Waterman Moylan
Engineering Consultants

Outline Construction & Waste Management Plan

Proposed Post Primary School Development at Lucan, Co. Dublin

May 2021

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This document has been prepared and checked in accordance with
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Comments

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Content

1. Introduction

Waterman Moylan in conjunction with the applicant have prepared the following Construction and Waste Management Plan for the development of a 1000-pupil post primary school at Lucan, Co. Dublin. The proposed development will comprise of a post primary school, 4 Special Needs Units (SNU's) and all ancillary teacher and pupil facilities.

The plan sets out typical arrangements and measures which may be undertaken during the construction phase of the project in order to mitigate and minimise disruption / disturbance to the area around the site. The purpose of this report is to summarise the possible impacts and measures to be implemented and to guide the Contractor who will be required to develop and implement the Construction and Waste Management Plan on site.

This preliminary Construction and Waste Management Plan is indicative only and should not be construed as representing the exact method or sequence in which the construction works shall be carried out.

As is normal practice, the Main Contractor for the project is responsible for the method in which the construction works are carried out and to ensure that best practices and all legal obligations including Local Authority requirements and Health and Safety legislation are complied with. The main contractor is also responsible for the design and installation of all temporary works required to complete the permanent works. The plan can be used by the Main Contractor to develop their final construction management plan. The Applicant reserves the right to deviate from the contents of this Report, while still complying with all relevant Local Authority requirements and legislation.

2. The Site

The proposed school is located to the south of Griffeen Avenue in Lucan. The site is bounded by green space, existing roads and residential areas to the north, east and west and the south. The site location is shown on Waterman Moylan Drawing No. 19-037-21 - P010.

The site area of the proposed development is c. 2.34 Ha. The total hard surfaced area of the proposed school development is approximately 1.24 Ha. The site currently comprises of greenfield lands.

The existing uses adjoining / adjacent the site include:

- Residential buildings
- Commercial buildings
- Greenfield lands

3. The Proposed Development

The proposed development includes, in broad terms, the following;-

- Site clearance and infrastructure.
- Construction of school building.

4. General Site Set Up and Pre-Commencement Measures

1. Detailed condition surveys (including photographs) may be carried out on certain adjacent / adjoining third party buildings prior to any work being carried out on the site. The purpose of the survey would be to record the condition of the properties before the works commence. Copies of these survey reports would be provided to the third-party owners.
2. A detailed condition survey (including photographs) may be carried out on the roads and footpaths surrounding the site. The purpose of the survey would be to record the condition of the streets and footpaths around the site prior to the works commencing.
3. A site compound(s) including offices and welfare facilities will be set up by the main contractor in locations to be decided. Initial works will involve erecting an exclusion zone around the perimeter of the working area, this will be complete with heras fencing/hoarding with appropriate signage. All fencing/hoarding will be secured into position and inspected on a regular basis. No access will be permitted into this excluded area unless authorised and accompanied with the Site manager.
4. Prior to any site works commencing, the main contractor will investigate / identify the exact location of and tag all existing services and utilities around and through the site with the assistance of the relevant South Dublin County Council technical divisions and utility companies.
5. Typical working hours for the site would be 07.00 to 19.00 Monday to Friday and 07.00 to 14.00 Saturday. No Sunday work will generally be permitted. The above working hours are typical; however, special construction operations may need to be carried out outside these hours in order to minimise disruption to the surrounding area.

5. Site Security and Hoarding Lines

1. Hoarding lines and site security will be set up within the development site as required.

   Hoarding and security fencing will be required on the public roads during the construction works and for construction of the new entrance to the site. A detailed traffic management plan will be prepared by the Contractor and agreed with South Dublin County Council as the Road Authority prior to commencing works on the public road.
   The traffic management plan will identify staging areas, delivery of materials, strategy for large concrete pours, removal of demolition waste, traffic routes etc.

2. Access gates will be operated by a flagman who will divert incoming / outgoing vehicles / pedestrians and general traffic as necessary.

6. Construction Waste Management

1. These preliminary Construction Waste Management guidelines will be incorporated into the requirements for the Contractor and the Plan will be developed by the Contractor as the construction progresses.

2. Policy and Legislation

   The principles and objectives to deliver sustainable waste management for this project have been incorporated in the preparation of this report and are based on the following strategic objectives:-

   - National Policy: The Waste Management Acts 1996 to 2005Environmental (Miscellaneous Provisions) Act 2011
   - Protection of the Environment Act 2003
   - Local Policy: Eastern – Midlands Regional Waste Management Plan 2015-2021.

