

BUILDING INFORMATION MODELLING (BIM)

**APPOINTING PARTY'S
EXCHANGE INFORMATION REQUIREMENTS
(EIR)**

for

**CLEEVES RIVERSIDE QUARTER – PHASE II (a) SITE
ACTIVATION WORKS**

CLEEVES RIVERSIDE QUARTER, NORTH CIRCULAR ROAD, LIMERICK CITY

on behalf of

LIMERICK TWENTY THIRTY DAC

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Project Information Set

This document forms part of the following set of project information management documents for the Cleaves Riverside Quarter – Phase II (a) Site Activation Works. Cross-references between documents use the document numbers below.

Document reference	Document
CRQ-SA-X-X-XXX-PZ-ADX-IM-0001	Appointing Party EIR
CRQ-SA-X-X-XXX-PZ-ADX-IM-0003	Information Protocol

1 INTRODUCTION

1.1 Purpose of this Document

This Exchange Information Requirements (EIR) document defines the information requirements for the Cleaves Riverside Quarter – Phase II (a) Site Activation Works and establishes the information management framework to be adopted by all Project Participants.

The EIR has been prepared by the Appointing Party Information Manager (APIM) on behalf of Limerick Twenty Thirty DAC and shall be read in conjunction with:

- Irish National Annex to I.S. EN ISO 19650-2;
- Project BIM Execution Plan (to be developed by the Lead Appointed Party);
- Construction BIM Execution Plan (to be developed following Contractor appointment);
- Project Appointments and the Scope of Services (Services Requirement Document);
- Project Information Standard.

This document establishes the requirements for the production, management, exchange and delivery of information throughout the project lifecycle.

1.2 Project Description

The Project comprises the Phase II (a) Site Activation Works at the Cleaves Riverside Quarter (CRQ), a strategic city-centre regeneration site on the northern bank of the River Shannon in Limerick City. The Site Activation Works are an infrastructure-led package of enabling works intended to unlock and accelerate the delivery of housing and mixed-use development across the wider CRQ masterplan.

The Project comprises a coordinated package of critical infrastructure and associated works, including:

- Demolition and site clearance works (both HIF-eligible and non-eligible elements);
- Surface water, wastewater and water infrastructure, including reservoir works, surface water drainage, Sustainable urban Drainage Systems (SuDS), attenuation, and watermain and foul connections to housing site boundaries and to Uisce Éireann networks;
- Utilities and telecommunications service routes, including ESB infrastructure, public lighting, and telecommunications/ICT provision (with WiredScore accreditation sought);

- Flood defence measures, including raising of the North Circular Road to the 5.7m AOD flood protection level, riverside flood defences and the Shipyard flood embankment / active travel link;
- Road infrastructure improvements, including North Circular Road upgrades, O’Callaghan Strand upgrades, junction upgrades and road realignment works.

The Project shall be delivered using Building Information Modelling (BIM) processes aligned with ISO 19650 and supported by a Common Data Environment (CDE). The Project is procured as an Engineer-led Single Point Design Team (SPDT) commission, with the construction works subsequently procured under a Design & Build form of contract under which the appointed Contractor develops the detailed design.

The objective is to establish a coordinated digital information environment that supports:

- Due diligence and design development;
- Multidisciplinary and utilities coordination;
- Statutory and procurement activities;
- Design & Build tender documentation and construction delivery;
- Asset information capture and operational readiness for the receiving asset owners.

1.3 Project BIM Objectives

Design Objectives

The Project BIM objectives during the design and tender-preparation stages shall be:

- Improve multidisciplinary and utilities coordination.
- Reduce design and interface conflicts.
- Support due diligence and design reviews.
- Improve information quality.
- Reduce abortive work and rework.

Construction Objectives

The Project BIM objectives during construction shall be:

- Improve construction and interface coordination.
- Support issue management.
- Improve information accessibility.
- Reduce site-based conflicts.
- Improve delivery efficiency.

Operational Objectives

The Project BIM objectives during handover shall be:

- Deliver structured Asset Information suitable for the receiving asset owners (LTT, Limerick City and County Council, Uisce Éireann, ESB Networks and others).
- Deliver a validated Asset Information Model.
- Improve operational readiness.
- Support future maintenance activities.
- Support future development phases across the CRQ masterplan.

1.4 Applicable Standards

The following standards shall apply:

Information Management

- ISO 19650-1
- ISO 19650-2
- ISO 19650-3 (where applicable)
- ISO 19650-4
- ISO 19650-5 (where applicable)
- ISO 19650-6

National Annex

- Irish National Annex to I.S. EN ISO 19650-2 (the governing standard for this Project, including information container naming and metadata)

Information Need

- ISO 7817

Open Information Exchange

- ISO 16739 (IFC4)

Classification

- Uniclass 2015

Project Standards

- Project Information Standard
- Project BIM Execution Plan
- Asset Information Requirements (incorporated within this EIR – see Section 4 and Appendix D)

1.5 Hierarchy of Requirements

Where conflicts arise between project BIM documents, the following hierarchy shall apply:

- Exchange Information Requirements (EIR)
- Irish National Annex to I.S. EN ISO 19650-2
- Project Information Standard
- BIM Execution Plans

Project Participants shall notify the Information Manager where conflicts are identified.

1.6 Major Project Milestones

The Project is delivered through the following principal stages, aligned with the Capital Works Management Framework and the project programme:

Stage	Milestone	Information Deliverable
Stage i	Preliminary / Due Diligence	Due Diligence Report and Information Audit
Stage ii (b)	Statutory Review	Statutory Review of Planning Outcome
Stage ii (c)	Design & Build Specification & Tender Documents	Coordinated D&B / Employer's Requirements Pack

Stage	Milestone	Information Deliverable
Stage iii	Tender Process	Published Tender Information
Stage iv	Construction (Contractor detailed design & build)	Construction Information Model
Stage v	Handover	Verified Asset Information Model and Asset Registers

1.7 Information Management Roles

Appointing Party

Limerick Twenty Thirty DAC

Project Manager

Limerick Twenty Thirty / Appointed Project Manager

Lead Appointed Party (Design Stages)

Engineer-Led Single Point Design Team (SPDT) – To Be Appointed

Lead Appointed Party (Construction & Handover Stages)

Design & Build Contractor – To Be Appointed

Information Manager

Appointing Party Information Manager (APIM)

Civil Engineer (SPDT Lead)

To Be Appointed

Structural Engineer

To Be Appointed (SPDT)

Geotechnical / Geoenvironmental Engineer

To Be Appointed (SPDT)

Electrical Engineer

To Be Appointed (SPDT)

Landscape Architect

To Be Appointed (SPDT)

Consultants Appointed Directly by the Appointing Party

The following consultants are appointed directly by the Appointing Party and do not form part of the SPDT: Quantity Surveyor; Project Supervisor Design Process (PSDP); Conservation Architect; Ecologist; Planning Consultant; and Employer's Representative.

The Lead Appointed Party role transfers between project stages. The Engineer-Led SPDT is the Lead Appointed Party for the design and tender-preparation stages. The Design & Build Contractor (to be appointed) shall be the Lead Appointed Party for the construction and handover stages. References to the "Lead Appointed Party" throughout this document shall be read as the organisation holding that role at the relevant project stage.

1.8 Definitions

Asset Information Model (AIM)

The information model used to support operation and maintenance of the completed infrastructure.

Common Data Environment (CDE)

The agreed source of information for collecting, managing and disseminating project information.

Exchange Information Requirements (EIR)

The information requirements established by the Appointing Party.

Level of Information Need (LOIN)

The framework used to define geometric, alphanumeric and documentation information requirements.

Master Information Delivery Plan (MIDP)

The schedule identifying information deliverables and delivery dates.

Single Point Design Team (SPDT)

The Engineer-led multidisciplinary design team appointed under a single point of responsibility to deliver the design and tender-preparation services for the Project.

Task Information Delivery Plan (TIDP)

A task team-specific information delivery schedule.

1.9 General Requirements

All Project Participants shall comply with:

- This EIR;
- ISO 19650;
- Project Information Standards;
- Approved BIM Execution Plans;
- Common Data Environment procedures.

Failure to comply with these requirements may result in information being rejected and returned for correction.

The requirements contained within this EIR shall apply throughout design, construction and handover unless otherwise agreed by the Appointing Party.

2 INFORMATION MANAGEMENT REQUIREMENTS

2.1 General

The Project shall be delivered in accordance with the principles and requirements of ISO 19650.

All Project Participants shall manage information as a project asset and shall implement documented procedures for the creation, review, approval, sharing and publication of project information.

Information management activities shall be planned, managed and monitored throughout the project lifecycle.

The Appointing Party requires all Project Participants to adopt a collaborative approach to information management using the Common Data Environment (CDE).

2.2 Information Management Methodology

Project information shall be developed and managed in accordance with the following principles:

Single Source of Truth

The Common Data Environment shall be the sole authorised source of project information.

Information Produced Once

Information shall be generated once and reused wherever possible.

Progressive Information Development

Information shall be progressively developed as the project advances through each stage.

Purpose-Led Information

Information shall only be produced where it supports a defined project purpose.

Structured Information

Information shall be created in a structured format to support future use and asset management.

2.3 Information Management Objectives

The information management objectives for the project are to:

- Improve information quality.
- Improve multidisciplinary collaboration.
- Reduce duplication of information.
- Reduce design and interface coordination issues.
- Improve information accessibility.
- Support construction delivery.
- Support operational readiness.
- Support future maintenance and future development phases.

2.4 Common Data Environment (CDE)

2.4.1 Platform

A Common Data Environment (CDE) shall be used for the Project. The specific CDE platform has not yet been defined and shall be confirmed by the Appointing Party. The selected CDE shall be capable of supporting the ISO 19650 information management workflows defined within this EIR.

The CDE shall be provided or procured by the Appointing Party. The Information Manager shall establish and maintain the project information structure within the CDE.

The configuration, workflows and detailed procedures for the selected CDE shall be documented within the CDE Guide and the BIM Execution Plan.

2.4.2 Information States

Information shall be managed using the following ISO 19650 information states:

State	Purpose
Work In Progress (WIP)	Information under development
Shared	Information suitable for coordination
Published	Authorised project information
Archive	Historical record information

Project Participants shall not bypass these information states.

2.4.3 Formal Information Exchanges

Formal information exchanges shall occur through the Common Data Environment only.

Email shall not be considered a formal project information exchange mechanism.

Information issued outside the CDE shall not be considered controlled information.

2.4.4 Access and Permissions

Access shall be controlled through role-based permissions.

Project Participants shall only access information relevant to their role.

The Information Manager shall maintain permission structures throughout the project.

2.5 Information Container Identification

All information containers shall be named and structured in accordance with the Irish National Annex to I.S. EN ISO 19650-2 and the Project Information Standard. The Irish National Annex governs the field set, the metadata and the associated code values for the Project, and takes precedence over generic ISO 19650 examples or other national conventions.

Each information container shall carry the metadata required by the Irish National Annex, including:

- Project
- Subproject or phase
- Element or system
- Spatial zone
- Level
- Information type
- Originator
- Project role
- Number
- Document description
- Purpose of Issue
- Acceptance
- Revision

Information containers shall remain consistently identified throughout the project lifecycle.

2.6 Classification

All project information shall be classified using Uniclass 2015.

The classification strategy shall be applied consistently across:

- Models
- Drawings
- Schedules
- Asset Information
- Documentation

Applicable Uniclass tables shall include:

- Ss – Systems
- Pr – Products
- EF – Elements and Functions
- Ac – Activities
- SL – Spaces and Locations

2.7 Information Delivery Planning

2.7.1 Master Information Delivery Plan

The Lead Appointed Party shall maintain a Master Information Delivery Plan (MIDP).

The MIDP shall identify:

- Deliverables
- Delivery dates
- Responsible organisations
- Review activities
- Approval activities

The MIDP shall be maintained throughout the project lifecycle.

2.7.2 Task Information Delivery Plans

Each Project Participant shall prepare and maintain a Task Information Delivery Plan (TIDP).

TIDPs shall identify:

- Information deliverables
- Delivery dates
- Dependencies
- Review requirements

TIDPs shall be coordinated through the MIDP.

2.8 Information Production Methods and Procedures

Project Participants shall document the methods and procedures used to create project information.

These procedures shall include:

- Modelling standards
- Naming conventions
- Quality control procedures
- Information exchange procedures
- Review procedures

The documented procedures shall form part of the BIM Execution Plan.

2.9 Federation Strategy

The project shall operate a federated model environment.

Each organisation shall maintain ownership and responsibility for its own model.

The federated model shall be used for:

- Design coordination
- Design reviews
- Clash and interface detection
- Construction planning
- Stakeholder engagement

Model federation shall not transfer design responsibility.

2.10 Digital Coordination

The SPDT Lead (Civil Engineer) shall act as Digital Coordinator during the design stages.

The Digital Coordinator shall:

- Federate discipline models
- Manage coordination activities
- Undertake clash and interface detection
- Issue coordination reports
- Facilitate coordination workshops

All Project Participants shall actively engage in the coordination process.

2.11 Clash and Interface Detection

Clash and interface detection shall be undertaken throughout the design and tender-preparation stages.

Clash and interface categories shall include:

- Civil vs Structural (drainage, roads and structures)
- Civil vs Utilities (drainage, water, ESB and telecoms routes)
- Utilities vs Utilities (service corridor coordination)
- Civil vs Landscape (levels, surfacing and public realm)
- Flood Defence vs Roads and Public Realm
- Maintenance and operational access
- Existing services and below-ground constraints

All identified clashes and interface issues shall be assigned, tracked and resolved through the project issue management process.

