storage tank on the site office roof. Sinks and toilet facilities will also be plumbed and connected directly to the existing septic tank.

D1.0 Fire Control System, including water supply

Given the lack of combustible waste materials at this site, it is considered highly unlikely that a fire will break out during backfilling and recovery operations. A range of fire extinguishers (water, foam and CO2) will be kept at the site office to deal with any localised small scale fires which might occur. Additional fire-fighting capacity can be provided by storing water in a mobile bowser on unsealed hardstand areas around the infrastructure area and ultimately, if required, by local firefighting services in Bray or Wicklow.

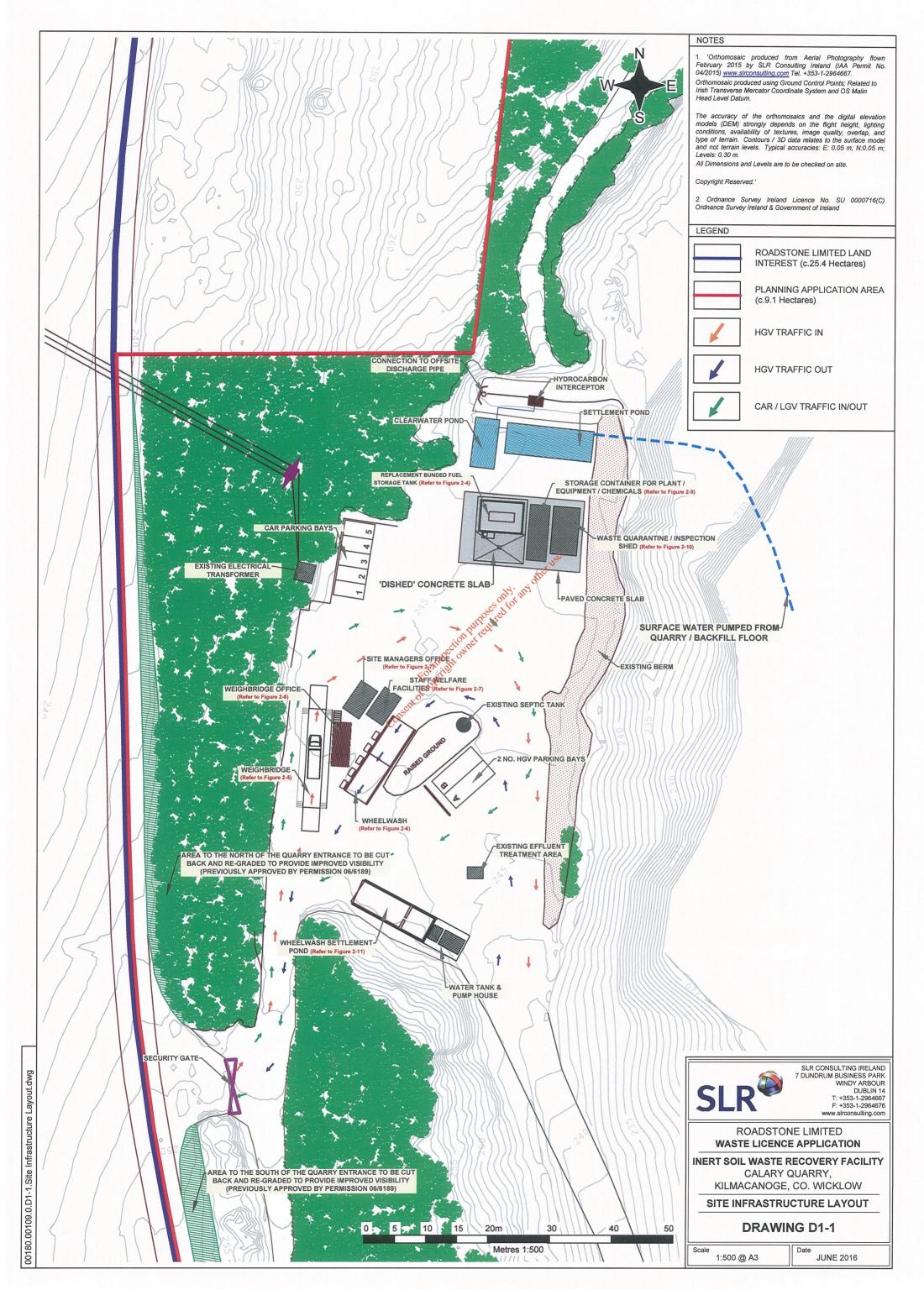
As previously mentioned, the water supply for the facility will be provided via a pre-existing groundwater supply well.

