Waterman Moylan
Engineering Consultants

Construction and Demolition Waste Management Plan

Proposed Adamstown Boulevard Phase 1 Development at Lucan, Adamstown, South Dublin County Council.

April 2022

Waterman Moylan Consulting Engineers Limited
Block S, East Point Business Park, Alfie Byrne Road, Dublin D03 H3F4
www.waterman-moylan.ie

Waterman Moylan
Engineering Consultants

Client Name:	Adamstown Station & Boulevard Ltd
Document Reference:	21-074.004 CDWMP
Project Number:	21-074

Quality Assurance – Approval Status

This document has been prepared and checked in accordance with Waterman Group's IMS (BS EN ISO 9001: 2015, BS EN ISO 14001: 2015)

Issue	Date	Prepared by	Checked by	Approved by
1st	April '22	P. Ingle	E. Caulwell	

Comments

Waterman Moylan
Engineering Consultants

Disclaimer

This report has been prepared by Waterman Moylan, with all reasonable skill, care and diligence within the terms of the Contract with the Client, incorporation of our General Terms and Condition of Business and taking account of the resources devoted to us by agreement with the Client.

We disclaim any responsibility to the Client and others in respect of any matters outside the scope of the above.

This report is confidential to the Client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at its own risk.

Content

Figures

Tables

Appendices

1. Introduction

1.1 Background of Report

This report has been prepared by Waterman Moylan in support of the proposed Development of **Phase 1** of the **Adamstown Boulevard** located in the Adamstown Strategic Development Zone (ASDZ), Co. Dublin.

This document has been setup to be a 'living document' which will be updated by the Developer and Main Contractor as the project progresses after Planning has been granted.

The **Construction and Demolition Waste Management Plan (CDWMP)** sets out typical arrangements and measures which may be undertaken during the construction phase of the project to mitigate and minimise disruption/disturbance to the area surrounding the site with specific reference to any possible onsite waste management. The purpose of this report is to summarise the possible impacts and measures to be implemented and to guide the Main Contractor who will be required to develop and implement the CDWMP on site during the construction period.

As is normal practice, the Main Contractor (yet to be appointed at the stage of submission of this planning application) for the project is responsible for the following:

- method in which construction works are carried out;
- ensuring best practices and compliance with all legal obligations (including Local Authority requirements and Health and Safety legislation).

The Main Contractor is responsible for the design and installation of all temporary works required to complete the permanent works. This plan should be used by the Main Contractor to develop their, operational stage **CDWMP & CMP**.

1.2 Site Location

The proposed development lands are located within the Adamstown Boulevard tile of the ASDZ. The Boulevard site is approximately 13 km west of Dublin and 2.75 km south of Lucan Village.

The total area of the overall Adamstown Boulevard tile is approximately 14.6 hectares and comprises of 2 Phases. The area of the subject lands, Adamstown Boulevard Phase 1, is approx. 10.14 Ha. The site is bound by the Aderrig Tile and Adamstown Way to the north and the future Adamstown Boulevard Phase 2 development on the east. The Station Road bounds the site to the south, and farmlands border the west of the site.

An indication of the location of the Adamstown Boulevard tile within the ASDZ lands can be seen in Figure 1-1 below. For the exact site location and site layout please refer to the accompanying architects' drawings.