2.12 Level of Information Need (LOIN)

2.12.1 General

The Project shall adopt ISO 7817 principles of Level of Information Need.

LOIN shall be used in place of traditional LOD terminology.

LOIN comprises:

- Geometric Information
- Alphanumeric Information

- Documentation Information

2.12.2 Due Diligence / Statutory Review

Geometric

Existing-condition and constraints geometry sufficient to support due diligence.

Alphanumeric

System descriptions, constraints and key performance criteria.

Documentation

Due diligence reports, statutory review and constraints information.

2.12.3 Design & Build Specification & Tender

Geometric

Coordinated performance / specification geometry suitable for a Design & Build tender.

Alphanumeric

Performance requirements and Employer's Requirements data.

Documentation

Specifications, Employer's Requirements and tender reports.

2.12.4 Construction

Geometric

Contractor detailed design and installed construction geometry.

Alphanumeric

Manufacturer information and installation data.

Documentation

Construction records and commissioning information.

2.12.5 Handover

Geometric

Verified as-constructed geometry.

Alphanumeric

Verified asset information.

Documentation

Operation and Maintenance documentation.

2.13 Information Security

Project Participants shall comply with ISO 19650-5.

Security requirements shall include:

- Controlled access to information.
- Protection of sensitive information.
- Management of third-party access.
- Secure retention of project information.

The Appointing Party reserves the right to issue additional Security Information Requirements.

2.14 Quality Assurance

Project Participants shall establish documented quality assurance procedures.

Quality assurance activities shall include:

- Naming compliance checks.
- Metadata validation.
- Model health checks.
- Classification validation.
- Coordination reviews.

Information failing quality checks shall not be issued into Shared or Published states.

2.15 Information Review and Approval

Information shall be reviewed and approved before issue.

The minimum workflow shall comprise:

- Author
- Checker
- Reviewer
- Approver
- Publication

Evidence of review and approval shall be retained within the CDE.

2.16 Information Auditing

The APIM shall undertake periodic information audits throughout the project.

Audits may assess:

- Naming compliance.
- Metadata compliance.
- Model quality.
- Information completeness.
- Asset information completeness.
- Compliance with this EIR.

Audit findings shall be communicated to the Delivery Team and corrective actions implemented where required.

3 TECHNICAL INFORMATION REQUIREMENTS AND INFORMATION DELIVERY REQUIREMENTS

3.1 Software Environment and Interoperability

3.1.1 General

Project Participants shall utilise software platforms capable of delivering the information requirements defined within this EIR.

Software shall support:

- Information interoperability.
- Open data exchange.
- Federated coordination.

- Structured asset information delivery.
- Long-term accessibility of information.

The use of software platforms shall not compromise information quality or interoperability.

3.1.2 Common Data Environment

The Common Data Environment platform shall be confirmed by the Appointing Party. All formal project information exchanges shall occur through the CDE.

The use of alternative file-sharing platforms shall not be permitted without approval from the Information Manager.

3.1.3 Authoring Platforms

The anticipated authoring platforms are indicative only and shall be confirmed within the BIM Execution Plan:

Discipline	Anticipated Platform
Civil Engineering (roads, drainage, utilities)	Autodesk Civil 3D / Bentley OpenRoads or equivalent
Structural Engineering	Autodesk Revit / equivalent
Geotechnical / Geoenvironmental	Ground modelling software / equivalent
Electrical (ESB, lighting, telecoms)	Discipline-specific authoring software
Landscape Architecture	CAD / BIM authoring software
Coordination	Federation and clash detection software (e.g. Autodesk Navisworks) or equivalent
Issue Management	Project Common Data Environment

Alternative software may be utilised where interoperability can be demonstrated.

3.1.4 Open Data Formats

Project Participants shall support the following open exchange formats:

Format	Purpose
IFC4	Open BIM model exchange
BCF	Issue exchange
PDF	Published documentation
CSV	Structured asset information
XLSX	Asset schedules and registers

Open data exchanges shall accurately represent the source information.

3.2 Information Container Naming

3.2.1 General

Information container naming shall comply with the Irish National Annex to I.S. EN ISO 19650-2 and the Project Information Standard.

All information containers shall include the following fields:

- Project
- Subproject or phase
- Element or system
- Spatial zone

- Level
- Information type
- Originator
- Project role
- Number
- Document description
- Purpose of Issue
- Acceptance
- Revision

The fields, codes and permitted values shall be those defined in the Irish National Annex to I.S. EN ISO 19650-2, recorded in the Project Information Standard and configured in the project CDE.

3.2.2 Consistency Requirements

Naming conventions shall be applied consistently across:

- Models
- Drawings
- Specifications
- Reports
- Schedules
- Asset Information

Inconsistent naming shall be considered non-compliant information.

3.3 Status, Revision and Purpose Codes

3.3.1 Status (Suitability) Codes

Information container status (suitability) codes shall be applied in accordance with the Irish National Annex to I.S. EN ISO 19650-2. The status code, together with the purpose of issue, defines the permitted use of an information container as it develops through the Work in Progress, Shared and Published information states.

The specific status (suitability) codes, the purpose-of-issue codes and their meanings for the Project are those defined in the Irish National Annex, recorded in the Project Information Standard and configured in the project CDE (see the CDE Guide).

Project Participants shall apply these codes consistently and shall not substitute generic ISO 19650 examples or alternative national code sets.

3.3.2 Revision and Purpose of Issue

Revision coding and purpose-of-issue coding shall follow the conventions defined in the Irish National Annex to I.S. EN ISO 19650-2. Each information container shall carry a revision identifier together with the status and purpose-of-issue metadata appropriate to its information state.

Project Participants shall maintain revision histories for all information containers.

Revision management shall support:

- Information traceability.
- Change management.
- Auditability.

Superseded information shall be retained within the Archive state.

3.4 Coordinates and Levels

3.4.1 Project Coordinates

All project information shall utilise a common coordinate system, referenced to the Irish national grid (ITM) and Malin Head datum unless otherwise agreed.

The agreed project coordinate system shall be documented within the BIM Execution Plan.

Project Participants shall not redefine project coordinates without approval from the Information Manager.

3.4.2 Shared Coordinates

All discipline models shall align with the agreed shared coordinate system.

Coordination models shall be validated regularly to ensure coordinate consistency.

3.4.3 Levels and Grids

Levels, survey control and grids shall be coordinated across all discipline models.

The agreed site survey and Civil model shall act as the reference source unless otherwise agreed.

3.5 Model Production Requirements

3.5.1 General

Models shall be created for the purposes of:

- Design development.
- Technical and utilities coordination.
- Tender and construction support.
- Asset information development.

Models shall contain sufficient information to satisfy the required Level of Information Need.

3.5.2 Model Segregation

Project Participants shall manage model segmentation appropriately.

Models may be separated by:

- Area / development zone
- Discipline
- System (e.g. surface water, foul, water)
- Package
- Corridor / route

The chosen strategy shall support efficient project delivery.

3.5.3 Model Quality

Models shall:

- Contain no duplicate geometry.
- Contain no significant corruption.
- Maintain agreed coordinates.
- Maintain agreed classifications.

- Contain required metadata.

Model quality shall be verified prior to issue.

3.6 Model Content Requirements

3.6.1 Civil Engineering Models

Civil engineering models shall include:

- Existing and proposed levels / earthworks
- Roads, pavements and kerbs
- Surface water, foul and water networks
- SuDS and attenuation features
- Reservoir works
- Utility and telecommunication service corridors

The model shall support coordination, quantity extraction and asset information development.

3.6.2 Structural Models

Structural models shall include:

- Retaining structures
- Flood walls and flood defence structures
- Culverts and headwalls
- Embankment structures
- Significant below-ground structures

The model shall support multidisciplinary coordination.

3.6.3 Geotechnical / Geoenvironmental Information

Geotechnical and geoenvironmental information shall include:

- Ground model and stratigraphy
- Contaminated land and remediation information
- Groundwater information
- Foundation and earthworks constraints

The information shall support coordination and risk management.

3.6.4 Electrical, Utilities and Telecommunications Models

Electrical, utilities and telecommunications models shall include:

- ESB infrastructure and substations
- Public lighting
- Telecommunications / ICT ducting and chambers
- Cable containment and service routes
- Major equipment

The model shall support installation coordination and asset information development.

3.6.5 Landscape and Public Realm Models

Landscape and public realm models shall include:

- Hard and soft landscaping
- Surfacing and street furniture
- Planting and amenity areas

- Active travel and pedestrian/cycle routes

The model shall support coordination and asset information development.

3.7 Information Delivery Requirements

3.7.1 General

Information deliverables shall be defined within:

- Master Information Delivery Plan (MIDP)
- Task Information Delivery Plans (TIDPs)
- Responsibility Matrix

Project Participants shall deliver information in accordance with approved delivery dates.

3.7.2 Information Exchange Frequency

Unless otherwise agreed, discipline information exchanges shall occur on a fortnightly basis.

Each exchange shall include:

- Native model files.
- Coordination files.
- Associated documentation.
- Updated schedules.

3.7.3 Design Stage Deliverables

Minimum design stage deliverables shall include:

Civil Engineering Deliverables

- Civil Model(s)
- General Arrangement Drawings
- Drainage and network layouts
- Road layouts and longitudinal sections

Structural Deliverables

- Structural Model
- Structural Drawings
- Structural Schedules

Electrical, Utilities & Telecommunications Deliverables

- Electrical / Utilities Model
- Public Lighting and Telecoms layouts
- Equipment Schedules

Landscape Deliverables

- Landscape Model
- Public Realm Drawings
- Planting and Materials Schedules

3.8 Coordination Deliverables

The following coordination deliverables shall be produced:

- Federated Model
- Clash and Interface Reports
- Issue Registers
- Coordination Reports

These deliverables shall be maintained throughout the project lifecycle.

3.9 Construction Deliverables

The appointed Design & Build Contractor shall provide:

- Contractor Detailed Design Models
- Construction Information Models
- Installation Information
- Coordination Records
- Change Records

Construction deliverables shall be defined further within the Construction BIM Execution Plan.

3.10 Information Validation

3.10.1 General

All information shall be validated prior to issue.

Validation shall confirm:

- Compliance with this EIR.
- Compliance with project standards.
- Compliance with naming conventions.
- Compliance with Level of Information Need requirements.

3.10.2 Model Validation

Model validation activities shall include:

- Model health checks.
- Classification checks.
- Clash and interface detection reviews.
- Metadata validation.
- Coordinate validation.

3.10.3 Asset Information Validation

Asset information shall be validated to ensure:

- Completeness.
- Consistency.
- Traceability.
- Operational suitability.

Incomplete information shall be corrected prior to issue.

3.11 Information Acceptance

The Appointing Party reserves the right to reject information that:

- Does not comply with this EIR.
- Does not satisfy the required Level of Information Need.

- Contains unresolved coordination issues.
- Contains incomplete asset information.

Acceptance of information shall not transfer design responsibility.

3.12 Information Retention

Project Participants shall retain project information in accordance with contractual requirements.

Information retained shall include:

- Models
- Drawings
- Reports
- Schedules
- Asset Information
- Coordination Records

Information shall remain accessible throughout the project lifecycle and applicable retention period.

4 ASSET INFORMATION REQUIREMENTS, ASSET INFORMATION MODEL (AIM) AND HANDOVER REQUIREMENTS

4.1 General

The Appointing Party requires structured Asset Information to support the future operation, maintenance, adaptation and management of the completed infrastructure.

Asset Information shall be developed progressively throughout the project lifecycle and shall be managed in accordance with ISO 19650 principles.

The objective is to ensure that information created during design and construction remains available and useful during operation, and is suitable for the receiving asset owners (including LTT, Limerick City and County Council, Uisce Éireann and ESB Networks).

Project Participants shall ensure that Asset Information is:

- Structured;
- Attributable to individual assets;
- Validated;
- Traceable;
- Suitable for operational use.

4.2 Asset Information Strategy

4.2.1 General

Asset Information shall be developed as part of the Project Information Model (PIM) throughout design and construction.

At project completion, verified information shall form the Asset Information Model (AIM).

The Asset Information Model shall comprise:

Graphical Information

- Verified As-Constructed Models
- Coordination Models
- Network and Location Information

Alphanumeric Information

- Asset Registers
- Equipment Data
- Network / System Information

Documentation Information

- Operation and Maintenance Information
- Commissioning Information
- Warranties
- Certificates
- Testing Records

4.2.2 Information Development Principles

The following principles shall apply:

- Information shall be requested only where there is a defined operational purpose.
- Information shall be developed progressively.
- Information shall be validated before acceptance.
- Information shall be attributable to individual assets.
- Information shall be suitable for incorporation into the Asset Information Model.

4.3 Asset Classification

All maintainable assets shall be classified using Uniclass 2015.

Classification shall be applied consistently across:

- Models
- Asset Registers
- Equipment Schedules
- Operation and Maintenance Documentation

The following tables shall typically be utilised:

- Pr – Products
- Ss – Systems
- EF – Elements and Functions

4.4 Maintainable Assets

Maintainable assets shall include, but shall not be limited to:

Drainage Assets

- Manholes and chambers
- Gullies and pipework
- Attenuation tanks / structures
- Flow control devices and penstocks

- Outfalls
- Pumping stations (where applicable)
- Silt / petrol interceptors

Water and Foul Network Assets

- Watermains and foul mains
- Valves and hydrants
- Meters
- Connection chambers to Uisce Éireann networks

Flood Defence Assets

- Flood walls
- Embankments
- Flow control structures
- Penstocks and non-return valves

Road and Transport Assets

- Pavements and kerbs
- Road markings and signage
- Road restraint systems
- Traffic management equipment

Electrical, ESB and Telecommunications Assets

- Substations and distribution equipment
- Feeder pillars
- Public lighting columns and luminaires
- Telecommunications ducting, chambers and cabinets

Landscape and Public Realm Assets

- Street furniture
- Surfacing
- Planting
- Amenity features

The detailed asset list shall be confirmed during design development and maintained within the Asset Information Responsibility Matrix.