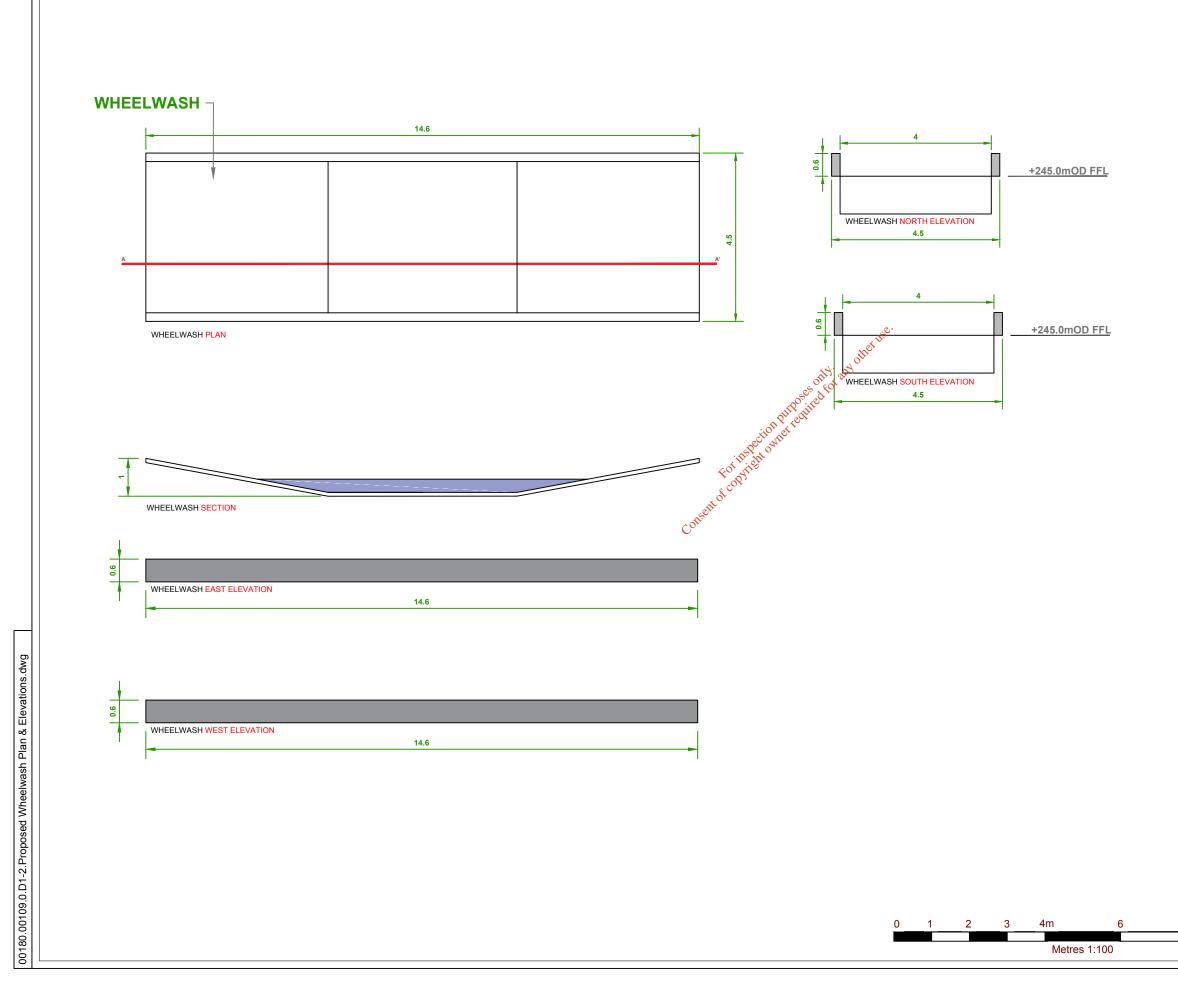
D1.p Civic Amenity Facilities

No civic amenity facilities are provided at this waste recovery facility.

D1.q Any Other Waste Recovery Infrastructure

In order to track and record the amount of material entering the application site, all HGV traffic importing soil and stones to the waste recovery facility will be directed across a proposed weighbridge, the location of which is also indicated on the proposed site infrastructure layout in Drawing D1.1. Plans and elevations of the proposed weighbridge are provided in Drawing D1.10 while those of the adjoining weighbridge office are provided in Drawing D1.11.