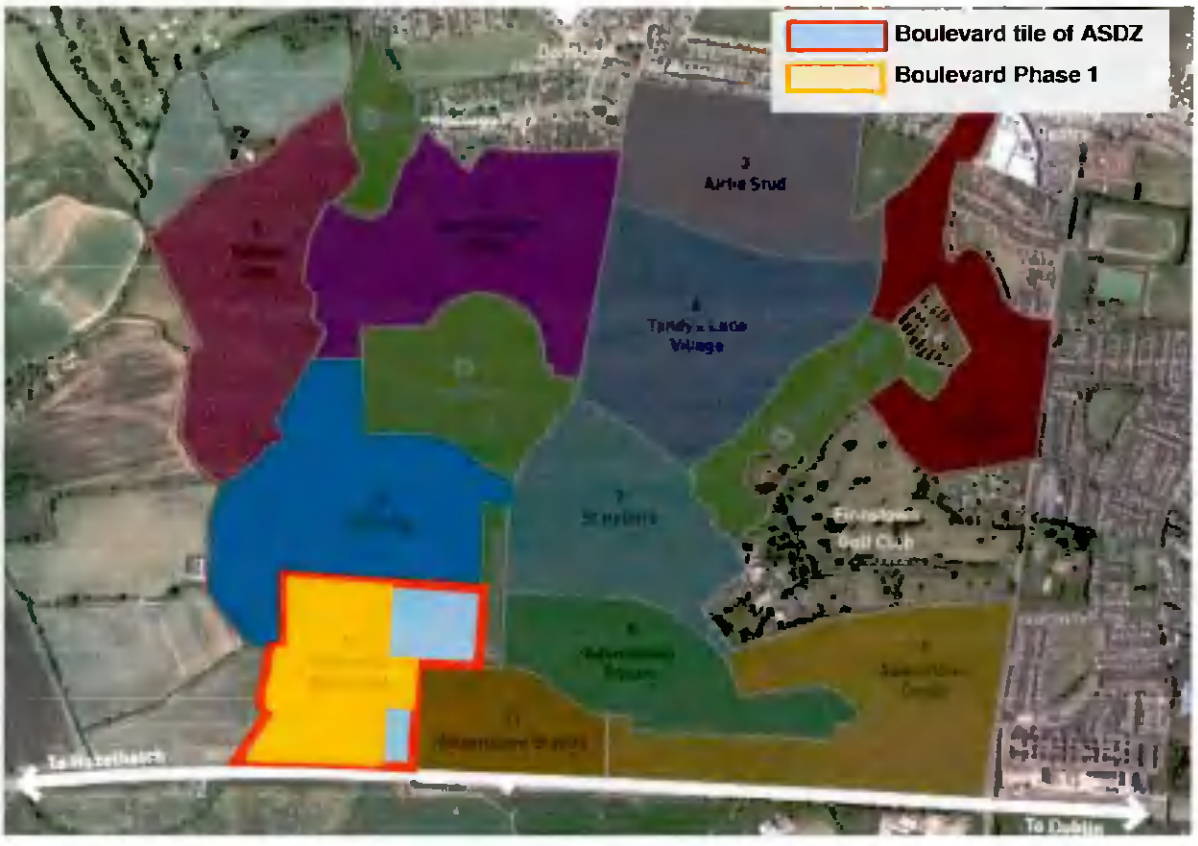


Figure 1-1: Adamstown Boulevard Phase 1 within ASDZ and surrounding roads network

2. The Site and the Surrounding Environs

2.1 Site Description

The overall Development Area 10 (Adamstown Boulevard) site is approximately 14.6 hectares (Ha) generally sloping from the south to the north. The site subject to this planning application is Phase 1 of the 2-Phase development, located primarily in the western half of the Development Area 10. The subject site, which is approximately 10.14 Ha in size, consists of agricultural lands. The site is accessed from Station Road to the south of the site and Adamstown Way to the north.

2.2 Surrounding Environs

The Aderrig Tile, comprising of 4 № phases is located to the north of the subject site, Adamstown Station Tile to the east, the Adamstown Railway Station is to the south with open lands to the west.

The existing road network in the area of interest consists of the constructed Adamstown Way which bounds the site to the north and Station Road to the south. Adamstown Way connects the proposed development onto the Boulevard and Adamstown Park which both connect onto the R120 and ultimately to the N4. Station Road connects the proposed development onto Adamstown Avenue to the east and the extension of Thomas Omer Way which connects onto the R136.

2.3 Proposed Development

The current application site (~~14.6~~ 10.14 Ha) is located within Development Area 10 – Adamstown Boulevard of the Adamstown SDZ Planning Scheme, 2014, as amended. Phase 1 of the Adamstown Boulevard development seeks Permission for 257no. terraced and semi-detached housing units ranging from 2 to 3-storeys in height; open space is proposed including a Pocket Park, and also a Linear Park which stretches from Adamstown Way to Station Road; all associated ancillary site development and landscape works, including internal roads and services, ESB Sub-Stations, landscaping and boundary treatment works. Outline Permission is also being sought for 166no. apartment units in a block ranging from 6 to 9-storeys in height which will deliver a range of unit types. All on a site of c.10.14Ha (including lands for Outline Permission).

The development is accessed from roads already approved or under construction. The existing Adamstown Way (permitted under Reg Ref SDZ06A/5) bounds the site to the north and 3 № access points are proposed onto this road. The Station Road (permitted under Reg Ref SDZ04A/1) bounds the site to the south and 3 № access points are proposed onto this road. 1 № access point to the east of the site is proposed for future use into Phase 2 of the Boulevard and 1 № access point to the west of the site for the potential future development of the open lands.

