APPENDIX 9

CONSTRUCTION ENVIROMENTAL MANAGEMENT PLAN

Planning and Environmental Consultants

Construction Environmental Management Plan

Kingston Park and Millers Lane - Public Park and Urban Realm Project

DOCUMENT DETAILS

Client:	**Galway City Council**
Project Title:	**Kingston Park and Millers Lane - Public Park and Urban Realm Project**
Project Number:	**240298-j**
Document Title:	**Construction Environmental Management Plan**
Document File Name:	**Kingston Park and Millers Lane CEMP - F - 2025.11.07 - 240298-j**
Prepared By:	**MKO** **Tuam Road** **Galway** **Ireland** **H91 VW84**

Planning and Environmental Consultants

Rev	Status	Date	Author(s)	Approved By
01	D1	16/10/2025	EC	TM
02	D2	22/10/2025	EC	TB
02	F	07/11/2025	EC	TB/TM

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1. INTRODUCTION

This Construction & Environmental Management Plan (CEMP) has been prepared by MKO on behalf of Galway City Council (GCC) who intend to apply to An Coimisiún Pleanála (formerly an Bord Pleanála) for planning permission for a public park and urban realm project and associated works at Knocknacarra, Co. Galway. The development description is detailed in Section 2.2.3 below.

This CEMP provides the environmental management framework to be implemented throughout the pre-commencement and construction phases of the Proposed Development. It outlines the mitigation measures and best practice protocols designed to minimise potential environmental impacts during all stages of the works. The CEMP has been developed with reference to and is informed by the accompanying documentation and drawings which have been prepared for the Proposed Development.

The CEMP to be developed by the appointed contractor will serve as a single, amalgamated document for all construction phase requirements. It will function as a central point of reference for all stakeholders, including the Planning Authority, developer and contractors alike, encompassing all construction methodologies, environmental protection measures, and drainage management protocols. This approach is intended to ensure clarity, consistency, and regulatory compliance throughout the duration of the project.

1.1 Scope of the Construction and Environmental Management Plan

This report is presented as a guidance document for the management of construction activities and waste materials generated during the proposed works and following completion. It clearly outlines the mitigation measures that are required to be adhered to in order to complete the works in an appropriate manner.

The report is divided into:

- **Section 1** provides a brief introduction as to the scope of the report detailing the targets and objectives of this plan.
- **Section 2** outlines the site and project details, along with providing an overview of construction methodologies that will be adopted throughout the project.
- **Section 3** sets out details of the environmental controls on site which looks at noise and dust controls. Site drainage measures, as well as a resource waste management plan are also included in this section.
- **Section 4** sets out a fully detailed implementation plan for the environmental management of the project outlining the roles and responsibilities of the project team. The Emergency Response Plan to be adopted in the event of an emergency in terms of site health and safety and environmental protection is also included in this section.
- **Section 5** consists of a summary table of all mitigation proposals to be adhered to during the project.
- **Section 6** sets out an indicative programme of timing of works.
- **Section 7** outlines the proposals for reviewing compliance with the provisions of this report.

1.2 Targets and Objectives

The following key targets and objectives will inform the final detailed design including consideration of the buildability of the designs that emerge:

- Adopt a sustainable approach to the Proposed Development and ensure sustainable sources for materials supply where possible;
- Avoid any pollution incident or near miss as a result of working in, or around existing watercourses, and have emergency measures in place;
- Follow correct fuel storage and refuelling procedures;
- Implement air and noise pollution prevention measures;
- Maintain good waste management and housekeeping practices;
- Adopt reuse and recycle opportunities for materials where possible, e.g., excavated stone, soil, and subsoil material;
- Avoid vandalism;
- Monitor the works and any adverse effects they may have on the environment; and
- Provide adequate environmental training and awareness for all project personnel.

The key site objectives are as follows:

- Keep impact of works on the local environment, watercourses, habitats and wildlife to a minimum;
- Comply with all relevant water quality legislation;
- Ensure works and activities are completed in accordance with mitigation and best practice approaches as presented in the accompanying Natura Impact Statement (NIS), this CEMP, and associated planning documents;
- Ensure works and activities have minimal impact/disturbance to local landowners and the local community; and,
- Ensure works and activities have minimal impact on the natural environment.

1.3 Potential Amendment Scenarios

This CEMP may require further updating and final agreement with the various stakeholders should the Proposed Development receive planning permission, in alignment with all the conditions which apply and in order to identify, assess and satisfy the contract performance criteria. As mentioned above, the final CEMP will also require updating by the selected contractor. Therefore, this is a working document and will be developed further prior to construction commencing.

Triggers for amendments to the CEMP will include:

- When there is a need to improve performance in an area of environmental impact;
- As a result of changes in environmental legislation applicable and relevant to the project;
- Where the outcomes from auditing establish a need for change;
- Where Work Method Statements identify changes to a construction methodology to address high environmental risk; and
- As a result of an incident or complaint occurring that necessitates an amendment.

2. SITE PROJECT AND DETAILS

2.1 Site Location

The Proposed Development comprises two sites in Knocknacarra, Co. Galway. It involves the construction of a public park and urban realm project located at both Kingston Park and Millers Lane. The total combined area of the two sites where it is proposed to carry out works is 5.87 hectares (ha).

The location of the Proposed Development is shown in Figure 2-1. A layout of the Proposed Development is shown in Figure 2-2 and the description of both works area is further detailed in Section 2.2.3.

2.2 Description of Each Proposed Study Area

2.2.1 Millers Lane

Millers Lane is located adjacent to the Gateway shopping centre and Gaelscoil Mhic Amhlaigh Primary School in the townland of Rahoon approximately 2.5 kilometres (km) east from Galway City Centre. The site is accessed via the L-5000 Gort na Bró road, which runs along the western boundary of the site. The area where works are proposed in this location is approximately 2.44 ha in size and the Irish Transverse Mercator (ITM) for the approximate site centre for Millers Lane are X 527031, Y 725263.

The Millers Lane site comprises of two existing football pitches, that are currently in use as well as an adjacent area of unmanaged scrub located north of the pitches. The Proposed Development site is zoned as 'RA – Creation and Amenity' in the Galway City Development Plan 2023-2029 (GCDP).

There is one protected structure listed within the Site Boundary (GA094-056-) an early modern landscape feature. However, this was removed during archaeological test trenching and monitoring in 1993 as noted in the Archaeological Screening Report prepared by Rory Sherlock, and submitted with this application.

The culverted Knocknacarragh stream (order 1) (IE_WE_31K160960) runs under the western portion of the site in a south westerly direction through a concrete pipe that forms part of the public sewer network. This eventually empties into Rusheen Bay and provides a hydrological connection to the Galway Bay Complex Special Area of Conservation (SAC) approximately 1.1 km to the south.

The following European Designated Sites are located in proximity to the subject site:

- Galway Bay Complex Special Area of Conservation (SAC) [000268] (0.7 km from the Proposed Development site and a downstream hydrological distance of 1.1 km)
- Lough Corrib SAC [000297] (approximately 2.5 km from the Proposed Development site)
- Inner Galway Bay Special Area of Conservation (SPA) [004031] (0.9 km from the Proposed Development site and a downstream hydrological distance of 0.9 km)
- Lough Corrib SPA [004042] (3.1 km from the Proposed Development site)

2.2.2 Kingston Park

Kingston Park is located adjacent to the St. John the Apostle, Knocknacarra National School and existing residential buildings and a proposed large scale residential development. The Kingston Park site is located approximately 550 m southwest from Millers Lane which is part of this planning application. The site is located in the townlands of Clybaun and Rahoon approximately 3 km distance east from Galway City Centre. The site is accessed via a local road referred to as the Altan Road. The

area where works are proposed in this location is approximately 3.43 ha in size and the ITM for the approximate site centre for Kingston Park are: X 526448, Y 724746.

The subject site currently comprises of greenfield site, and consists of two parcels of underdeveloped land. The site is bisected by a local access road, known as the Altan Road that connects the St. John the Apostle, Knocknacarra National School and residential areas to the Western Distributor Road. The majority of the Proposed Development is zoned as 'RA – Creation and Amenity' with a small eastern section zoned as 'CF – Community Culture and Institutional' and a small northwestern section zoned as 'R – Residential' in the GCDP 2023-2029.

There are no protected structures or recorded monuments located within the boundary of the Proposed Development. However, there is one structure, a ringfort – unclassified (GA094-056-), located approximately 150 m to the south as stated in the Archaeological Screening Report prepared by Rory Sherlock.

The culverted Knocknacarragh stream (order 1) (IE_WE_31K160960) runs under the northern portion of the site in a south westerly direction through a concrete pipe that forms part of the public sewer network. This eventually empties into Rusheen Bay and provides a hydrological connection to the Galway Bay Complex Special Area of Conservation (SAC) approximately 1.1 km downstream.

The following European Designated Sites are located in proximity to the subject site:

- Galway Bay Complex Special Area of Conservation (SAC) [000268] (0.7 km from the Proposed Development site and a downstream hydrological distance of 1.1 km)
- Lough Corrib SAC [000297] (approximately 2.5 km from the Proposed Development site)
- Inner Galway Bay Special Area of Conservation (SPA) [004031] (0.9 km from the Proposed Development site and a downstream hydrological distance of 0.9 km)
- Lough Corrib SPA [004042] (3.1 km from the Proposed Development site)

2.2.3 Development Description

The Proposed Development as outlined in the Site Notice is as follows:

Description of Works at Millers Lane

The refurbishment and expansion of the existing park (site area 2.44 ha) located on Millers Lane, including:

- *Relocation and replacement of the 2 no. existing football pitches with 1 no. new 4-G synthetic turf multi-sport pitch (designed to soccer pitch dimensions) with associated fencing and 6 no. floodlights; and 1 no. new 2G sand filled synthetic multi-sport pitch (designed to hockey pitch dimensions) with associated fencing and 6 no. floodlights.*
- *New two-storey, multi-functional building which includes public and sports team changing rooms, showers and toilets; multi-purpose sports hall; multi-purpose activity rooms; kitchenette; 2 no. viewing terraces; first-aid room; store rooms; plant rooms; reception area, and roof-mounted solar panels.*
- *New public spaces and amenities including fenced children's play areas; internal paths; multi-use games area; climbing wall; calisthenics area; public plaza; pitch spectator areas; equipment storage shed; green space for passive recreation; public lighting; and public seating.*
- *Extensive landscape planting (including native genus and species) and nature-based drainage measures including pollinator friendly raingarden/ bioretention areas and reinforced grass paving, as well as planting areas with typologies including native and*

naturalised woodland areas, avenue tree planting, clipped hedges, short-flowering meadow, and pollinator friendly perennials.
- *Relocated vehicular access on the L-5000 Road, 2 no. new active travel accesses from the L-5000 Road; and enhanced pedestrian/ cyclist access from Millers Lane.*
- *27 no. car parking spaces (2 no. standard EV charging spaces, 1 no. accessible spaces, 1 no. combined EV and accessible space, and 1 no. family space), 2 no. coach drop-off spaces with automated access control, 3 no. motorcycle spaces, and 64 no. cycle spaces (40 no. standard short-term spaces, 2 no. short term cargo-bike spaces, and a secure bike shed with 20 no. standard and 2 no. cargo-bike spaces).*

Description of Works at Kingston Park

The development of the northern half of the proposed Kingston Park (site area 3.43 ha), including:

- *The development of 1 no. 4G synthetic turf multi-sport pitch (designed to rugby pitch dimensions) with associated fencing and 6 no. floodlights.*
- *New two-storey, multi-functional building which includes public and sports team changing rooms, toilets, and showers (standard and accessible); double-height general purpose community hall including retractable bleacher seating; multi-purpose activity rooms (including 3 no. rooms offering direct views onto the playing pitch); commentary booth; café and servery; sensory room; first-aid room; store room; plant room; reception area; and roof-mounted solar panels.*
- *New public spaces and amenities including all-ages play area, outdoor classroom / amphitheatre; internal paths; multi-functional gaming area; informal games lawn; boules pitch; calisthenics area; performance space; pedestrian gateway plaza; parks department staff kiosk; refuse store, sports equipment sheds; public lighting; and public seating.*
- *Extensive landscape planting (including native genus and species) and nature-based drainage measures including pollinator-friendly raingarden/ bioretention areas; reinforced grass paving; native hedgerows; short and long flowering meadows; wildflower gardens; native woodland; and pollinator-friendly perennials and shrubs.*
- *Replacement of the existing vehicular site access/ junction on the Altan Road, and modification of new access Road approved under permitted Aquatic Centre Development (Pln. Ref. 24/60370) to account for the layout of this proposed development.*
- *Improvement of existing active travel entrance from Doire Gheal, improved links to the St.John Apostle, Knocknacarra National School (via a Safe Routes to School), new active travel accesses from the Altan Road, and provision for 2 no. potential future accesses to the lands to the east (northeast of Kingston Gardens).*
- *50 no. car parking spaces (including 4 no. standard EV charging spaces, 3 no. accessible spaces, 1 no. combined EV and accessible space, and 1 no. age friendly space), 1 no. coach parking space, 1 no. set-down area, 82 no. bicycle spaces (60 no. standard short-term spaces, and a secure bike shed with 20 no. standard and 2 no. cargo-bike spaces), and 2 no. motorcycle spaces. All other associated and ancillary works.*

2.3 Construction Management

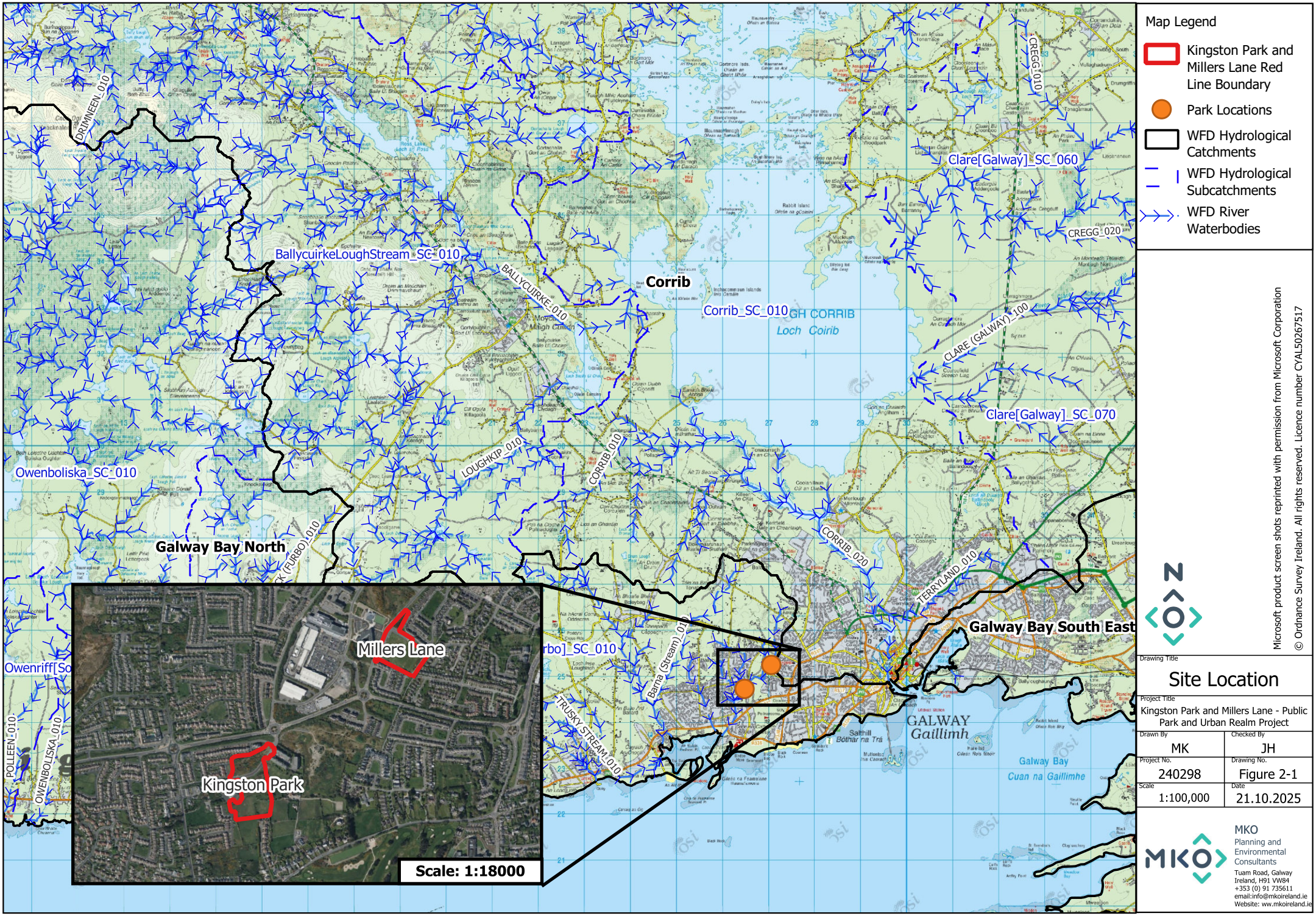
2.3.1 Introduction

The appointed contractor for the construction of the Proposed Development will be required to comply with this CEMP and any revisions made to this document throughout the construction phase. An overview of the anticipated Construction Methodologies is provided below.

2.3.2 Overview of Proposed Construction Methodology

The proposed anticipated construction methodology for Millers Lane and Kingston Park is summarised under the following main headings:

- Site Establishment;
- Site Excavation;
- Installation of New Services and Connections;
    - Drainage Works at Millers Lane;
    - Drainage Works at Kingston Parks;
- Synthetic Turf Multi- Sport Pitches;
- Multi-Functional Building;
- Public Space and Amenities;
- Roads, Active Travel Access and Car and Bicycle Parking Construction;
- Solar Photovoltaic Panels (PV) Installation;
- Landscaping and Ground Works;
- Construction Works Sequence.


Map Legend
Kingston Park and Millers Lane Red Line Boundary
Park Locations
WFD Hydrological Catchments
WFD Hydrological Subcatchments
WFD River Waterbodies
Corrib
Galway Bay North
Galway Bay South East
BallycuirkeLoughStream_SC_010
Corrib_SC_010
Clare[Galway]_SC_060
Clare[Galway]_SC_070
Owenboliska_SC_010
DRIMNEEN_010
BALLYCUIRKE_010
LOUGHKIP_010
CORRIB_010
CORRIB_020
CREGG_010
CREGG_020
CLARE (GALWAY)_100
TERRYLAND_010
TRUSKY STREAM_010
POLLEEN_010
OWENBOLISKA_010
Millers Lane
Kingston Park
Scale: 1:18000
GALWAY
Gaillimh
Galway Bay
Cuan na Gaillimhe
Microsoft product screen shots reprinted with permission from Microsoft Corporation
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Drawing Title
Site Location
Project Title
Kingston Park and Millers Lane - Public Park and Urban Realm Project
Drawn By
MK
Checked By
JH
Project No.
240298
Drawing No.
Figure 2-1
Scale
1:100,000
Date
21.10.2025
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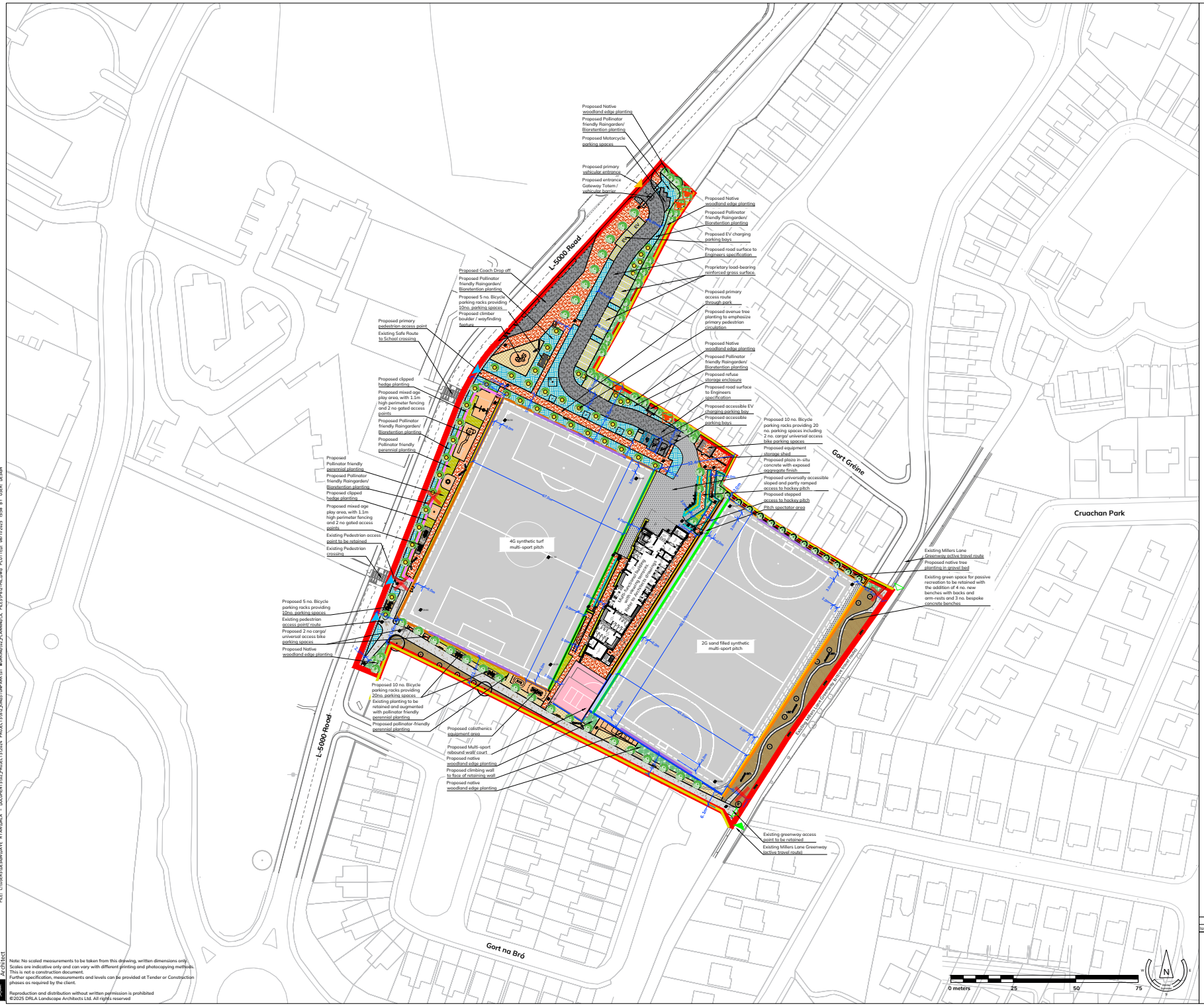

Legend

Site Notice Location

Site Boundary

Existing Trees to be retained

CIRCULATION & SURFACES

- Public Building Entrance (Primary / Secondary)
- Pedestrian Site Entrance (Primary / Secondary)
- Active Travel Site Entrance (Primary / Secondary)
- Vehicular Site Entrance

PROPOSED SURFACES (REFER TO HL SERIES FOR DETAILS)

S1 - Road Surface
For motorised traffic including coaches
Refer to Engineer's Design & Specification

S2 - Parking Bays
Proprietary load-bearing reinforced grass surface. Detail design to stabilise growing medium and support healthy grass growth in parking bays. System to provide structural support, prevent rutting and compaction, and allow free infiltration of surface water in accordance with SuDS principles.