NOTES

1. REFER TO **DRAWING D1-1** FOR LOCATION OF PROPOSED WHEELWASH

2. ALL DIMENSIONS IN METERS

3. WHEELWASH: AREA OF INTERNAL FLOOR = 58.5m²



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ROADSTONE LIMITED WASTE LICENCE APPLICATION

CALARY QUARRY, KILMACANOGUE, CO. WICKLOW

PROPOSED WHEELWASH DETAILS

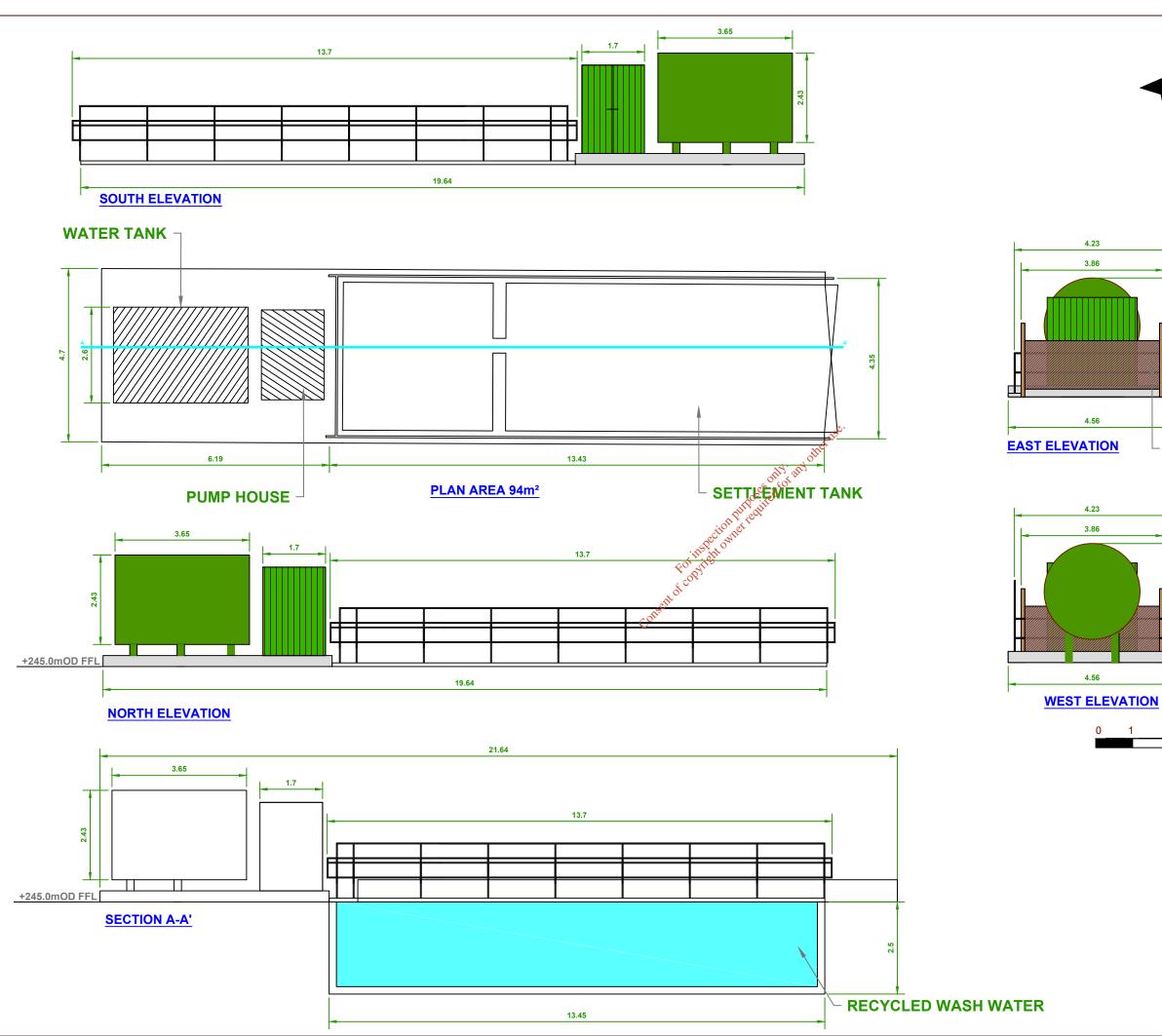
DRAWING D1-2

Scale 1:100 @ A3

10

Date JUNE 2016

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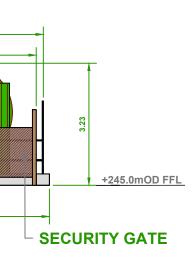
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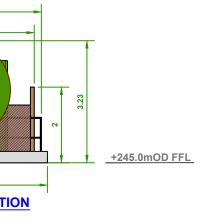