Figure 2-1 below illustrates an indicative layout of the Adamstown Boulevard.

Figure 2-1: Architects Site Layout of the Adamstown Boulevard

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

Site clearance and site set up including the removal of:-

- Any historical stockpile which is not reused on site, and
  - topsoil stripping.
  - Excavating and Filling
- historical fill removal if not suitable;
  - reusing the above excavated historic fill if deemed unsuitable.
- Construction of site access points;
- Construction of infrastructure;
- Construction of residential units;
- Construction of park and water feature area.

3. Waste Management on Site

3.1 Scope, Policy and Legislation

This report is a preliminary Construction and Demolition Waste Management Plan (CDWMP) which forms the basis of a full CDWMP to be prepared by the contractor. This report does not address operational waste management, nor construction waste that may result from site development activities.

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 2005
- Local Policy: Waste Management Plan for the Dublin Region 2005 – 2010, November 2005

This CDWMP is also in accordance with the following guidance note published by the Department of the Environment, Heritage and Local Government.

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

This framework is the guide by which the waste generated on this project will be managed. The concept ranges from the 'Most favored to the least favored options, as follows:

1. **Prevention** - This proposes the prevention of generation of waste. This entails an efficient method of management of the construction processes to prevent, where possible, the generation of waste in the first instance.
2. **Minimisation** - Reducing the quantities of waste generated where prevention is not fully possible.
3. **Re-use** of materials where that may be possible. An example would be the re-use of excavated materials as fill materials elsewhere within the Adamstown Project.
4. **Recycling** – If there is some timber waste generated on this project, such material will be segregated so that it can be removed and recycled by licenced operators.
5. **Energy Recovery** - Waste generated will be segregated for licenced operators to utilise this method in keeping with the characteristics of the material in question.
6. **Disposal** - By following the hierarchy noted above we will ensure that any disposal will be minimised and managed in a controlled way.

3.2 Site Waste Sources

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

- General site clearance waste including tree stumps, shrubs etc.
- During a site investigation carried out on site no contaminated soil was found, but if contamination is discovered during construction, the excavated material will be required to be disposed of in a licensed landfill site.
- Surface water runoff.
- Packaging and waste construction materials generated during the construction activities.

Error! Reference source not found. below shows typical waste materials expected to be generated on a construction site with the European four-digit waste codes (EWC). For full list please refer to the latest EPA Waste Classification document List of Waste & Determining if Waste is Hazardous or Non-hazardous.

Table 3-1: Typical waste materials expected.

Waste Material EWC	Waste Material EWC
Non-Hazardous	
Concrete. bricks, tiles. ceramics	17 01
Wood, glass and plastic	17 02
Bituminous mixtures, coal tar and tarred products	17 03
Metals (including their alloys)	17 04
Soil, stones and dredged spoil	17 05
Gypsum-based construction material	17 08
Soil and stones other than those mentioned in 17 05 03 – mirror non-hazardous	17 05 04
Hazardous	
Electrical and Electronic Components	16 02
Batteries	16 06
Wood Preservatives	03 02
Waste hydraulic oils	13 01
Engine, gear and lubricating oils	13 02
Liquid Fuels	13 07
Soil and stones containing dangerous substances – mirror hazardous	17 05 03
Other insulation materials containing of or containing dangerous substances	17 06 03
Construction and demolition waste containing mercury -not expected not expected banned in EU	17 09 01
Construction and demolition waste containing PCBs -not expected banned in EU	17 09 02
Other construction and demolition wastes containing dangerous substances	17 09 03
Solvents (xylene. white spirit. acetone and ethyl acetate)	20 01 13
Wastes from MFSU of adhesives and sealants (including waterproofing products)	08 04
Isocyanates (polyurethane paints, coatings, foams, glues and flooring)	08 05 01

3.3 Demolition Waste

Ground Investigations Ireland have completed a soil investigation report relevant to the Boulevard Tile within Adamstown.

The site investigation showed that the soils tested are below inert levels and are non-hazardous. The site can be categorised as a combination of a green field and brown field site area with occasional hedges, shrubs and trees but also contains man made mounds which exist on the site in several locations and an existing car park in the southeastern corner of the site. The mounds consist of temporary stockpiles generated during the construction of surrounding ASDZ developments.

The volumes of earthworks within this report includes that of the stockpiles. Appropriate handling measures for these earthworks have been outlined within the report.