S3 - Plaza
In-situ concrete surfacing with exposed aggregate finish

S4 - Multi-Use Gaming Areas
Proprietary seamless sports surfacing system. Poured, coloured acrylic- or polyurethane-based surface designed for multi-use games and informal play.

S5 - Soft-Pour Rubber Safety Surfacing
Seamless poured rubber surface with certified impact attenuation for playground use. Installed to critical fall height requirements in accordance with EN 1177.

S6 - Certified Play Sand
Clean, washed, fine-grain silica sand for use in sand play features and loose material play. Not intended for impact attenuation.

S7 - Pedestrian paths
Stone Mastic Asphalt (SMA) 6mm grade finish with clear polymer modified binder, 'Light Buff' colour pigment and colour-matched aggregates

S8 - Artificial Grass Playing Surface
4G synthetic turf Multi-sport pitch (Designed to Soccer pitch dimensions)
2G Sand filled synthetic Multi-sport pitch (Designed to Hockey pitch dimensions) with associated fencing and 6 no. floodlights per pitch

S9 - Self-binding Gravel
Compacted, permeable gravel with fines for firm, stable finish. Laid to max gradient of 1:12 (8%)
Requires edge restraint.

PROPOSED PLANTING (REFER TO PL SERIES FOR DETAILS)

Standard Trees
Semi-Mature Standard Trees, clearstem to 2m, rootballed, 3-4 times transplanted

Multistem Trees
Multistem Trees, 3-4 stems, 3.5-4.5 m height, container/rootballed

Bioretention Raingarden Trees
Tree species chosen for their water tolerance planted within Bioretention Raingardens.

PL1 – Woodland Edge Planting
Native trees and shrubs in layered structure for habitat transition, seasonal interest, and edge definition.

PL2 – Pollinator-Friendly Perennials & Shrubs Mix
Matrix planting of herbaceous perennials, sub-shrubs and ornamental grasses. Designed for texture, pollinators, and seasonal colour.

PL3 – Raingarden Mix
Matrix planting of herbaceous perennials, sub-shrubs and ornamental grasses. Designed for texture, pollinators, and seasonal colour and to tolerate occasional inundation and drought.

PL4 – Short-flowering Meadow
Short height grass meadow mix, cut every 6 weeks from April for path edges to provide habitat biodiversity

PL6 – Screening Hedge
Clipped hedge to provide softening to proposed boundaries

PROPOSED BOUNDARIES & SITE FURNITURE (REFER TO BD SERIES FOR DETAILS)

B1 - Retaining wall
Varying height, to Engineers specification, Block wall, rendered on both sides

B2 – Soccer Pitch Boundary Fence
Twin Bar Welded Mesh (TBVM) panel fence , 50x200mm aperture, powder coated, RAL colour black with kickboards to control migration of pitch infill material.

B3 – Hockey Pitch Boundary Fence
Roll Form Welded Mesh (RFVM) panel fence , 50x50mm aperture, powder coated, RAL colour black with kickboards to control migration of pitch infill material.

B4 – Play Area Boundary Fence
Timber post, pale and rail fence to 1.1m height to include two gates. Posts 120mm square, pales and rails 95x35 mm.

B5 – Bespoke Low Wall to Provide Seat / Planter / Ramp Edge
Bespoke construction details to Engineer's Design and Specification and Landscape Architect's Finishes.

B6 - Ball-Stop Netting (Vertical extension to fence)
Ball catch netting to rear of soccer pitch goals 3m height extension x 40m in length centered behind goals. Details subject to health and safety assessment

B7 – Spectator Fence Location
Refer to B2 for soccer Pitch spectator railing
Refer to B3 for hockey Pitch spectator railing

B8 – Reinforced Concrete Retaining Wall
Reinforced concrete retaining wall to Engineer's Specification. Details subject to detailed site investigations. Exposed concrete face with integrated artist-designed relief/photo-engraved finish. Artwork to be commissioned under the *Percent for Art Scheme* and developed in collaboration with the design team.

B9 – Existing block wall
Existing block boundary wall to residential units to be retained

BIODIVERSITY SUPPORT, EDUCATION & WAYFINDING

Bird Box
Approximate location of proposed bird boxes to support ecology. Bird boxes to be secured to trees using strap, minimum 2m above ground level, facing north to south-east.

- **M** Location Map
- **P** Plant / Tree identification plate
- **H** Bug hotel
- **F** Fingerpost
- **T** Totem Gateway

Issue/Rev. no.	Description	Date	Sign	Ctk'd

Client: **Galway City Council**
Project: Kingston Park and Millers Lane Public Park and Urban Realm Project

Drg Title: Site Layout Map
Stage: Planning

Drg. No.: P612-MIL-LD-GA- 101
Scale: 1:500@ A0
Date: 11th November 2025
Drawn By: JC Checked by: DR

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Registered Landscape Architect

Note: No scaled measurements to be taken from this drawing, written dimensions only. Scales are indicative only and can vary with different printing and photocopying methods. This is not a construction document. Further specification, measurements and levels can be provided at Tender or Construction phases as required by the client.

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Registered Landscape Architect

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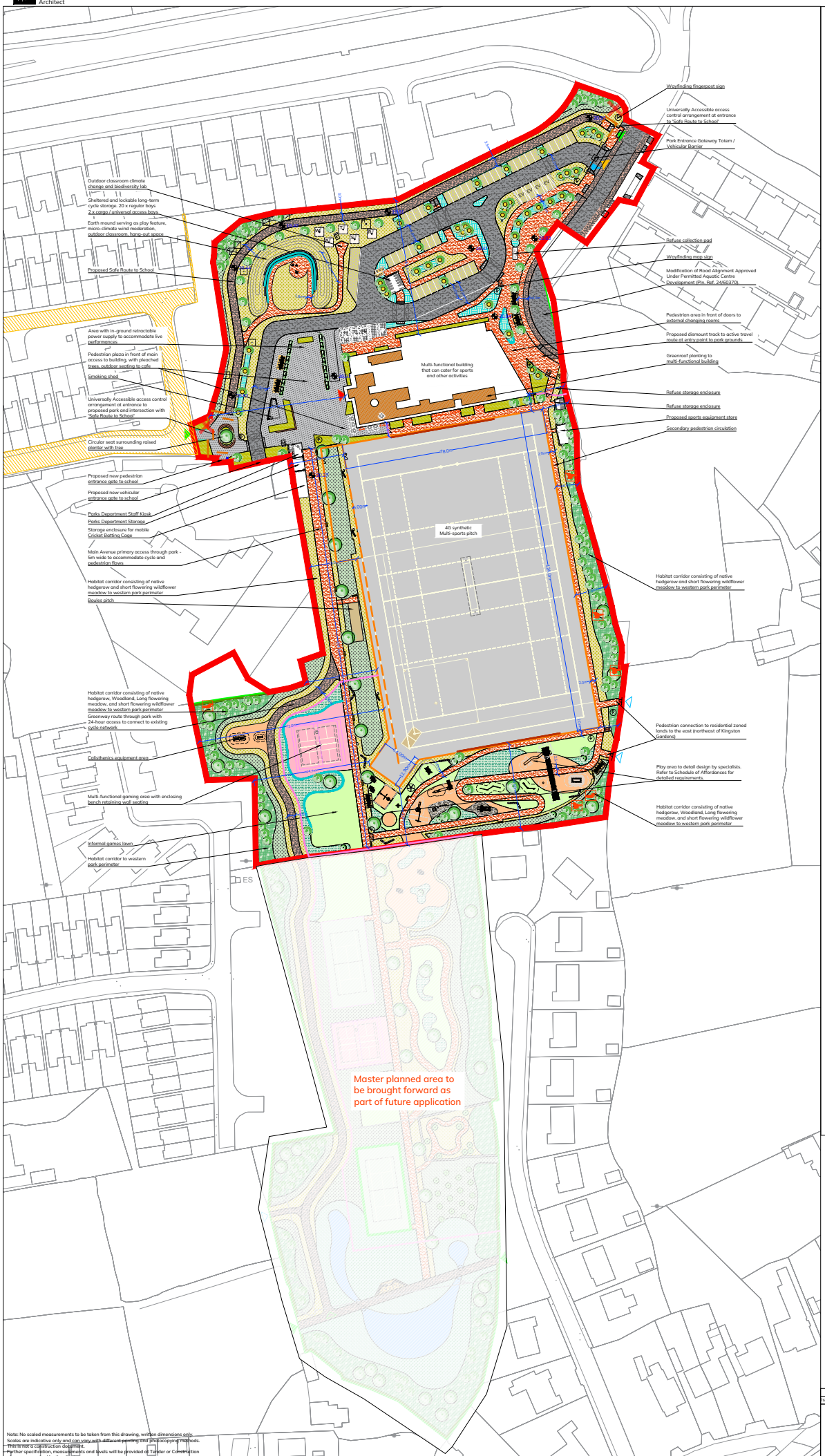

Legend

Site Notice Location

Site Boundary

CIRCULATION & SURFACES

Public Building Entrance (Primary/ Secondary)

Pedestrian Site Entrance (Primary/ Secondary)

Active Travel Site Entrance (Primary/ Secondary)

Vehicular Site Entrance

S1 - Motorised Traffic including coaches
Refer to Engineer's for Specification

S2 - Permeable reinforced grass Parking Bays
Proprietary load-bearing reinforced grass surface. Detail design to stabilise growing medium and support healthy grass growth in parking bays. System to provide structural support, prevent rutting and compaction, and allow free infiltration of surface water in accordance with SuDS principles.

S2B - Permeable block paving accessible Parking Bays
Proprietary permeable block paving, colour to match plaza surface finish. Compliant to SuDS requirements. refer to Engineers design and specification

S3 - Plaza & Main Avenue
In-situ concrete surfacing with exposed aggregate finish comprising a mix of locally sourced granite and limestone aggregate (6–10 mm). Surface to be acid-etched or washed to expose aggregate.

S4 - Multi-Use Gaming Areas
Proprietary seamless sports surfacing system. Poured, coloured acrylic- or polyurethane-based surface designed for multi-use games and informal play.

S5 - Cycleway
Stone Mastic Asphalt (SMA) 6mm grade finish with clear polymer modified binder, 'Terracotta' colour pigment and colour-matched aggregates

S6 - Soft-Pour Rubber Safety Surfacing
Seamless poured rubber surface with certified impact attenuation for playground use. Colour and pattern to be confirmed at detailed design stage. Installed to critical fall height requirements in accordance with EN 1177.

S7 - Certified Play Sand
Clean, washed, fine-grain silica sand for use in sand play features and loose material play. Not intended for impact attenuation. Install over free-draining base t specified depth with suitable edging to contain material.

S8 - Self-binding Gravel
Compacted, permeable gravel with fines for firm, stable finish. Laid to max gradient of 1:12 (8%) Requires edge restraint.

S9 - Pedestrian paths
Stone Mastic Asphalt (SMA) 6mm grade finish with clear polymer modified binder, 'Light Buff' colour pigment and colour-matched aggregates

S10 - Artificial Grass Playing Surface
4G synthetic turf pitch (Designed to Rugby pitch dimensions) with associated fencing and 6 no. floodlights

PLANTING

T1 - Large-Scale Standard Trees
Ultimate height 20 m+, canopy spread 15 m+. Structural native trees suitable for large open spaces, parks, and woodland frameworks, e.g. Quercus robur, Pinus sylvestris

T2 – Moderate-Scale Standard Trees
Ultimate height 10–20 m, canopy spread 8–15 m. For spatial definition, greenways, buffer planting, and woodland edge e.g. Betula pendula, Alnus glutinosa

T3 – Multistem Trees
Ultimate height 3-3.5 m, canopy spread 8–15m. For, buffer planting, open green spaces, and woodland edge e.g. Betula jaquemontii, Alnus glutinosa, Amelanchier

T4 – Pleached Trees
Ultimate height 3-3.5 m, canopy spread 1 x 3 m. For spatial definition and micro-climatic comfort at entrance plaza

T5 – Bioretention Tree Pit with filter / liner at 1m depth
Ultimate height 10–20 m, canopy spread 8–15 m. For spatial definition, greenways, buffer planting, and woodland edge e.g. Betula pendula, Alnus glutinosa

PL1 - Native Woodland Planting
Mixed native trees and understorey for biodiversity, screening, and long-term canopy development. Naturalistic layout.

PL2 – Biodiversity-Friendly Shrub Planting
Mixed flowering shrubs and subshrubs for year-round nectar and structure. Species selection to support biodiversity.

PL3 – Pollinator-Friendly Perennials & Shrubs Mix
Matrix planting of herbaceous perennials, sub-shrubs and ornamental grasses. Designed for texture, pollinators, and seasonal colour.

PL4 – Raingarden Mix
Matrix planting of herbaceous perennials, sub-shrubs and ornamental grasses. Designed for texture, pollinators, and seasonal colour and to tolerate occasional inundation and drought

PL5 – Long Wildflower Meadow
Medium-height grass meadow mix, 2 to 3 cus annually, for large meadow areas to provide habitat biodiversity

PL6 – Short-flowering Meadow
Short height grass meadow mix, cut every 6 weeks from April for path edges to provide habitat biodiversity

PL7 – Riparian/ Wetland Meadow
large Riparian/ wetland meadow areas to provide habitat biodiversity

PL8 – Amenity Sports Turf
Hard-wearing grass mix for informal kickabout and lawn areas

PL9 – Native Hedge
Mixed Native hedge

BOUNDARIES & WAYFINDING

B1 – Bespoke in-situ concrete seating / planter wall
Height: 380–470 mm, Width: 450–500 mm. Finish: Exposed aggregate finish comprising a mix of locally sourced granite and limestone aggregate (6–10 mm). Surface to be acid-etched or washed to expose aggregate.

B2 – Active travel access control
Granite faced block wall, as per TII CC-CSD-02404 600mm height, with piers to 1.2m

B3 – Rugby Pitch Boundary Fence/ Spectator rail fence
Twin Bar Welded Mesh (TBWM) panel fence, 50x200mm aperture, powder coated, RAL colour black with kickboards to control migration of pitch infill material. TBWM fence to spectator railing - 1.1m height. TBWM fence to perimeter - 3m height. Kickboards fixed to all fences field of play side - 200 mm height, Gate to match fence with minimum clearance of 1.2m x 2. Gate to match fence with minimum clearance of 2.4 m x 1.Details to specialists design and specification

B4 – Restricted access perimeter fencing
2.0m high steel mesh fence, powder coated, RAL colour black. Include for 1 no 2.4m wide double leaf matching gate and 3 no single leaf matching gates

B5 – Ballstop fence
Ball catch netting to rear of rugby pitch goals
12m height extension x 40m in length centered behind goals
Details subject to health and safety assessment

B6 – Rendered Block-work Wall
Piers, capping and finish to match existing boundary to Knocknacarra National School.

Bird Box
Approximate location of proposed bird boxes to support ecology. Bird boxes to be secured to trees using strap, minimum 2m above ground level, facing north to south-east.

Bat Box
Approximate location of proposed bat boxes to support ecology. Bat boxes to ecologist's specification.

Biodiversity support and outdoor classroom
B Bee post
T Thermometer for Outdoor Classroom Climate Lab
W Wind vanes for Outdoor Classroom Climate Lab
R Rain gauge for Outdoor Classroom Climate Lab
S Sun dial for Outdoor Classroom Climate Lab

Wayfinding & Biodiversity Education
M Location Map
I Information panel
K Blackboard
P Plant / Tree identification plate
H Bug hotel
F Fingerpost
T Totem Gateway

N

0 meters 25 50 75

Issue/Rev. no.	Description	Date	Sign	Ckd

Client: Galway City Council
Project: Kingston Park and Millers Lane Public Park and Urban Realm Project

Drg Title: Site Layout Plan
Stage: Planning

Drg. No.: P612-KIN-LD-GA-101
Scale: 1:500 @ A0
Date: 11th November 2025
Drawn By:LF Checked by: DR

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Note: No scaled measurements to be taken from this drawing, written dimensions only. Scales are indicative only and can vary with different printing and photocopying methods. This is not a construction document.
Further specification, measurements and levels will be provided at Tender or Construction phases as required by the client.

2.3.3 Construction Methodology

2.3.3.1 Site Establishment

Access to Millers Lane will be provided via the local road (L-5000) Gort Road, which runs along the western boundary of the site. Access to the Kingston Park site will be provided through the replacement of the existing vehicular access/junction on the Altan Road, along with the modification of new access road approved under the permitted Aquatic Centre Development (Pln. Ref 24/60370). Fencing/hoarding will be established around the two sites at Millers Lane and Kingston Park. These access points will be kept locked outside of normal working hours.

Due to the nature of the works, appropriate signage will be provided at the site to alert road users to the construction activities and related traffic at the sites.

The contractor will be required to undertake the following:

- Operate a Site Induction Process for all site staff.
- Ensure all site staff shall have current 'Safe Pass' cards.
- Maintain Site Security staff at all times.
- Install access security in the form of gates for staff.

Designated construction compounds will be established within the sites boundaries, located approximately 30 m away from any watercourses, waterbodies and drains. The construction compounds will provide site offices and welfare facilities, parking for staff, materials drop-off and storage areas, Heavy Goods Vehicles (HGV) set-down areas, waste storage areas, and a temporary stockpile for excavated material. Only designated personnel will be allowed to enter either sites during the construction phase and no parking permitted for any vehicles associated with the project on the public road during the construction phase unless agreed with GCC. The construction compounds will be constructed as follows:

- The area to be used as the compound will be marked out at the corners using ranging rods or timber posts;
- A layer of well graded granular material will be spread and lightly compacted to provide a hard area for site offices and storage containers;
- Areas within the compound will be constructed as site track and used as vehicle hardstanding during deliveries and for parking;
- If necessary, the compound will be temporarily fenced and secured with locked gates, although fencing would only be utilised where significant risk of danger to third parties or vandalism is envisaged; and,
- During the construction phase, a self-contained port-a-loo with an integrated waste holding tank will be used on site for toilet facilities. This will be maintained by the service contractor on a regular basis and will be removed from the site on completion of the construction phase.

2.3.3.2 Site Excavation

Excavations will be required for the construction of the Proposed Development. All excavations will be carried out using a suitably sized excavator.