1. REFER TO **FIGURE D1-1** FOR LOCATION OF PROPOSED WHEELWASH LAGOON SYSTEM

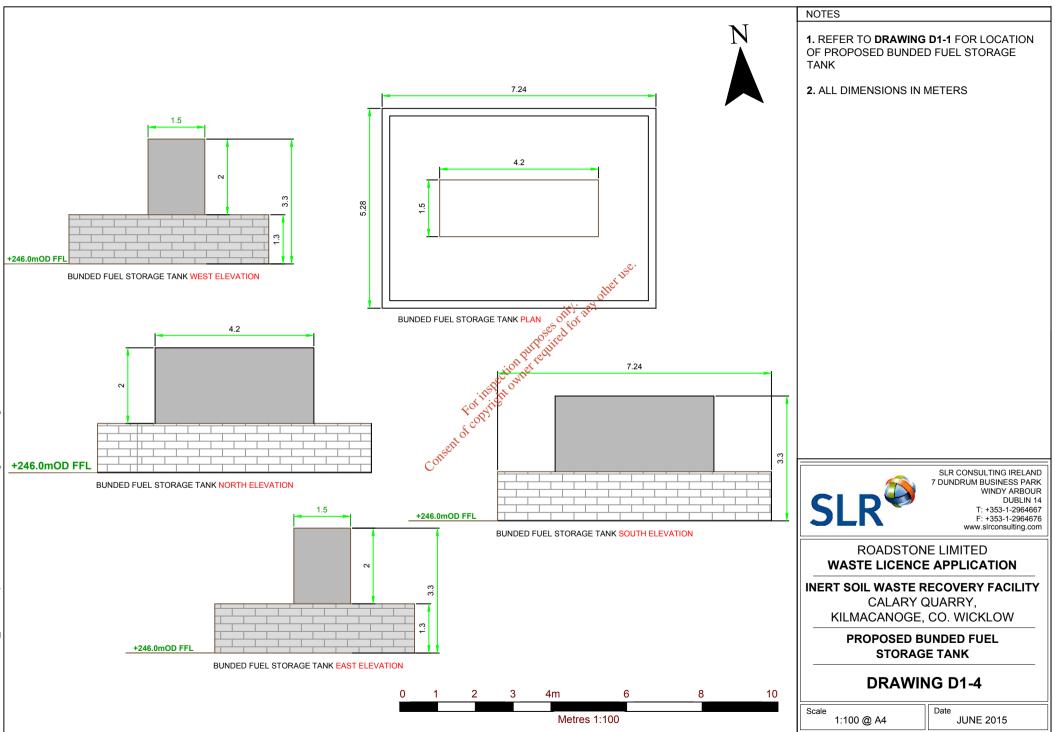
2. ALL DIMENSIONS IN METERS

3. WHEELWASH: AREA OF LAGOON SYSTEM = 92m²

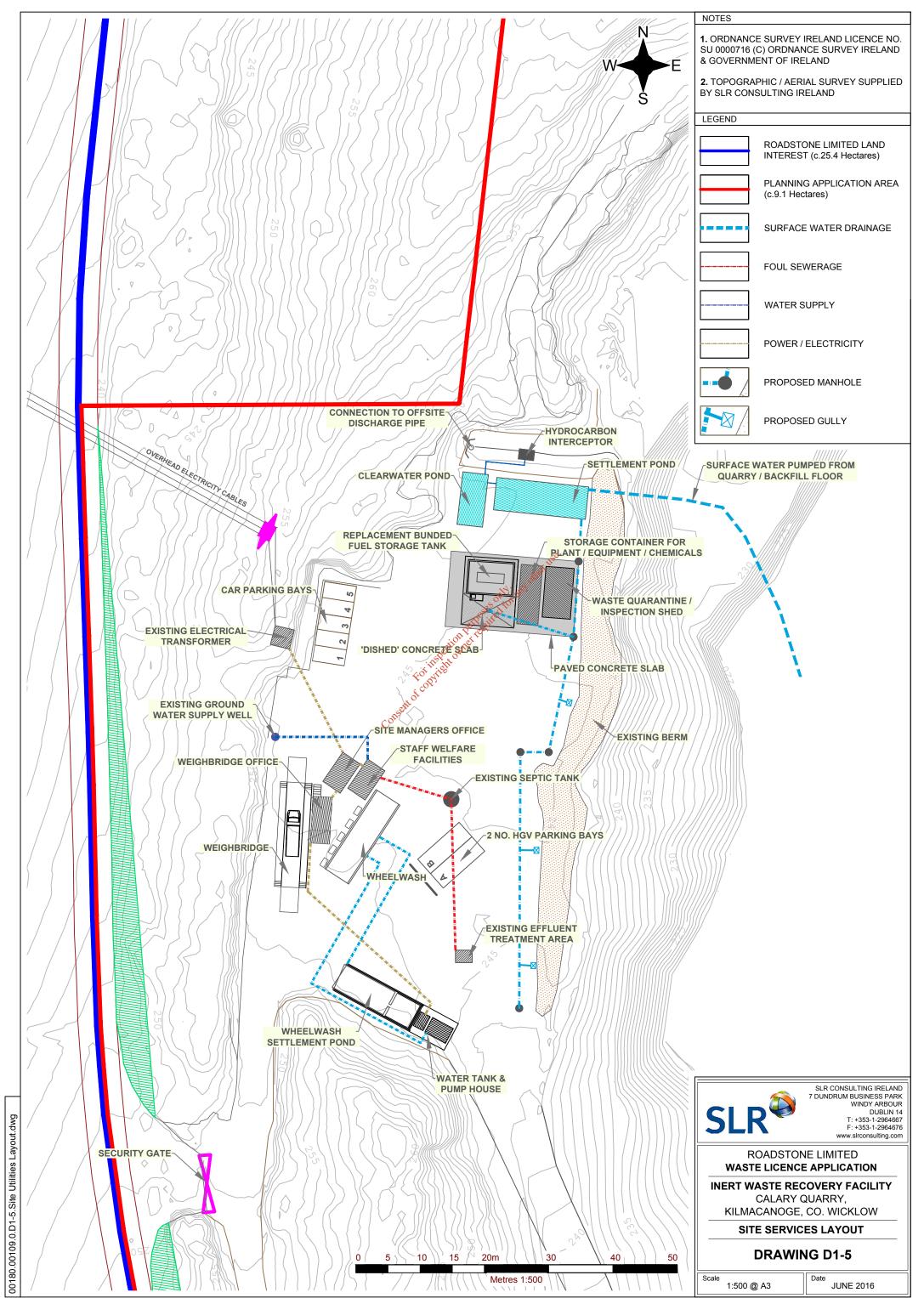