4.5 Asset Information Requirements

4.5.1 Mandatory Asset Attributes

The following information shall be provided for all maintainable assets where applicable:

Attribute	Requirement
Asset Identifier	Mandatory
Asset Name	Mandatory
Asset Description	Mandatory
Manufacturer / Supplier	Mandatory
Model / Product Reference	Mandatory
Serial Number	Mandatory at Handover

Attribute	Requirement
Uniclass Classification	Mandatory
Location	Mandatory
System / Network Association	Mandatory
Warranty Start Date	Mandatory
Warranty End Date	Mandatory
Maintenance Regime	Mandatory
O&M Reference	Mandatory

4.5.2 Additional Asset Information

Additional asset attributes may include:

- Duty / Capacity
- Material
- Diameter / Size
- Invert and Cover Levels
- Flow Rate
- Power Requirements
- Control Strategy
- Asset Owner / Adopting Authority

Additional requirements shall be defined within discipline-specific schedules where required.

4.6 Asset Information Responsibility Matrix (AIRM)

4.6.1 General

Asset Information responsibilities shall be managed through the Asset Information Responsibility Matrix.

The matrix shall define:

- Asset category.
- Information owner.
- Information provider.
- Verification responsibility.
- Handover responsibility.

4.6.2 Responsibility Allocation

Asset Category	Design Information Provider	Construction Verification	Handover Provider
Civil / Drainage Assets	SPDT Civil	Contractor	Contractor
Water & Foul Assets	SPDT Civil	Contractor	Contractor
Flood Defence Assets	SPDT Civil / Structural	Contractor	Contractor
Structural Assets	SPDT Structural	Contractor	Contractor
Road & Transport Assets	SPDT Civil	Contractor	Contractor
Electrical / ESB / Telecoms Assets	SPDT Electrical	Contractor	Contractor

Asset Category	Design Information Provider	Construction Verification	Handover Provider
Landscape & Public Realm Assets	SPDT Landscape	Contractor	Contractor

The Contractor shall be responsible for coordinating the final handover information.

4.7 COBie and Structured Asset Information

4.7.1 General

The Appointing Party requires structured Asset Information. Structured Asset Information shall be delivered using the Construction Operation Building information exchange (COBie) schema, supported by structured asset registers, unless an alternative structured format is agreed by the Appointing Party and the receiving asset owners prior to Contractor appointment.

The COBie tables required for the Project, and the split of responsibility between the design team and the construction team for creating and updating each table, are defined in Appendix D (Asset Information Requirements Summary). Asset Information shall be developed progressively in accordance with the LOIN Matrix (Appendix H) and the Asset Information Responsibility Matrix (Appendix I).

4.7.2 Maintainable and Non-Maintainable Assets

Asset Information requirements apply primarily to maintainable assets. The Lead Appointed Party shall develop and maintain a detailed schedule of project-specific maintainable assets within the Responsibility Matrix and BIM Execution Plan, for agreement by the Appointing Party and the receiving asset owners. Non-maintainable assets shall carry only limited parameter information (classification, description, and where appropriate manufacturer and type/mark).

4.7.3 COBie Readiness

Where full COBie population is not required for a given asset or stage, Project Participants shall nevertheless structure Asset Information such that export to COBie or to the receiving asset owners' systems remains achievable without significant rework. This requirement is intended to protect the long-term usability of project information.

4.8 Asset Information Validation

4.8.1 General

Asset Information shall be validated prior to acceptance.

Validation shall confirm:

- Completeness;
- Accuracy;
- Consistency;
- Classification compliance;
- Operational suitability.

4.8.2 Validation Activities

Completeness Checks

Verification that all required fields are populated.

Consistency Checks

Verification that naming and classification are consistent.

Location Verification

Verification that asset locations correspond with installed conditions.

Documentation Verification

Verification that O&M documentation, warranty information and commissioning records exist.

4.9 Operation and Maintenance Information

Operation and Maintenance information shall be delivered in a structured digital format.

Information shall include:

- Manufacturer documentation;
- Product data sheets;
- Maintenance procedures;
- Recommended spare parts;
- Warranty information;
- Commissioning information.

O&M documentation shall be linked to the relevant asset wherever practicable.

4.10 As-Constructed Information**4.10.1 General**

The Contractor shall be responsible for the production and coordination of As-Constructed Information.

As-Constructed Information shall:

- Reflect installed conditions;
- Incorporate approved changes;
- Incorporate approved variations;
- Be verified prior to handover.

4.10.2 As-Constructed Models

As-Constructed Models shall:

- Utilise agreed project coordinates;
- Maintain classification requirements;
- Maintain asset information requirements;
- Represent installed conditions accurately.

The Appointing Party reserves the right to undertake independent validation.

4.11 Asset Information Model (AIM)**4.11.1 General**

At project completion, the Project Information Model shall transition into an Asset Information Model.

The Asset Information Model shall comprise:

Graphical Information

- Verified As-Constructed Models
- Federated Model
- Network and Location Information

Alphanumeric Information

- Asset Registers
- Equipment Data
- Network / System Data

Documentation Information

- O&M Manuals
- Warranties
- Certificates
- Commissioning Records

4.11.2 Asset Information Model Objectives

The Asset Information Model shall support:

- Operation and maintenance by the receiving asset owners;
- Planned maintenance;
- Future development phases;
- Asset replacement planning;
- Operational decision making.

4.12 Handover Deliverables

The minimum handover information shall comprise:

Graphical Deliverables

- As-Constructed Models
- As-Constructed Drawings

Alphanumeric Deliverables

- Asset Registers
- Equipment Data
- Network / System Data

Documentation Deliverables

- O&M Manuals
- Warranties
- Certificates
- Test Records
- Commissioning Records

4.13 Information Acceptance Criteria

Information shall not be accepted unless:

- Required asset information has been provided;
- Required documentation has been provided;
- Information has been validated;
- Information complies with this EIR;

- Information satisfies operational requirements.

The Appointing Party reserves the right to reject incomplete information.

4.14 Future Information Development

Following Contractor appointment, Asset Information Requirements shall be reviewed and expanded to reflect:

- Specialist Contractor packages;
- Manufacturer-specific requirements;
- Adopting authority requirements (LCCC, Uisce Éireann, ESB Networks);
- Operational system requirements.

The Construction BIM Execution Plan shall define the detailed procedures for managing these additional requirements.

4.15 Asset Information Deliverables Summary

The following deliverables shall be provided at handover:

Deliverable	Requirement
Asset Information Model	Mandatory
Asset Registers	Mandatory
As-Constructed Models	Mandatory
As-Constructed Drawings	Mandatory
O&M Manuals	Mandatory
Commissioning Records	Mandatory
Warranty Information	Mandatory
Certificates	Mandatory
Validation Report	Mandatory

The Information Manager shall verify completeness prior to final acceptance by the Appointing Party.

APPENDIX A – INFORMATION DELIVERY MILESTONES

A.1 Purpose

This appendix defines the minimum information delivery milestones applicable to the Cleevs Riverside Quarter – Phase II (a) Site Activation Works.

The purpose of these milestones is to:

- Align information production activities with project decision points.
- Establish formal information exchange requirements.
- Support design coordination and review.
- Support statutory and procurement activities.
- Support construction delivery.
- Support structured handover of information.

The Information Delivery Milestones shall be incorporated into the Master Information Delivery Plan (MIDP).

A.2 Information Delivery Principles

- Information shall be delivered only when it satisfies the required Level of Information Need.
- Information shall be reviewed and authorised prior to issue.
- Information exchanges shall occur through the Common Data Environment (CDE).
- Information shall be delivered in accordance with the MIDP.
- Information shall support the decisions required at each project stage.

A.3 Stage i – Preliminary / Due Diligence

Purpose

To complete a due diligence review of the Phase II design and develop the Design & Build tender strategy.

Minimum Deliverables

- Due Diligence Report
- Constraints and Risk Register
- Information / Model Audit of received Phase II information
- Outline Design and Standards review

A.4 Stage ii (b) – Statutory Review

Purpose

To assess the outcome of the Phase II Planning Application in relation to the Site Activation Works.

Minimum Deliverables

- Statutory Review Report
- Updated Constraints Register
- Section 38 supporting drawings (Salesians road realignment)

A.5 Stage ii (c) – Design & Build Specification & Tender Documents

Purpose

To complete a Design & Build pack and prepare tender documents (detailed design developed post-tender by the Contractor).

Minimum Deliverables

- Coordinated Performance / Specification Models
- Employer's Requirements
- Specifications and Schedules
- Tender Drawings
- Federated Model and Coordination Report

A.6 Stage iii – Tender Process

Purpose

To provide information suitable for procurement of the Design & Build construction works and to support assessment of the Contractor as designer, PSCS and PSDP.

Minimum Deliverables

- Published Tender Information Package

- Federated Tender Model
- Asset Information Requirements
- Tender Query responses

A.7 Stage iv – Construction

Purpose

To support the Contractor's detailed design and construction, with the SPDT retained as Client Advisor.

Minimum Deliverables

- Contractor Detailed Design Models
- Construction Information Models
- Federated Construction Model
- Construction Clash / Interface Reports
- Progressive Asset Registers

A.8 Stage v – Handover

Purpose

To provide the complete Asset Information Model and associated information to the Appointing Party and receiving asset owners.

Minimum Deliverables

- Verified As-Constructed Models and Drawings
- Federated Asset Information Model
- Asset Registers and Network/System Data
- O&M Manuals, Warranties, Certificates, Commissioning Records
- AIM Validation Report and Information Completeness Report

A.9 Information Exchange Frequency

Unless otherwise agreed by the Information Manager:

Deliverable Type	Frequency
Discipline Models	Fortnightly
Federated Models	Fortnightly
Clash / Interface Reports	Fortnightly
Issue Registers	Fortnightly
Asset Information Updates	Monthly
MIDP Updates	Monthly

Additional exchanges may be required to support key project milestones.

A.10 Information Acceptance Requirements

Information submitted at each milestone shall satisfy the EIR, the Asset Information Requirements, approved BIM Execution Plans, Level of Information Need requirements and Project Information Standards. Information that does not satisfy these requirements may be rejected and returned for correction. Acceptance of information shall not transfer design responsibility.

A.11 Milestone Summary

Stage	Primary Deliverable
Stage i – Due Diligence	Due Diligence Report and Audit
Stage ii (b) – Statutory Review	Statutory Review Report
Stage ii (c) – D&B Specification & Tender	Coordinated D&B / Tender Pack
Stage iii – Tender	Published Tender Information
Stage iv – Construction	Construction Information Models
Stage v – Handover	Verified Asset Information Model

APPENDIX B – BIM DELIVERABLES SCHEDULE

B.1 Purpose

This BIM Deliverables Schedule identifies the minimum information deliverables required throughout the project lifecycle.

The schedule shall be read in conjunction with the EIR, MIDP, TIDPs, AIR and AIRM. It identifies deliverable type, responsible organisation, project stage and information format.

B.2 Deliverable Categories

Graphical Information

Information represented through BIM models and drawings.

Alphanumeric Information

Structured data and asset information.

Documentation Information

Reports, specifications, calculations and supporting documentation.

B.3 Civil Engineering Deliverables

Design / Specification Stages

Deliverable	Format
Civil Model(s)	NWC/IFC/Native
General Arrangement Drawings	PDF
Drainage & Network Layouts	PDF
Road Layouts & Long Sections	PDF
Earthworks / Levels Information	PDF/Native

Handover

Deliverable	Format
As-Constructed Civil Models	Native/IFC
As-Constructed Drawings	PDF
Drainage / Network Asset Registers	XLSX

B.4 Structural Deliverables

Deliverable	Format
Structural Model	Native/IFC
Structural Drawings	PDF
Structural Schedules	XLSX
As-Constructed Structural Model	Native/IFC

B.5 Geotechnical / Geoenvironmental Deliverables

Deliverable	Format
Ground Model	Native/IFC
Geotechnical / Geoenvironmental Reports	PDF
Contaminated Land / Remediation Information	PDF/XLSX

B.6 Electrical, Utilities & Telecommunications Deliverables

Deliverable	Format
Electrical / Utilities Model	Native/IFC
ESB & Public Lighting Layouts	PDF
Telecoms / ICT Layouts	PDF
Equipment Schedules	XLSX
Asset Registers	XLSX

B.7 Landscape & Public Realm Deliverables

Deliverable	Format
Landscape Model	Native/IFC
Public Realm Drawings	PDF
Planting & Materials Schedules	XLSX/PDF
Landscape Asset Register	XLSX

B.8 Coordination Deliverables

The Lead Appointed Party shall provide:

Deliverable	Frequency
Federated Model	Fortnightly
Coordination Model	Fortnightly
Clash / Interface Report	Fortnightly
Issue Register	Fortnightly
Coordination Report	Fortnightly

B.9 Information Management Deliverables

The Information Manager shall provide:

Deliverable	Frequency
Information Audit Report	Monthly
Information Compliance Report	Monthly
MIDP Review Report	Monthly
Information Quality Report	Monthly

B.10 Construction Deliverables

The Design & Build Contractor shall provide:

Deliverable	Format
Contractor Detailed Design Models	Native/IFC
Construction Information Models	Native/IFC
Installation / Working Information	PDF
Product Information	PDF
Progressive Asset Registers	XLSX

B.11 Asset Information Deliverables

The following deliverables shall be progressively developed throughout the project:

Deliverable	Format
Asset Registers	XLSX
Equipment / Network Schedules	XLSX
Warranty Information	PDF/XLSX
Maintenance Information	PDF/XLSX

B.12 Handover Deliverables

At Final Handover the Contractor shall provide As-Constructed Models and Drawings, the Federated Asset Information Model, Asset Registers and Network/System Data, and the full Documentation set (O&M Manuals, Warranties, Certificates, Test Records and Commissioning Records).