   This Waste Management Plan is also in accordance with the following guidance note published by the Department of the Environment, Heritage and Local Government in July 2006:-

   - Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition (C&D) Projects.

   The hierarchy of waste management sets out the guiding principles in order of importance as follows:-

   a. Reduction of the amount of waste generated by the construction process.
   b. Segregation of waste is a key concept that will be implemented during the course of the construction phase of the development to enable ease in re-use and recycling, wherever appropriate.
   c. Recycle waste material where feasible, including the use of excess excavations as fill material, recycling of various waste fractions such as metals, packaging etc.

3. Typical construction waste which will be generated by the development is as follows:-

   - General site clearance waste
   - Excavated material
   - Surface water runoff
   - Packaging and waste construction materials generated during the course of the construction activities

4. On site Waste Management

   An estimate of the quantities of surplus construction waste and materials which will arise during the course of the construction phase is not confirmed at the time of writing. Construction waste will be categorised as outlined in Table 6.1 below.

   The Purchasing Manager shall ensure that materials are ordered so that the quantity delivered, the timing of the delivery and the storage is not conducive to the creation of unnecessary waste.

Table 1: Estimated C&D Waste Arising on Site

C & D Waste Material	Quantity (tonnes)
Clay and stones	*TBC*
Concrete	*TBC*

Masonry	*TBC*
Wood	*TBC*
Packaging	*TBC*
Hazardous Materials	*TBC*
Other Waste Materials	*TBC*
TOTAL ARISINGS	*TBC*

5. Off Site Waste Management Licensing/Permitting

All waste materials (where necessary, after in-situ reuse and recycling options have been fully considered) shall be disposed of offsite, under the appropriate Duty of Care and subject to approvals/consents from the relevant statutory bodies. It is the responsibility of the Main Contractor to ensure that any company to whom waste is transferred is legally permitted to do so and that the facility they bring the waste to is licensed to handle that type of waste as outlined in the Waste Management Acts 1996-2005. The Waste Collection Permit Register, in accordance with the Waste Management (Collection Permit) Regulations 2001 will be consulted to ensure that waste carriers hold the appropriate permit.

It is anticipated that there is the possibility that waste materials will have to be moved off site. It is the intention to engage specialist waste service contractors, who will possess the requisite authorisations, for the collection and movement of waste off-site, and to transport the material to a facility which currently holds a Waste Licence, Waste Permit, or Certificate of Registration. Details of waste service contractors are not confirmed at the time of writing. The following waste authorisations will be arranged specifically for the project:

Table 2: Specific Waste Authorisations Necessary for the Scheme

Authorisation Type	Specific Need for Project (Yes / No?)
Waste Licence	Yes
Waste Permit	Yes
Waste Collection Permit	Yes
Transfrontier Shipment Notification	No
Movement of Hazardous Waste Form	No

Any wastes that have to be disposed/recycled off site will be transported to the nearest appropriate facility in order to comply with the proximity principle and reduce the associated emissions from the transportation of waste. The Environmental Protection Agency holds details of waste facilities, which will be consulted where necessary.

An inspection of the site shall be made by the Main Contractor for hazardous substances, gas cylinders and the like. If such substances are encountered during the course of construction, then works must be halted. The project supervisor for the construction stage (PSCS) and the responsible Statutory Authority shall be informed immediately.

The Main Contractor shall prepare a detailed inventory of construction based hazardous waste generated, such as tars, adhesives, sealants and other dangerous substances, and these will be kept

segregated from other non-hazardous waste to prevent possible contamination. Arrangements shall be made for such substances for disposal in a safe manner to an authorized disposal site or by means acceptable to the relevant Authority.

The Contractor shall ensure that the excavation works are carried out in accordance with best standard practice and excavation materials are well segregated to minimize any potential cross-contamination.

The Contractor shall carry out appropriate environmental chemistry testing in order to determine the waste classification of the soils that are to be excavated from areas where contamination is likely and that shall include Waste Acceptance Criteria testing. The test regime shall be agreed with the receiving landfill operator and the testing shall be carried out by an accredited laboratory.

Should excavation materials be assessed to be hazardous, the Contractor shall carry out pretreatment of the waste soils to a methodology that is agreed with the receiving landfill operator and in accordance with Environmental Protection Agency guidance.