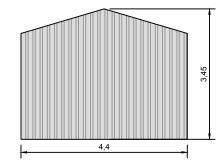




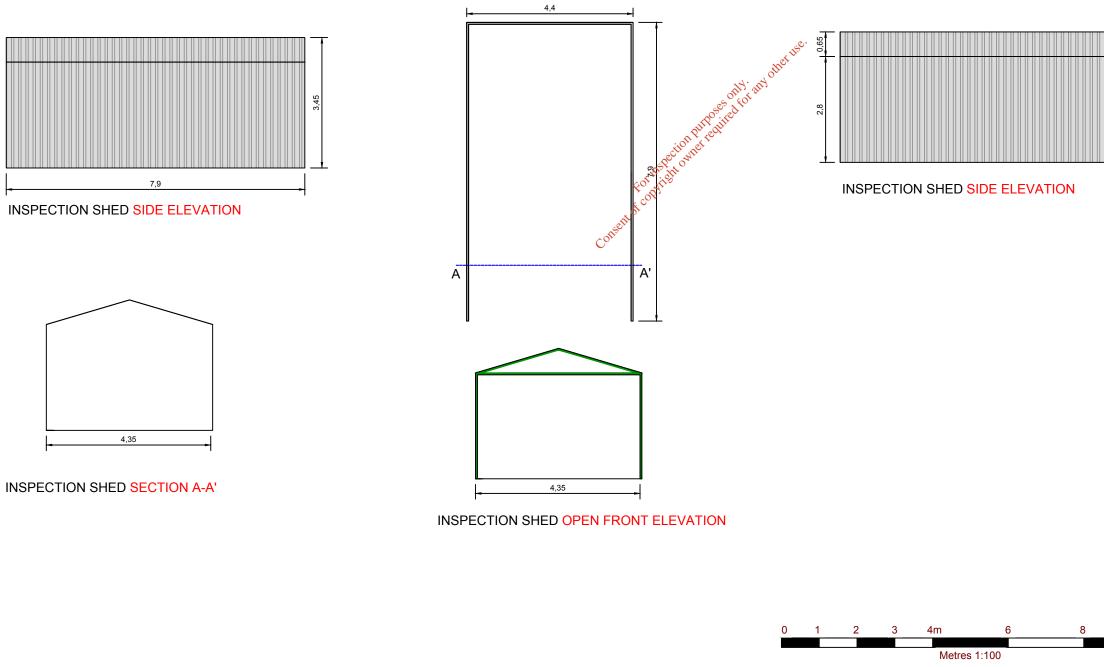
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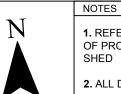


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INSPECTION SHED FRONT ELEVATION