Excavated material that is not reused on site for backfilling and landscaping will be removed off site for disposal or reuse by an appropriately licensed contractor at an appropriately licensed offsite facility. Wherever soil stripping and/or excavations are proposed the following will apply:

- The area where excavations are planned will be surveyed and all existing services will be identified.

- All relevant bodies i.e., ESB, Gas Networks Ireland, Eir, GCC etc. will be contacted and all drawings for all existing services sought.
- All plant operators and general operatives will be inducted and informed as to the location of any services.
- All plant operators and general operatives will be inducted and informed as to the identification of invasive species.
- A tracked 360-degree excavator will be used for initial excavations, and a dumper will be used to move the excavated materials to the temporary stockpile location within the site.

2.3.3.3 Installation of New Services and Connections

An Engineering Planning Report has been prepared by Punch Consulting Engineers for the Proposed Development. The Proposed Development will be served by separate foul and surface water drainage networks as shown in the Engineering Planning Report both prepared by Punch Consulting Engineers.

For detailed information on foul and surface water drainage see section 2.2.3.3.1 below.

The installation of new services and connections will be carried out as follows:

- Surveys will be conducted in the areas planned for pipe installation excavations, and all existing services and utilities will be identified.
- All relevant bodies, i.e., Electricity Supply Board (ESB), Gas Networks Ireland, Eir, GCC etc., will be contacted and all drawings for all existing services sought.
- All plant operators and general operatives will be inducted and informed as to the location of any services.
- A road opening licence will be obtained, if required, for connection to existing services. All plant operators and general operatives will be inducted and informed as to the location of any services.
- A tracked 360-degree excavator or similar will be used to excavate trenches to the required dimensions.
- All excavated material will be stockpiled and reused for backfilling and landscaping where appropriate.
- Once the trench has been excavated the ducting/pipework will then be placed in the trench as per specification.
- The As-built location of the ducting/pipework will be surveyed using a total station/Ground Positioning System (GPS).
- Backfill material will be carefully placed so as not to displace the ducting/pipework within the trench.
- The appropriate warning/marker tape will be installed above the ducts/pipes at the appropriate depths.
- The surface will be reinstated according to the original specifications or in line with the site layout requirements/standards for drainage works.
- A Traffic Management Plan (TMP) will be prepared by the appointed contractors prior to construction works at the Proposed Development site.

2.3.3.3.1 *Proposed Drainage Infrastructure at Millers Lane*

Foul Water Drainage

Foul effluent will be collected via a new gravity foul sewer system, designed in accordance with Uisce Éireann code of practice for wastewater infrastructure. The foul effluent will discharge to the existing manhole at the south-west corner of the site as per Drawing No. 233114-PUNCH-ML-XX-DR-C-0101 (Appendix 1-1) and the Engineering Planning Report both prepared by Punch Consulting Engineers

Surface Water Drainage

A new surface water sewer network will be provided for the Proposed Development. All surface water run-off from roof areas and hardstanding areas will be collected via a combination of traditional and Sustainable Urban Drainage Systems (SuDs) devices and conveyed to a gravity pipe network. The proposed development has sought to manage surface water on-site using SuDS measures as much as feasible. The proposed surface water network will discharge to the existing surface water sewer (1800 mm diameter surface water sewer) at the southwest corner of the site, via two hydrobrake manholes as per Drawing No. 233114-PUNCH-ML-XX-DR-C-0101 (Appendix 1-1) and the Engineering Planning Report both prepared by Punch Consulting Engineers.

2.3.3.3.2 *Proposed Drainage Infrastructure at Kingston Park*

Foul Water Drainage

Foul effluent will be collected via a new gravity system and discharged to the existing 300 mm foul sewer that traverses the site. The foul effluent will discharge to the existing manhole at the south-west corner of the site as per Drawing No. 233114-PUNCH-KP-XX-DR-C-0101 (Appendix 1-2) and the Engineer Planning Report both prepared by Punch Consulting Engineers.

Surface Water Drainage

The Proposed Development site is currently served by an existing stormwater drainage network. A new surface water management system including a combination of SuDs and traditional measures. The existing surface water sewer network will connect to the Proposed Development. Run-off from road and parking areas will be directed through permeable grass paving and bioretention systems. The proposed development has sought to manage surface water on-site using SuDS measures as much as feasible. The proposed surface water network will connect to the existing 18000 mm diameter surface water sewer at the manhole (SMH-4601) northwest of the site as per Drawing No. 233224-PUNCH-HP-XX-DR-C-0101 (Appendix 1-2) and the Engineering Planning Report both prepared by Punch Consulting Engineers

2.3.3.4 Synthetic Turf Multi-Sport Pitches

The new synthetic turf multi-sport pitches as detailed in section 2.2.3 will be installed/constructed as follows:

- The appointed contractor will survey the area for any unforeseen hazards prior to the commencement of works and set up warning signage as appropriate; The appointed contractor will ensure that on-site personnel are aware of environmental constraints / sensitive areas within the Proposed Development site in which works are to be avoided.
- Establish alignment of the new pitches as outlined on the construction drawings and mark out centre lines with ranging rods or timber posts;
- Excavators will remove the top layer of vegetation and topsoil. These works will only be carried out in dry weather if practically possible.
- Excavated material will be stockpiled adjacent to the works area.
- Excavation will take place to a competent stratum beneath the topsoil (as agreed with the site designer and resident engineer).
- Once the excavation reaches the desired depth and the base of the excavation has been levelled a layer of geogrid or geotextile material will be placed along its formation depending on ground conditions.
- The suitable surface material (4G synthetic turf or 2G sand-filled as required) will be delivered to the required work area and spread out locally with the use of excavators.
- 18 no. Floodlighting (6 no. per pitch) will be installed on concrete foundations.
- Perimeter fencing either roll form welded mesh panel fence or twin bar welded mesh panel fence will be installed around each pitch in accordance with manufacturer's

specifications as outlined in Drawing No. P612-KIN-LD-BD-403 and P612-MIL-LB-BD-403 prepared by DRLA Landscape Architects.

2.3.3.5 Multi- Functional Buildings

The Proposed Development will include the provision of a new two-storey multi-functional building at Millers Lane and Kingston Park. At Millers Lane, the multi- functional building is located between the pitches and at Kingston Park, the multi-functional building is located to the north within the site boundary .

The multi-functional buildings as detailed in section 2.2.3 will be constructed using the following methodology:

- The area where excavations and foundations are to be installed will be surveyed and all existing services will be identified.
- The area of the structures to be constructed will be marked out using ranging rods or wooden posts.
- All plant operators and general operatives will be inducted and informed as to the location of any services.
- A tracked 360-degree excavator or similar will be used to excavate the area down to a competent stratum as approved by the design engineer.
- The dimensions of the foundation areas will be set to meet the requirements of each component.
- The foundations will be excavated down to the level indicated by the Project Engineer, shuttered and cast with reinforced concrete as per the design engineer's specification.
- Structural framing, walls, and roof structure will be constructed in accordance with the design engineer's specification.
- Scaffolding will be erected around the buildings as the works progress.
- Windows, electrics, plumbing and all other building components and services will be installed in as promptly as possible.
- All newly constructed buildings will be inspected and certified by the project design engineer at the appropriate stages of construction.

2.3.3.6 Public Space and Amenities

The Proposed Development will include new amenities and public spaces at Millers Lane and Kingston Parks as detailed in section 2.2.3. .

The proposed public space and amenities are anticipated to utilise the following construction methodology:

- Children's Play Areas: a seamless poured rubber surface with certified impact attenuation for playground use will be installed as per No. P612-MIL-LD-GA-101 prepared by Drla Landscape Architects
- Multi-use Gaming Areas: a seamless poured rubber with integrated line markings and zones will be installed to define the activity areas.
- Informal games lawn/Green Space for Passive Recreation: A hard-wearing grass mix will be installed for recreation and play.
- Outdoor classroom/Amphitheatre: a short-flowering meadow mix will be installed to provide an outdoor class room area.
- Boules Pitch: A compacted self-binding gravel surface will be installed to provide a place for recreation and play.
- Performance Space: An exposed aggregate concrete surface will be installed for performances and gatherings.

- Pedestrian Gateway Plaza: An exposed-aggregate concrete surface using granite and limestone aggregate will be installed to provide a high-quality, accessible space linking the main building, pitches and entrances.
- Pitch Spectator Areas: Concrete paving or self-binding gravel surfaces will be installed along pitch perimeters to serve as accessible viewing areas.
- Equipment Storage Sheds/Staff Kiosk/Refuse Store: Pre-fabricated or modular structures will be installed on reinforced concrete hardstanding's for storage.
- Public Lighting: lighting will be installed throughout paths, plazas and activity areas.
- The various play area components will be brought on site.
- All play and amenity area components, including the climbing wall which will be attached to a wall, public seating, calisthenics equipment, and other elements will be securely fastened and assembled in accordance with manufacturer specifications.
- Prior to the commissioning of the new public space and amenities, including a children's play areas, will undergo the appropriate safety check inspections by competent personnel to ensure compliance with safety standards.

2.3.3.7 Roads, Active Travel Access and Car and Bicycle Parking Construction

The proposed car parking areas and other areas of hardstanding as outlined in section 2.2.3 will be constructed using the following methodology:

- All plant operators and general operatives will be inducted and informed as to the location of any services.
- The area where excavations and areas of hardstanding are to be installed will be surveyed.
- The area of the car parking and other hardstanding areas will be marked out and the soil and overburden stripped will be stockpiled for later use in landscaping.
- A tracked 360-degree excavator or similar will be used to excavate the area down to a competent stratum as approved by the Design Engineer.
- A wrapped geotextile will be laid down. This will help suppress weed growth, minimise sinking, strengthen the base and prevent the escape of fines.
- A layer of permeable aggregate in the form of clause 804 gravel or crushed concrete will then be installed. This layer will be compacted and checked for correct levels.
- In the case of areas of tarmac hardstanding tarmac will be applied. The tarmac will also be compacted.
- In the case of areas of concrete hardstanding, shutters/formwork will be installed on the areas where the concrete for the path surfaces will be poured.
- Concrete will then be poured and levelled until the appropriate levels are reached. Concrete will be allowed to cure for an appropriate time period prior to removal of the concrete shutters.
- Other ancillary works, such as the installation or ducting in the case of the EV charging Spaces will also be required.

2.3.3.8 Solar Photovoltaic (PV) Installation

Roof mounted Solar PV panels will be installed on top of the two new two-storey multi-functional buildings for Millers Lane as per Drawing No. 2412-QNA-XX-XX-DR-A-2001 and Kingston Park as per Drawing No. 2412-QNA-XX-XX-DR-A-2102 prepared by Quinn Architects. A methodology for the installation of the roof mounted Solar PV panels is described below:

- Fixing of the roof mounted systems will be by thin sheet screw or rivet. A watertight seal is provided by neoprene ring on the thin sheet screw and rubber plates.
- Mounting structures will be designed to the appropriate size and will be installed to withstand adverse or extreme weather conditions.

- The panels will be hoisted onto the roof of the multi-functional building and mounted on steel frames.
- Other ancillary works, such as the installation of cabling and ducting, will also be required.

2.3.3.9 Landscaping and Ground Works

A Landscape/Project Design Report has been provided by DRLA Landscape Architects for the Proposed Development at Millers Lane and Kingston Park. Prior to the completion of the works on the development site, landscaping works will be carried out. These works will involve the use of plant and machinery in order to carry out tasks such as earth moving.

The Landscape/Project Design Report for Millers Lane includes soft landscaping to include a pollinator friendly raingarden/bioretention areas, reinforced grass paving, as well as planting areas with typologies inclusive of native and naturalised wooded areas, avenue tree planting, clipped hedges, short-flowering meadow, and pollinator friendly perennials to enhance biodiversity. At Kingston Park, the Landscape/Project Design Report proposed soft landscaping the Report proposes soft landscaping including pollinator-friendly raingarden/bioretention areas, reinforced grass paving, native hedgerows, short and long-flowering meadows, wildflower gardens, native and naturalised wooded areas, and pollinator-friendly perennials and shrubs to enhance biodiversity.

2.3.3.10 Construction Works Sequence

Table 2-1 Sequence of Operations for the Construction Phase (Millers Lane and Kingston Park)

Item No.	Construction Works
1.	Site setup/Site Excavation
2.	Disconnection of services
3.	Installation of New Services and Connections
4.	Synthetic Turf Multi-Sports Pitches Installation
5.	Foundations: formwork and steel reinforcement installation
6.	Masonry: precast element installation, brickwork and stonework, including insulation installation
7.	Window/door installation
8.	Plastering/rendering (external)
9.	Painting (external)
10.	Internal services (electrical and plumbing)
11.	Plastering (internal)
12.	Floors: precast elements installation or sand and cement screed
13.	Services connection: electrical, sewage and telecoms
14.	Painting (internal)

Item No.	Construction Works
15.	Tiling: floors, walls, etc.
16.	Carpentry fix: doors, window boards, skirtings, etc.
17.	Public Space and Amenities Area installation
18.	Car parking spaces construction
19.	Landscaping

3. ENVIRONMENTAL MANAGEMENT

It is the responsibility of the appointed main contractor to implement an effective environmental management system and ensure the requirements as set out in the following sections are implemented in full.

The following sections provide a summary of the proposed site-specific measures and procedures for the implementation of an effective environmental management system.

3.1 Protecting Water Quality

The culverted Knocknacarragh stream (order 1) (IE_WE_31K160960) runs under the site of both Millers lane and Kingston Park sites in a south westerly direction eventually emptying into Rusheen Bay and providing a hydrological connection to the Galway Bay Complex SAC (1.1km downstream) and the Inner Galway Bay SPA (1.2km downstream).

In addition, there are existing roadside drains located along Altan Road, which traverses the site and serves as the access point to Kingston Park. Similarly, an unnamed local access route to the south of the site includes roadside drains serving Millers Lane.

Prior to the commencement of any construction activities, the necessary mitigation measures will be put in place to ensure that no silt laden runoff generated at the site will flow to any watercourses or drains, thus ensuring the protection of surface water during the works. This will involve confirming the location of all existing services and delineating between drainage systems. Surface waters will be managed to ensure the prevention of runoff from the site work areas. Stockpiling of soil during construction, should it be required, will take place in designated areas within the site boundary.

Particular emphasis will also be placed on hazardous materials entering the surface water management system including spills or leaks of fuel oils. Section 4.2 provides an Emergency Response Plan for dealing with spillages which may result in adverse environmental effects.

Excavation works have the potential to encounter sub-surface and groundwater. If groundwater is encountered during excavations, it will be pumped out and discharged through a pipe with an attached silt bag onto an area of overland vegetation within the site boundary. The discharge area will be surrounded by a layer of silt fencing, if deemed necessary.

3.1.1 Pollution Prevention and Control Measures

The following measures will be put in place to prevent the transportation of silt laden water or pollutants from entering the wider environments including nearby waterbodies:

- The site compounds will be established within the site boundary. The exact location of the site compounds will be established by the contractor. All construction materials and substances inclusive of the site compounds will be located a minimum of 30 m from any drains. The compounds will be used for storage of material, machinery, fuel, and workers facilities.
- The works will be managed to ensure there will be no silt-laden run-off beyond the site boundary or into any nearby drains. This will be achieved through the use of appropriate excavation techniques during the initial construction works. Where necessary, silt fencing will be installed downslope of the construction areas, particularly where drains or drainage pathways are present. These measures will serve as a protective measure to contain silt material within the site.

- Any requirement for temporary fills or stockpiles will be damped down or covered with polyethylene sheeting as required to avoid sediment release associated with heavy rainfall.
- Excavated spoil will be stockpiled and contained entirely within the confines of the site boundaries.
- If groundwater is encountered during excavations, waters will be pumped from excavation and discharged through a pipe with a silt bag attached on to an area of overland vegetation within the site boundary. It should be noted that due to the extent of the excavations proposed, that the likelihood of encountering groundwater ingress is anticipated to be low.
- All diesel or petrol pumps required onsite will be operated within bunded units, these units will not be located within 30 m of any drains.
- Exposed surfaces will be re-vegetated as soon as possible following construction.
- Where possible, earthworks will not be carried out during periods of heavy rainfall.
- Daily monitoring and inspections of site drainage and silt fencing during construction will be completed by the appointed environmental officer;
- Good construction practices will be implemented at the site. This will ensure minimal risk. The Construction Industry Research and Information Association (CIRIA) provide guidance on the control and management of water pollution from construction sites ('Control of Water Pollution from Construction Sites, guidance for consultants and contractors', CIRIA, 2001)1, which provides information on these issues. This will ensure that surface water arising during the course of construction activities will contain minimum sediment.

Details of control measures which will be implemented at the site, if required, are included in the Plates below.

Plate 3-1 Silt Bag with water being pumped through.

Plate 3-2 Silt Bag under inspection

[1] Construction Industry Research and Information Association (CIRIA) (2001): 'Control of Water Pollution from Construction Sites: Guidance for Consultants and Contractors'. CIRIA UK. Available at: https://www.ciria.org/

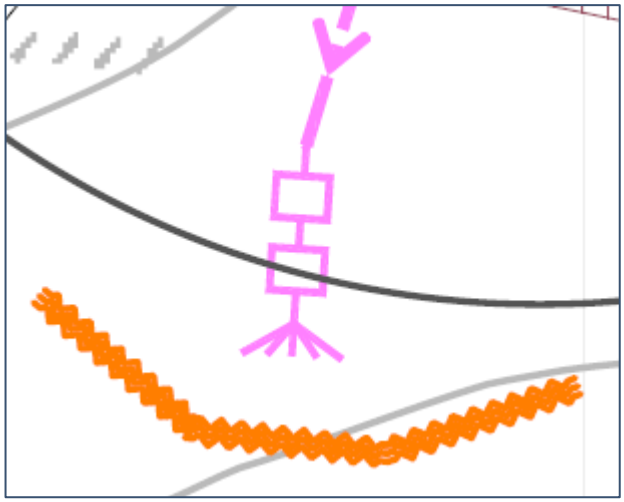


Plate 3-3 Indictive Silt Fence surrounding the discharge from a Silt Bag.

Plate 3-4 Embedded Silt Fence

3.1.2 Cement Based Products Control Measures

The following mitigation measures are proposed to avoid release of cement leachate from the sites:

- No batching of wet-cement products will occur on the sites.
- Ready-mixed supply of wet concrete products and where possible, emplacement of pre-cast elements, will take place.
- No washing out of any plant used in concrete transport or concreting operations will be allowed on-sites.
- Where concrete is delivered on the sites, only chute cleaning will be permitted, using the smallest volume of water possible.
- No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed.
- Use weather forecasting to plan dry days for pouring concrete.
- Ensure pour site is free of standing water and plastic covers will be ready in case of sudden rainfall event.

3.1.3 Refuelling, Fuel and Hazardous Materials Storage

- Storage/refuelling shall occur in a designated area of the construction sites, located a suitable distance from excavation works. This area should be underlain by impermeable hard standing, and tanks should be inspected for leaks regularly. Spill kits should be supplied at these stations and staff should be trained in their use and in spill control. Drainage from these areas shall be diverted for collection and not discharged into municipal drains without treatment and other best management practices.
- On site refuelling will be directly done from delivery trucks or stored fuel within bunded fuel tanks. Mobile measures such as drip trays and fuel absorbent mats will be used during all refuelling operations.
- Vehicles will never be left unattended during refuelling; only dedicated trained and competent personnel will perform refuelling operations; plant refuelling procedures shall be detailed in the contractor's method statements.
- Fuels, lubricants and hydraulic fluids for equipment used on the site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment.
- Storage of the small volume of fuels, lubricants and hydraulic fluids on-site will be placed secured in appropriately bunded storage areas within the boundaries of the Proposed Development site.
- Storage bunds/trays, if required will be constructed of an impermeable membrane (High density polyethylene (HDPC) Plastic) and will have the adequate capacity to contain the volume of the liquids contained therein, if a leak/spillage does occur from one of the storage vessels.
- All sites plant will be inspected at the beginning of each day prior to use. Defective plant shall not be used until the defect is satisfactorily fixed. All major repair and maintenance operations will take place off-site.

3.2 Dust Control

Construction dust can be generated from many on-site activities such as excavation and backfilling. The extent of dust generation will depend on the type of activity undertaken, the location, the nature of the dust, i.e., soil, sand, etc and the weather. In addition, dust dispersion is influenced by external factors such as wind speed and direction and/or, periods of dry weather. Construction traffic movements also have the potential to generate dust as they travel along the public road. The measures below will also prevent construction debris arising on the public road network.