Expected demolition waste: -

- **MADE GROUND**: Made Ground deposits were encountered from ground level or beneath the topsoil/fill at various locations and was present to a relatively consistent depth of 0.15m to 1.20m BGL. These deposits were described generally as *brown/dark grey slightly gravelly Clay with occasional cobbles* and contained *rare fragments of concrete, brick, plastic, metal, Styrofoam, ceramic, PVC, tarmacadam, stone blocks, and wood.*
- **COHESIVE DEPOSITS**: Cohesive deposits were encountered beneath the topsoil, granular fill and/or made ground and were described typically as *brown slightly sandy gravelly CLAY with occasional cobbles and boulders*, becoming *dark grey* or *brown mottled grey* with depth. The secondary sand and gravel constituents varied across the site and with depth, with granular lenses occasionally present in the glacial till matrix.
- **BEDROCK**: The trial pits were terminated on presumed bedrock, with depths varying from 0.70m BGL at some trailpits and to a maximum depth of 2.60m BGL at others.
- Gravel / capping material / mineral material

After in-situ reuse and recycling options have been fully considered the demolition waste will be disposed of off-site by licensed waste contractors.

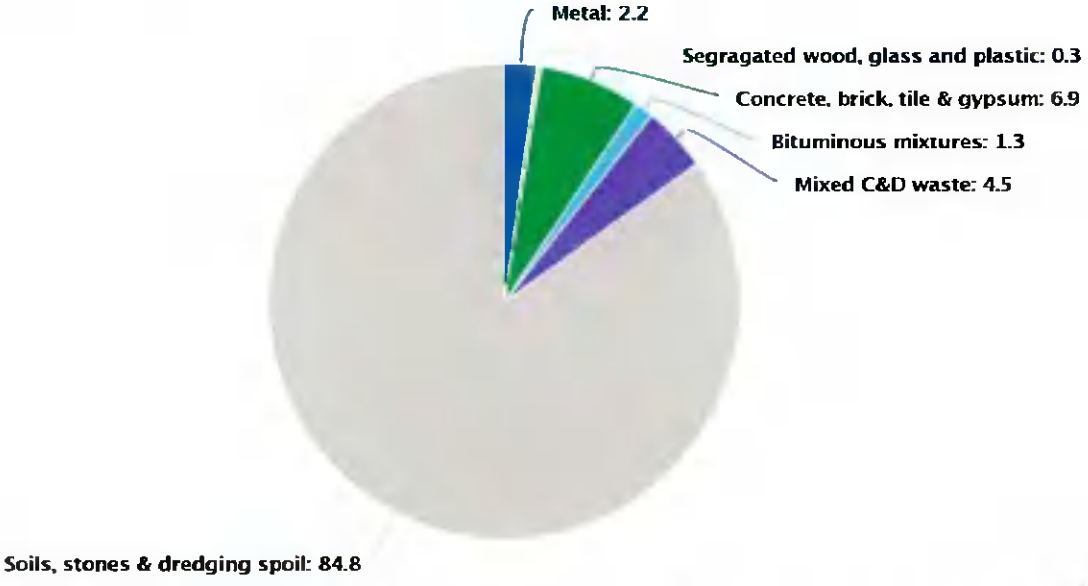
3.4 Construction Waste

As per the GII Report (April 2022), the surplus subsoil expected to be generated during the infrastructure and foundation construction as a result of cut / fill activities are as follows: -

- TOPSOIL.
- MADE GROUND brown sandy gravelly CLAY and contained occasional fragments of concrete, red brick and plastic.
- COHESIVE DEPOSITS brown grey sandy gravelly slightly silty CLAY with occasional cobbles and boulders.
- BEDROCK limestone/mudstone.

During the construction of the housing units, waste is expected to be produced from surplus materials such as broken or off-cuts of timber, concrete blocks, bricks, tiles plasterboard, glass, steel reinforcement, packaging etc. EPA released Construction & Demolition (C&D) Waste Statistics for Ireland in October 2019 showing percentages of C&D waste material streams in reference to total C&D wastes generated. When compared to the previous release in March 2018, the 2019 release categorises waste streams to fewer categories. The EPA reports Construction & Demolition (C&D) Waste Statistics for Ireland showing percentages of C&D waste material streams in reference to total C&D waste generated. See diagram and Table 3-2 below for details.