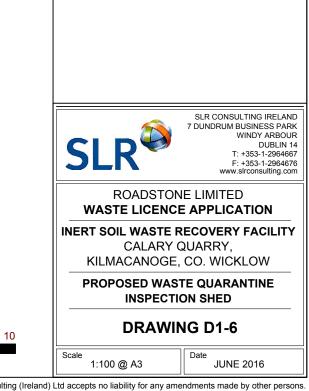


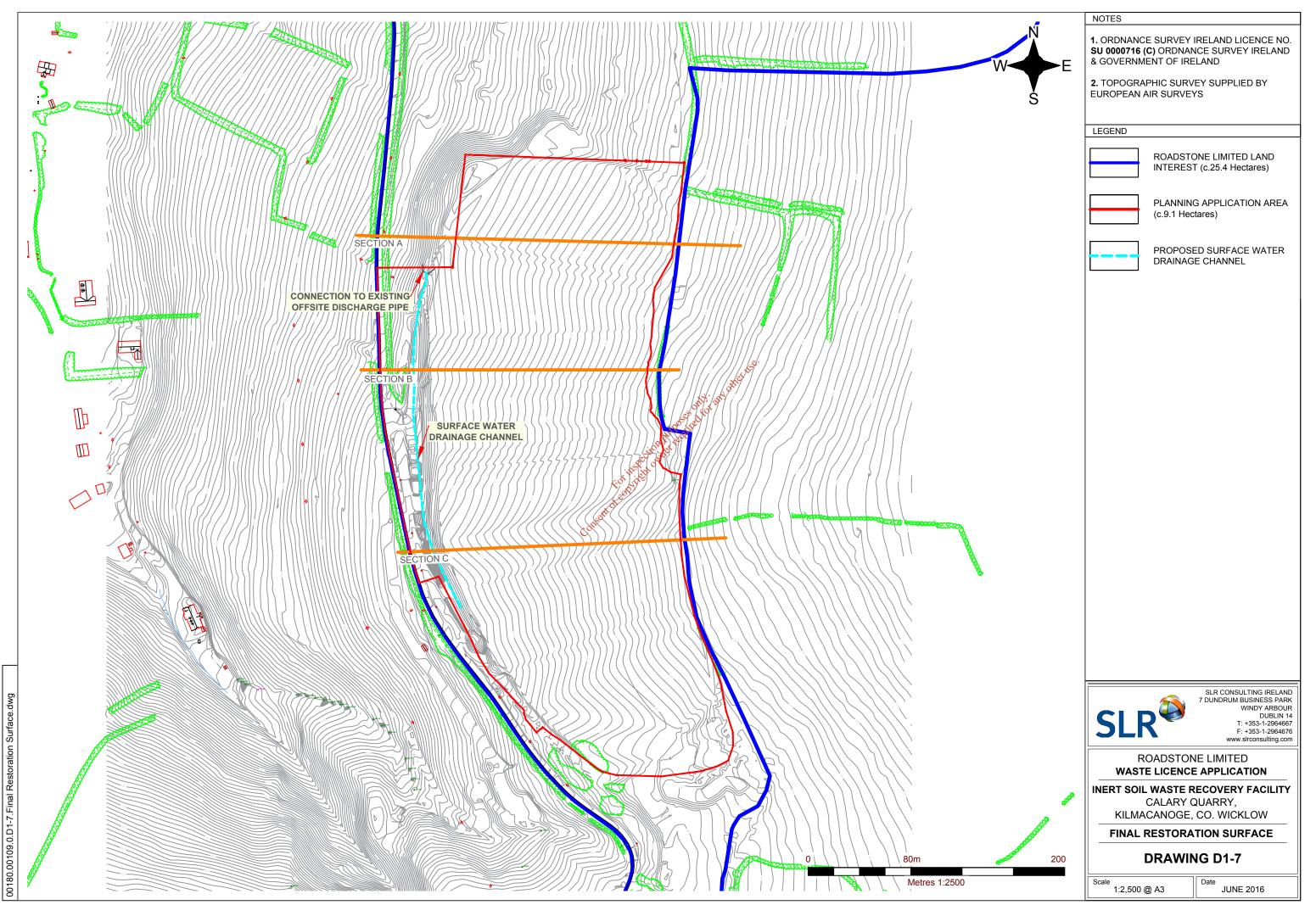
1. REFER TO DRAWING D1-1 FOR LOCATION OF PROPOSED QUARANTINE INSPECTION SHED

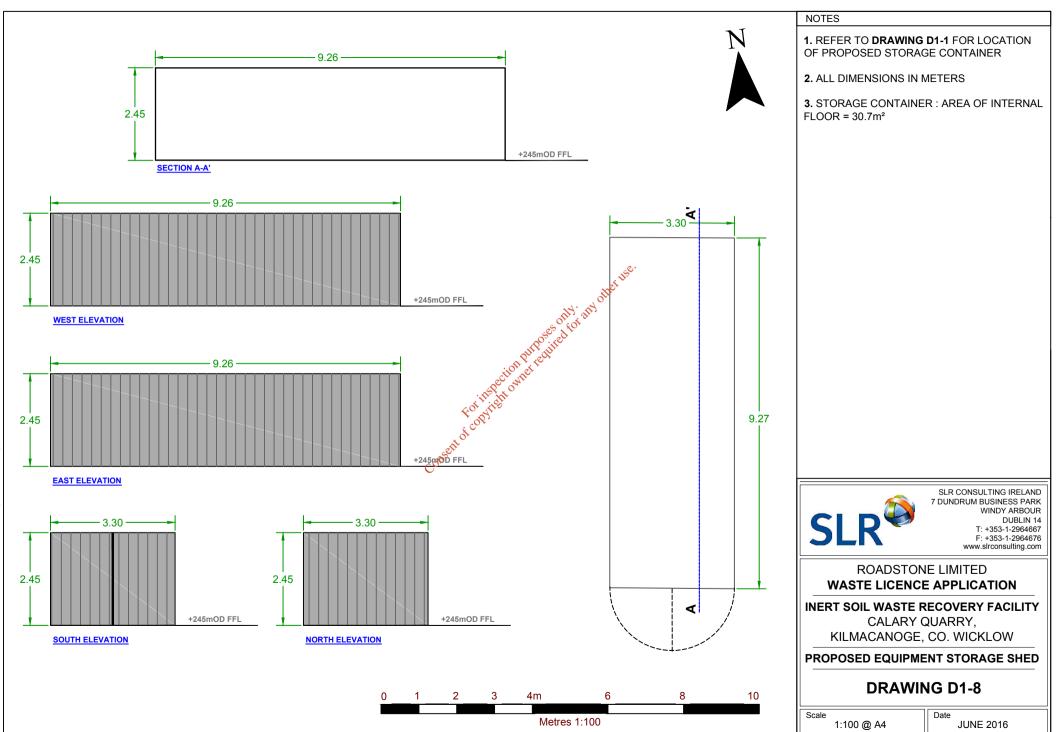
2. ALL DIMENSIONS IN METERS

3. QUARANTINE INSPECTION SHED: AREA OF INTERNAL FLOOR = 35m²

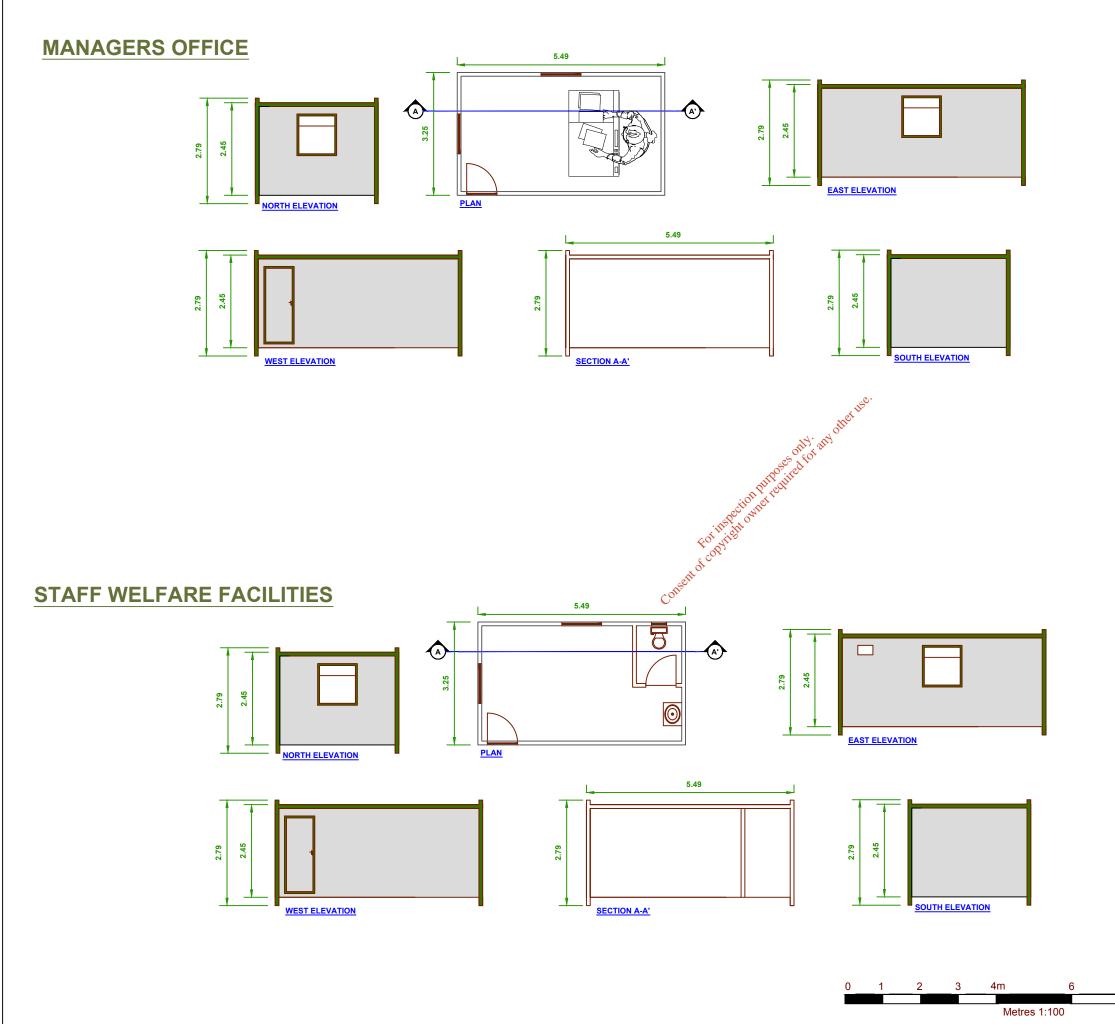