Proposed measures to control dust include:

- The designated public roads outside the sites and along the main transport routes to the site will be regularly inspected by Site Management for cleanliness and cleaned as necessary.
- Material handling systems and material storage areas, if required will be designed and laid out to minimise exposure to wind.
- Water misting will be utilised on-site as required to mitigate dust in dry weather conditions, if required.
- A road sweeper will be employed, if necessary, to clean the public roads of any residual debris that may be deposited on the public roads leading away from the construction works.
- The transport of soils, aggregates or other material, which has the potential to generate dust, will be undertaken in tarpaulin-covered vehicles where necessary.
- Daily inspection of construction sites to examine dust measures and their effectiveness.
- All construction related traffic will have speed restrictions on un-surfaced areas within the sites to 15 kph.
- Daily inspection of construction sites to examine dust measures and their effectiveness.

3.3 Noise Control

The operation of plant and machinery, including construction vehicles, is a source of potential noise impacts. Construction phase noise is typically assessed in light of guidance set out in British Standard BS 5228-1:2009+A1:2014 *Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise* (2014)[2], as well as the National Roads Authority (NRA) (now TII) document *Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes* (2014)[3] . Although the NRA document is not directly relevant to the Proposed Development, it has seen increasing application to non-road projects in recent years in the absence of any specific Irish guidance.

Proposed measures to control noise include:

- All plant will be maintained in satisfactory condition, and in accordance with manufacturer requirements. Maintenance and lubrication of bearings and other moving parts will be undertaken as specified by the manufacturer.
- Exhaust and silencer systems on plant will be maintained in a satisfactory condition and operating correctly at all times. Defective silencers will be immediately replaced.
- Plant and machinery with low inherent potential for generation of noise and/or vibration will be selected.
- Where practical, separation distances to any locations of frequent human use where noise would have the potential to interfere with typical activities will be maximised through appropriate on-site positioning of plant.
- The requirement to house continuously operating plant in sound-attenuating enclosures or casings will be assessed on-site.
- Equipment not in active use will be shut down.
- On-site tracks and roadways used regularly by HGVs will be maintained in reasonable condition, and free of potholes and defects which may give rise to rattling of empty HGV bodies.
- Training will be provided by the Site Management to drivers to ensure smooth machinery operation/driving, and to minimise unnecessary noise generation. HGV drivers will be instructed to extend care and courtesy to other road users, and to avoid unnecessary revving of engines.
- Off-site queuing of HGVs will be prohibited.
- The proposed construction working hours will be 07:00 – 19:00 Monday to Friday and 08:00 – 16:30 on Saturday. Construction will not take place at the sites on Sundays or Public Holidays.

There is no published statutory Irish guidance relating to the maximum permissible noise and vibration level that may be generated during the construction phase of a project. Local authorities normally control construction activities by imposing limits on the hours of operation and consider noise and vibration limits at their discretion. However, there are several publications commonly used in Ireland to set appropriate construction criteria.

The Transport Infrastructure Ireland (TII) publication Guidelines for the Treatment of Noise and Vibration in National Road Schemes[3] contains information on the permissible construction noise levels for various hours of operation. The maximum noise level limits as per time of day in the publication are listed below:

[2] The British Standards Institution (BSI) (2009): *'BS 5228-1:2009+A1:2014: Code of practice for noise and vibration control on construction and open sites – Part 1: Noise'* BSI. UK. Available at: https://www.warrington.gov.uk/sites/default/files/2020-08/cf53_bs_5228_pt1-2009a1-2014.pdf

[3] Transport Infrastructure Ireland (TII) (2014): *'Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes'* TII. Ireland. Available at: https://www.tii.ie/media/nv0bnge2/guidance_for_the_treatment_of_noise_during_the_planning_of_national_road_schemes.pdf

- Monday to Friday 07:00 to 19:00hrs 80 decibel (dB)
- Monday to Friday 19:00 to 22:00hrs 65 dB
- Saturdays 08:00 to 16:30hrs 75 dB
- Sundays & Bank Holidays 08:00 to 16:30hrs 65 dB

All complaints of noise received during the construction phase will be logged in a register and investigated immediately. Details of follow-up action will be included in the register. A procedure for public complaints during construction is appended to this CEMP in Appendix 1-3.

3.4 Vibration Control

Vibration standards can be considered in two varieties: those dealing with human comfort and those dealing with cosmetic or structural damage to buildings. For example, vibration is perceptible at around 0.5 mm/s in the case of road traffic, however at higher magnitudes, this vibration may become an annoyance. Guidance relevant to the protection of building structures is contained in the following documents:

- British Standard BS 7385: 1993: Evaluation and Measurement for Vibration in Buildings Part 2: Guide to Damage Levels from Ground Borne Vibration4.
- British Standard BS 5228: 2009+A1 2014: Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 2: Vibration5.

Vibration can be more difficult to control than noise, and there are few generalisations which can be made about its control. It should be borne in mind that vibration can cause disturbance by causing structures to vibrate and radiate noise in addition to perceptible movement. The following mitigation measures will be implemented at the site during the decommissioning and construction phase to control vibration levels:

- The hours of working should be planned, and account should be taken of the effects of vibration upon persons in areas surrounding site operations and upon persons working on site, considering the nature of land use in the areas concerned and the duration of work.
- Where reasonably practicable, low vibration working methods should be employed. Consideration should be given to use of the most suitable plant, reasonable hours of working for operations which might give rise to perceptible vibrations, and economy and speed of operations.
- Vibration should be controlled at source and the spread of vibration should be limited.
- Where reasonably practicable, plant and/or methods of work causing significant levels of vibration at sensitive premises should be replaced by other less intrusive plant and/or methods of working.
- Vibration from stationary plant (e.g. generators, pumps, compressors) can, in some instances, prove disturbing when located close to sensitive premises or when operating on connected structures. In these instances, equipment should be relocated or isolated using resilient mountings
- On those parts of a sites where high levels of vibration are likely to be a hazard to persons working on the sites, prominent warning notices should be displayed.

[4] The British Standards Institution (BSI) (1993): *'BS 7385-2: 1993: Evaluation and measurement for vibration in buildings - Part 2: Guide to damage levels from groundborne vibration'* BSI. UK. Available at: https://www.normsplash.com/Samples/BSI/193746945/BS-7385-2-1993-en.pdf

[5] The British Standards Institution (BSI) (2014): *'BS 5228-2:2009+A1:2014: Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration'* BSI. UK. Available at: https://www.omegawestdocuments.com/media/documents/43/CD43.12%20-%204%20Code%20of%20practice%20for%20noise%20and%20vibration%20control%20on%20construction%20and%20open%20sites%20part%202%20vibration;.pdf

- Off-site fabrication – in a method statement/risk assessment the contractor will highlight any activity that may cause significant vibration levels and include measures in helping to mitigate these emission levels.
- Equipment is to be task specific.
- Best practice vibration control measures will be employed by the contractor.
- A designated member of staff will be appointed as the point of contact for any queries or complaints from nearby local residents.

3.5 Traffic Management Proposals

The proposed traffic management measures to be adopted during the construction works are summarised below. Please note that this is not an exhaustive list, and it will be updated accordingly by the appointed contractor in consultation with the local authority.

- Warning signs/advanced warning signs will be installed at appropriate locations in advance of the construction sites access locations.
- A site-specific Construction Traffic Management Plan will be agreed upon between the contractor and GCC prior to works starting.
- Construction and delivery vehicles will be instructed to use only the approved and agreed means of access; and movement of construction vehicles will be restricted to these designated routes.
- Appropriate vehicles will be used to minimise environmental impacts from transporting construction material, for example the use of dust covers on HGVs carrying dust producing material.
- Speed limits of construction vehicles to be managed by appropriate signage, to promote low vehicular speeds.
- Parking of site vehicles will be managed and will not be permitted on the public road, unless proposed within a designated area that is subject to traffic management measures and agreed with GCC.
- Deliveries of construction materials will be planned to ensure that the materials are delivered only as they are required and will avoid peak hours when possible.

The sites will not be open to members of the public. When vehicles are entering the sites, or leaving the sites, these movements will be supervised by designated members of staff who will act as road marshals. The construction site gates will be kept closed when not in use and monitored by a designated member of staff.

3.6 Invasive Species Management

MKO conducted multidisciplinary surveys to search for Invasive Alien Species (IAS), focusing on those listed under the First Schedule of the European Union (Invasive Alien Species) Regulations 2014 (S.I. No. 474 of 2024) and the Third Schedule Under Regulations 49 and 50 of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I 477 of 2011). These surveys were carried out by a qualified ecologist.

A single plant of Sea-buckthorn (*Hippophae rhamnoides*), an invasive species listed under First Schedule of the European Union (Invasive Alien Species) Regulations 2024 (S.I. No 374 of 2024) and the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011) were recorded growing in the treeline located between the site of Kingston Park and the adjacent St. John the Apostle National School.

The management and control of Sea-buckthorn (*Hippophae rhamnoides*), invasive species listed under First Schedule of the European Union (Invasive Alien Species) Regulations 2024 (S.I. No 374 of 2024) and the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011

(S.I. 477 of 2011) is detailed in the Ecological Impact Assessment (EcIA) which has been prepared by MKO and accompanies this application.

Due to the infestation within Kingston Park being limited to a single plant, chemical treatment is considered adequate control. The following measures describe the recommended treatment methodology for Sea Buckthorn:

- Treatment of the Sea Buckthorn plant will be undertaken prior to the commencement of works on the Proposed Development.
- The plant will be cut to the stump and treated with a glyphosate-based herbicide by painting the stump or through the use of eco plugs.
- Treatment can be undertaken year round.
- The vegetation material will be disposed of by burning or incineration.
- If for any reason, burning of plant material is not feasible on-site this material must be gathered and disposed of off-site, to a waste disposal facility that has a pollution prevention and control permit or waste management licence.
- In order to move material potentially contaminated with Third or First Schedule invasive plant species, a licence is required to be obtained from NPWS. The conditions of the permit or licence of the waste disposal facility must allow the disposal of invasive plants at the site. Delivery will be agreed with the waste site in advance to make sure they can accept material containing invasive plants. When transporting invasive plant material and soil potentially contaminated with invasive plant material, any vehicle used will be covered or securely sheeted so that plant material cannot be accidentally dispersed during transportation.
- Following the initial removal, treatment and completion of the development, the treated areas will be resurveyed annually and if necessary, re-treated until no growth of Sea Buckthorn is recorded for two consecutive years. If Sea Buckthorn is found to be reestablishing, it will be treated as per the measures outlined above.

3.6.1 Establishing Good Site Hygiene

The following site hygiene measures will be adhered to throughout the duration of the proposed construction works:

- All works in relation to invasive species will be supervised by the Ecological Clerk of Works (ECoW).
- After treatment has taken place, the sea-buckthorn stump should be left in-situ and fenced off. This will prevent any accidental spread of the plant via machinery used during the construction of the Proposed Development.
- The contractor will assign a member of their team as an Environmental Officer to ensure the management plan is adhered to throughout the proposed works.
- As a precautionary measure, machinery will be thoroughly cleaned down before entering the site to prevent potential spread of invasive species from elsewhere.
- Clean down will be carried out using brushes and shovels and power washing avoided. This is to prevent potentially contaminated run-off spreading outside the site.
- Any material imported to the site will be screened for invasive species by an Ecological Clerk of Works before transportation to the site.

3.7 Resource Waste Management Plan

The generation of waste as a result of construction and demolition related activity will provide the majority of on-site wastes which will need to be managed under guidelines set out in this document. This section of the CEMP provides a Resource Waste Management Plan (RWMP) which outlines the best practice procedures during the construction phase of the project. This plan has been compiled

based on The Department of the Environment document entitled, '*Best Practice Guidelines for the preparation of resource & waste management plans for construction & demolition projects' (2021).*

The plan is based on the European waste hierarchy which sets out the most to least preferred options for waste management. Waste prevention and re-use are viewed as the most desirable options for managing wastes with the least desirable option considered being disposal to a licensed landfill.

This plan has a number of key objectives as outlined below:

- To set out management prescriptions that adhere to the waste management hierarchy.
- To outline the roles and responsibilities of the appointed Waste Manager.

The generation of waste as a result of construction related activity will provide the majority of on-site wastes which will need to be managed under guidelines set out in this document.

3.7.1 Legislation

The Waste Management Acts 1996 (as amended) and its subsequent amendments provide for measures to improve performance in relation to waste management, recycling and recovery. The Act also provides a regulatory framework for meeting higher environmental standards set out by other national and EU legislation.

The Act requires that any waste related activity has to have all necessary licenses and authorisations. It will be the duty of the Waste Manager on the sites of the development to ensure that all contractors hired to remove waste from the sites have valid Waste Collection Permits. It will then be necessary to ensure that the waste is delivered to a licensed or permitted waste facility. The hired waste contractors and subsequent receiving facilities must adhere to the conditions set out in their respective permits and authorisations.

3.7.1.1 Waste Management Hierarchy

The waste management hierarchy sets out the most efficient way of managing waste in the following order:

Prevention and Minimisation:

The primary aim of the RWMP will be to prevent and thereby reduce the amount of waste generated at each stage of the project. The prevention and minimisation of waste of this development will be developed by implementing effective on-site materials management in terms of both material acquisition and storage on site.

Reuse of Waste:

Reusing as much of the waste generated on site as possible will reduce the quantities of waste that will have to be transported off site to recovery facilities or landfill. Site management will be required to encourage the appropriate reuse of materials where possible as well as identify re-use opportunities to achieve ultimate goal of waste reduction.

Recycling of Waste:

There are a number of established markets available for the beneficial use of construction waste such as using waste concrete as fill for new roads. A designated Waste Storage Area (WSA) will be maintained on the sites which will cater for segregation and recycling of various waste streams.

At all times during the implementation of the RWMP, disposal of waste to landfill will be considered only as a last resort.

3.7.2 Construction Phase Waste Management

The first significant quantity of waste to be generated during the construction phase of the project will be the excavation for the associated foundations. This will generate a quantity of soil and subsoil material as a result of the excavation. Although a quantity of this material will be used for landscaping, backfilling, and general restoration of excavated areas, it is anticipated that a quantity of this material will be exported off the sites by a licenced haulier to an authorised waste facility.

Waste generated on the sites, post-excavation, will be managed in the WSA where the various waste components will be segregated into a number of waste categories in accordance with a general waste segregation policy and placed into individual skips located on the hardstand in the temporary construction compound. The categories for segregation will include timber, metal, cardboard, and plastics. This material will be removed by authorised waste collection contractors for recycling and recovery at various licensed facilities. The remaining volume of waste material, which cannot be allocated to any of these four waste streams, will be disposed of in a general waste skip. This waste material will be transferred to a MRF by a fully licensed waste contractor where the waste will be further sorted into individual waste streams for recycling, recovery, or disposal. This general waste will be subject to constant monitoring by site management to ensure that potential reusable and recyclable material is not being disposed of therein. The on-sites canteen will be equipped with separate waste receptacles for dry recyclables and food waste. This is intended to eliminate the potential for canteen-generated waste to be sent to landfill.

As plant servicing will not be carried out on the sites, the likelihood of generating hazardous wastes is considered low. However, hazardous materials that may arise on sites during the construction phase of the Proposed Development may include oils, diesel fuel, chemicals, paints, and preservatives, etc. Any hazardous wastes will be stored in bunded containers before being collected by an authorised waste contractor and brought to an Environmental Protection Agency (EPA) licensed waste facility. Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the sites for disposal or recycling. All general construction waste materials will be collected in skips stored within the confines of the sites, prior to removal from the sites to a permitted waste facility. The sites will be maintained in a clean and orderly condition at all times to minimise the risk of environmental contamination.

The expected wastes arising from the works including the individual List of Waste (LoW) codes are outlined in Table 3-1 below.

Table 3-1 Expected waste types arising during the construction phase

Materials type	Example	LoW Code
Cables	Electrical wiring	17 04 11
Concrete	Surfacing, flooring material	17 01 01
Insulation	Cavity & Floor Insulation	17 06 04
Tiles and ceramics	Wall and floor tiles	17 02 03
Bituminous materials	Torch on felt roof coverings	17 03 01
Metals	Rebar, reinforced steel joists, lead	17 04 07

Mixture of inert material	Sand, stones, plaster, rock	17 01 07
Plastic	PVC frames, electrical fittings	17 02 03
Soil & Stones	Overburden, soil, subsoil	17 05 04
Gypsum materials	Roof tiles/slabs	17 08 02
Wood	Frames and doors,	17 02 01
Canteen Waste	Miscellaneous waste from site staff	20 01 08

The potential for re-use of materials on the sites during the works will be minimal however clean inert concrete, rubble and stones may have a re-use potential for foundations and landscaping.

It is also essential that all waste oils, empty oil containers and other hazardous wastes should be disposed of in accordance with the requirements of the Waste Management act, 1996 as amended.

3.7.3 Implementation

3.7.3.1 Roles and Responsibilities

Prior to the commencement of the Proposed Development a Waste Manager will be appointed by the project team. The role of Waste Manager is likely to be fulfilled by the Site Manager given the scale of the developments and will be responsible for the implementation of the objectives of this plan, ensuring that all hired waste contractors have the necessary authorisations and that the waste management hierarchy is adhered to. The person nominated must have sufficient authority so that they can ensure everyone working on the Proposed Development adheres to the management plan. The waste manager will also be required to conducted regular waste audits in the WSA and throughout the sites to ensure that the waste management plan is operating effectively.

3.7.3.2 Training

It is important for the Waste Manager to communicate effectively with colleagues in relation to the aims and objectives of the RWMP. All employees working on the sites during the construction phases of the project will be trained in materials management and thereby, should be able to:

- Distinguish reusable materials from those suitable for recycling.
- Ensure maximum segregation at source.
- Co-operate with site manager on the best locations for stockpiling reusable materials.
- Separate materials for recovery.
- Identify and liaise with waste contractors and waste facility operators.

3.7.3.3 Record Keeping

The RWMP will provide systems that will enable all arisings, movements, and treatments of construction waste to be recorded. This system will enable the contractor to measure and record the quantity of waste being generated. It will highlight the areas from which most waste occurs and allows the measurement of arisings against performance targets. The RWMP can then be adapted with changes that are seen through record keeping.

The fully licensed waste contractor employed to remove waste from the sites will be required to provide documented records for all waste dispatches leaving the sites of the Proposed Development. Each record will contain the following:

- Consignment Reference Number
- Material Type(s) and LoW Code(s)
- Company Name and Address of Sites of Origin
- Trade Name and Collection Permit Ref. of Waste Carrier
- Trade Name and Licence Ref. of Destination Facility
- Date and Time of Waste Dispatch
- Registration no. of Waste Carrier vehicle
- Weight of Material
- Signature of Confirmation of Dispatch detail
- Date and Time of Waste Arrival at Destination
- Weight of Material
- Sites Address of Destination Facility

3.7.4 Waste Management Plan Conclusion

The RWMP will be properly adhered to by all staff involved in the project which will be outlined within the induction process for all site personnel. The waste hierarchy should always be employed when designing the plan to ensure that the least possible amount of waste is produced during the construction phase. Reuse of certain types of construction wastes will cut down on the cost and requirement of raw materials therefore further minimising waste levels.

4. ENVIRONMENTAL MANAGEMENT IMPLEMENTATION AND EMERGENCY RESPONSE

4.1 Roles and Responsibilities

4.1.1 Construction Manager/Sites Manager

The Construction Manager/Sites Supervisor will have overall responsibility for the organisation and execution of all related environmental activities as appropriate, in accordance with regulatory and project environmental requirements. The duties and responsibilities of the Construction Manager/ Sites Supervisor will include:

- Ensure that all works are completed safely and with minimal environmental risk; Approve and implement the CEMP and supporting environmental documentation, and ensure that all environmental standards are achieved during the construction phase of the project;
- Take advice from the sites Environmental Manager on legislation, codes of practice, guidance notes and good environmental working practice relevant to their work;
- Ensure compliance through audits and management sites visits;
- Ensure timely notification of environmental incidents; and,
- Ensure that all construction activities are planned and performed such that minimal risk to the environment is introduced;
- Provide full and adequate supervision and sites administration during the progress of the works;
- Appoint suitably qualified foreman, craftsman, domestic subcontractors, and specialists;

4.1.2 Environmental Manager

The main contractor appointed to carry out the works onsite will be required to provide a level of supervision onsite in the form of an Environmental Manager who will also fulfil the role of Waste Manager. Due to the scale of activity proposed for the sites, this role can be adopted by a Site Manager/Foreman as part of their duties. In general, this Environmental Manager will maintain responsibility for monitoring the works and Contractors/Sub-contractors from an environmental perspective. The Environmental Manager will act as the regulatory interface on environmental matters by reporting directly to the client and liaising with GCC and other statutory bodies as required. The duties of the appointed Environmental Manager are summarised as follows:

- Maintain and update as required the Construction Phase CEMP and supporting environmental documentation and review/approval of contractor method statements.
- Undertake inspections and reviews to ensure the works are carried out in compliance with the CEMP.
- Monitor the implementation of the CEMP, particularly all proposed/required Environmental mitigation measures.
- Generate environmental reports as required to show environmental data trends and incidents and ensure environmental records are maintained throughout the construction period.
- Advise site management/contractor/sub-contractors on:
    - Prevention of environmental pollution and improvement to existing working methods.
    - Changes in legislation and legal requirements affecting the environment.