Table 3-2: Estimated Construction Waste Arisings on Site, EPA Data Release



C & D Waste Material		Quantity (%) reported by EPA in March 2018	Quantity (%) reported by EPA in October 2019
Soil and stones		74.35%	80.6%
Mineral waste		12.11%	*Not reported*
Residue from treatment of mixed wastes		6.35%	*Not reported*
Metal waste		5.24%	3.8%
Wood waste	1.95%	1.57%	*0.4%*
Glass waste		0.09%	
Plastic waste		0.01%	
Hazardous Materials		0.19%	*Not reported*
Mixed waste		0.08%	7.8%
Paper and cardboard waste		0.01%	*Not reported*
Concrete, Bricks tiles and similar		*Not reported*	*6.6%*
Bituminous mixtures		*Not reported*	*0.9%*

3.5 On-Site Waste Management

All arising and surplus materials will be disposed of off-site to permitted/licensed facilities.

All concrete and masonry waste will be stored and if appropriate will be crushed on site and used for site haul roads in later stages of the project.

Skips will be provided for the separation and disposal of metal and wood from the site. It is envisaged that the majority of the metal and wood for disposal will come from house construction and pallets used for the transport of construction materials.

Other non-hazardous waste generated by the site (packaging and running of site offices) will be collected in separate roll-on skips.

Any hazardous material encountered will be disposed of at a suitably licenced facility.

The Purchasing Manager will 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.

3.6 Off-Site Waste Management Licensing/Permitting

All waste materials (where necessary, after in-situ reuse and recycling options have been fully considered) will be disposed of off-site, 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 to 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.

The relevant waste collection permits and waste licences will be provided by the Main Contractor.

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

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

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

Should excavation materials be assessed to be hazardous, the Main Contractor will 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 to any liquid disposal, including underground water, the Main Contractor will carry out appropriate environmental chemistry testing in order to determine whether the liquid is contaminated or not. The test

regime will be agreed with the receiving disposal facility and the testing will be carried out by an accredited laboratory.

The Main Contractor will 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.

3.7 Appointment of C&D Waste Manager

The Main Contractor will appoint a C&D Waste Manager. The C&D Waste Manager will have overall responsibility for the implementation of the project C&D Waste Management Plan during the construction phase.

Copies of the C&D Waste Management Plan will be made available to all relevant personnel on site. All site personnel and sub-contractors will be instructed regarding the objectives of the C&D 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 C&D 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.

3.8 C&D Waste Record Keeping

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

Refer to **Error! Reference source not found.** below which outlines the details of materials taken from site and the relevant parties responsible for these details.

Table 3-3: Details of Materials Taken from Site

Detail	Particulars
Project of Origin	Adamstown Boulevard Phase 1, Lucan, Adamstown, Co. Dublin
Material being Transported	*To be completed by C&D Waste Manager*
Quantity of Material	*To be completed by C&D Waste Manager*
Date of Material Movement	*To be completed by C&D Waste Manager*
Name of Carrier	*To be completed by C&D Waste Manager*
Destination of Material	*To be completed by C&D Waste Manager*
Proposed Use	*To be completed by C&D Waste Manager*

4. Proposals for Minimisation / Reuse / Recycling

4.1 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. Any surplus of topsoil not reused on site can be sold. 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 sub soil and construction waste as any cross-contamination of the topsoil can render it useless for reuse.
- It is important to ensure that topsoil is sealed and 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, which can result in a material declassification. Topsoil should also be kept as dry as possible and used as soon as possible to reduce the risk of any deterioration through lengthy storage and excess moving around the site.

Records of topsoil storage, movements and transfer from site will be kept by the C&D Waste Manager.

4.2 Earthworks – Cut and Fill Policy

Earthworks for road, drainage and structure foundation forms a major part of the quantity of waste that will be generated by the construction phase of this project. To optimise the impact of the generation of surplus material due to excavation the following principles have been considered during the detail design and construction phase: -

- The quantity of excavated materials to be removed from or imported into the site has been reduced by establishing levels of the proposed buildings which optimise the volume of cut and fill where possible.
- Sub-soils unsuitable for engineering purposes generated by excavations on site will be reviewed for reuse as landscaping or non-engineering fills on adjoining or other construction sites within the region.
- Careful separation of builder's rubble packaging and contaminated waste from re-usable material will result in the minimisation of the disposal of material to landfill.

4.3 Minimisation

The Purchasing Manager will need to 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.

All staff and Sub contractors shall be advised on how to dispose of their waste correctly on-site.

Where possible, the construction waste material such as damaged or broken concrete slabs, blocks, bricks and tiles generated that is deemed by the Project Engineer to be suitable for reuse will reduce the requirement for virgin aggregate materials from quarries and the amount of C&D waste for landfill disposal.