B.13 Deliverable Acceptance Criteria

All deliverables shall comply with this EIR, project naming standards and Level of Information Need requirements, pass project validation procedures, and be delivered through the Common Data Environment. Deliverables failing these requirements may be rejected and returned for correction.

B.14 Deliverable Responsibility Summary

Deliverable Category	Responsible Organisation
Civil / Drainage / Roads Information	SPDT Civil
Structural Information	SPDT Structural
Geotechnical / Geoenvironmental Information	SPDT Geotechnical
Electrical / ESB / Telecoms Information	SPDT Electrical
Landscape / Public Realm Information	SPDT Landscape

Deliverable Category	Responsible Organisation
Coordination Information	SPDT Lead (Civil Engineer)
Information Management Deliverables	APIM
Construction & Handover Information	Design & Build Contractor

APPENDIX C – SOFTWARE, INTEROPERABILITY AND EXCHANGE FORMAT SCHEDULE

C.1 Purpose

This appendix defines approved software environments, interoperability requirements, exchange formats, open data requirements and information exchange procedures.

The purpose of this appendix is to ensure that project information can be exchanged efficiently and reliably throughout the project lifecycle without loss of information quality.

This appendix shall be read in conjunction with the EIR, the Project Information Standard and the BIM Execution Plan.

C.2 Software Principles

- Software platforms shall support open information exchange.
- Software platforms shall not create unnecessary barriers to collaboration.
- Information shall remain accessible throughout the project lifecycle.
- Open exchange formats shall be supported where required.
- Software versions shall be agreed and maintained throughout the project.

The use of alternative software shall be permitted provided interoperability can be demonstrated.

C.3 Common Data Environment

A Common Data Environment (CDE) shall be used for the Project. The specific platform has not yet been defined and shall be confirmed by the Appointing Party. The CDE shall be used for information management, document management, model management, information review, information approval and information publication.

All formal project information exchanges shall occur through the CDE. Email shall not be considered a formal information exchange mechanism.

C.4 Approved Authoring Platforms

Authoring platforms are indicative and shall be confirmed within the BIM Execution Plan. Specialist consultants may utilise alternative authoring platforms where information exchange requirements are maintained, open format exports are available and coordination requirements are satisfied.

Discipline	Anticipated Platform
Civil Engineering	Autodesk Civil 3D / Bentley OpenRoads or equivalent
Structural Engineering	Autodesk Revit / equivalent
Geotechnical / Geoenvironmental	Ground modelling software / equivalent

Discipline	Anticipated Platform
Electrical / Utilities / Telecoms	Discipline-specific authoring software
Landscape Architecture	CAD / BIM authoring software
Documentation	Microsoft Office

C.5 Coordination Platforms

Purpose	Platform
Model Federation	Federation software (e.g. Autodesk Navisworks) or equivalent
Clash / Interface Detection	Federation software (e.g. Autodesk Navisworks) or equivalent
Issue Management	Project Common Data Environment
Coordination Reviews	Project Common Data Environment

Alternative coordination platforms may be used where approved by the Information Manager.

C.6 Approved Exchange Formats

Native Formats

Format	Purpose
Native authoring formats	BIM Models
NWD / NWC	Federated / Coordination Models
DWG	CAD Information
XLSX	Schedules and Registers
DOCX	Documentation
PDF	Published Information

Open Formats

Format	Purpose
IFC4	Open BIM Model Exchange
BCF	Issue Exchange
CSV	Structured Asset Information
PDF/A	Long-Term Document Retention

Open formats shall accurately represent the source information.

C.7 IFC Requirements

IFC4 shall be the preferred open BIM exchange format. IFC exports shall maintain agreed coordinates, classification information, asset identifiers and required metadata. Where IFC exchanges are required, Project Participants shall undertake validation prior to issue to confirm model completeness, coordinate accuracy, classification compliance and metadata integrity.

C.8 Issue Management

Project issues shall be managed through the Common Data Environment. Issue management shall support issue identification, assignment, tracking and closure.

Each issue shall have a unique identifier, description, responsible party, due date and status.

C.9 Asset Information Exchange

Asset Information shall be exchanged in structured formats. Approved formats include XLSX, CSV, COBie (if required) and alternative approved structured formats. Asset data exchanges shall support asset identification, classification, location information, manufacturer information and maintenance information. The final exchange format shall be agreed prior to Contractor appointment and shall reflect the requirements of the receiving asset owners.

C.10 Model Exchange Requirements

Design Team Exchanges

Deliverable	Frequency
Discipline Models	Fortnightly
Federated Models	Fortnightly
Clash / Interface Reports	Fortnightly
Issue Registers	Fortnightly

Construction Stage Exchanges

Construction exchange frequencies shall be defined within the Construction BIM Execution Plan.

C.11 Documentation Exchange Requirements

Drawings, specifications, reports, schedules, asset registers and O&M documentation shall be issued through the CDE. Published documentation shall be issued in PDF format unless otherwise agreed.

C.12 Software Version Management

Project Participants shall maintain software version consistency throughout the project. Where software upgrades are proposed, the Information Manager shall be notified, interoperability impacts shall be assessed, and approval shall be obtained prior to implementation.

C.13 Long-Term Information Retention

Information Type	Format
Documents	PDF/A
Drawings	PDF
Asset Registers	XLSX / CSV
Models	Native / IFC4

The objective is to ensure future accessibility of project information.

C.14 Information Exchange Validation

Prior to issue, information exchanges shall be validated to confirm file integrity, naming compliance, classification compliance, coordinate compliance and metadata completeness. Information exchanges that fail validation shall be corrected before publication.

C.15 Approval of Alternative Platforms

The use of alternative software platforms shall require approval from the Information Manager. Alternative platforms shall demonstrate compliance with information requirements, interoperability with project software, the ability to export approved formats, and the ability to support coordination requirements. The burden of demonstrating interoperability shall remain with the proposing organisation.

APPENDIX D – ASSET INFORMATION REQUIREMENTS (AIR) SUMMARY

D.1 Purpose

This appendix summarises the Asset Information Requirements (AIR) for the Cleevs Riverside Quarter – Phase II (a) Site Activation Works. The AIR defines the structured asset information required to support the operation, maintenance and management of the completed infrastructure assets by the receiving asset owners.

This appendix shall be read in conjunction with Appendix I (Asset Information Responsibility Matrix) and Appendix H (LOIN Matrix).

D.2 Receiving Asset Owners

Completed assets are anticipated to be received, owned and/or operated by the following organisations. The detailed asset information requirements of each receiving owner shall be confirmed and incorporated into the AIR prior to Contractor appointment.

Asset Type	Anticipated Receiving Owner
Surface Water / Drainage / SuDS	Limerick City & County Council
Foul Drainage / Watermain Connections	Uisce Éireann
Flood Defence Infrastructure	Limerick City & County Council / OPW
Roads, Junctions & Active Travel	Limerick City & County Council
Electrical Supply / Substations	ESB Networks
Public Lighting	Limerick City & County Council
Telecoms / Ducting	Limerick Twenty Thirty / Telecoms Providers
Public Realm / Landscape	Limerick City & County Council

D.3 Asset Information Principles

- Asset Information shall be purpose-led and support operation and maintenance.
- Asset Information shall be attributable to an identified asset.
- Asset Information shall be developed progressively throughout the project lifecycle.
- Asset Information shall be validated prior to acceptance.
- Asset Information shall be structured to support the receiving asset owners' systems.

D.4 Asset Breakdown

For this infrastructure project the following maintainable asset categories shall be considered. The asset breakdown shall be confirmed and expanded following Contractor appointment.

Asset Category	Indicative Assets
Drainage & SuDS	Surface water networks, attenuation systems, SuDS features, manholes, gullies, outfalls, flow controls
Water & Foul	Watermains, foul sewers, pumping arrangements, connection chambers, valves

Asset Category	Indicative Assets
Flood Defence	Flood defence walls / embankments, raised road formation, penstocks, pumping infrastructure
Road & Transport	Carriageways, junctions, footpaths, cycle facilities, road markings, signage, traffic signals
Electrical / ESB / Telecoms	Substations, distribution, public lighting, ducting networks, telecoms infrastructure
Landscape & Public Realm	Hard and soft landscape, street furniture, planting, paving

D.5 Mandatory Asset Attributes

The following minimum attributes shall be provided for each maintainable asset, where applicable. Additional attributes shall be defined by the receiving asset owners and confirmed prior to Contractor appointment.

Attribute	Requirement
Asset Identifier	Mandatory
Asset Name / Description	Mandatory
Asset Type	Mandatory
Classification (Uniclass 2015)	Mandatory
Location / Coordinates	Mandatory
Material / Specification	Mandatory where applicable
Manufacturer	Mandatory where applicable
Model / Product Reference	Mandatory where applicable
Serial Number	Mandatory where applicable
Installation Date	Mandatory
Warranty Information	Mandatory where applicable
Maintenance Requirements	Mandatory where applicable

D.6 Asset Identification

Each maintainable asset shall be allocated a unique asset identifier. The asset identification convention shall be confirmed with the receiving asset owners and documented within the BIM Execution Plan. Asset identifiers shall remain consistent across models, asset registers and documentation.

D.7 Asset Location

Asset location information shall be provided using the project coordinate system (Irish Transverse Mercator, with levels to Malin Head datum). Linear and networked assets shall be located in accordance with the agreed survey and referencing conventions.

D.8 Asset Classification

Assets shall be classified using Uniclass 2015. The relevant Uniclass tables (including Ss Systems, Pr Products and EF Elements/Functions) shall be applied consistently. Classification shall support the requirements of the receiving asset owners.

D.9 Asset Information by Stage

Asset Information shall be developed progressively in accordance with the LOIN Matrix (Appendix H). Asset Information shall be preliminary during design stages, developed during construction, and verified at handover.

D.10 Drainage, Water & Foul Asset Information

Required information for drainage, water and foul assets shall include: asset identifier, asset type, material, diameter / size, gradient where applicable, invert and cover levels, classification, location, connection references and maintenance requirements. Information requirements shall align with the requirements of Limerick City & County Council and Uisce Éireann.

D.11 Flood Defence Asset Information

Required information for flood defence assets shall include: asset identifier, asset type, design crest / defence level (AOD), material, classification, location, associated mechanical components (e.g. penstocks, pumps) and maintenance and inspection requirements.

D.12 Road & Transport Asset Information

Required information for road and transport assets shall include: asset identifier, asset type, pavement construction / build-up, classification, location, road markings and signage, traffic signal equipment (where applicable) and maintenance requirements.

D.13 Electrical, ESB & Telecoms Asset Information

Required information for electrical, ESB and telecoms assets shall include: asset identifier, asset type, manufacturer, model number, rating / capacity, classification, location, warranty information and maintenance requirements. Information requirements shall align with the requirements of ESB Networks and relevant telecoms providers.

D.14 Landscape & Public Realm Asset Information

Required information for landscape and public realm assets shall include: asset identifier, asset type, species / material / product reference, classification, location, establishment / maintenance requirements and warranty information where applicable.

D.15 Operation and Maintenance Information

The following documentation shall be provided for maintainable assets where applicable: product data sheets, O&M manuals, commissioning information, warranty information, maintenance procedures and spare parts information. Documentation shall be linked to the relevant asset wherever practicable.

D.16 Asset Information Validation

Asset Information shall be validated prior to acceptance. Validation shall include completeness checks (all required fields populated), consistency checks (naming and classification), location verification, and documentation verification (O&M, warranty and commissioning information exists).

D.17 Asset Information Acceptance Criteria

Asset Information shall not be accepted unless, as a minimum, the asset identifier, asset type, classification, location, and applicable O&M and warranty information exist. Incomplete information shall be returned for correction.

D.18 Asset Information Model Deliverables

At handover the following shall be delivered: verified as-constructed models and federated Asset Information Model (graphical); asset registers and asset data (alphanumeric); and O&M manuals, warranties, certificates and commissioning records (documentation). The complete information set shall form the Asset Information Model (AIM).

D.19 Structured Asset Information and COBie

D.19.1 COBie Requirement

Structured Asset Information shall be delivered using the Construction Operation Building information exchange (COBie) schema. COBie is a non-proprietary, structured data format for delivering asset data (equipment and spaces) as distinct from geometric information. The standard requires that some data is provided by the design team, with additional data added by the construction team.

The final exchange format shall be confirmed prior to Contractor appointment and shall reflect the requirements of the receiving asset owners. Acceptable formats are COBie, structured spreadsheet asset registers (XLSX / CSV), direct asset-management / GIS system import formats, or an alternative structured format agreed by the Appointing Party and the receiving asset owners. Where COBie is not fully populated, information shall be structured such that export to COBie remains achievable without significant rework.

D.19.2 Maintainable and Non-Maintainable Assets

Asset Information requirements apply primarily to maintainable assets. COBie does not itself prescribe which assets are included; the Lead Appointed Party (lead designer during design, Main Contractor during construction) shall develop and maintain a detailed schedule of project-specific maintainable assets within the Responsibility Matrix and BIM Execution Plan, for agreement by the Appointing Party and the receiving asset owners. The infrastructure asset categories in D.4 provide the starting point for this Project.

Non-maintainable assets shall carry only limited parameter information: Uniclass classification; description of the asset; manufacturer (where appropriate); type mark; and mark.