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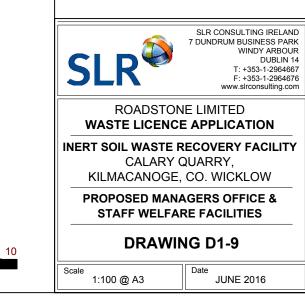
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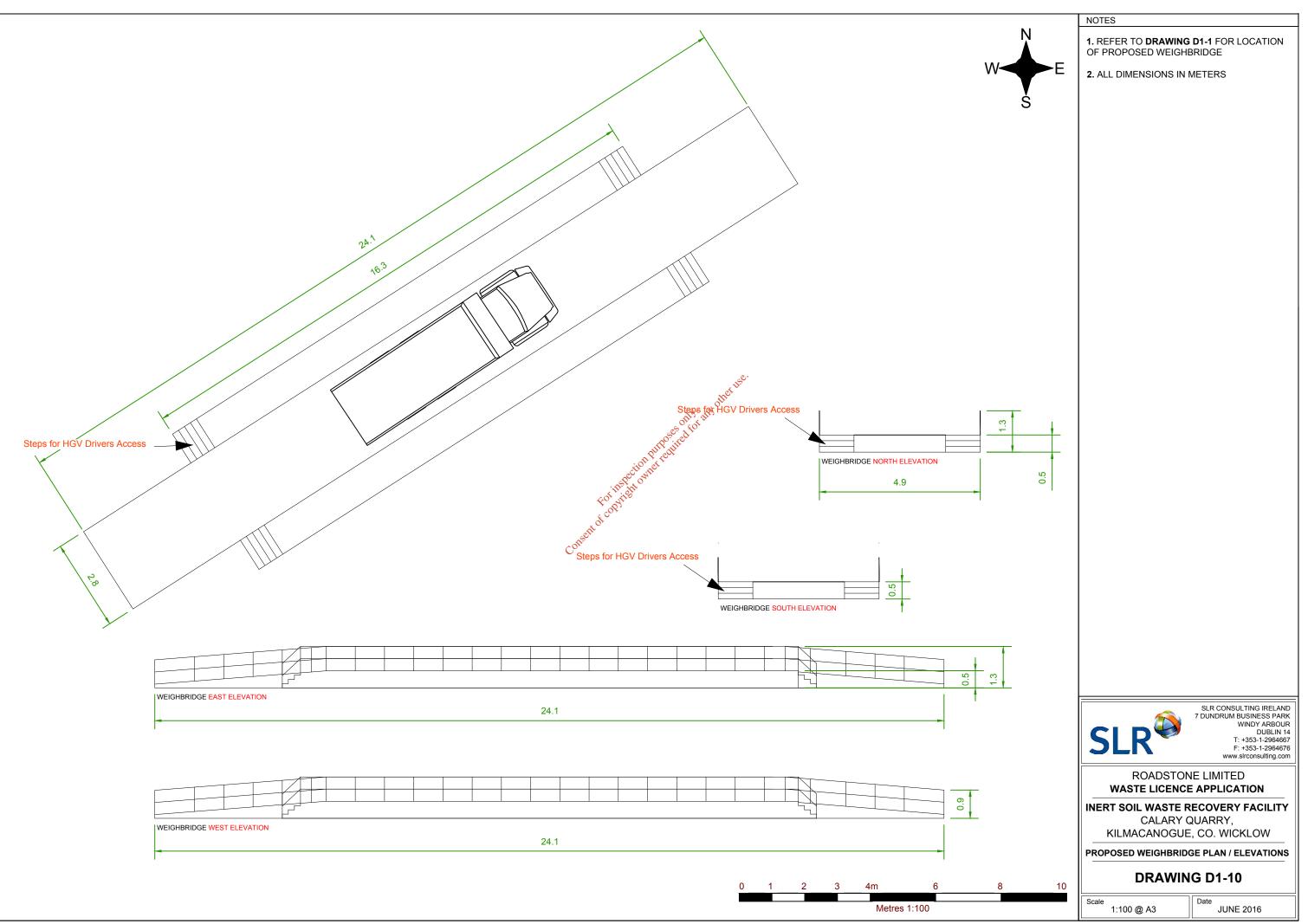
2. ALL DIMENSIONS IN METERS

3. MANAGERS OFFICE: AREA OF INTERNAL FLOOR = c.16.1m²

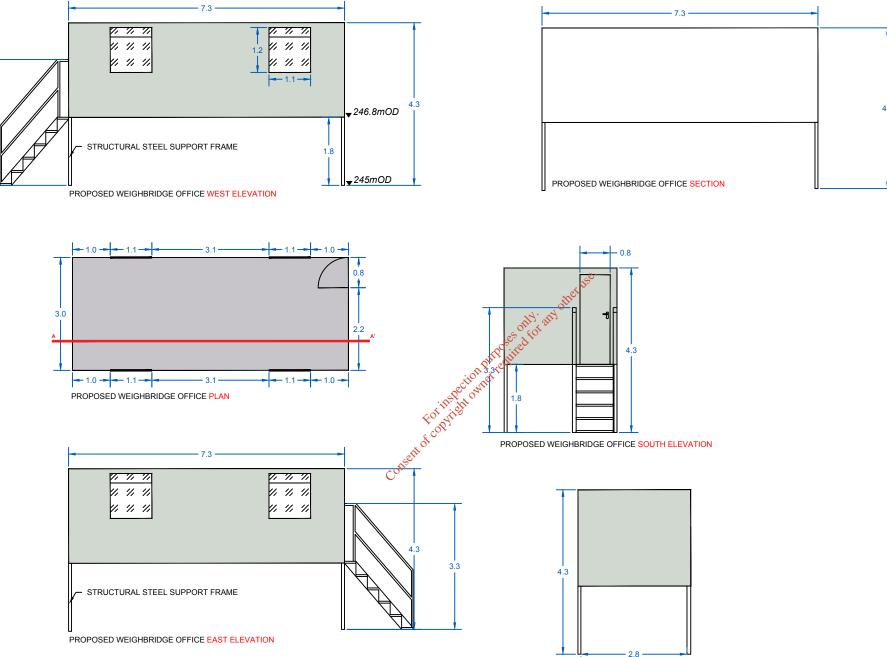
4. STAFF WELFARE FACILITIES: AREA OF INTERNAL FLOOR = c.16.1m²



8



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PROPOSED WEIGHBRIDGE OFFICE NORTH ELEVATION

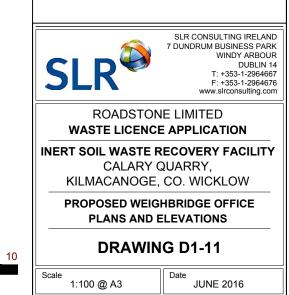




1. REFER TO DRAWING D1-1 FOR LOCATION OF PROPOSED WEIGHBRIDGE OFFICE

2. ALL DIMENSIONS IN METERS

3. WEIGHBRIDGE OFFICE: AREA OF INTERNAL FLOOR = 27.7m²



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