- Suitability and use of plant, equipment and materials to prevent pollution.
- Environmentally sound methods of working and systems to identify environmental hazards.

- Ensure proper mitigation measures are initiated and adhered to during the construction phase.
- Liaise with Project Team and present the findings of sites audits/inspections that are completed.
- Ensure adequate arrangements are in place for sites personnel to identify potential environmental incidents.
- Ensure that details of environmental incidents are communicated in a timely manner to the relevant regulatory authorities, initially by phone and followed up as soon as is practicable by email.
- Provide full supervision of the decommissioning of the existing underground fuel tanks and fuel lines. Monitoring will also be carried out by the Site Manager, if required.
- Support the investigation of incidents of significant, potential or actual environmental damage, and ensure corrective actions are carried out, recommend means to prevent recurrence and communicate incident findings to relevant parties.
- Identify environmental training requirements and arrange relevant training for all levels of site-based staff/workers; and
- Fulfil the role of Waste Manager and implement the objectives of the RWMP as set out in Section 3.7 above.

4.2 Emergency Response Plan

4.2.1 Emergency Response

The Emergency Response Plan (ERP) is presented in this section of the CEMP. It details the procedures to be followed in the event of an emergency, covering site health and safety and environmental protection measures.

The sites ERP specifies the required response protocols and defines the responsibilities of all personnel in the event of an emergency. The ERP will be subject to ongoing updates and require submissions from the contractor, Project Supervisor and suppliers as the construction phase progresses. For sub-contractors governed by their own emergency response procedures, a bridging arrangement will be implemented to ensure integration of procedures within this document thereby maintaining consistency and coordination across all site operations.

This is a working, live document that requires continuous updating throughout the works of the Proposed Development.

4.2.2 Roles and Responsibilities

The chain of command during an emergency response sets out who is responsible for coordinating the response. The Site Manager/Environmental Manager will lead the emergency response which makes him responsible for activating and coordinating the emergency response procedure. The other site personnel who can be identified at this time who will be delegated responsibilities during the emergency response are presented in Figure 4-1. In a situation where the Site Manager/Environmental Manager is unavailable or incapable of coordinating the emergency response, the responsibility will be transferred to the next person in the chain of command outlined in Figure 4-1. This will be updated throughout the various stages of the project.

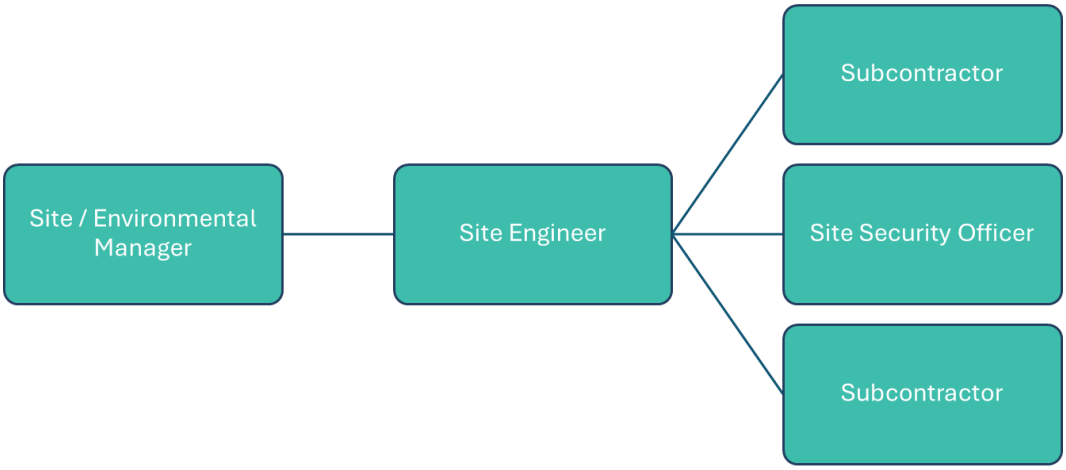


Figure 4-1 Emergency response procedure - chain of command

4.2.3 Initial Steps

In order to establish the type and scale of potential emergencies that may occur, the following hazards have been identified as being potential situations that may require an emergency response in the event of an occurrence.

Table 4-1 Hazards Associated with Potential Emergency Situations

Hazard	Emergency Situation
Construction Vehicles: Dump trucks, tractors, excavators, cranes etc.	Collision or overturn which has resulted in operator or third-party injury.
Abrasive wheels/Portable Tools.	Entanglement, amputation or electrical shock associated with portable tools.
Contact with services.	Electrical shock or gas leak associated with an accidental breach of underground services.
Fire	Injury to operative through exposure to fire.
Falls from heights including falls from scaffold towers, scissor lifts, ladders and roofs.	Injury to operative after a fall from a height.
Sickness	Illness unrelated to site activities of an operative e.g., heart attack, loss of consciousness, seizure.

In the event of an emergency situation associated with, but not restricted to, the hazards outlined in Figure 4-1 above the Site Manager will carry out the following:

- Establish the scale of the emergency situation and identify the number of personnel, if any, have been injured or are at risk of injury.
- Where necessary, sound the emergency siren/foghorn that activates an emergency evacuation on the sites.

- Make safe the area if possible and ensure that there no identifiable risk exists with regard to dealing with the situation e.g., if a machine has turned over, ensure that it is in a safe position so as not to endanger others before assisting the injured.
- Contact the required emergency services or delegate the task to someone if he is unable to do so. If delegating the task, ensure that they follow the procedures for contacting the emergency services as set out in Section 4.2.6.
- Take any further steps that are deemed necessary to make safe or contain the emergency incident e.g., cordon off an area where an incident associated with electrical issues has occurred.
- Contact any regulatory body or service provider as required e.g., ESB Networks the numbers for which as provided in Section 4.2.6.2.
- Contact the next of kin of any injured personnel where appropriate.

4.2.4 Site Evacuation / Fire Drill

A site evacuation/fire drill procedure will provide basis for carrying out the immediate evacuation of all site personnel in the event of an emergency. The following steps will be taken:

- Notification of the emergency situation. Provision of a siren or foghorn to notify all personnel of an emergency situation.
- An assembly point will be designated in the construction compound area and will be marked with a sign. All site personnel will assemble at this point.
- A roll call will be carried out by the Site Security Officer to account for all personnel on site.
- The Site Security Officer will inform the Site Manager when all personnel have been accounted for. At this time the Site Manager will decide the next course of action which will be determined by the situation that exists at that time. The Site Manager will advise all personnel accordingly.

All personnel will be made aware of the evacuation procedure during site induction. The Fire Services Acts of 1981 and 2003 require the holding of fire safety evacuation drills at specified intervals and the keeping of records of such drills.

4.2.5 Environmental Emergency Response Procedure

4.2.5.1 Spill Control Measures

Every effort will be made to prevent an environmental incident during the construction and operational phase of the proposed project. Oil/Fuel spillages are one of the main environmental risks that will exist on the proposed sites which will require an emergency response procedure. The importance of a swift and effective response in the event of such an incident occurring cannot be over emphasised. The following steps provide the procedure to be followed in the event of such an incident.

- Stop the source of the spill and raise the alarm to alert people working in the vicinity of any potential dangers.
- If applicable, eliminate any sources of ignition in the immediate vicinity of the incident.
- Contain the spill using the spill control materials, track mats or other material as required. Do not spread or flush away the spill.
- If possible, cover or bund off any vulnerable areas where appropriate such as drains or watercourses.
- Clean up as much as possible using the spill control materials.
- Contain any used spill control material and dispose of used materials appropriately using a fully licensed waste contractor with the appropriate permits so that further contamination is limited.

- Notify the Environmental Manager immediately giving information on the location, type and extent of the spill so that they can take appropriate action and further investigate the incident to ensure it has been contained adequately.
- External consultants will inspect the site and ensure the necessary measures are in place to contain and clean up the spill and prevent further spillage from occurring.
- The Environmental Manager will notify the appropriate regulatory body such as GCC if deemed necessary.

Environmental incidents are not limited to just fuel spillages. Therefore, any environmental incident must be investigated in accordance with the following steps:

- The Environmental Manager must be immediately notified.
- If necessary, the Environmental Manager will inform the appropriate regulatory authority. The appropriate regulatory authority will depend on the nature of the incident.
- The details of the incident will be recorded on an Environmental Incident Form which will provide information such as the cause, extent, actions and remedial measures that were used following the incident. The form will also include any recommendations made to avoid reoccurrence of the incident.
- If the incident has impacted on an ecologically sensitive receptor, such as a sensitive habitat, protected species or designated conservation site (e.g., SPA or SAC), the Environmental Manager will liaise with an Ecologist.
- If the incident has impacted on a sensitive receptor such as an archaeological feature the Environmental Manager will liaise with an Archaeologist.
- A record of all environmental incidents will be kept on file by the Environmental Manager and the Main Contractor. These records will be made available to the relevant authorities such as GCC and the EPA if required.

The Environmental Manager will be responsible for any corrective actions required as a result of the incident, e.g., an investigative report, formulation of alternative construction methods or environmental sampling, and will advise the Main Contractor as appropriate.

4.2.6 Contacting the Emergency Services

All staff members will know the address and location of the sites as it may be necessary to liaise with the emergency services on the ground in terms of locating the sites. This may involve providing an escort from a designated meeting point that may be located more easily by the emergency services.

4.2.6.1 Emergency Communication Procedure

In the event of requiring the assistance of the emergency services the following steps should be taken:

- Stay calm. It is important to take a deep breath and not get excited. Any situation that requires 999/112 is, by definition, an emergency. The dispatcher or call-taker knows that and will try to move things along quickly, but under control.
- Know the location of the emergency and the number you are calling from. This may be asked and answered a couple of times but do not get frustrated. Even though many emergencies call centres have enhanced capabilities meaning they are able to see your location on the computer screen they are still required to confirm the information. If for some reason you are disconnected, at least emergency crews will know where to go and how to call you back.
- Wait for the call-taker to ask questions, then answer clearly and calmly. If you are in danger of assault, the dispatcher or call-taker will still need you to answer quietly, mostly "yes" and "no" questions.

- If you reach a recording, listen to what it says. If the recording says your call cannot be completed, hang up and try again. If the recording says all call takers are busy, WAIT. When the next call-taker or dispatcher is available to take the call, it will transfer you.
- Let the call-taker guide the conversation. He or she is typing the information into a computer and may seem to be taking forever. There is a good chance, however, that emergency services are already being sent while you are still on the line.
- Follow all directions. In some cases, the call-taker will give you directions. Listen carefully, follow each step exactly, and ask for clarification if you do not understand.
- Keep your eyes open. You may be asked to describe victims, suspects, vehicles, or other parts of the scene.
- Do not hang up the call until directed to do so by the call taker.

All staff members will know the address and location of the sites as it may be necessary to liaise with the emergency services on the ground in terms of locating the sites. This may involve providing an escort from a designated meeting point that may be located more easily by the emergency services.

4.2.6.2 Contact Details

A list of emergency contacts is presented in Table 4-2 below.

Table 4-2 Emergency Contacts

Hazard	Emergency Situation
Emergency Services – Ambulance, Fire, Gardaí	999/112
Knocknacarra Medical Centre	091 862 220
ESB Emergency Services	1850 372 999
Bórd Gais Emergency	1850 20 50 50
Gardaí – Salthill Garda Station	091 514 720
Health and Safety Coordinator - Health & Safety Services	TBC
Health and Safety Authority	1890 289 389
Project Supervisor Construction Stage (PSCS): TBC	TBC
Project Supervisor Design Stage (PSDS): TBC	TBC
Client – Galway City Council	091 536 400

4.2.6.3 Procedure for Personnel Tracking

All operatives on-site without any exception will have to undergo a sites induction where they will be required to provide personal contact details which will include contact information for the next of kin.

In the event of a sites operative becoming involved in an emergency situation where serious injury has occurred, and hospitalisation has taken place, it will be the responsibility of the Site Manager or next in command if unavailable to contact the next of kin to inform them of the situation that exists.

4.2.6.4 Induction Checklist

Table 4-3 provides a list of items highlighted in this ERP which must be included or obtained during the mandatory sites induction of all personnel that will work on the sites. This will be updated throughout the various stages of the project.

Table 4-3 Emergency Response Plan Items Applicable to the Sites Induction Process

ERP Items to be included in Sites Induction	Status
All personnel will be made aware of the evacuation procedure during sites induction.	
Due to the location of the sites, it may be necessary to liaise with and assist the emergency services on the ground in terms of locating the sites. This may involve providing an escort from a designated meeting point that may be located more easily by the emergency services. This should form part of the sites induction to make new personnel and sub-contractors aware of any such arrangement or requirement if applicable.	
All operatives on-sites without any exception will have undergo a sites induction where they will be required to provide personal contact details which will include contact information for the next of kin.	

5. MITIGATION PROPOSALS

This section of the CEMP groups together all environmental mitigation measures relating to the Proposed Development works. The CEMP will be finalised subsequent to any permission granted by GCC and will be updated prior to construction to include, inter alia, any additional requirements pursuant to relevant planning conditions imposed. Mitigation measures identified in the NIS will also be incorporated into this section to ensure compliance with ecological and environmental requirements.

By presenting the mitigation proposals in the below table format, it is intended to provide an easy to audit list that can be reviewed and reported on during the Proposed Works.

Table 5-1 Mitigation Measures for the Pre-Commencement and Construction Phases

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
Pre-Commencement Phase				
1	CEMP Section 4.1.2	The main contractor appointed to carry out the works onsite will be required to provide a level of supervision onsite in the form of an Environmental Manager who will also fulfil the role of Waste Manager. Due to the scale of activity proposed for the sites, this role can be adopted by a Site Manager/Foreman as part of their duties. In general, this Environmental Manager will maintain responsibility for monitoring the works and Contractors/Sub-contractors from an environmental perspective. The Environmental Manager will act as the regulatory interface on environmental matters by reporting directly to the client and liaising with GCC and other statutory bodies as required.		
Construction Phase				
Protecting Water Quality				
4	CEMP Section 3.1 NIS Section 6 EcIA Section 6	› The site compounds will be established within the site boundary. The exact location of the site compound will be established by the contractor. All construction materials and substances inclusive of the site compounds and will be located a minimum of 30 m from any drains. The compounds will be used for storage of material, machinery, fuel, and workers facilities. › The works will be managed to ensure there will be no silt-laden run-off beyond the site boundary or into any nearby drains or watercourses. This will be achieved through the use of appropriate excavation techniques during the initial construction works. Where necessary, silt fencing will be installed downslope of the construction areas, particularly where drains or drainage pathways are present. These measures will serve as a protective measure to contain silt material within the site.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		› Any requirement for temporary fills or stockpiles will be damped down or covered with polyethylene sheeting as required to avoid sediment release associated with heavy rainfall. › Excavated spoil will be stockpiled and contained entirely within the confines of the site boundaries. › If groundwater is encountered during excavations, waters will be pumped from excavation and discharged through a pipe with a silt bag attached on to an area of overland vegetation within the site boundary. It should be noted that due to the extent of the excavations proposed, that the likelihood of encountering groundwater ingress is anticipated to be low. › All diesel or petrol pumps required onsite will be operated within bunded units, these units will not be located within 30 m of any drains. › Exposed surfaces will be re-vegetated as soon as possible following construction. › Where possible, earthworks will not be carried out during periods of heavy rainfall. › Daily monitoring and inspections of site drainage and silt fencing during construction will be completed by the appointed environmental officer; › Good construction practices will be implemented at the site. This will ensure minimal risk. The Construction Industry Research and Information Association (CIRIA) provide guidance on the control and management of water pollution from construction sites ('Control of Water Pollution from Construction Sites, guidance for consultants and contractors', CIRIA, 2001)6, which provides information on these issues. This will ensure that surface water arising during the course of construction activities will contain minimum sediment.		

[6] Construction Industry Research and Information Association (CIRIA) (2001): 'Control of Water Pollution from Construction Sites: Guidance for Consultants and Contractors'. CIRIA UK. Available at: https://www.ciria.org/

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		Cement Based Products Control Measures		
5	CEMP Section 3.1.3 NIS Section 6 EcIA Section 6	› No batching of wet-cement products will occur on site. › Ready-mixed supply of wet concrete products and where possible, emplacement of pre-cast elements, will take place. › No washing out of any plant used in concrete transport or concreting operations will be allowed on-site. › Where concrete is delivered on site, only chute cleaning will be permitted, using the smallest volume of water possible. › No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed. › Use weather forecasting to plan dry days for pouring concrete. › Ensure pour site is free of standing water and plastic covers will be ready in case of sudden rainfall event.		
		Refuelling, Fuel and Hazardous Materials Storage		
6	CEMP Section 3.1.1 NIS Section 6 EcIA Section 6	› Storage/refuelling shall occur in a designated area of the construction site, located a suitable distance from excavation works. This area should be underlain by impermeable hard standing, and tanks should be inspected for leaks regularly. Spill kits should be supplied at these stations and staff should be trained in their use and in spill control. Drainage from these areas shall be diverted for collection and not discharged into municipal drains without treatment and other best management practices. › On site refuelling will be directly done from delivery trucks or stored fuel within bunded fuel tanks. Mobile measures such as drip trays and fuel absorbent mats will be used during all refuelling operations.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		› Vehicles will never be left unattended during refuelling; only dedicated trained and competent personnel will perform refuelling operations; plant refuelling procedures shall be detailed in the contractor's method statements. › Fuels, lubricants and hydraulic fluids for equipment used on the site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment. › Storage of the small volume of fuels, lubricants and hydraulic fluids on-site will be placed secured in appropriately bunded storage areas within the boundaries of the Proposed Development site. › Storage bunds/trays, if required will be constructed of an impermeable membrane (High density polyethylene (HDPC) Plastic) and will have the adequate capacity to contain the volume of the liquids contained therein, if a leak/spillage does occur from one of the storage vessels. › All site plant will be inspected at the beginning of each day prior to use. Defective plant shall not be used until the defect is satisfactorily fixed. All major repair and maintenance operations will take place off-site.		
Spill Control Measures				
7	CEMP Section 4.2.5.1 NIS Section 6 EcIA Section 6	› Stop the source of the spill and raise the alarm to alert people working in the vicinity of any potential dangers. › If applicable, eliminate any sources of ignition in the immediate vicinity of the incident. › Contain the spill using the spill control materials, track mats or other material as required. Do not spread or flush away the spill. › If possible, cover or bund off any vulnerable areas where appropriate such as drains or watercourses. › Clean up as much as possible using the spill control materials.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		› Contain any used spill control material and dispose of used materials appropriately using a fully licensed waste contractor with the appropriate permits so that further contamination is limited. › Notify the Environmental Manager immediately giving information on the location, type and extent of the spill so that they can take appropriate action and further investigate the incident to ensure it has been contained adequately. › External consultants will inspect the site and ensure the necessary measures are in place to contain and clean up the spill and prevent further spillage from occurring. › The Environmental Manager will notify the appropriate regulatory body such as GCC if deemed necessary.		
		Dust Control		
8	CEMP Section 3.2 NIS Section 6	Construction dust can be generated from many on-site activities such as excavation and backfilling. The extent of dust generation will depend on the type of activity undertaken, the location, the nature of the dust, i.e., soil, sand, etc and the weather. In addition, dust dispersion is influenced by external factors such as wind speed and direction and/or, periods of dry weather. Construction traffic movements also have the potential to generate dust as they travel along the public road. The measures below will also prevent construction debris arising on the public road network. Proposed measures to control dust include: › The designated public roads outside the sites and along the main transport routes to the site will be regularly inspected by Site Management for cleanliness and cleaned as necessary. › Material handling systems and material storage areas, if required will be designed and laid out to minimise exposure to wind.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		› Water misting will be utilised on-site as required to mitigate dust in dry weather conditions, if required. › A road sweeper will be employed, if necessary, to clean the public roads of any residual debris that may be deposited on the public roads leading away from the construction works. › The transport of soils, aggregates or other material, which has the potential to generate dust, will be undertaken in tarpaulin-covered vehicles where necessary. › Daily inspection of construction sites to examine dust measures and their effectiveness. › All construction related traffic will have speed restrictions on un-surfaced areas within the sites to 15 kph. › Daily inspection of construction sites to examine dust measures and their effectiveness.		
Noise Control				
9	CEMP Section 3.3	The operation of plant and machinery, including construction vehicles, is a source of potential noise impacts. Construction phase noise is typically assessed in light of guidance set out in British Standard BS 5228-1:2009+A1:2014 *Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise* (2014)[7], as well as the National Roads Authority (NRA) (now TII) document *Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes* (2014)[8] . Although the NRA document is not directly relevant to the		