4.4 Reuse

Concrete blocks, engineering bricks and clay bricks that are surplus can be broken up and used for hardstanding areas.

Topsoil that is required for the soft landscaping will be measured and this quantity will be retained on site. The soil that will have to be removed off site will be removed to a licenced landfill facility. The C&D Waste Manager will keep records of the removal and the certification on file on site.

Fill on site can be broken down into the following categories:

Beneath Landscaped Areas:

Site won as specified by Landscape Architect. Topsoil to TII Clause 618. Top soiling and turfing shall be carried out using material complying with the requirements of Class 5 on Table 6/1 of TII specification. Imported topsoil. Class 5B material, shall only be imported when required and in accordance with Appendix 6/8 of TII Specification. When required in Appendix 6/8, topsoil shall not be excavated from stockpiles.

Beneath Buildings:

Clause 808 material compacted, or site won material, complying with the requirements or Class 1, 2 and 6 of Table 6/1 of TII specification. (piled and suspended slab or trench fill under footings).

Beneath Driveways/ Parking areas:

Permeable paving fill/ Clause 808

Beneath Roads:

Capping and Sub-base materials: -

- Capping material shall be comprised of either crushed rock, natural gravel, crushed gravel (all excluding argillaceous) or crushed concrete. The material shall be in accordance with SR 21 and Class 6F1 or 6F2 as defined in the TII Specification for Road Works Tables 6/1 and 6/2.
- Sub-Base material shall comprise of granular material, in accordance with Clause 808 of the TII Specification for Road Works and SR 21. The material shall lie within the grade limits set out in Table 8/6 of the Specification for Roadworks, TII. Certs from the supplier for all imported stone should be provided to the Engineer for review ahead of the works.

4.5 Recycling

It is envisaged that most of the recyclable waste on site will come from house construction in a form of wood and metal. Any excess wood or metal generated on site will be kept segregated and removed off site to a licenced recycling facility. The C&D Waste Manager will keep certification of this on file on site.

Excess wood and metal will be segregated in separate areas or skips and sent for recycling. The site management will make sure that the waste is segregated.

Plastic arising from general waste or packaging will be segregated and stored in a separate skip. Again, the site management team will ensure that there is no contamination of the segregated skips on site.

4.6 Disposal

Any waste that cannot be reused or recycled will be disposed of by a Permitted Waste Contractor holding an appropriate Waste Collection permit.

Any hazardous material discovered during construction shall be reported to the C&D Waste Manager. The relevant authorities will be informed and the method of removal of the hazardous material will be agreed upon.

The waste materials will be collected by a Permitted Waste Contractor holding an appropriate Waste Collection Permit and will be disposed of at a suitably Licenced Facility.

5. Waste Removal Access Routes

The access routes indicated below will be designated as the routes for all deliveries to the site and removal of waste from the site. The route/s will be signposted by the Developer prior to commencement of works on the site.

The proposed site compound, material store and parking area for the Adamstown Boulevard Phase 1 construction site is shown in Figure 5-1. For details on the routes to and from the site please refer to the Waterman Moylan Report "*Construction Management Plan*" submitted as part of this application, under a separate cover.

Figure 5-1: Proposed Site Compound & Access

6. Construction Phase Wastewater

Controls will be put in place to prevent C&D waste leachate washing into the local storm water system.

Following completion of any required initial dewatering of excavations for the drainage pipes, water supply, utilities and foundations, it is expected that flows of water into the excavation will be relatively small. These flows will be managed by sump pumping as required.

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 the discharge licence obtained from the Local Authority.

A series of Downstream Defenders are proposed within the Adamstown Boulevard Phase 1 site into which the surface water networks will connect, these "Downstream Defenders" will be functioning prior to the construction of Phase 2 development. These will introduce additional measures to control and clean surface water run-off (remove suspended solids and hydrocarbons) during the works.

APPENDICES

A. Trial Pit Map from GII Subsoil Assessment Report (April 2022)


Trial Pit
Dynamic Probe
Boreholes
Plate Tests
N
Survey Boundary
Client:
QUINTAIN
Project Code:
11414-11-22
Project Title:
Adamstown Boulevard
Drawing Title:
Figure 2 SI Plan
Ground Investigations Ireland Ltd.
Catherinstown House,
Hazelhatch Road,
Newcastle, Co. Dublin
www.gii.ie 01-6015175/5176
Drawn By:
JC
Date:
04-04-2022

UK and Ireland Office Locations