D.19.3 Responsibility Key

In the COBie tables below: DT = Design Team responsibility (created progressively for handover at tender stage); CT = Construction Team responsibility (created progressively for handover at completion stage); C = responsible for creating the data; U = responsible for updating the data where an update is required.

D.19.4 Required COBie Tables

The following COBie tables are required for the Project, with responsibility for creation and update as indicated. Tables marked 'No' are not required for this Project but may be developed post-handover by the operations team where relevant.

COBie Table	Description	Required	DT	CT
Contact	People and Companies	Yes	C	U
Facility	Project, Site, and Facility	Yes	C	U
Floor	Vertical levels and exterior areas / spatial zones	Yes	C	U
Space	Spaces / locations	Yes	C	U
Type	Types of equipment, products, and materials	Yes	C	U
Component	Individually named or scheduled items	Yes	C	U
Zone	Sets of spaces / locations sharing an attribute	Yes	C	U
System	Sets of components providing a service	Yes	C	U
Attribute	Properties of referenced items	Yes	C	U
Coordinate	Spatial locations in box, line, or point format	Yes	C	U
Assembly	Constituents for Types / Components	No	-	-
Connection	Logical connections between components	No	-	-
Spare	Onsite and replacement parts	No	-	-
Resource	Required materials, tools, and training	No	-	-
Job	PM, safety, and other job plans	No	-	-
Impact	Economic, environmental and social impacts	No	-	-
Document	Applicable document references (managed via the MIDP)	No	-	-
Issue	Other issues remaining at handover	No	-	-

The detailed field-level requirements for each required table (including which fields are mandatory and which are required only if specified) shall be confirmed with the receiving asset owners and recorded in the Project Information Standard and BIM Execution Plan. All picklist enumerations and classifications shall use Uniclass 2015 and remain valid.

D.20 Future Development of AIR

Following Contractor appointment, these Asset Information Requirements shall be reviewed and expanded to reflect the detailed requirements of the receiving asset owners, the project-specific maintainable asset schedule, specialist contractor requirements, manufacturer-specific requirements and operational system requirements. The Construction BIM Execution Plan shall define the detailed procedures for implementing these requirements.

APPENDIX E – INFORMATION MANAGEMENT RESPONSIBILITY MATRIX

E.1 Purpose

This Responsibility Matrix defines the information management responsibilities applicable to the Cleaves Riverside Quarter – Phase II (a) Site Activation Works. The purpose of this appendix is to clearly define information management responsibilities, establish accountability for information production, define review and approval responsibilities, support compliance with ISO 19650, and reduce ambiguity in information management activities.

This appendix shall be read in conjunction with the Exchange Information Requirements (EIR), the BIM Execution Plan (BEP), the Master Information Delivery Plan (MIDP), the Asset Information Requirements (AIR) and the Asset Information Responsibility Matrix (AIRM).

E.2 Organisations

The following organisations are anticipated to fulfil project information management roles. Design team disciplines form part of the Single Point Design Team (SPDT) and are currently to be appointed.

Organisation	Project Role
Limerick Twenty Thirty DAC	Appointing Party
Project Manager (Appointed by LTT)	Project Manager
SPDT – Civil Engineer (To Be Appointed)	Lead Appointed Party (Design Stages) / SPDT Lead
Appointing Party Information Manager (APIM)	Information Manager
SPDT – Structural Engineer (TBA)	Structural Engineering
SPDT – Geotechnical / Geoenvironmental Engineer (TBA)	Geotechnical / Contaminated Land
SPDT – Electrical Engineer (TBA)	Electrical / Utilities Engineering
SPDT – Landscape Architect (TBA)	Landscape / Public Realm
D&B Contractor (To Be Appointed)	Lead Appointed Party (Construction & Handover Stages)
D&B Contractor (TBA)	Contractor Information Manager

E.3 ISO 19650 Information Management Roles

Appointing Party

Limerick Twenty Thirty DAC shall fulfil the role of Appointing Party. Responsibilities include defining information requirements, approving the information management strategy, accepting project information, accepting Asset Information deliverables and establishing project objectives.

Lead Appointed Party (Design Stages)

The Single Point Design Team, led by the Civil Engineer, shall fulfil the role of Lead Appointed Party during the design stages. Responsibilities include leading design information production, coordinating design team information, maintaining the MIDP,

managing project coordination activities and managing design-stage information exchanges.

Lead Appointed Party (Construction & Handover Stages)

The D&B Contractor (to be appointed) shall fulfil the role of Lead Appointed Party during the construction and handover stages, including undertaking the detailed design under the PW-CF2 Design & Build contract. Responsibilities include leading construction-stage information production, maintaining the MIDP during construction and handover, coordinating the construction delivery team's information, managing construction-stage information exchanges, and producing and coordinating as-constructed and Asset Information for handover.

Information Manager

The Appointing Party Information Manager (APIM) shall fulfil the information management function on behalf of the Appointing Party. Responsibilities include establishing project information management procedures, managing information governance, managing Common Data Environment workflows, undertaking information audits and supporting information compliance. The Information Manager shall not assume design responsibility.

Task Teams

Each Task Team shall be responsible for producing discipline information, maintaining discipline models, managing discipline quality assurance and delivering information in accordance with the MIDP.

E.4 Responsibility Matrix Key

Code	Definition
P	Produce
C	Coordinate
R	Review
A	Approve
AC	Accept
I	Inform

E.5 Project Information Governance Matrix

Activity	LTT	PM	SPDT	APIM	Design Team
Define Information Requirements	A	R	I	C	I
Approve EIR	A	R	I	C	I
Prepare BEP	I	I	P	C	C
Approve BEP	A	R	I	C	I
Manage MIDP	I	I	P	C	C
Information Auditing	I	I	I	P	I
Information Acceptance	AC	R	I	C	I

E.6 Model Production Responsibilities

During design stages, discipline models shall be produced by the relevant SPDT discipline. Following appointment, the D&B Contractor shall assume responsibility for production of detailed design and construction information.

Information Container	Civil	Struct.	Geotech	Elec.	Land.
Civil / Drainage / Roads Model	P	I	I	I	I
Structural Model	I	P	I	I	I
Geotechnical / Ground Model	I	I	P	I	I
Electrical / Utilities Model	I	I	I	P	I
Landscape / Public Realm Model	I	I	I	I	P
Flood Defence Model	P	C	C	I	I

E.7 Coordination Responsibilities

Activity	SPDT Lead	APIM	Design Team
Model Federation	P	C	I
Clash / Interface Detection	P	C	I
Coordination Reports	P	C	I
Issue Management	P	C	R
Coordination Meetings	P	C	R

The SPDT Lead (Civil Engineer) shall act as Digital Coordinator during the design stages. This responsibility transfers to the D&B Contractor during construction.

E.8 Common Data Environment Responsibilities

Activity	APIM	SPDT Lead	Design Team
Configure CDE	P	I	I
Manage Permissions	P	I	I
Upload Information	I	I	P
Review Metadata	P	C	I
Information Audits	P	I	I
Workflow Administration	P	I	I

E.9 Asset Information Responsibilities

Activity	Design Team	Contractor	APIM	LTT
Define Asset Requirements	C	I	C	A
Produce Asset Information	P	C	I	I
Verify Asset Information	I	P	C	I
Audit Asset Information	I	I	P	I
Accept Asset Information	I	I	C	AC

E.10 MIDP and TIDP Responsibilities

MIDP

During design stages the SPDT Lead shall prepare, maintain, update and coordinate the Master Information Delivery Plan. During construction the D&B Contractor shall assume this responsibility. The APIM shall review compliance with the MIDP.

TIDPs

Each Task Team shall prepare, maintain and update its Task Information Delivery Plan and deliver information in accordance with it.

E.11 Information Review Workflow

The minimum review workflow shall be: Author, Checker, Reviewer, Approver, and Acceptance (where applicable). Evidence of review shall be retained within the Common Data Environment.

E.12 Information Acceptance Matrix

Information Type	Producer	Approver	Acceptor
Design Information	Design Team	SPDT Lead	LTT
Coordination Information	SPDT Lead	SPDT Lead	LTT
Detailed Design Information	Contractor	Contractor	LTT
Asset Information	Contractor	Contractor	LTT
AIM Deliverables	Contractor	Contractor	LTT
Handover Information	Contractor	Contractor	LTT

Acceptance shall not transfer design responsibility.

E.13 Information Audit Responsibilities

The APIM shall undertake periodic audits covering naming compliance, metadata compliance, classification compliance, asset information completeness and information delivery compliance. Audit reports shall be issued to the Project Team.

E.14 Change Management Responsibilities

Changes affecting information management (including new project participants, software changes, model structure changes and asset information changes) shall be communicated to the Information Manager, who shall assess impacts and update project procedures where required.

E.15 Construction Stage Responsibilities

Following appointment, the D&B Contractor shall assume responsibility for construction information management, construction coordination information, asset information coordination, as-constructed information and handover information. A Construction BIM Execution Plan shall define detailed responsibilities.

E.16 Responsibility Matrix Review

This Responsibility Matrix shall be reviewed following appointment of the D&B Contractor, following appointment of specialist contractors, where project scope changes, and where information requirements change. Updated versions shall be issued through the Common Data Environment.

E.17 Responsibility Matrix Hierarchy

In the event of conflict between this matrix and other project documents, the following order of precedence shall apply: Exchange Information Requirements (EIR); Asset Information Requirements (AIR); Responsibility Matrix; BIM Execution Plans; Project Procedures. The Information Manager shall determine the appropriate interpretation where ambiguity exists.

APPENDIX F – COMMON DATA ENVIRONMENT (CDE) WORKFLOW REQUIREMENTS

F.1 Purpose

This appendix defines the Common Data Environment (CDE) workflow requirements for the Clevees Riverside Quarter – Phase II (a) Site Activation Works. The CDE shall be the single source of approved information for the project and shall be operated in accordance with ISO 19650. The specific CDE platform has not yet been confirmed; the requirements of this appendix shall apply to whichever platform is adopted.

F.2 CDE Principles

- The CDE shall provide a single source of approved project information.
- All formal information exchanges shall occur through the CDE.
- Email shall not be considered a formal information exchange mechanism.
- Information shall be managed through defined information states.
- Access shall be controlled and role-based.
- An audit trail shall be maintained for all information.

F.3 Information States

Information shall be managed through the following ISO 19650 information states.

State	Purpose
Work In Progress (WIP)	Information under development by the originating Task Team
Shared	Information shared for coordination and design development
Published	Authorised information issued for use
Archive	Superseded and historical information retained for record

F.4 Suitability / Status Codes

Information containers shall be assigned suitability (status) codes in accordance with the project information standard, indicating the permitted use of the information. Status codes shall be applied consistently across all information exchanges.

F.5 Folder Structure

The CDE folder structure shall support the project information states and shall be organised to suit the infrastructure disciplines. The indicative discipline structure shall include:

- Civil / Drainage / Roads;
- Structural;
- Geotechnical / Ground;
- Electrical / Utilities;
- Landscape / Public Realm;
- Flood Defence;
- Shared / Coordination;
- Asset Information;
- Published / Issued Information.

The detailed folder structure shall be confirmed within the BIM Execution Plan.

F.6 Information Workflow

The minimum information workflow shall comprise the following sequential activities: Author, Check, Review, Approve, Publish, and Archive. Information shall not progress to the next state until the preceding activities have been completed and recorded.

F.7 Work In Progress (WIP)

WIP information shall be accessible only to the originating Task Team. WIP information shall be subject to internal quality assurance prior to sharing.

F.8 Shared Information

Shared information shall be suitable for coordination and design development. Shared information shall carry an appropriate suitability code and shall not be relied upon as authorised information until published.

F.9 Published Information

Published information shall represent authorised information issued for a defined purpose. Published information shall be subject to review and approval prior to issue and shall be recorded within the CDE.

F.10 Archived Information

Superseded information shall be archived and retained for record. Archived information shall remain accessible for audit purposes and shall not be deleted without appropriate authorisation.

F.11 Information Exchanges

Formal information exchanges shall be undertaken through the CDE at the frequencies and milestones defined within the MIDP and Appendix O (Information Exchange Schedule). Each exchange shall be validated prior to issue.

F.12 Issue Management

Project issues shall be managed through the CDE. Each issue shall have a unique identifier, description, responsible party, due date and status. Issue management shall support identification, assignment, tracking and closure.

F.13 Metadata Requirements

Information containers shall carry the metadata required by the project information standard, including container reference, revision, status / suitability code, originator and date. Metadata shall be validated prior to publication.

F.14 Security and Access

Access to the CDE shall be role-based and controlled by the Information Manager. Permissions shall be assigned according to project role and shall be reviewed periodically. CDE security shall comply with Appendix L (Information Security).

F.15 Asset Information Workflow

Asset Information shall be developed, verified and validated through the CDE in accordance with Appendix D (AIR) and Appendix I (AIRM). Asset Information shall not be included within the Asset Information Model until validation has been completed.

F.16 Handover Workflow

At handover, verified information shall be published through the CDE and compiled into the Asset Information Model. The handover workflow shall confirm completeness, validation and acceptance of all required deliverables prior to transfer to the receiving asset owners.

F.17 CDE Administration

The APIM shall administer the CDE during the design stages, including configuration, permissions, workflow administration and auditing. CDE administration responsibilities during construction shall be defined within the Construction BIM Execution Plan.

APPENDIX G – MINIMUM MODEL REQUIREMENTS

G.1 Purpose

This appendix defines the minimum requirements for project models produced for the Cleaves Riverside Quarter – Phase II (a) Site Activation Works. All models shall be coordinated, classified, validated and suitable for federation, and shall support information delivery, asset information delivery and handover requirements.