[7] The British Standards Institution (BSI) (2009): *'BS 5228-1:2009+A1:2014: Code of practice for noise and vibration control on construction and open sites – Part 1: Noise'* BSI. UK. Available at: https://www.warrington.gov.uk/sites/default/files/2020-08/cf53_bs_5228_pt1-2009a1-2014.pdf
[8] Transport Infrastructure Ireland (TII) (2014): *'Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes'* TII. Ireland. Available at: https://www.tii.ie/media/nv0bnge2/guidance_for_the_treatment_of_noise_during_the_planning_of_national_road_schemes.pdf

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		Proposed Development, it has seen increasing application to non-road projects in recent years in the absence of any specific Irish guidance. Proposed measures to control noise include: › All plant will be maintained in satisfactory condition, and in accordance with manufacturer requirements. Maintenance and lubrication of bearings and other moving parts will be undertaken as specified by the manufacturer. › Exhaust and silencer systems on plant will be maintained in a satisfactory condition and operating correctly at all times. Defective silencers will be immediately replaced. › Plant and machinery with low inherent potential for generation of noise and/or vibration will be selected. › Where practical, separation distances to any locations of frequent human use where noise would have the potential to interfere with typical activities will be maximised through appropriate on-site positioning of plant. › The requirement to house continuously operating plant in sound-attenuating enclosures or casings will be assessed on-site. › Equipment not in active use will be shut down. › On-site tracks and roadways used regularly by heavy goods vehicles (HGVs) will be maintained in reasonable condition, and free of potholes and defects which may give rise to rattling of empty HGV bodies. › Training will be provided by the Site Management to drivers to ensure smooth machinery operation/driving, and to minimise unnecessary noise generation. HGV drivers will be instructed to extend care and courtesy to other road users, and to avoid unnecessary revving of engines. › Off-site queuing of HGVs will be prohibited. › The proposed construction working hours will be 07:00 – 19:00 Monday to Friday and 08:00 – 16:30 on Saturday. Construction will not take place at the sites on Sundays or Public Holidays.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		Vibration Control		
10	CEMP Section 3.4	Vibration standards can be considered in two varieties: those dealing with human comfort and those dealing with cosmetic or structural damage to buildings. For example, vibration is perceptible at around 0.5 mm/s in the case of road traffic, however at higher magnitudes, this vibration may become an annoyance. Guidance relevant to the protection of building structures is contained in the following documents: › British Standard BS 7385: 1993: Evaluation and Measurement for Vibration in Buildings Part 2: Guide to Damage Levels from Ground Borne Vibration9. › British Standard BS 5228: 2009+A1 2014: Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 2: Vibration10. Vibration can be more difficult to control than noise, and there are few generalisations which can be made about its control. It should be borne in mind that vibration can cause disturbance by causing structures to vibrate and radiate noise in addition to perceptible movement. The following mitigation measures will be implemented at the site during the decommissioning and construction phase to control vibration levels: › The hours of working should be planned, and account should be taken of the effects of vibration upon persons in areas surrounding site operations and		

[9] The British Standards Institution (BSI) (1993): *'BS 7385-2: 1993: Evaluation and measurement for vibration in buildings - Part 2: Guide to damage levels from groundborne vibration'* BSI. UK. Available at: https://www.normsplash.com/Samples/BSI/193746945/BS-7385-2-1993-en.pdf

[10] The British Standards Institution (BSI) (2014): *'BS 5228-2:2009+A1:2014: Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration'* BSI. UK. Available at: https://www.omegawestdocuments.com/media/documents/43/CD43.12%20-%204%20Code%20of%20practice%20for%20noise%20and%20vibration%20control%20on%20construction%20and%20open%20sites%20part%202%20vibration;.pdf

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		upon persons working on site, considering the nature of land use in the areas concerned and the duration of work. › Where reasonably practicable, low vibration working methods should be employed. Consideration should be given to use of the most suitable plant, reasonable hours of working for operations which might give rise to perceptible vibrations, and economy and speed of operations. › Vibration should be controlled at source and the spread of vibration should be limited. › Where reasonably practicable, plant and/or methods of work causing significant levels of vibration at sensitive premises should be replaced by other less intrusive plant and/or methods of working. › Vibration from stationary plant (e.g. generators, pumps, compressors) can, in some instances, prove disturbing when located close to sensitive premises or when operating on connected structures. In these instances, equipment should be relocated or isolated using resilient mountings › On those parts of a sites where high levels of vibration are likely to be a hazard to persons working on the sites, prominent warning notices should be displayed. › Off-site fabrication – in a method statement/risk assessment the contractor will highlight any activity that may cause significant vibration levels and include measures in helping to mitigate these emission levels. › Equipment is to be task specific. › Best practice vibration control measures will be employed by the contractor. › A designated member of staff will be appointed as the point of contact for any queries or complaints from nearby local residents.		
Traffic Management Measures				
11	CEMP Section 3.5	› Warning signs/advanced warning signs will be installed at appropriate locations in advance of the construction sites access locations.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		› A site-specific Construction Traffic Management Plan will be agreed upon between the contractor and GCC prior to works starting. › Construction and delivery vehicles will be instructed to use only the approved and agreed means of access; and movement of construction vehicles will be restricted to these designated routes. › Appropriate vehicles will be used to minimise environmental impacts from transporting construction material, for example the use of dust covers on HGVs carrying dust producing material. › Speed limits of construction vehicles to be managed by appropriate signage, to promote low vehicular speeds. › Parking of site vehicles will be managed and will not be permitted on public road, unless proposed within a designated area that is subject to traffic management measures and agreed with GCC. › Deliveries of construction materials will be planned to ensure that the materials are delivered only as they are required and will avoid peak hours when possible. The sites will not be open to members of the public. When vehicles are entering the sites, or leaving the sites, these movements will be supervised by designated members of staff who will act as road marshals. The construction site gates will be kept closed when not in use and monitored by a designated member of staff.		
Invasive Species Management				

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
12	CEMP Section 3.6 NIS Section 6 EcIA Section 6	Due to the infestation within Kingston Park being limited to a single plant, chemical treatment is considered adequate control. The following measures describe the recommended treatment methodology for Sea Buckthorn: › Treatment of the Sea Buckthorn plant will be undertaken prior to the commencement of works on the Proposed Development. › The plant will be cut to the stump and treated with a glyphosate-based herbicide by painting the stump or through the use of eco plugs. › Treatment can be undertaken year round. › The vegetation material will be disposed of by burning or incineration. › If for any reason, burning of plant material is not feasible on-site this material must be gathered and disposed of off-site, to a waste disposal facility that has a pollution prevention and control permit or waste management licence. › In order to move material potentially contaminated with Third or First Schedule invasive plant species, a licence is required to be obtained from NPWS. The conditions of the permit or licence of the waste disposal facility must allow the disposal of invasive plants at the site. Delivery will be agreed with the waste site in advance to make sure they can accept material containing invasive plants. When transporting invasive plant material and soil potentially contaminated with invasive plant material, any vehicle used will be covered or securely sheeted so that plant material cannot be accidentally dispersed during transportation. › Following the initial removal, treatment and completion of the development, the treated areas will be resurveyed annually and if necessary, re-treated until no growth of Sea Buckthorn is recorded for two consecutive years. If Sea Buckthorn is found to be reestablishing, it will be treated as per the measures outlined above.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
13	CEMP Section 3.6 NIS Section 6 EcIA Section 6	The following site hygiene measures will be adhered to throughout the duration of the proposed construction works: › All works in relation to invasive species will be supervised by the Ecological Clerk of Works (ECoW). › After treatment has taken place, the sea-buckthorn stump should be left in-situ and fenced off. This will prevent any accidental spread of the plant via machinery used during the construction of the Proposed Development. › The contractor will assign a member of their team as an Environmental Officer to ensure the management plan is adhered to throughout the proposed works. › As a precautionary measure, machinery will be thoroughly cleaned down before entering the site to prevent potential spread of invasive species from elsewhere. › Clean down will be carried out using brushes and shovels and power washing avoided. This is to prevent potentially contaminated run-off spreading outside the site. Any material imported to the site will be screened for invasive species by an Ecological Clerk of Works before transportation to the site.		

6. PROGRAMME OF WORKS

6.1 Construction Programme

The construction phase will take approximately 12-18 months to complete and elements will be constructed concurrently as appropriate. The construction programme is typically broken down into several phases. An example of the programme of works is outlined in Table 6-1 below. The construction programme will be finalised on appointment of a contractor before commencement of the development.

Table 6-1 Phasing Scope of Works

Phase No.	Description	Scope of works
Phase 1	Sites Setup	This occurs from months 1-3 and includes site fencing for the site setup and machinery mobilisation.
Phase 2	Foundations and Services	This occurs from months 4-6. It includes digging, laying foundations and other preparatory works.
Phase 3	Building Structures/Synthetic Turf Multi-Sport Pitches Installation	This occurs from months 7-10. It includes building the main structure within the site and excavations for pitch foundations.
Phase 4	Internal Fit Out	This occurs from months 11-15. It includes the fitting out of the buildings and civils connections.
Phase 5	Close Out	This occurs in the last months of construction (months 16-18) any landscaping works if required followed by machinery demobilisation and site disassembly.

7. COMPLIANCE AND REVIEW

7.1 Site Inspections and Environmental Audits

Routine inspections of activities will be carried out on a daily and weekly basis by the sites Environmental Manager/Construction Manager as appointed by the applicant to ensure all controls to prevent environmental impact, relevant to the construction activities taking place at the time, are in place.

Environmental inspections will ensure that the works are undertaken in compliance with this CEMP. Environmental site inspections will be carried out by suitably trained staff.

7.2 Environmental Compliance

The following definitions shall apply in relation to the classification of Environmental Occurrences during the infilling works:

Environmental Near Miss

An occurrence which if not controlled or due to its nature could lead to an Environmental Incident.

Environmental Incident

Any occurrence which has potential, due to its scale and nature, to migrate from source and have an environmental impact beyond the site boundary.

Environmental Non-Compliance

Non-fulfilment of a requirement and includes any deviations from established procedures, programs and other arrangements related to the CEMP.

7.3 Corrective Action Procedure

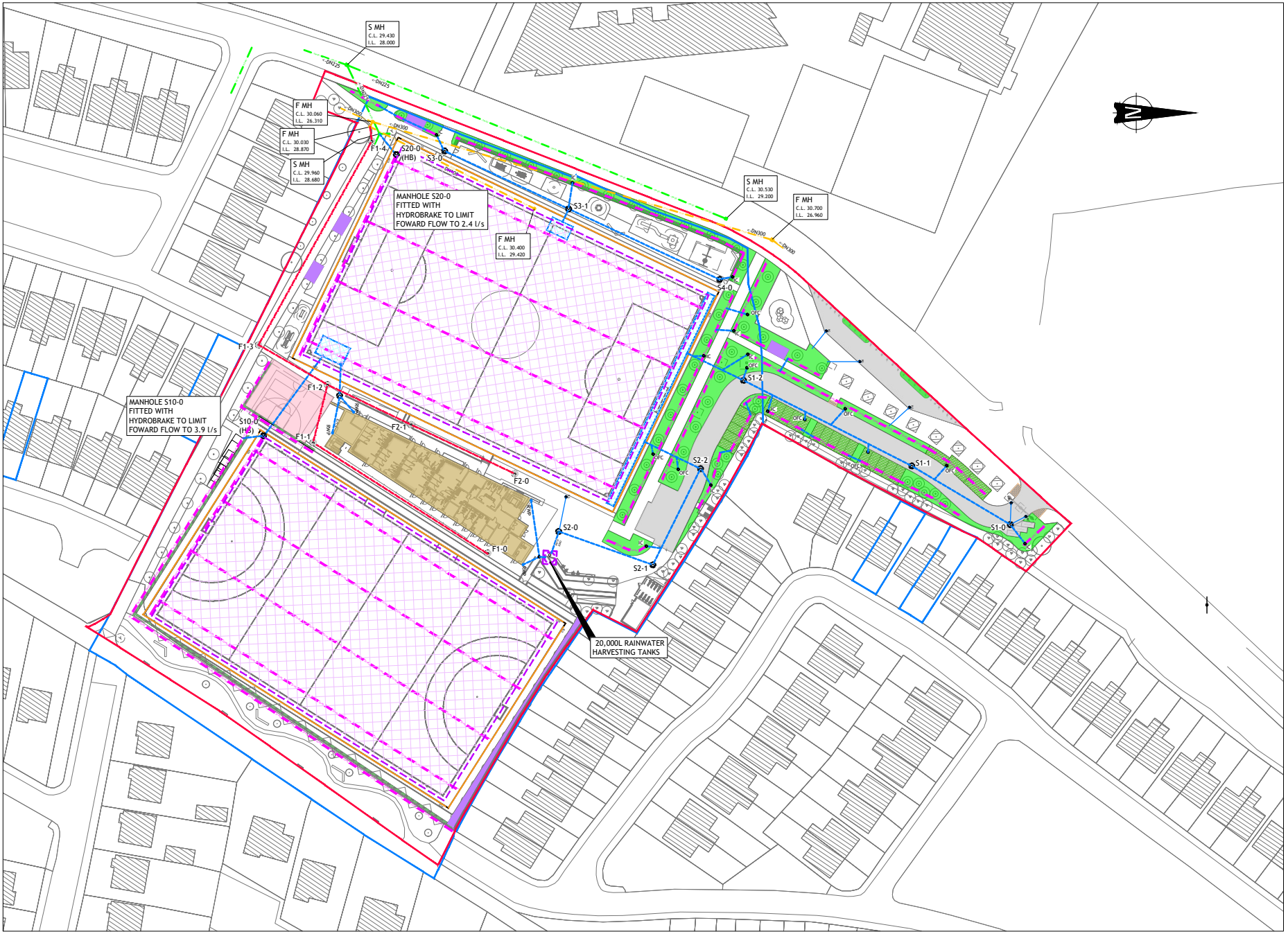
A corrective action is implemented to rectify an environmental issue on-site. Corrective actions will be implemented by the Construction Manager, as advised by the Site Environmental manager. Corrective actions may be required as a result of the following.

- Environmental Audits.
- Environmental Inspections and Reviews.
- Environmental Incidents; and,
- Environmental Complaints.

A Corrective Action Notice will be used to communicate the details of the action required to the main contractor. A Corrective Action Notice is a form that describes the cause and effect of an environmental problem on site and the recommended corrective action that is required. The Corrective Action Notice, when completed, will include details of close out and follow up actions. If an environmental problem occurs on site that requires immediate attention direct communications between the Construction Manager and the Site Environmental manager will be conducted. This in turn will be passed down to the site staff involved. A Corrective Action Notice will be completed at a later date.

APPENDIX 1-1

MILLERS LANE – PROPOSED DRAINAGE LAYOUT



LEGEND

- SITE BOUNDARY
- LAND WITHIN OWNERSHIP OF THE APPLICANT
- PROPOSED BUILDING
- EXISTING BUILDING
- EXISTING SURFACE WATER SEWER 150
- EXISTING SURFACE WATER MANHOLE SMH1 C.L. I.L.
- PROPOSED SURFACE WATER SEWER S1.001 150
- PROPOSED SURFACE WATER MANHOLE S1-0
- PROPOSED OVERFLOW CHAMBER OFC
- PROPOSED GULLY
- EXISTING COMBINED SEWER
- EXISTING FOUL SEWER 150
- EXISTING FOUL MANHOLE FMH1 C.L. I.L.
- EXISTING GULLY G
- PROPOSED FOUL SEWER 225
- PROPOSED FOUL MANHOLE F1-0
- PROPOSED FILTER DRAIN
- PROPOSED RAINWATER DROP PIPE RWP
- PROPOSED ACO DRAINAGE CHANNEL
- PROPOSED DIFFUSER BOX
- ATTENUATION LAYER UNDER PITCH
- S1 - MACADAM CARRIAGEWAY
- S2 - PARKING BAYS - REINFORCED GRASS
- S8 - SELF BINDING GRAVEL (TO LANDSCAPE ARCHITECTS SPECIFICATION)
- S9 - PEDESTRIAN PATH - COLOURED BITUMEN MACADAM

NSAI Certified

Rev	Amendment	By	Date
P01	FOR REVIEW & COMMENT	PJM	2025-09-17
C01	ISSUED FOR PLANNING	PJM	2025-10-17
C02	ISSUED FOR PLANNING	PJM	2025-10-31

Client: GALWAY CITY COUNCIL

PUNCH consulting engineers
Dublin | Limerick | Cork | Galway | Glasgow
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Project: KINGSTON PARK AND MILLERS LANE - PUBLIC PARK AND URBAN REALM PROJECT
Title: MILLERS LANE - PROPOSED DRAINAGE LAYOUT

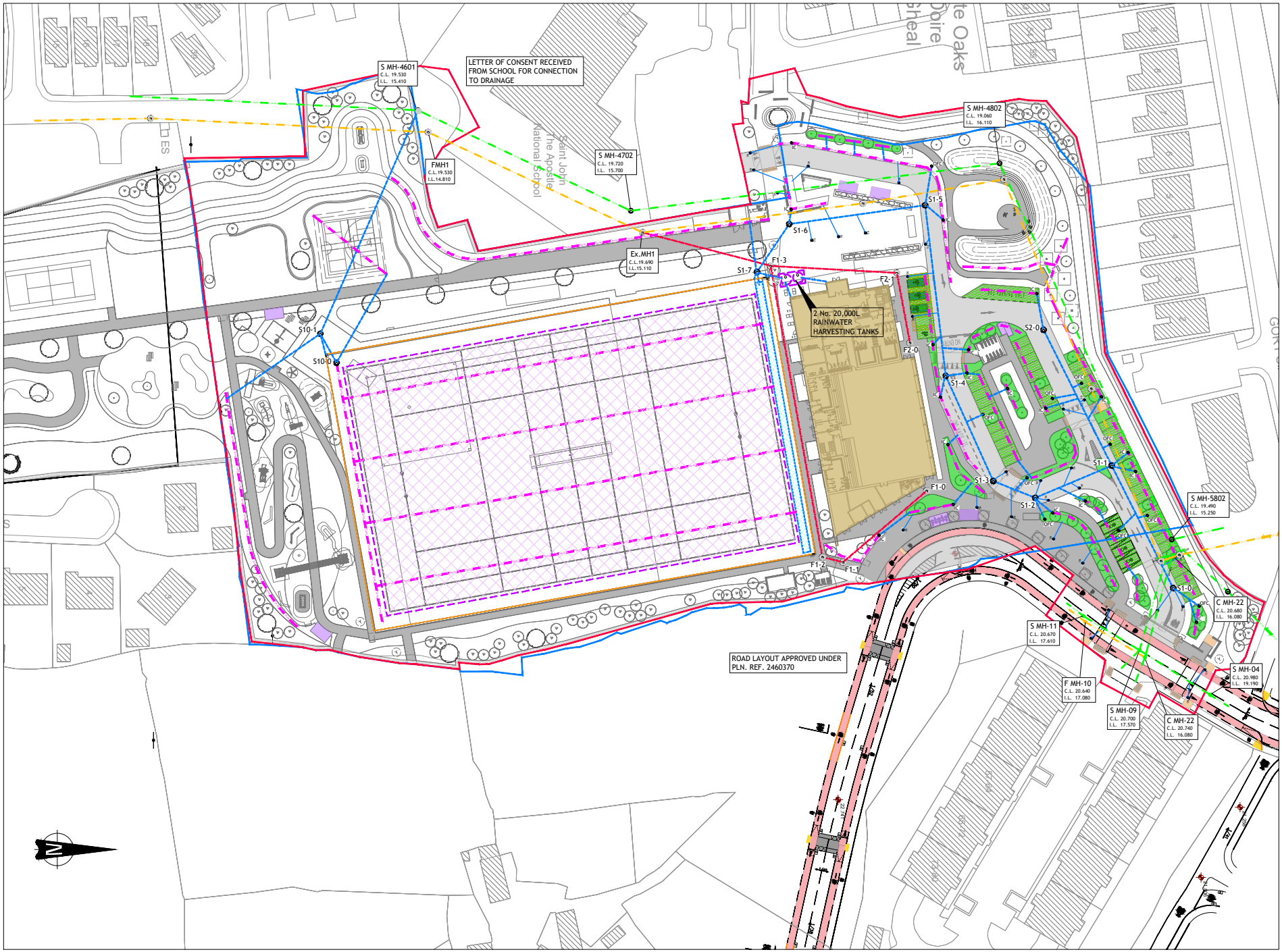
Drawn:	Date drawn:	Technician Check:	Engineer Check:	Approved:
PJ Mulcahy	2025-09-17	PJ Mulcahy	Melusi Ncube	Matthew Greene

Project No.	Model Ref.	Drawing Status:
233114	233114-PUNCH-ML-XX-M2-C-0101	A0 (Planning)

Scale @ A1:	Document No.	Revision No:
1:500	233114-PUNCH-ML-XX-DR-C-0101	C02

APPENDIX 1-2

KINGSTON PARK – PROPOSED DRAINAGE LAYOUT



LEGEND

- SITE BOUNDARY
- LAND WITHIN OWNERSHIP OF THE APPLICANT
- PROPOSED BUILDING
- EXISTING BUILDING
- EXISTING SURFACE WATER SEWER 150
- EXISTING SURFACE WATER MANHOLE SMH1 C.L. I.L.
- PROPOSED SURFACE WATER SEWER S1.001 150
- PROPOSED SURFACE WATER MANHOLE S1-0
- PROPOSED OVERFLOW CHAMBER OFC
- PROPOSED GULLY
- EXISTING COMBINED SEWER
- EXISTING FOUL SEWER 150
- EXISTING FOUL MANHOLE FMH1 C.L. I.L.
- EXISTING GULLY G
- PROPOSED FOUL SEWER 225
- PROPOSED FOUL MANHOLE F1-0
- PROPOSED FILTER DRAIN
- ATTENUATION LAYER UNDER PITCH
- PROPOSED ACO DRAINAGE CHANNEL
- S1 - MACADAM CARRIAGEWAY
- S2 - PARKING BAYS - REINFORCED GRASS
- S9 - PEDESTRIAN PATH - COLOURED BITUMEN MACADAM

NSAI Certified

Rev	Amendment	By	Date
P01	FOR REVIEW & COMMENT	P.JM	2025-09-04
C01	ISSUED FOR PLANNING	P.JM	2025-10-17
C02	ISSUED FOR PLANNING	P.JM	2025-10-31

Client: GALWAY CITY COUNCIL

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Project: KINGSTON PARK AND MILLERS LANE - PUBLIC PARK AND URBAN REALM PROJECT
Title: KINGSTON PARK - PROPOSED DRAINAGE LAYOUT

Drawn:	Date drawn:	Technician Check:	Engineer Check:	Approved:
PJ Mulcahy	2025-09-04	PJ Mulcahy	Matthew Greene	Matthew Greene

Project No.	Model Ref:	Drawing Status:
233114	233114-PUNCH-KP-XX-M2-C-0101	A0 (Planning)

Scale @ A1:	Document No:	Revision No:
1:500	233114-PUNCH-KP-XX-DR-C-0101	C02

APPENDIX 1-3

PROCEDURE FOR COMPLAINTS DURING CONSTRUCTION

Procedure for Public Complaints during Construction

Communication

The developer is committed to ensuring that all communications and interactions with the general public will be simple in its message and easy to complete. If a member of the public wants to communicate about any aspect of the development, they can make contact through the following channels:

- Telephone No: 091 – 536 400
- Email: Customerservice@galwaycity.ie

The above number and email are checked regularly and are the primary points of contact for the site.