The Main Contractor is encouraged to reuse and recycle any waste materials as far as is reasonably practicable.

In respect of any liquid Disposal including underground water, The Contractor shall carry out appropriate environmental chemistry testing in order to determine whether the liquid is contaminated or not. The test regime shall be agreed with the receiving disposal facility and the testing shall be carried out by an accredited laboratory.

The Main Contractor shall manage and carry out the works in accordance with best environmental practice and in accordance with the requirements of Local Authority, EPA and all requirements as specified in this document.

6. Appointment of Construction Waste Manager

A Construction Waste Manager shall be appointed from the Contractor's Staff and have overall responsibility for the implementation of the project Waste Management Plan (WMP) during the construction phase. The Construction Waste Manager will be appropriately trained and assigned the authority to instruct all site personnel to comply with the specific provisions of the WMP. At the operational level, a designated person from the main contractor and from each sub-contractor on the site shall be assigned the direct responsibility to ensure that the operations stated in the WMP are performed on an on-going basis.

Copies of the Waste Management Plan will be made available to all relevant personnel on site. All site personnel and sub-contractors will be instructed about the objectives of the Waste Management Plan and informed of the responsibilities which fall upon them as a consequence of its provisions. Where source segregation, selective demolition and material reuse techniques apply, each member of staff will be given instructions on how to comply with the Waste Management Plan. Posters will be designed to reinforce the key messages within the Waste Management Plan and will be displayed prominently for the benefit of site staff.

7. Construction Record Keeping

Details of all arisings, movement and treatment of construction waste shall be recorded as part of the Waste Auditing regime.

It is the duty of the Construction Waste Manager to ensure that necessary licenses have been obtained as needed. Each consignment of construction waste taken from the site will be subject to documentation which will conform with Table 6.3 along with Transportation Dockets to ensure full traceability of the material to its final destination.

Table 3.: Details of materials taken from site

Detail	**Particulars**
Project of Origin	Griffeen Community College in Lucan
Material being Transported	Soil, Construction waste etc.
Quantity of Material	*TBC*
Date of Material Movement	*TBC*
Name of Carrier	*TBC*
Destination of Material	*TBC*
Proposed Use	*TBC*

8. Topsoil

In the case of topsoil careful planning and on-site storage can ensure that this resource is reused on-site as much as possible. However, topsoil is quite sensitive and can be rendered useless if not stored and cared for properly.

- It is important that topsoil is kept completely separate from all other construction waste as any cross-contamination of the topsoil can render it useless for reuse.
- It is important to ensure that topsoil is protected from all kinds of vehicle damage and kept away from site-track, delivery vehicle turning areas and site plant and vehicle storage areas.

If topsoil is stored in piles of greater than two metres in height the soil matrix (internal structure) can be damaged beyond repair. It should also be kept as dry as possible and used as soon as possible to reduce any deterioration through lengthy storage and excess moving around the site.

Records of topsoil storage, movements and transfer from site should be kept by the Construction Waste Manager.

9. Earthworks – Fill Policy

- The quantity of fill materials to be imported into the site can be greatly reduced, by establishing levels of the proposed building which minimise the volume of fill.
- The infill material that will be imported to site during construction will comprise of one of the following two products:
    1. Quarried product i.e. stone, sand and gravel, aggregates, and related fill products, including overburden from quarries (i.e. the material covering the rock to be quarried), which is permitted to be exported as a product as part of the quarry's planning permission.
    2. Materials that have been approved as by-product by the EPA in accordance with the EPA's criteria for determining a material as a 'by-product' as per the provision under article 27(1) of the European Communities (Waste Directive) Regulations, 2011.

7. Deliveries and Access

1. Deliveries and access to the construction site will typically be made via Balgaddy Road to the east subject to agreement with South Dublin County Council.

   The deliveries will be organised such that the tipper trucks will queue at a pre-determined staging point (such that they do not cause an obstruction to general traffic in the area) and will then be called in by radio as appropriate to the site, via a pre-determined route and required access

2. In the event that large concrete pours are required which may result in congestion at the entrance to the site, the deliveries will be organised such that concrete trucks will queue at a pre-determined staging point and will then be called in by radio as appropriate to the site, via a pre-determined route and to the required access gate.

   Set procedures and designated wash-out areas will be provided, or alternatively vehicle wash-out will be prohibited if a suitable wash-out area is not identified.