G.2 General Model Requirements

- Models shall utilise the agreed project coordinate system.
- Models shall utilise consistent levels, grids and reference systems.
- Models shall be classified using Uniclass 2015.
- Models shall comply with the project naming convention.
- Models shall contain only the information necessary to satisfy the required Level of Information Need.
- Models shall be suitable for federation and coordination.

G.3 Coordinate System and Units

All discipline models shall be developed using a common, shared coordinate system based on Irish Transverse Mercator (ITM), with levels referenced to Malin Head datum. Project units shall be millimetres unless otherwise agreed for survey and geospatial information. Any changes to coordinates shall require approval from the Information Manager.

G.4 Classification

Models shall be classified using Uniclass 2015. The relevant Uniclass tables (including Ss Systems, Pr Products and EF Elements/Functions) shall be applied consistently to support coordination and asset information requirements.

G.5 Civil / Drainage / Roads Model Requirements

Civil models shall include site levels and earthworks, surface water and foul drainage networks, SuDS and attenuation features, road and pavement geometry, junctions, footpaths and active travel facilities. Information shall include asset identifiers, system names, classification information and asset information attributes.

G.6 Structural Model Requirements

Structural models shall include structural elements associated with flood defence, retaining structures, road structures and any associated infrastructure. Information shall include structural geometry, classification information and relevant metadata.

G.7 Geotechnical / Ground Model Requirements

Geotechnical models shall represent ground conditions, made ground, contamination zones and remediation requirements as relevant to the contaminated land and geoenvironmental scope. Information shall support design coordination, earthworks and risk management.

G.8 Electrical / Utilities Model Requirements

Electrical and utilities models shall include substations, distribution, public lighting, telecoms ducting and associated infrastructure. Information shall include equipment identifiers, system names, classification information and asset information attributes. Models shall support coordination with statutory undertaker requirements (ESB Networks, Uisce Éireann and telecoms providers).

G.9 Landscape / Public Realm Model Requirements

Landscape models shall include hard and soft landscape, paving, street furniture and planting. Information shall include classification information and asset information attributes to support operational and maintenance requirements.

G.10 Flood Defence Model Requirements

Flood defence models shall include defence walls, embankments, raised road formation and associated mechanical components. Information shall include defence levels (AOD), classification information and asset information attributes.

G.11 Model Segmentation

Models shall be segmented appropriately to improve performance, support coordination and support project delivery. Segmentation may be based upon discipline, area, zone, package or asset network. The agreed strategy shall be documented within the BIM Execution Plan.

G.12 Model Federation Requirements

Models shall be suitable for federation to support coordination, clash and interface detection, design review and construction planning. Models shall utilise shared coordinates, consistent levels and grids, appropriate metadata and agreed naming conventions.

G.13 Clash and Interface Detection Requirements

Models shall support clash and interface detection. The following categories shall be assessed: civil vs structural; civil vs utilities; utilities vs utilities; flood defence vs civil / structural; landscape vs civil / utilities; and interfaces with existing infrastructure and statutory services. Models shall contain sufficient information to facilitate resolution.

G.14 Asset Information Requirements

Models shall support the Asset Information Requirements defined within Appendix D. Maintainable assets shall contain, as a minimum, an asset identifier, asset name, asset type, classification and location information. Additional asset attributes shall be added progressively throughout the project lifecycle.

G.15 Level of Information Need Requirements

Models shall contain only the information necessary to satisfy the required Level of Information Need, considering geometric information, alphanumeric information and documentation information. Information shall be proportionate to the project stage in accordance with Appendix H.

G.16 Model Quality Requirements

Models shall be maintained in a healthy and efficient state. Models shall contain no significant corruption, no duplicate geometry, and shall maintain agreed coordinates, classifications and naming conventions. Project Participants shall remove redundant information and maintain efficient model structures.

G.17 Model Validation

Prior to issue, models shall be validated. Validation activities shall include coordinate validation, naming validation, classification validation, metadata validation and asset information validation.

G.18 Model Acceptance Criteria

Models shall not be accepted unless they comply with this EIR and project standards, and support federation, coordination and asset information requirements. Models failing validation may be rejected and returned for correction.

G.19 As-Constructed Model Requirements

At handover, as-constructed models shall represent installed conditions, maintain project coordinates, maintain asset information requirements and support the Asset Information Model. As-constructed models shall form part of the final AIM deliverables.

G.20 Summary

All project models shall be coordinated, classified, validated and suitable for federation, and shall support information delivery, asset information delivery and handover requirements. Compliance shall be mandatory for all Project Participants throughout the project lifecycle.

APPENDIX H – LEVEL OF INFORMATION NEED (LOIN) MATRIX

This project adopts ISO 7817 Level of Information Need (LOIN) to define information requirements. Information requirements shall be defined by the information necessary to support project decisions at each project stage rather than by predefined model maturity levels.

H.1 Purpose

This appendix defines the Level of Information Need (LOIN) requirements applicable to the project. In accordance with ISO 7817, LOIN comprises geometric information, alphanumeric information and documentation information. Information shall only be requested where it supports a defined project purpose.

H.2 LOIN Principles

- Information shall be purpose-led.
- Information shall be proportionate to the project stage.
- Information shall support decision making.
- Information shall support coordination.
- Information shall support asset information development.
- Information shall support handover requirements.

H.3 Project Stages

For the purposes of this project, the following stages shall apply. These align with the Capital Works Management Framework (CWMF) stages applicable to the project.

Stage	Description
DD	Preliminary Design / Due Diligence (CWMF Stage i)
SR	Statutory Review / Planning (CWMF Stage ii(b))
DB	D&B Specification & Tender Documents (CWMF Stage ii(c))
TN	Tender Process (CWMF Stage iii)
CN	Construction – Contractor Detailed Design & Build (CWMF Stage iv)
HO	Handover (CWMF Stage v)

H.4 Civil / Drainage / Roads Information Requirements

Information Category	DD	SR	DB	TN	CN	HO
Site / Earthworks Geometry	Prelim	Detailed	Detailed	Detailed	Installed	Verified
Drainage Network Geometry	Prelim	Detailed	Detailed	Detailed	Installed	Verified
Road / Pavement Geometry	Prelim	Detailed	Detailed	Detailed	Installed	Verified
Invert / Cover Levels	Prelim	Detailed	Detailed	Detailed	Complete	Verified
Classification	Prelim	Detailed	Detailed	Detailed	Complete	Verified
Asset Information	No	Partial	Partial	Partial	Complete	Verified

H.5 Structural / Flood Defence Information Requirements

Information Category	DD	SR	DB	TN	CN	HO
Structural Geometry	Prelim	Detailed	Detailed	Detailed	Installed	Verified
Flood Defence Levels (AOD)	Prelim	Detailed	Detailed	Detailed	Complete	Verified
Structural Metadata	Prelim	Detailed	Detailed	Detailed	Complete	Verified
Asset Information	No	Partial	Partial	Partial	Complete	Verified

H.6 Geotechnical / Ground Information Requirements

Information Category	DD	SR	DB	TN	CN	HO
Ground Model	Prelim	Detailed	Detailed	Detailed	Updated	Final
Contamination / Made Ground	Prelim	Detailed	Detailed	Detailed	Updated	Final
Remediation Information	No	Prelim	Detailed	Detailed	Complete	Verified

H.7 Electrical / Utilities Information Requirements

Information Category	DD	SR	DB	TN	CN	HO
Utilities / Ducting Geometry	Prelim	Detailed	Detailed	Detailed	Installed	Verified
Substation / Distribution Geometry	Prelim	Detailed	Detailed	Detailed	Installed	Verified
Public Lighting Geometry	Prelim	Detailed	Detailed	Detailed	Installed	Verified
Equipment Identifiers	No	Prelim	Detailed	Detailed	Complete	Verified
Asset Information	No	Partial	Partial	Partial	Complete	Verified

H.8 Landscape / Public Realm Information Requirements

Information Category	DD	SR	DB	TN	CN	HO
Landscape Layout	Prelim	Detailed	Detailed	Detailed	Installed	Verified
Planting Information	No	Prelim	Detailed	Detailed	Complete	Verified
Street Furniture	No	Prelim	Detailed	Detailed	Installed	Verified
Asset Information	No	Partial	Partial	Partial	Complete	Verified

H.9 Documentation Information Requirements

Documentation Requirement	DD	SR	DB	TN	CN	HO
Design Reports	✓	✓	✓	✓	Updated	Final
Specifications	Prelim	Detailed	Tender	Tender	Updated	Record
Coordination Reports	✓	✓	✓	✓	✓	Final
Asset Registers	No	Prelim	Prelim	Prelim	Complete	Verified
O&M Information	No	No	No	No	Partial	Complete
Commissioning Information	No	No	No	No	Partial	Complete

Documentation Requirement	DD	SR	DB	TN	CN	HO
Warranties	No	No	No	No	Partial	Complete

H.10 Asset Information Development Matrix

Asset Information Attribute	DD	SR	DB	TN	CN	HO
Asset Identifier	Prelim	Detailed	Detailed	Detailed	Complete	Verified
Asset Name / Type	Prelim	Detailed	Detailed	Detailed	Complete	Verified
Manufacturer	No	Prelim	Prelim	Prelim	Complete	Verified
Model / Product Ref.	No	Prelim	Prelim	Prelim	Complete	Verified
Serial Number	No	No	No	No	Complete	Verified
Classification	Prelim	Detailed	Detailed	Detailed	Complete	Verified
Location	Prelim	Detailed	Detailed	Detailed	Complete	Verified
Warranty Information	No	No	No	No	Complete	Verified
Maintenance Information	No	No	No	No	Complete	Verified

H.11 Handover Requirements

At Handover (HO), all information shall be verified, comprising verified as-constructed (geometric) information, verified Asset Information (alphanumeric), and verified O&M, commissioning and warranty (documentation) information. All information shall be suitable for incorporation into the Asset Information Model (AIM).

H.12 Summary

The Level of Information Need requirements defined within this appendix establish the minimum information requirements for each discipline and each project stage. Project Participants shall not provide less information than defined within this matrix without approval from the Information Manager. The matrix shall be reviewed following Contractor appointment and updated where required to support construction and operational requirements.

APPENDIX I – ASSET INFORMATION RESPONSIBILITY MATRIX (AIRM)

I.1 Purpose

This Asset Information Responsibility Matrix (AIRM) defines the responsibilities for the production, verification, coordination, validation and handover of Asset Information throughout the project lifecycle. The purpose is to identify maintainable assets, define asset information ownership and production responsibilities, define verification and handover responsibilities, and support the delivery of the Asset Information Model (AIM).

This appendix shall be read in conjunction with the EIR, the Asset Information Requirements (Appendix D), the BIM Execution Plan, the Responsibility Matrix (Appendix E) and the Master Information Delivery Plan.

I.2 Asset Information Principles

- Information shall be attributable to an identified asset.
- Asset Information shall be developed progressively.
- Information shall be validated before acceptance.
- Information shall support operation and maintenance by the receiving asset owners.
- Responsibility for information shall be clearly assigned.

I.3 Responsibility Codes

Code	Definition
P	Produce
V	Verify
C	Coordinate
A	Approve
AC	Accept
I	Inform

I.4 Asset Information Governance

Appointing Party

Limerick Twenty Thirty DAC shall define and approve Asset Information Requirements (in coordination with the receiving asset owners) and accept final Asset Information deliverables.

Information Manager

The PIM shall coordinate Asset Information governance, audit Asset Information completeness and support validation activities. The PIM shall not assume responsibility for producing Asset Information.

Contractor

The D&B Contractor shall coordinate asset information collection, verify asset information completeness and deliver the Asset Information Model.

I.5 Drainage, Water & Foul Asset Responsibilities

Asset Type	Civil	Contractor	PIM	LTT
Surface Water Networks	P	V	C	AC
SuDS / Attenuation	P	V	C	AC
Foul Drainage	P	V	C	AC
Watermain Connections	P	V	C	AC

Required information: asset identifier, asset type, material, size, invert/cover levels, classification, location, maintenance requirements. Information requirements shall align with Limerick City & County Council and Uisce Éireann.

I.6 Flood Defence Asset Responsibilities

Responsibility	Organisation
Design Information	SPDT – Civil / Structural Engineer
Detailed Design / Installation Verification	D&B Contractor
Information Audit	PIM
Acceptance	LTT (and LCCC / OPW as receiving owners)

Required information: asset identifier, asset type, defence level (AOD), material, classification, location, associated mechanical components, inspection and maintenance requirements.

I.7 Road & Transport Asset Responsibilities

Responsibility	Organisation
Design Information	SPDT – Civil Engineer
Detailed Design / Installation Verification	D&B Contractor
Information Audit	PIM
Acceptance	LTT (and LCCC as receiving owner)

Required information: asset identifier, asset type, pavement build-up, classification, location, road markings, signage, traffic signal equipment (where applicable), maintenance requirements.

I.8 Electrical, ESB & Telecoms Asset Responsibilities

Responsibility	Organisation
Design Information	SPDT – Electrical Engineer
Detailed Design / Installation Verification	D&B Contractor
Information Audit	PIM
Acceptance	LTT (and ESB Networks / providers as receiving owners)

Required information: asset identifier, asset type, manufacturer, model number, rating/capacity, classification, location, warranty information, maintenance requirements.

I.9 Landscape & Public Realm Asset Responsibilities

Responsibility	Organisation
Design Information	SPDT – Landscape Architect
Detailed Design / Installation Verification	D&B Contractor
Information Audit	PIM
Acceptance	LTT (and LCCC as receiving owner)

Required information: asset identifier, asset type, species/material/product reference, classification, location, establishment/maintenance requirements, warranty information where applicable.