Listen

- Irrespective of the context of the communication, we will listen to what is being said and the message being conveyed with both understanding and empathy.
- We will record all aspects of the communication to allow us have a better understanding of the conveyed message.
- We will respond to all contacts in an organised and professional manner and treat all contact seriously.
- We will deal with all contacts quickly and politely and we will aim to learn from all feedback.

Respond

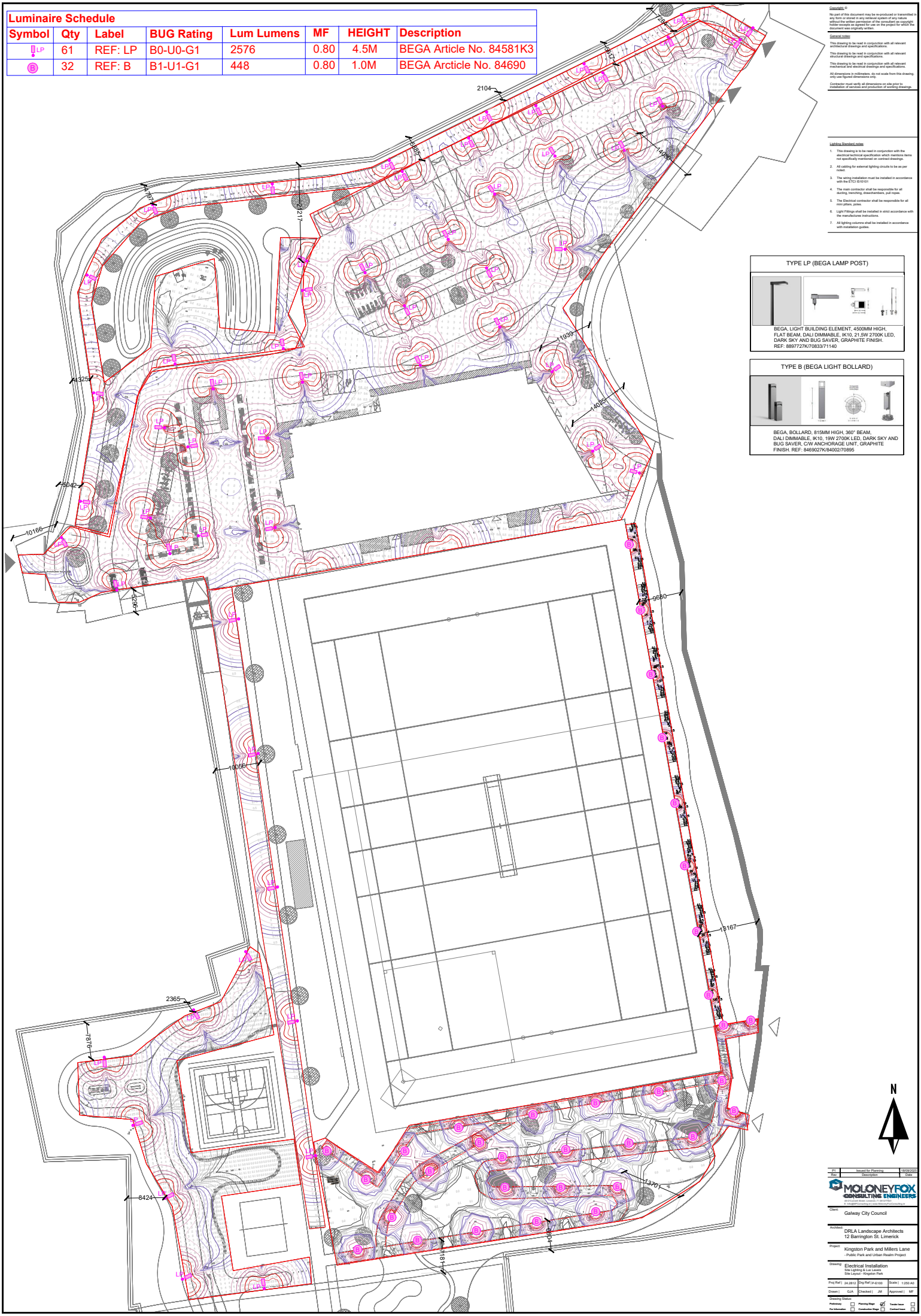
- If an issue is communicated in person or over the phone, we will try to resolve the issue there and then.
- If an issue is communicated by email or inwriting, we will endeavour to acknowledge the communication within 7 days and to do everything we can to resolve it within 28 days.
- If this is not possible to resolve an issue within these timeframes, we will explain why and provide a plan for addressing the issues in the longer term.

APPENDIX 10

LIGHTING PLAN

Luminaire Schedule

Symbol	Qty	Label	BUG Rating	Lum Lumens	MF	HEIGHT	Description
LP	61	REF: LP	B0-U0-G1	2576	0.80	4.5M	BEGA Article No. 84581K3
B	32	REF: B	B1-U1-G1	448	0.80	1.0M	BEGA Arcticle No. 84690



General notes:

This drawing to be read in conjunction with all relevant architectural drawings and specifications.

This drawing to be read in conjunction with all relevant structural drawings and specifications.

This drawing to be read in conjunction with all relevant mechanical and electrical drawings and specifications.

All dimensions in millimeters. do not scale from this drawing. only use figured dimensions only.

Contractor must verify all dimensions on site prior to installation of services and production of working drawings.

Lighting Standard notes:

1. This drawing is to be read in conjunction with the electrical technical specification which mentions items not specifically mentioned on contract drawings.
2. All cabling for external lighting circuits to be as per noted.
3. The wiring installation must be installed in accordance with the ETCI IS10101
4. The main contractor shall be responsible for all ducting, trenching, drawchambers, pull ropes.
5. The Electrical contractor shall be responsible for all mini pillars, poles.
6. Light Fittings shall be installed in strict accordance with the manufactures instructions.
7. All lighting columns shall be installed in accordance with installation guides.

TYPE LP (BEGA LAMP POST)

BEGA, LIGHT BUILDING ELEMENT, 4500MM HIGH, FLAT BEAM, DALI DIMMABLE, IK10, 21.5W 2700K LED, DARK SKY AND BUG SAVER, GRAPHITE FINISH. REF: 8897727K/70833/71140

TYPE B (BEGA LIGHT BOLLARD)

BEGA, BOLLARD, 815MM HIGH, 360° BEAM, DALI DIMMABLE, IK10, 19W 2700K LED, DARK SKY AND BUG SAVER, C/W ANCHORAGE UNIT, GRAPHITE FINISH. REF: 8469027K/84002/70895

N

Rev	Description	Date
P3	Issued for Planning	18/09/2025

MOLONEYFOX CONSULTING ENGINEERS

Client: Galway City Council

Architect: DRLA Landscape Architects 12 Barrington St. Limerick

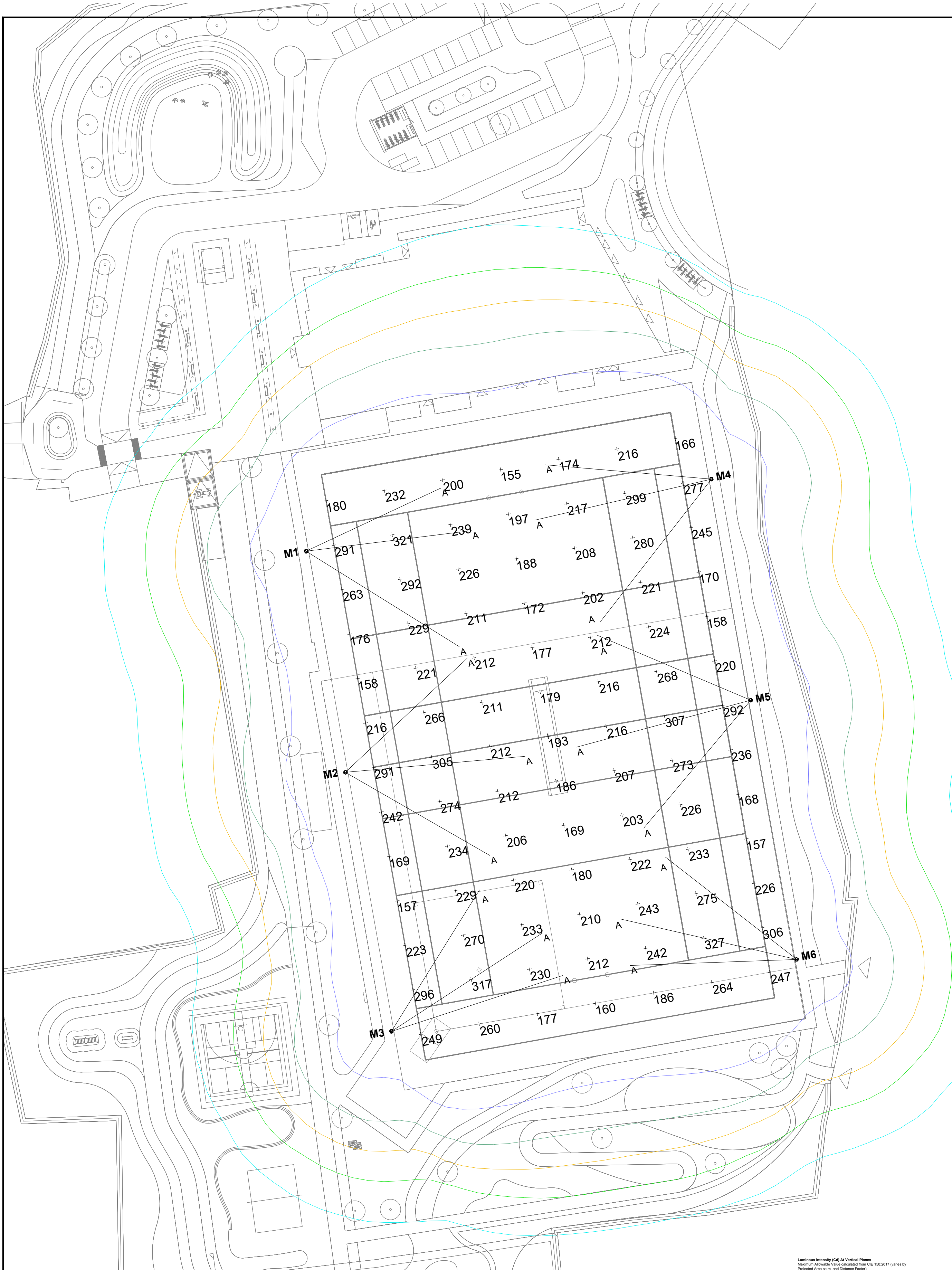
Project: Kingston Park and Millers Lane - Public Park and Urban Realm Project

Drawing: Electrical Installation
Site Lighting & Lux Levels
Site Layout - Kingston Park

Proj Ref	24.2812	Org Ref	P-E100	Scale	1:250 A0
Drawn	GJA	Checked	JM	Approved	MF

Drawing Status:

Preliminary		Planning Stage	☑ Tender Issue
Pre Information		Construction Stage	☐ Contract Issue



General notes:

This drawing to be read in conjunction with all relevant architectural drawings and specifications.

This drawing to be read in conjunction with all relevant structural drawings and specifications.

This drawing to be read in conjunction with all relevant mechanical and electrical drawings and specifications.

All dimensions in millimeters. do not scale from this drawing. only use figured dimensions only.

Contractor must verify all dimensions on site prior to installation of services and production of working drawings.

Lighting Standard notes:

1. This drawing is to be read in conjunction with the electrical technical specification which mentions items not specifically mentioned on contract drawings.
2. All cabling for external lighting circuits to be as per noted.
3. The wiring installation must be installed in accordance with the ETCI IS10101
4. The main contractor shall be responsible for all ducting, trenching, drawchambers, pull ropes.
5. The Electrical contractor shall be responsible for all mini pillars, poles.
6. Light Fittings shall be installed in strict accordance with the manufactures instructions.
7. All lighting columns shall be installed in accordance with installation guides.

Lighting Schedule Project Total (for mast arrangements see table/s below)

Symbol	Tag	Qty	Description	Mounting Height (m)	Luminaire Watts	Luminaire Lumens
⊡	A	18	AL6102_15830S + FS2 + RS2 Challenger 1 LED	20	1539.1	139111

Mast Arrangement

M1 - M6

Symbol	Tag	Qty	Description	Mounting Height (m)	Luminaire Watts	Luminaire Lumens
⊡	A	3	AL6102_15830S + FS2 + RS2 Challenger 1 LED	20	1539.1	139111

Horizontal Illuminance Levels

IRFU Match Specification

Label	CalcType	Units	Avg	Min/Avg
Rugby Pitch	Illuminance	Lux	200	0.60

Calculation Summary

Initial Calculations

Label	CalcType	Units	Avg	Max	Min	Min/Avg	Min/Max
Rugby Pitch	Illuminance	Lux	226	327	155	0.69	0.47

Calculation Summary

Maintained Calculations

Label	CalcType	Units	Avg	Max	Min	Min/Avg	Min/Max
Rugby Pitch	Illuminance	Lux	203	294	140	0.69	0.47

Area Summary

Label	Total Watts
Rugby Pitch	27,704

Glare Summary

Label	GR*max*
Glare Rating	40

Calculation Grid Intervals

Label	Grid
Rugby Pitch (Including 5m Trylines)	13 x 7

Area Dimensions

Area	L (m)	W (m)
Rugby Pitch (Post to Post)	94	68

Isoline Legend

Illuminance (Lux)

Colour	Value
cyan	2
green	5
orange	10
grey-green	20
blue	50

Maintenance Factor 0.9

Dirt depreciation factor:
BS5489-1:2020 Table C.1
12 month cleaning intervals

Challenger 1 LED AL6100

.\Challenger 1 LED\Chal 1 LED 1500W.PNG

Obtrusive Light - Compliance Report
CIE 150:2017, E3-Medium District Brightness, Pre-Curfew
Filename: LS4070310B Kington Park and Millers Lane - Rugby
24/09/2025 09:42:31

Illuminance
Maximum Allowable Value: 10 Lux

Calculations Tested (37):

Calculation Label	Test Results	Max. Illum.
Altan Apartments_Ill_Seg1	PASS	0
Clybaun Ct_1_Ill_Seg1	PASS	0
Clybaun Ct_10_Ill_Seg1	PASS	0
Clybaun Ct_11_Ill_Seg1	PASS	0
Clybaun Ct_12_Ill_Seg1	PASS	0
Clybaun Ct_13_Ill_Seg1	PASS	0
Clybaun Ct_14_Ill_Seg1	PASS	0
Clybaun Ct_2_Ill_Seg1	PASS	0
Clybaun Ct_3_Ill_Seg1	PASS	0
Clybaun Ct_4_Ill_Seg1	PASS	0
Clybaun Ct_5_Ill_Seg1	PASS	0
Clybaun Ct_6_Ill_Seg1	PASS	0
Clybaun Ct_7_Ill_Seg1	PASS	0
Clybaun Ct_8_Ill_Seg1	PASS	0
Clybaun Ct_9_Ill_Seg1	PASS	0
Clybaun Ct_Ill_Seg1	PASS	0
Doire Gheal_1_Ill_Seg1	PASS	0
Doire Gheal_2_Ill_Seg1	PASS	0
Doire Gheal_3_Ill_Seg1	PASS	0
Doire Gheal_4_Ill_Seg1	PASS	0
Doire Gheal_5_Ill_Seg1	PASS	0
Doire Gheal_6_Ill_Seg1	PASS	0
Doire Gheal_7_Ill_Seg1	PASS	0
Doire Gheal_8_Ill_Seg1	PASS	0
Doire Gheal_9_Ill_Seg1	PASS	0
Gort Siar_1_Ill_Seg1	PASS	0
Gort Siar_2_Ill_Seg1	PASS	0
Gort Siar_3_Ill_Seg1	PASS	0
Gort Siar_4_Ill_Seg1	PASS	0
Gort Siar_5_Ill_Seg1	PASS	0
Gort Siar_6_Ill_Seg1	PASS	0
Gort Siar_7_Ill_Seg1	PASS	0
Kingston Gardens_1_Ill_Seg1	PASS	0
Kingston Gardens_2_Ill_Seg1	PASS	0
Kingston Gardens_3_Ill_Seg1	PASS	0
Kingston Gardens_4_Ill_Seg1	PASS	0
Kingston Gardens_Ill_Seg1	PASS	1

Luminous Intensity (Cd) At Vertical Planes
Maximum Allowable Value calculated from CIE 150:2017 (varies by Projected Area sq.m. and Distance Factor)
For E3-Medium District Brightness, Projected Area and Distance Factors:
(0.002, 0.86) (0.01, 1.9) (0.03, 3.8) (0.13, 7.5) (0.5, 15)

Calculations Tested (37):

Calculation Label	Test Results
Altan Apartments_Cd_Seg1	PASS
Clybaun Ct_1_Cd_Seg1	PASS
Clybaun Ct_10_Cd_Seg1	PASS
Clybaun Ct_11_Cd_Seg1	PASS
Clybaun Ct_12_Cd_Seg1	PASS
Clybaun Ct_13_Cd_Seg1	PASS
Clybaun Ct_14_Cd_Seg1	PASS
Clybaun Ct_2_Cd_Seg1	PASS
Clybaun Ct_3_Cd_Seg1	PASS
Clybaun Ct_4_Cd_Seg1	PASS
Clybaun Ct_5_Cd_Seg1	PASS
Clybaun Ct_6_Cd_Seg1	PASS
Clybaun Ct_7_Cd_Seg1	PASS
Clybaun Ct_8_Cd_Seg1	PASS
Clybaun Ct_9_Cd_Seg1	PASS
Clybaun Ct_Cd_Seg1	PASS
Doire Gheal_1_Cd_Seg1	PASS
Doire Gheal_2_Cd_Seg1	PASS
Doire Gheal_3_Cd_Seg1	PASS
Doire Gheal_4_Cd_Seg1	PASS
Doire Gheal_5_Cd_Seg1	PASS
Doire Gheal_6_Cd_Seg1	PASS
Doire Gheal_7_Cd_Seg1	PASS
Doire Gheal_8_Cd_Seg1	PASS
Doire Gheal_9_Cd_Seg1	PASS
Gort Siar_1_Cd_Seg1	PASS
Gort Siar_2_Cd_Seg1	PASS
Gort Siar_3_Cd_Seg1	PASS
Gort Siar_4_Cd_Seg1	PASS
Gort Siar_5_Cd_Seg1	PASS
Gort Siar_6_Cd_Seg1	PASS
Gort Siar_7_Cd_Seg1	PASS
Kingston Gardens_1_Cd_Seg1	PASS
Kingston Gardens_2_Cd_Seg1	PASS
Kingston Gardens_3_Cd_Seg1	PASS
Kingston Gardens_4_Cd_Seg1	PASS
Kingston Gardens_Cd_Seg1	PASS

Notes:
This scheme has been designed based upon a flat and open area. Shadowing from obstructions have not been taken into account.