3. All delivery vehicles will be co-ordinated as required by a flagman on duty at the relevant access point.

4. The fill material will be classified in accordance with the NRA Specification for Roadworks. All material delivered to the site will be visually inspected prior to placement. A record of where delivered material is placed on site will be kept. GPS trackers on delivery vehicles will be used to confirm both the source and delivery destination.

8. Parking and Storage

1. There is adequate space to accommodate parking on site during the initial construction programme. In the event that at a later stage during the construction programme adequate parking is not available on site, off-site parking and shared car arrangements will be organised by site management.
2. The main contractor will be required to schedule delivery of materials on a daily basis. If necessary, the main contractor will be required to provide a secure materials staging compound on the site.

9. Dust and Dirt Control

1. Nuisance dust emissions from demolition & construction activities, especially demolition, are a common and well recognised problem. Fine particles from these sources are recognised as a potential significant cause of pollution.

   The main contractor will be required to demonstrate that both nuisance dust and fine particle emissions from the site are adequately controlled and are within acceptable limits.

2. Dust and fine particle generation from construction and demolition activities on the site can be substantially reduced through carefully selected mitigation techniques and effective management. Once particles are airborne it is very difficult to prevent them from dispersing into the surrounding area. The most effective technique is to control dust at source and prevent it from becoming air borne, since suppression is virtually impossible once it has become air borne.

3. The following are techniques and methods which are widely used currently throughout the construction industry and which may be used in the proposed development.

   - The roads around the site are all surfaced, and no dust is anticipated arising from unsealed surfaces.
   - A regime of 'wet' road sweeping can be set up to ensure the roads around the immediate site are as clean and free from dirt / dust arising from the site, as is reasonably practicable. This cleaning will be carried out by approved mechanical sweepers.
   - Footpaths immediately around the site can be cleaned by hand regularly, with damping as necessary.
   - High level walkways and surfaces such as scaffolding can be cleaned regularly using safe 'wet' methods, as opposed to dry methods.
   - Vehicle waiting areas or hard standings can be regularly inspected and kept clean by brushing or vacuum sweeping and will be regularly sprayed to keep moist, if necessary.
   - Vehicle and wheel washing facilities can be provided at site exit(s) where practicable. If necessary, vehicles can be washed down before exiting the site.
   - Netting can be provided to enclose scaffolding in order to mitigate escape of air borne dust from the existing and new buildings.
   - Vehicles and equipment shall not emit black smoke from exhaust system, except during ignition at start up.
   - Engines and exhaust systems should be maintained so that exhaust emissions do not breach stationary emission limits set for the vehicle / equipment type and mode of operation.
   - Servicing of vehicles and plant should be carried out regularly, rather than just following breakdowns.
   - Internal combustion plant should not be left running unnecessarily.
   - Exhaust direction and heights should be such as not to disturb dust on the ground and to ensure adequate local dispersal of emissions.
   - Where possible fixed plant such as generators should be located away from residential areas.

- The number of handling operations for materials will be kept to a minimum in order to ensure that dusty material is not moved or handled unnecessarily.
- The transport of dusty materials and aggregates should be carried out using covered / sheeted lorries.
- Material handling areas should be clean, tidy and free from dust.
- Vehicle loading should be dampened down and drop heights for material to be kept to a minimum.
- Drop heights for chutes / skips should be kept to a minimum.
- Dust dispersal over the site boundary should be minimised using static sprinklers or other watering methods as necessary.
- Stockpiles of materials should be kept to a minimum and if necessary, they should be kept away from sensitive receptors such as residential areas etc.
- Stockpiles were necessary, should be sheeted or watered down.
- Methods and equipment should be in place for immediate clean-up of spillages of dusty material.
- No burning of materials will be permitted on site.
- Earthworks excavations should be kept damp where necessary and where reasonably practicable.
- Cutting on site should be avoided where possible by using pre-fabrication methods to facilitate any temporary works that may be required to enable the demolition.
- Equipment and techniques for cutting / grinding / drilling / sawing / sanding etc, which minimise dust emissions and which have the best available dust suppression measures, should be employed.
- Where scabbling is to be employed, tools should be fitted with dust bags, residual dust should be vacuumed up rather than swept away, and areas to be scabbled should be screened off.
- Wet processes should be used to clean building facades if possible. If dry grit blasting is unavoidable then ensure areas of work are sealed off and dust extraction systems used.
- Where possible pre-mixed plasters and masonry compounds should be used to minimise dust arising from on site mixing.
- Prior to commencement, the main contractor should identify the demolition & construction operations which are likely to generate dust and to draw up action plans to minimise emissions, utilising the methods highlighted above. Furthermore, the main contractor should prepare environmental risk assessments for all dust generating processes, which are envisaged.
- The main contractor should allocate suitably qualified personnel to be responsible for ensuring the generation of dust is minimised and effectively controlled.
- Demolition works to incorporate water spray to reduce dust.