I.10 Asset Information Development Matrix

Information Attribute	DD	SR	DB	TN	CN	HO
Asset Identifier	P	P	P	P	C	V
Asset Name / Type	P	P	P	P	C	V
Manufacturer	-	P	P	P	C	V
Model / Product Ref.	-	P	P	P	C	V
Serial Number	-	-	-	-	P	V
Classification	P	P	P	P	C	V
Location	P	P	P	P	C	V
Warranty Information	-	-	-	-	P	V
Maintenance Information	-	-	-	-	P	V

Legend: P = Populate, C = Confirm, V = Verify.

I.11 Asset Information Validation Workflow

The following workflow shall apply: Information Creation; Discipline Verification; Contractor Verification; Information Audit; Acceptance Review; AIM Inclusion. No Asset Information shall be included within the AIM until validation has been completed.

I.12 Asset Information Acceptance Criteria

Asset Information shall not be accepted unless, as a minimum, the asset identifier, asset type, classification, location, and applicable warranty and O&M information exist. Incomplete asset information shall be returned for correction.

I.13 Asset Information Model (AIM) Responsibilities

Activity	Design Team	Contractor	PIM	LTT
Asset Information Production	P	C	I	I
Asset Information Verification	I	P	C	I
Asset Information Audit	I	I	P	I
AIM Compilation	I	P	C	I
AIM Acceptance	I	I	C	AC

I.14 Final Handover Deliverables

The D&B Contractor shall provide verified as-constructed models (graphical); asset registers and asset data (alphanumeric); and O&M manuals, warranties, certificates and commissioning records (documentation). The complete information set shall form the Asset Information Model.

I.15 Future Review

This Asset Information Responsibility Matrix shall be reviewed following Contractor appointment, following confirmation of the receiving asset owners' detailed requirements, and where project scope or information requirements change.

APPENDIX J – MODEL FEDERATION & DIGITAL COORDINATION

J.1 Purpose

This appendix defines the model federation and digital coordination requirements for the Cleeves Riverside Quarter – Phase II (a) Site Activation Works. The purpose is to ensure that discipline models are coordinated, that interfaces and clashes are identified and resolved, and that coordinated information supports design development, construction planning and delivery.

J.2 Digital Coordinator

During the design stages, the SPDT Lead (Civil Engineer) shall act as Digital Coordinator. Following appointment, the D&B Contractor shall assume the Digital Coordinator role for the construction stages. The PIM shall support and audit coordination activities as Information Manager.

J.3 Coordination Principles

- Coordination shall be undertaken using federated models.
- Each Task Team shall retain ownership of its own model.
- Federation shall not transfer design responsibility.
- Interfaces and clashes shall be identified, recorded and resolved.
- Coordination shall be undertaken throughout the project lifecycle.

J.4 Federation Models

Federated models shall be produced by combining the discipline models. The federation strategy shall reflect the infrastructure disciplines, including civil/drainage/roads, structural, geotechnical/ground, electrical/utilities, landscape/public realm and flood defence. Federation requirements shall be defined within the BIM Execution Plan.

J.5 Coordination Cycle

Coordination shall follow a defined cycle: model sharing; federation; clash and interface detection; issue assignment; resolution; and review. The coordination cycle shall align with the information exchange frequencies defined within the MIDP.

J.6 Coordination Meetings

Digital coordination meetings shall be held at a frequency appropriate to the project stage. Fortnightly coordination is anticipated during active design coordination periods. Meetings shall review outstanding issues, coordination progress and information delivery status.

J.7 Clash and Interface Categories

The following clash and interface categories shall be assessed.

Category	Examples
Civil vs Structural	Drainage vs flood defence structures, roads vs retaining structures
Civil vs Utilities	Drainage vs ducting, services crossings and clearances
Utilities vs Utilities	ESB, telecoms, water and foul service conflicts

Category	Examples
Flood Defence Interfaces	Defence levels vs road formation and adjacent works
Landscape Interfaces	Planting and street furniture vs services and drainage
Existing Infrastructure	Interfaces with existing roads, services and statutory undertaker assets

J.8 Clash Prioritisation

Clashes and interfaces shall be prioritised according to their significance to design, construction and cost. The prioritisation approach shall be agreed and documented within the BIM Execution Plan.

J.9 Tolerances

Clash detection tolerances shall be agreed and documented within the BIM Execution Plan to suit the nature of infrastructure works. Tolerances shall reflect the scale and discipline of the models being assessed.

J.10 Issue Management

Coordination issues shall be managed through the Common Data Environment. Each issue shall have a unique identifier, description, responsible party, due date and status. Issue resolution shall be tracked to closure.

J.11 Coordination Reporting

Coordination reports shall be produced at each coordination cycle, identifying outstanding issues, resolved issues and coordination status. Reports shall be issued through the Common Data Environment.

J.12 Construction Coordination

Following appointment, the D&B Contractor shall assume responsibility for construction-stage digital coordination, including coordination of detailed design, specialist contractor information and temporary works where modelled. Construction coordination procedures shall be defined within the Construction BIM Execution Plan.

J.13 Summary

Digital coordination shall be undertaken throughout the project lifecycle to identify and resolve interfaces and clashes, support design development and construction planning, and deliver coordinated information. Compliance shall be mandatory for all Project Participants.

APPENDIX K – INFORMATION QUALITY ASSURANCE, VALIDATION & ACCEPTANCE

K.1 Purpose

This appendix defines the information quality assurance, validation and acceptance requirements for the Cleaves Riverside Quarter – Phase II (a) Site Activation Works. The purpose is to ensure that project information is accurate, compliant, coordinated and suitable for its intended use prior to sharing, publication and acceptance.

K.2 Quality Assurance Principles

- Information shall be checked prior to sharing and publication.
- Information shall comply with project standards and this EIR.
- Validation shall be evidenced and recorded within the CDE.
- Information failing validation shall be corrected before progression.
- Quality assurance shall be undertaken throughout the project lifecycle.

K.3 Quality Assurance Responsibilities

Each Task Team shall be responsible for the quality assurance of its own information. The Lead Appointed Party shall coordinate quality assurance across the team. The APIM shall undertake periodic information audits.

K.4 Naming Validation

Information containers shall be validated for compliance with the project naming convention prior to sharing and publication. Non-compliant containers shall be corrected before progression.

K.5 Metadata Validation

Information containers shall carry the required metadata, including container reference, revision, status / suitability code, originator and date. Metadata shall be validated prior to publication.

K.6 Classification Validation

Information shall be validated for compliance with Uniclass 2015 classification requirements. Classification shall be consistent across models, drawings and asset registers.

K.7 Model Validation

Models shall be validated for coordinate compliance, naming compliance, classification compliance, metadata completeness and asset information completeness, in accordance with Appendix G.

K.8 Clash and Interface Validation

Coordination information shall be validated to confirm that clash and interface detection has been undertaken and that outstanding issues have been recorded and assigned, in accordance with Appendix J.

K.9 Asset Information Validation

Asset Information shall be validated for completeness, consistency, location accuracy and documentation, in accordance with Appendix D and Appendix I. Asset Information failing validation shall be returned for correction.

K.10 Audit Frequencies

The APIM shall undertake periodic information audits. Audit frequency shall be agreed and documented within the BIM Execution Plan, and shall be increased around key information exchanges and stage gate reviews.

K.11 Non-Conformance Management

Where information does not conform to project requirements, a non-conformance shall be recorded, assigned to the responsible party, and tracked to resolution. Repeated non-conformances shall be escalated to the Lead Appointed Party and Appointing Party.

K.12 Acceptance Criteria

Information shall not be accepted unless it complies with this EIR and project standards, carries the required metadata and classification, has been validated, and is suitable for its intended use. Acceptance shall not transfer design responsibility.

K.13 Rejection Criteria

Information may be rejected where it fails validation, does not comply with project standards, is incomplete, or is unsuitable for its intended use. Rejected information shall be returned for correction with documented reasons.

K.14 Stage Gate Reviews

Information shall be reviewed at stage gates aligned to the CWMF stages (Preliminary/Due Diligence, Statutory Review, D&B Specification & Tender, Tender, Construction and Handover). Each stage gate review shall confirm the completeness, compliance and acceptance of the information required at that stage.

K.15 Handover Validation

Prior to handover, all information shall be validated to confirm completeness, compliance and suitability for incorporation into the Asset Information Model. Handover validation shall confirm that as-constructed information, asset information and required documentation have been verified and accepted.

K.16 Summary

Information quality assurance, validation and acceptance shall be undertaken throughout the project lifecycle to ensure that project information is accurate, compliant and suitable for its intended use. Compliance shall be mandatory for all Project Participants.

APPENDIX L – INFORMATION SECURITY

L.1 Purpose

This appendix defines the information security requirements for the Cleeves Riverside Quarter – Phase II (a) Site Activation Works, supporting compliance with ISO 19650-5. The purpose is to protect project information, reduce information security risks and protect operationally sensitive information relating to the infrastructure assets.

L.2 Security Principles

- Project information shall be protected against unauthorised access, modification and distribution.
- Access shall be controlled and role-based.
- Information sharing shall be undertaken through approved workflows.
- Security shall be proportionate to the sensitivity of the information.
- Security incidents shall be reported and managed.

L.3 Security Responsibilities

The APIM shall establish and manage information security procedures during the design stages. Each Project Participant shall comply with project security requirements and protect information within its own environment. The Appointing Party may impose additional controls.

L.4 Information Classification

Project information shall be classified to indicate its sensitivity and the controls required. Categories shall include general project information, commercially sensitive information, and operationally or security-sensitive information (which may include certain utilities, flood defence and infrastructure asset information).

L.5 CDE Security and Access

Access to the Common Data Environment shall be role-based and controlled by the Information Manager. Permissions shall be assigned according to project role and reviewed periodically. The CDE shall maintain an audit trail of information access and changes.

L.6 Information Sharing

Internal Sharing

All information sharing shall be undertaken through approved CDE workflows.

External Sharing

Project information shall not be shared with external organisations (including third-party consultants, suppliers, contractors not appointed to the project, or for public distribution) without appropriate authorisation.

File Transfer

Project information shall be exchanged through the Common Data Environment wherever practicable. The use of uncontrolled file-sharing platforms is discouraged.

L.7 Model Security

Project models shall be treated as controlled information. Project Participants shall prevent unauthorised access, modification and distribution, and shall control model exports.

L.8 Asset Information Security

Asset Information may contain operationally sensitive information relating to infrastructure assets owned by Limerick City & County Council, Uisce Éireann, ESB Networks and other receiving owners. Project Participants shall ensure that such information is controlled, access is restricted where required, and information is only provided to authorised parties.

L.9 Mobile Devices and Credentials

Project information accessed through mobile devices shall be protected through appropriate security controls. Users shall maintain device security, protect login credentials, avoid sharing credentials, and report lost devices or compromised credentials immediately.

L.10 Information Retention

Project information shall be retained in accordance with contractual, project and applicable legal requirements. Information shall not be deleted without appropriate authorisation.

L.11 Security Incident Management

Security incidents (including unauthorised access, information loss, corruption, unauthorised disclosure and malware incidents affecting project information) shall be reported immediately to the Information Manager and the Appointing Party. Reports shall include a description of the incident, the date and time, the potential impact and the actions taken.

L.12 Information Backups

Project information stored within the Common Data Environment shall be protected through the platform's managed infrastructure. Project Participants shall remain responsible for protecting information held within their own environments.

L.13 Export Controls and Third-Party Information

Information exports shall be limited to project purposes and shall be authorised and controlled. Where project information incorporates third-party content, Project Participants shall respect licensing requirements, protect confidential information and comply with applicable contractual obligations.

L.14 Security Reviews

The Information Manager may undertake periodic reviews of information security compliance, assessing user access permissions, information sharing practices, compliance with project procedures and security incident management. Findings shall be reported to the Project Team.

L.15 Security at Handover

Prior to final handover, the Project Team shall ensure that information is complete, access permissions are reviewed, sensitive information is appropriately managed and Asset Information is suitable for operational use. The Appointing Party and receiving asset owners shall determine final access arrangements following handover.

L.16 Summary

The information security requirements established within this appendix are intended to protect project information, support ISO 19650-5 compliance, reduce information security risks and protect operational information. All Project Participants shall comply with these requirements throughout the project lifecycle.

APPENDIX M – BIM EXECUTION PLAN (BEP) REQUIREMENTS

M.1 Purpose

This appendix defines the minimum requirements for BIM Execution Plans (BEPs) produced for the Cleaves Riverside Quarter – Phase II (a) Site Activation Works. The purpose of the BEP is to demonstrate how Project Participants intend to satisfy the requirements of the Exchange Information Requirements (EIR), the Asset Information Requirements (AIR), the information management procedures and the project information standards. The BEP shall describe the processes, resources and procedures that will be implemented to deliver project information.

M.2 Types of BIM Execution Plan

BEP Type	Purpose
Design BEP	Design Stage Information Delivery (SPDT)
Construction BEP	Construction Stage Information Delivery (D&B Contractor)
Specialist Contractor BEP	Package-Specific Information Delivery
Handover Information Plan	Asset Information and AIM Delivery

The Appointing Party reserves the right to request additional plans where required.

M.3 General Requirements

All BEPs shall address the requirements of this EIR, be project-specific, be maintained throughout the project lifecycle, be reviewed following significant project changes, and be issued through the Common Data Environment. Generic corporate BIM plans shall not be considered sufficient.

M.4 Minimum BEP Structure

The minimum BEP structure shall comprise: Introduction; Project Information; Team Structure; Roles and Responsibilities; Information Management Strategy; Common Data Environment Strategy; Information Delivery Planning; Digital Coordination Strategy; Model Production Strategy; Asset Information Strategy; Quality Assurance Procedures; Information Security Procedures; Information Exchange Procedures; and Handover Strategy.