Drawing and mast locations converted from satellite image, please check dimensions before ordering and installing.

Customer to confirm suitability and structural integrity of existing masts prior to placing an order.

Initial levels shown on drawing.

N

Rev	Description	Date
P1	Issued for Planning	18/09/2025

MOLONEYFOX CONSULTING ENGINEERS
46 O'Connell Street, Limerick | T: 061277841
E: Info@MFConsulting.ie | www.MoloneyFoxConsulting.ie

Client: Galway City Council

Architect: DRLA Landscape Architects 12 Barrington St. Limerick

Project: Kingston Park and Millers Lane – Public Park and Urban Realm Project

Drawing: Electrical Installation
Site Lighting & Lux Levels
Kingston Park - Multi-Sport Pitch Lighting

Proj Ref | 24.2812	Drg Ref | P-E101	Scale | 1:250 A0
Drawn | GJA	Checked | JM	Approved | MF

Drawing Status:

Preliminary	☐	Planning Stage	☑	Tender Issue	☐
For Information	☐	Construction Stage	☐	Contract Issue	☐

General notes:

This drawing to be read in conjunction with all relevant architectural drawings and specifications.

This drawing to be read in conjunction with all relevant structural drawings and specifications.

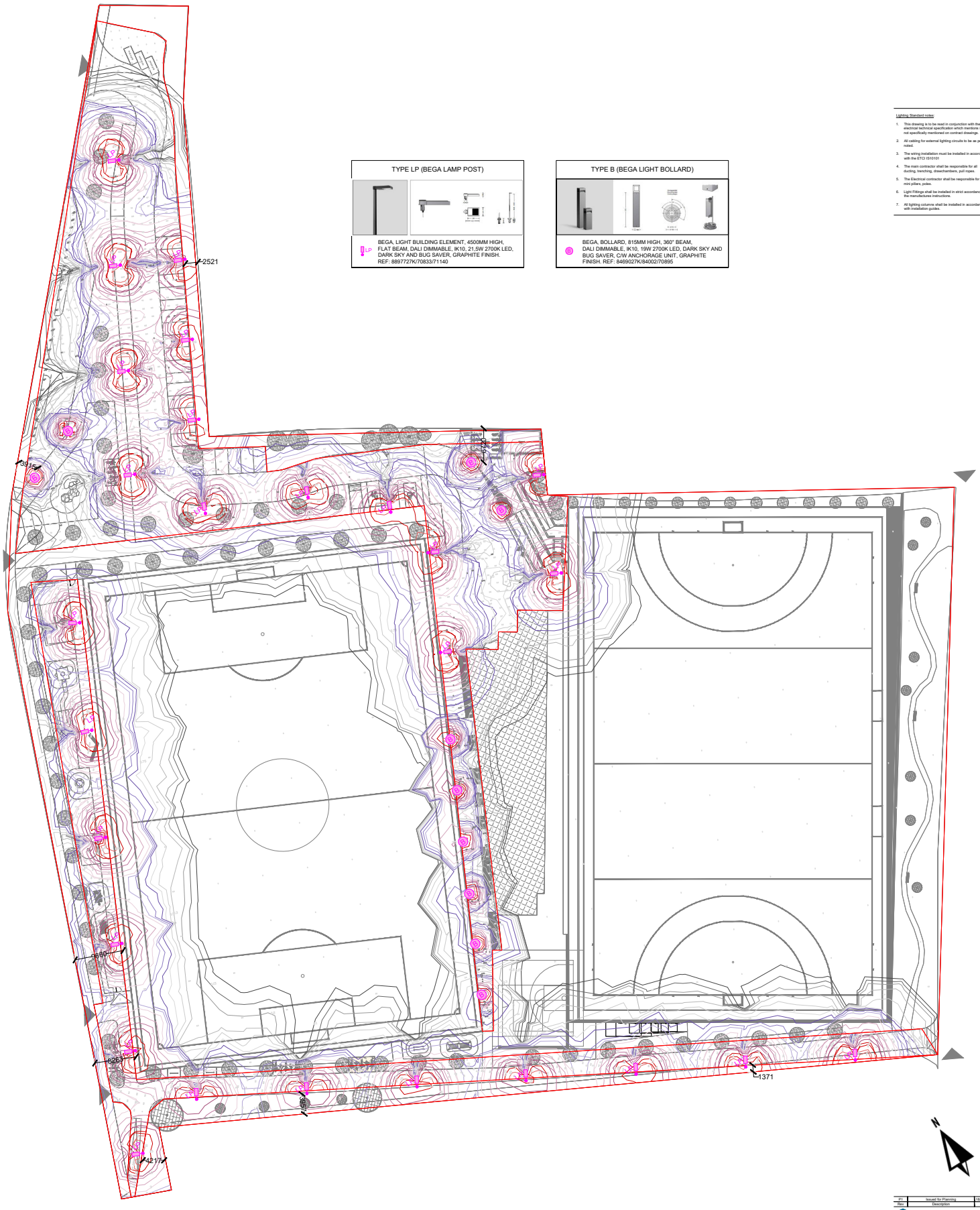
This drawing to be read in conjunction with all relevant mechanical and electrical drawings and specifications.

All dimensions in millimeters, do not scale from this drawing, only use figured dimensions only.

Contractor must verify all dimensions on site prior to installation of services and production of working drawings.

Lighting Standard notes:

1. This drawing is to be read in conjunction with the electrical technical specification which mentions items not specifically mentioned on contract drawings.
2. All cabling for external lighting circuits to be as per noted.
3. The wiring Installation must be installed in accordance with the ETCI IS10101
4. The main contractor shall be responsible for all ducting, trenching, drawchambers, pull ropes.
5. The Electrical contractor shall be responsible for all mini pillars, poles.
6. Light Fittings shall be installed in strict accordance with the manufactures instructions.
7. All lighting columns shall be installed in accordance with installation guides.



Luminaire Schedule

Symbol	Qty	Label	BUG Rating	Lum Lumens	MF	HEIGHT	Description
LP	27	REF: LP	B0-U0-G1	2576	0.80	4.5M	BEGA Article No. 84581K3
B	10	REF: B	B1-U1-G1	448	0.80	1.0M	BEGA Arcticle No. 84690

Rev	Description	Date
P1	Issued for Planning	18/09/2023

MOLONEYFOX CONSULTING ENGINEERS

Client: Galway City Council

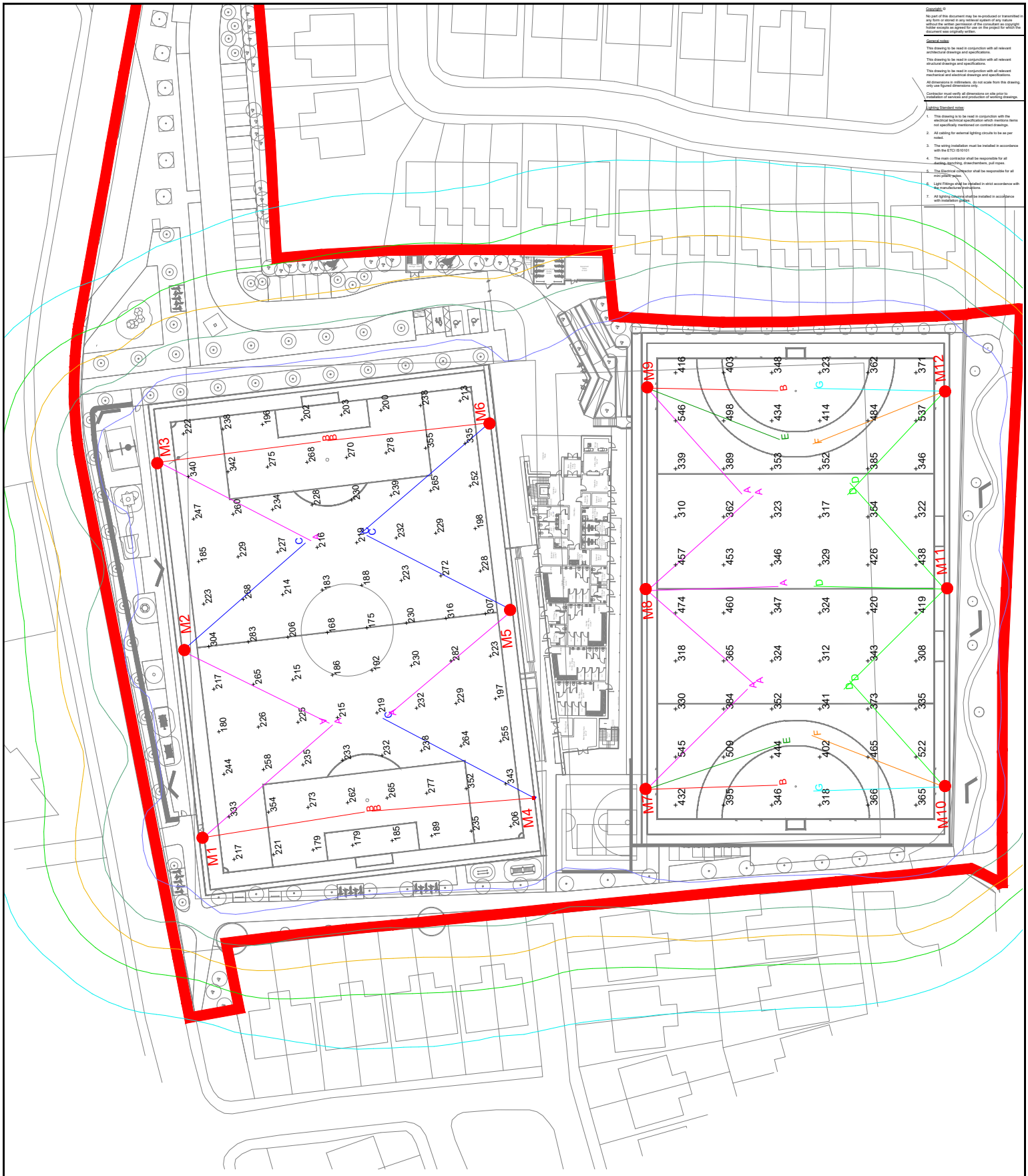
Architect: DRLA Landscape Architects 12 Barrington St. Limerick

Project: Kingston Park and Millers Lane – Public Park and Urban Realm Project

Drawing: Electrical Installation
Site Lighting & Lux Levels
Site Layout - Millers Lane

Proj Ref:	24.2812	Org Ref:	P-E102	Scale:	1:250 A0
Drawn:	GJA	Checked:	JM	Approved:	MF

Drawing Status:
Preliminary ☐ Planning Stage ☑ Tender Issue ☐
For Information ☐ Construction Stage ☐ Contract Issue ☐



General notes:

This drawing to be read in conjunction with all relevant architectural drawings and specifications.

This drawing to be read in conjunction with all relevant structural drawings and specifications.

This drawing to be read in conjunction with all relevant mechanical and electrical drawings and specifications.

All dimensions in millimeters. do not scale from this drawing. only use figured dimensions only.

Contractor must verify all dimensions on site prior to installation of services and production of working drawings.

Lighting Standard notes:

1. This drawing is to be read in conjunction with the electrical technical specification which mentions items not specifically mentioned on contract drawings.
2. All cabling for external lighting circuits to be as per noted.
3. The wiring installation must be installed in accordance with the ETCI IS 10101
4. The main contractor shall be responsible for all ducting, trenching, drawchambers, pull ropes.
5. The Electrical Contractor shall be responsible for all mini pillars bases.
6. Light Fittings shall be installed in strict accordance with the manufacturers instructions.
7. All lighting columns shall be installed in accordance with installation guide.

Lighting Schedule Project Total (for mast arrangements see table/s below)

Symbol	Tag	Qty	Description	Mounting Height (m)	Luminaire Watts	Luminaire Lumens
	A	8	AL6102_15830S + FS3 Challenger 1 LED	15	1542.8	161049
	B	6	AL6101_15830S + FS2 Challenger 1 LED	15	1528.7	147024
	C	3	AL6102_15830S Challenger 1 LED	15	1539	172922
	D	5	AL6102_15830S + FS3 + RS2 Challenger 1 LED	15	1524.4	156450
	E	4	AL6102_15830S + FS2 Challenger 1 LED	15	1527.9	142775
	F	2	AL6102_15830S + FS2 + RS2 Challenger 1 LED	15	1539.1	139111
	G	2	AL6101_15830S + FS2 + RS2 Challenger 1 LED	15	1504.3	139026

Mast Arrangement
M1,M3

Symbol	Tag	Qty	Description	Mounting Height	Luminaire Watts	Luminaire Lumens
	A	1	AL6102_15830S + FS3 Challenger 1 LED	15	1542.8	161049
	B	1	AL6101_15830S + FS2 Challenger 1 LED	15	1528.7	147024

Mast Arrangement
M2

Symbol	Tag	Qty	Description	Mounting Height	Luminaire Watts	Luminaire Lumens
	E	2	AL6102_15830S + FS2 Challenger 1 LED	15	1527.9	142775

Mast Arrangement
M4,M6

Symbol	Tag	Qty	Description	Mounting Height	Luminaire Watts	Luminaire Lumens
	B	1	AL6101_15830S + FS2 Challenger 1 LED	15	1528.7	147024
	C	1	AL6102_15830S Challenger 1 LED	15	1539	172922

Mast Arrangement
M5

Symbol	Tag	Qty	Description	Mounting Height	Luminaire Watts	Luminaire Lumens
	A	1	AL6102_15830S + FS3 Challenger 1 LED	15	1542.8	161049
	C	1	AL6102_15830S Challenger 1 LED	15	1539	172922

Mast Arrangement
M7,M9

Symbol	Tag	Qty	Description	Mounting Height	Luminaire Watts	Luminaire Lumens
	A	1	AL6102_15830S + FS3 Challenger 1 LED	15	1542.8	161049
	B	1	AL6101_15830S + FS2 Challenger 1 LED	15	1528.7	147024
	E	1	AL6102_15830S + FS2 Challenger 1 LED	15	1527.9	142775

Mast Arrangement
M8

Symbol	Tag	Qty	Description	Mounting Height	Luminaire Watts	Luminaire Lumens
	A	3	AL6102_15830S + FS3 Challenger 1 LED	15	1542.8	161049

Mast Arrangement
M10,M12

Symbol	Tag	Qty	Description	Mounting Height	Luminaire Watts	Luminaire Lumens
	D	1	AL6102_15830S + FS3 + RS2 Challenger 1 LED	15	1524.4	156450
	F	1	AL6102_15830S + FS2 + RS2 Challenger 1 LED	15	1539.1	139111
	G	1	AL6101_15830S + FS2 + RS2 Challenger 1 LED	15	1504.3	139026

Mast Arrangement
M11

Symbol	Tag	Qty	Description	Mounting Height	Luminaire Watts	Luminaire Lumens
	D	3	AL6102_15830S + FS3 + RS2 Challenger 1 LED	15	1524.4	156450

Horizontal Illuminance Levels
Premier League Stadium Fund Specification - 2.5m Instep

Label	CalcType	Units	Avg	Min/Avg	Min/Max
Football Pitch	Illuminance	Lux	200	0.60	0.30

Horizontal Illuminance Levels
FIH Class I Specification

Label	CalcType	Units	Avg	Min/Avg	Min/Max
Hockey Pitch	Illuminance	Lux	350	0.70	0.50

Calculation Summary
Initial Calculations - Separately Switched

Label	CalcType	Units	Avg	Max	Min	Min/Avg	Min/Max
Football Pitch	Illuminance	Lux	241	355	168	0.70	0.47
Hockey Pitch	Illuminance	Lux	390	546	308	0.79	0.56

Calculation Summary
Maintained Calculations - Separately Switched

Label	CalcType	Units	Avg	Max	Min	Min/Avg	Min/Max
Football Pitch	Illuminance	Lux	217	318	151	0.70	0.47
Hockey Pitch	Illuminance	Lux	350	491	277	0.79	0.56

Calculation Grid Intervals

Label	Grid
Football Pitch	11 x 8
Hockey Pitch	10 x 6

Area Dimensions

Area	L (m)	W (m)
Football Pitch	90	60
Hockey Pitch	91.5	55

Area Summary

Label	Total Watts
Football Pitch + Hockey Pitch	18,416

Glare Summary

Label	GRmax
Glare Rating	45

Isoline Legend
Illuminance (Lux)

Colour	Value
	2
	5
	10
	20
	50

Challenger 1 LED AL6100

Maintenance Factor 0.9
Dirt depreciation factor:
BS5489-1:2020 Table C.1
12 month cleaning intervals

Obtrusive Light - Compliance Report
CIE 150:2017, E3-Medium District Brightness, Pre-Curfew
Filename: Kingston Park & Millers Lane -Football + Hockey
23/09/2025 13:16:26

Illuminance
Maximum Allowable Value: 10 Lux

Calculations Tested (40):

Calculation Label	Test Results	Max. Illum.
Cruachan Park _1_XI_Seg1	PASS	3
Cruachan Park _2_XI_Seg1	PASS	4
Cruachan Park _2_XI_Seg2	PASS	0
Cruachan Park _2_XI_Seg3	PASS	3
Cruachan Park _3_XI_Seg1	PASS	2
Cruachan Park _3_XI_Seg2	PASS	0
Cruachan Park _4_XI_Seg1	PASS	1
Cruachan Park _4_XI_Seg2	PASS	0
Cruachan Park _4_XI_Seg3	PASS	1
Cruachan Park _5_XI_Seg1	PASS	1
Cruachan Park _5_XI_Seg2	PASS	0
Cruachan Park _5_XI_Seg3	PASS	1
Cruachan Park_6_Seg1	PASS	8
Cruachan Park_6_Seg2	PASS	2
Cruachan Park_6_Seg3	PASS	6
Gort Greine _3_XI_Seg1	PASS	6
Gort Greine _3_XI_Seg2	FAIL	12
Gort Greine _3_XI_Seg3	PASS	8
Gort Greine _4_XI_Seg1	PASS	6
Gort Greine_6I_Seg1	PASS	0
Gort Na Bro _1_XI_Seg1	PASS	9
Gort Na Bro _1C_EI_Seg1	PASS	3
Gort Na Bro _1_EI_Seg1	FAIL	17
Gort Na Bro _2_XI_Seg1	PASS	9
Gort Na Bro _3_XI_Seg1	PASS	8
Gort Na Bro _4_XI_Seg1	PASS	1
Gort Na Bro _5_XI_Seg1	PASS	4
Gort Na Bro _6_XI_Seg1	PASS	5
Gort Na Bro _7_XI_Seg1	PASS	6
Gort Na Bro _8_XI_Seg1	PASS	1
Gort Na Bro _9_XI_Seg1	PASS	10
Gort Na Bro_6I_Seg1	PASS	6
Grangemore_1_XI_Seg1	PASS	1
Grangemore_2_XI_Seg1	PASS	1
Grangemore_3_XI_Seg1	PASS	0
Grangemore_4_XI_Seg1	PASS	4
Grangemore_5_XI_Seg1	PASS	2
Grangemore_6_XI_Seg1	PASS	0
Grangemore_6I_Seg1	PASS	0

Notes:
This scheme has been designed based upon a flat and open area.
Shadowing from obstructions have not been taken into account.

Drawing converted from CAD file, please check dimensions before ordering and installing.

Initial levels shown on drawing.

Iso-Lux contours and obtrusive light calculations calculated with all luminaires switched on.

Rev	Description	Date
P1	Issued for Planning	16/09/2025

MOLONEYFOX CONSULTING ENGINEERS
Client: Galway City Council
Architect: DRLA Landscape Architects 12 Barrington St. Limerick
Project: Kingston Park and Millers Lane – Public Park and Urban Realm Project
Drawing: Electrical Installation
Site Lighting & Lux Levels
Millers Lane - Multi-Sport Pitch Lighting

Proj Ref:	24.2812	Org Ref:P-K100A	Scale:	1:250 A0
Drawn:	GJA	Checked:	JM	Approved:	MF

Drawing Status:
Preliminary ☐ Planning Stage ☑ Tender Issue ☐
For Information ☐ Construction Stage ☐ Contract Issue ☐