10. Water

1. The excavations for the drainage pipes, water supply, utilities and foundations are anticipated as being relatively shallow and will have minimal impact on the ground water in the site.
2. Following completion of any required initial dewatering, it is expected that flows of water into the excavation will be small. These flows will be managed by sump pumping on an as-required basis.
3. During any discharge of surface water from the excavations, the quality of the water will be regularly monitored visually for hydrocarbon sheen and suspended solids. Periodic laboratory testing of discharge water samples will be carried out in accordance with the requirements of South Dublin County Council.

11. Noise and Vibration Control

1. The main contractor will deal with the immediate dangers to hearing etc. associated with high noise levels and the impact of same on demolition & construction operatives, by means of risk assessment and mitigation / precautionary measures and equipment, all pursuant to the current health and safety legislation.
2. The main contractor should carry out a noise and vibration assessment in relation to the proposed works at the demolition and construction stage. This noise and vibration assessment should be carried out by a competent person (or specialist firm) with specialist training in this area.
3. The noise assessment should include the following steps:-
    - Identify and list all construction work activities where there is likely to be a significant noise hazard.
    - Determine the hazards / nuisance.
    - Identify all third parties likely to be exposed to the noise/vibration nuisance.
    - Measuring the risk: The level of noise in dBA.
    - Considering and Implementing Control Measures.
    - Control exposure to noise and vibration.
    - Record the findings of the noise assessment.
    - Review and revise.

12. Environmental Effects

1. Measures to Minimise Nuisance

   The measures to be operational at this site will include

   - Use of properly designed access and egress points to minimise impact on both external traffic.
   - Check on each departing vehicle at exit from site to public road.
   - Use of banksman and/or traffic lights to control exit of construction vehicles onto public road.
   - Controlled off-site HGV holding area where deliveries are called up as required. No HGV's waiting outside site.
   - Issue of instructions and maps on getting to site to each sub-contractor to avoid 'lost' HGV's disrupting traffic.
   - Establishment and maintenance of HGV holding areas within the site.
   - Ongoing assessment of the most appropriate routes for construction traffic to and from the site.
   - Interface with operation of HGV traffic from adjacent railway and port terminals.
   - Restriction of work hours to industry standard working hours.

2. Site Control Measures

   The designated and operational on-site control measures, which will be established and maintained at this site, will include:

   - Designated hard routes through site.
   - Each departing vehicle to be checked by banksman.
   - Wheel wash facility at egress point.
   - Provision and facilities to cover lorry contents as necessary.
   - Controlled loading of excavated material to minimise risk of spillage of contents.
   - Spraying/damping down of excavated material on site by dedicated crews.
   - Use of known routes for lorries to monitor impact on local area.
   - Facility to clean local roads if mud or spillage occurs.

3. Control of Mud and Dust

   The main consideration will be to combat mud and dust at source so as not to let it adversely affect the surrounding areas. The objective will be to contain any mud or dust within the site, which is large enough for comprehensive control measures.

   The main problems, which may arise during the early part of construction, will be controlled by the measures described above and by the following measures:

   - The use of hardcore access route to workfront
   - Channelling of departing vehicles through the wheelwash.
   - Sweeping of public road adjacent to egress from site.
   - Ongoing monitoring during working hours.

4. Disposal of Material from Site

   The construction phase of this development will require the excavation of material from the site.

It is proposed that as the material is excavated that a suitably qualified professional will be on site to sample and classify the material.

It is proposed that Hazardous material will be disposed of to a suitably licences waste facility in accordance with all the relevant codes of practice and environmental legislation.

The contractor will be required to provide all delivery and weight dockets reviewed at the end of the project to demonstrate to the Client that the material has been disposed of correctly.

13. Proposed Construction Phasing and Programme

1. The proposed development consists of the construction of a post primary school and 4 no. special needs units.
2. It is intended that the development will be constructed in a single phase.
3. A detailed construction programme has not been developed at this stage. However, it is anticipated that the total construction period of the development will be approximately 6-9 months.

UK and Ireland Office Locations