M.5 Project Information Section

The BEP shall identify the project name, project reference, client, Lead Appointed Party, Information Manager, design team members and Contractor (where applicable). The project information shall remain current throughout the project lifecycle.

M.6 Team Structure

The BEP shall include an organisational structure identifying information management roles, design team roles, coordination roles, asset information roles and construction information roles, clearly identifying reporting lines and responsibilities.

M.7 Roles and Responsibilities

The BEP shall define information production, review, approval, coordination and asset information responsibilities. Responsibilities shall align with the Responsibility Matrix (Appendix E) contained within this EIR.

M.8 Information Management Strategy

The BEP shall describe how the project team will implement ISO 19650 requirements and information production, review, approval and acceptance procedures. The strategy shall demonstrate compliance with this EIR.

M.9 Common Data Environment Strategy

The BEP shall define the information states (Work In Progress, Shared, Published, Archive), the project-specific folder structure, role-based permissions, and the review, approval and publication workflow procedures, in accordance with Appendix F.

M.10 Information Delivery Planning

The BEP shall define MIDP and TIDP procedures, delivery milestones, review milestones and information exchange dates, and shall include a project-specific MIDP, in accordance with Appendix N.

M.11 Digital Coordination Strategy

The BEP shall define coordination, federation, clash and interface detection, issue management and coordination meeting procedures. The strategy shall align with Appendix J of this EIR.

M.12 Model Production Strategy

The BEP shall define the authoring platforms used by each discipline, the model segmentation strategy, coordinate management (shared coordinates and model positioning to ITM / Malin Head datum) and the application of Uniclass 2015 classification, in accordance with Appendix G.

M.13 Level of Information Need Strategy

The BEP shall demonstrate how the Project Team intends to satisfy the LOIN Matrix (Appendix H), the project information requirements and the asset information requirements.

M.14 Asset Information Strategy

The BEP shall define asset information production, verification and coordination procedures and AIM development procedures. The strategy shall align with the AIR (Appendix D) and the AIRM (Appendix I).

M.15 Quality Assurance Procedures

The BEP shall define quality control, quality assurance, model validation and asset information validation procedures. The procedures shall align with Appendix K.

M.16 Information Security Procedures

The BEP shall describe user access controls, information sharing procedures, information security responsibilities and incident management procedures. The strategy shall align with Appendix L.

M.17 Information Exchange Procedures

The BEP shall define exchange frequencies, formats, workflows and validation procedures. All exchanges shall occur through the Common Data Environment unless otherwise approved, in accordance with Appendix O.

M.18 Construction BIM Execution Plan Requirements

Following appointment, the D&B Contractor shall produce a Construction BEP additionally defining construction information workflows, specialist contractor information requirements, construction coordination procedures, asset information collection procedures and handover procedures.

M.19 Specialist Contractor BIM Execution Plans

Where requested by the Contractor or Appointing Party, specialist contractors shall prepare package-specific BIM Execution Plans. Typical packages may include drainage and water services, road and pavement works, flood defence works, electrical and utilities works, telecoms infrastructure and landscape works.

M.20 Handover Information Plan

Prior to practical completion, the Contractor shall prepare a Handover Information Plan identifying remaining information deliverables, Asset Information status, validation activities and AIM delivery procedures.

M.21 BEP Review, Approval and Revision

BEPs shall be reviewed by the Lead Appointed Party, the Information Manager and the Appointing Party (where required), with review comments resolved prior to approval. The BEP shall be maintained throughout the project lifecycle and updated following major project, team, software or information management changes. The latest approved version shall be maintained within the CDE.

M.22 BEP Acceptance Criteria

A BEP shall not be considered acceptable unless it demonstrates compliance with this EIR, the project information standards, the AIR requirements, the coordination requirements and the information quality requirements. The Appointing Party reserves the right to reject inadequate BEPs.

M.23 Summary

The BIM Execution Plan shall be the primary delivery document describing how Project Participants will satisfy the requirements of this EIR. The BEP shall remain a live document throughout the project lifecycle. Compliance with the approved BEP shall be mandatory for all Project Participants.

APPENDIX N – MASTER INFORMATION DELIVERY PLAN (MIDP) AND TASK INFORMATION DELIVERY PLAN (TIDP) REQUIREMENTS

N.1 Purpose

This appendix defines the requirements for Master Information Delivery Plans (MIDPs), Task Information Delivery Plans (TIDPs), and information delivery planning, monitoring and reporting for the Cleeves Riverside Quarter – Phase II (a) Site Activation Works. The purpose of information delivery planning is to ensure that project information is produced and exchanged at the appropriate time to support project decision-making and delivery.

This appendix shall be read in conjunction with the EIR, the BIM Execution Plan (Appendix M), the Information Delivery Milestones (Appendix A) and the BIM Deliverables Schedule (Appendix B).

N.2 Information Delivery Planning Principles

- Information delivery shall be planned.
- Information delivery shall support project decision-making.
- Information delivery shall support project milestones.
- Information delivery responsibilities shall be clearly defined.
- Information delivery shall be monitored throughout the project lifecycle.

N.3 Information Delivery Planning Hierarchy

The following hierarchy shall apply. The Exchange Information Requirements (EIR) define what information is required; the BIM Execution Plan (BEP) defines how information will be delivered; the Master Information Delivery Plan (MIDP) defines when information will be delivered; and the Task Information Delivery Plans (TIDPs) define discipline-specific delivery commitments.

N.4 Master Information Delivery Plan (MIDP)

Purpose

The MIDP shall provide the overall project information delivery schedule. The MIDP shall consolidate all TIDPs and define delivery, review and approval milestones and information exchange dates.

Responsibility

During design stages, the SPDT Lead shall prepare and maintain the MIDP. During construction, the D&B Contractor shall prepare and maintain the MIDP. The PIM shall monitor compliance with the MIDP.

N.5 MIDP Minimum Content

Field	Requirement
Deliverable ID	Mandatory
Deliverable Name	Mandatory
Information Container Reference	Mandatory
Originating Organisation	Mandatory

Field	Requirement
Receiving Organisation	Mandatory
Project Stage	Mandatory
Planned Delivery Date	Mandatory
Review Date	Mandatory
Approval Date	Mandatory
Status	Mandatory

N.6 MIDP Deliverable Coding

Each deliverable shall be assigned a unique identifier (for example MIDP-001, MIDP-002, MIDP-003). Alternative coding systems may be utilised where agreed by the Information Manager.

N.7 Task Information Delivery Plans (TIDPs)

Purpose

Each Project Participant shall prepare a TIDP identifying discipline deliverables, delivery dates, internal review activities, approval activities and dependencies.

Responsibility

The following organisations shall prepare TIDPs: SPDT Civil Engineer; SPDT Structural Engineer; SPDT Geotechnical / Geoenvironmental Engineer; SPDT Electrical Engineer; SPDT Landscape Architect; the D&B Contractor (following appointment); and specialist contractors (where required).

N.8 TIDP Minimum Content

Field	Requirement
Deliverable ID	Mandatory
Deliverable Description	Mandatory
Responsible Author	Mandatory
Internal Reviewer	Mandatory
Delivery Date	Mandatory
Information State	Mandatory
Suitability Code	Mandatory
Dependency Information	Mandatory

N.9 Information Delivery States

State	Description
WIP	Information under development
Shared	Information suitable for coordination
Published	Authorised Information
Archive	Historical Information

N.10 Delivery Milestones

The MIDP shall align with the Information Delivery Milestones defined within Appendix A. Minimum milestones shall align with the CWMF stages applicable to the project.

Stage	Milestone
DD	Preliminary Design / Due Diligence Information Exchange
SR	Statutory Review / Planning Information Exchange
DB	D&B Specification & Tender Documents Issue
TN	Tender Information Issue
CN	Construction Information Exchange
HO	Handover Information Submission

N.11 Information Dependencies

The MIDP and TIDPs shall identify critical dependencies. Examples include survey and ground information required before drainage and earthworks design; civil design required before utilities coordination; and as-constructed information required before asset register population. Dependencies shall be actively managed.

N.12 Information Exchange Planning

The MIDP shall define planned information exchanges. Unless otherwise agreed, the following indicative frequencies shall apply.

Deliverable Type	Frequency
Discipline Models	Fortnightly
Federated Models	Fortnightly
Clash / Interface Reports	Fortnightly
Coordination Reports	Fortnightly
Asset Information Updates	Monthly

N.13 Review and Approval Activities

The MIDP shall identify authoring activities (creation of information), checking activities (verification), review activities (project review), approval activities (formal approval) and acceptance activities (client acceptance).

N.14 Progress Monitoring

Status	Description
Planned	Not Started
In Progress	Under Development
Submitted	Issued for Review
Approved	Accepted for Use
Complete	Fully Delivered

N.15 Review Frequency

The MIDP and each TIDP shall be reviewed monthly and following major project, programme or team changes. Updated versions shall be issued through the Common Data Environment and coordinated through the MIDP.

N.16 Information Delivery Reporting and Risk

The Lead Appointed Party shall provide periodic information delivery reports identifying deliverables due, deliverables submitted, late deliverables and risks to information delivery. Reports shall be issued through the Common Data Environment. The MIDP shall be used to identify and mitigate information delivery risks, including delayed production, delayed reviews, missing dependencies and resource constraints.

N.17 Asset and Handover Information Planning

The MIDP shall include planning for Asset Information development, asset register development, O&M information delivery and AIM development. The MIDP shall identify all handover deliverables, including as-constructed models and drawings (graphical), asset registers and asset data (alphanumeric), and O&M manuals, warranties, certificates and commissioning records (documentation).

N.18 Summary

Information delivery planning shall ensure that project information is produced and exchanged at the appropriate time to support project decision-making and delivery. The MIDP and TIDPs shall be maintained throughout the project lifecycle. Compliance shall be mandatory for all Project Participants.

APPENDIX O – INFORMATION EXCHANGE SCHEDULE

O.1 Purpose

This appendix defines the information exchange schedule for the Cleeves Riverside Quarter – Phase II (a) Site Activation Works. The purpose is to identify the key information exchanges, the providing and receiving parties, and the information to be exchanged at each project stage. All exchanges shall be undertaken through the Common Data Environment.

O.2 Exchange Principles

- Information exchanges shall be planned and scheduled within the MIDP.
- All formal exchanges shall occur through the Common Data Environment.
- Information shall be validated prior to exchange, in accordance with Appendix K.
- Each exchange shall carry the required metadata and suitability code.
- Exchanges shall align with the Information Delivery Milestones (Appendix A).

O.3 Project Stages

Information exchanges shall align with the CWMF stages: Preliminary Design / Due Diligence (DD); Statutory Review / Planning (SR); D&B Specification & Tender Documents (DB); Tender Process (TN); Construction (CN); and Handover (HO).

O.4 Information Exchanges by Stage

The following table identifies the key information exchanges at each project stage. During design stages the provider is the SPDT; during construction and handover the provider is the D&B Contractor.

Stage	Information Exchanged	Provider	Recipient
DD	Preliminary design models, reports and survey/ground information	SPDT	LTT / PM / APIM
SR	Statutory review / planning information and supporting models	SPDT	LTT / PM / APIM
DB	D&B specification, employer's requirements and tender models	SPDT	LTT / PM / APIM
TN	Tender information and clarifications	LTT / SPDT	Tenderers / LTT
CN	Detailed design, construction and coordination information	D&B Contractor	LTT / PM / APIM
HO	As-constructed models, asset information and AIM deliverables	D&B Contractor	LTT / Asset Owners

O.5 Exchange Matrix

For each exchange the MIDP shall record the deliverable, the providing organisation, the receiving organisation, the planned date, the information state and the suitability code. The exchange matrix shall be maintained throughout the project lifecycle.

O.6 Design Stage Exchanges

During the design stages, the SPDT shall provide discipline models, federated models, clash and interface reports, coordination reports, design reports, drawings

and specifications at the frequencies defined within the MIDP. Recipients shall include LTT, the Project Manager and the APIM.

O.7 Tender Stage Exchanges

During the tender stage, tender information (including the D&B specification, employer's requirements, reference design models and supporting information) shall be issued to tenderers through the agreed process. Tender clarifications shall be managed and recorded.

O.8 Construction Stage Exchanges

During construction, the D&B Contractor shall provide detailed design information, construction information, coordination information, progressively developed asset information and as-constructed information at the frequencies defined within the Construction BEP and MIDP. Recipients shall include LTT, the Project Manager and the APIM.

O.9 Handover Exchanges

At handover, the D&B Contractor shall provide verified as-constructed models and drawings, verified asset registers and asset data, and verified O&M, commissioning and warranty documentation. The complete set shall form the Asset Information Model (AIM) and shall be transferred to LTT and the receiving asset owners.

O.10 Exchange Deliverables

Deliverable	Format
Discipline / Federated Models	Native / IFC4
Drawings	PDF
Reports & Specifications	PDF
Asset Registers	XLSX / CSV (or agreed structured format)
O&M Documentation	PDF / PDF-A
Coordination / Clash Reports	PDF / native

O.11 Exchange Validation

Each information exchange shall be validated prior to issue in accordance with Appendix K, confirming file integrity, naming compliance, classification compliance, coordinate compliance and metadata completeness. Exchanges that fail validation shall be corrected before publication.

O.12 Summary

The information exchange schedule shall ensure that information is provided to the right parties, in the right format, at the right time, throughout the project lifecycle. The schedule shall be maintained within the MIDP and reviewed at each project stage. Compliance shall be mandatory for all Project Participants.