

# 6033 - Steel Museum

## BIM Execution Plan

Ace Capital Projects Ltd

19 February 2024

0003



# Notice

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## Client signoff

|                       |                                                      |
|-----------------------|------------------------------------------------------|
| Client                | Ace Capital Projects Ltd                             |
| Project               | 6033 - Steel Museum                                  |
| Job number            | 6033-ACECP-CD-XX-RP-C-0003-Rev01- BIM EXECUTION PLAN |
| Client signature/date |                                                      |

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## Introduction

This BIM Execution Plan outlines the standards and policies put into place by Blueprint Construction Ltd. to fulfil the clients requirements outline within the Exchange Information Requirements and this document is a more detailed version of our BIM strategy. This document shows the critical standards followed in order to achieve a successful BIM maturity throughout the project lifecycle. Without compromising the security or effectiveness of the project delivery or timescale.

# 1. Purpose of BIM Execution Plan

This BIM Execution plan is confirming the project delivery teams BIM processes which includes all the Information Management processes. ISO 19650:2-2018 defines Information Management throughout the delivery phase of assets as per Figure 1 (BSI Standards Publication, 2021).

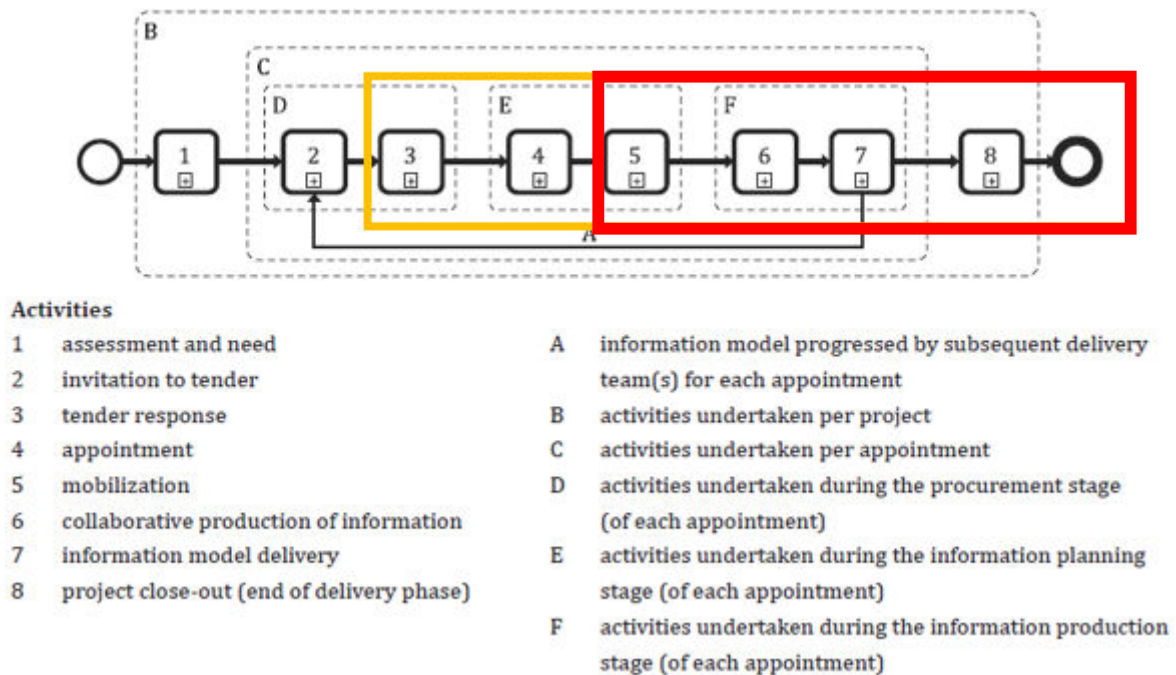


**Figure 1-1 - Information Management Process Through Delivery Phase of Assets (BSI Standards Publication, 2021).**

In order to comply with the EIR's proposed by the client the BEP is to describe all the information transfer and delivery processes throughout the project, following this every time the BEP is amended, all parties involved including the new and existing must be part of the approval of the document.

## 1.1.1. Terms & Definitions

**Exchange Information Requirements (EIR)** – information requirement from the client in relation to specific project

**Asset Information Requirements (AIR)** – asset information in relation to the operation of each individual assets

**Common Data Environment (CDE)** – an agreed location for information sharing, managing & updating through a managed process.

**Building Information Modelling (BIM)** - shared digital representation of a built asset to facilitate design, construction, and operation process.

**Project Information** – information specific to the project that is utilized.

**Federated Model** – Multi-disciplinary model incorporating multiple designs for clash detection purposes, visualisation & construction information.

**Client** – responsible for approving the brief and project deliverables.

## 1.2. General Notes

The BEP can be found at the agreed SharePoint for the project which is located on the teams page, which currently all existing parties have access to: [https://uowtsd.sharepoint.com/teams/ACBA6003IntegratedProject2023-24\\_GRP-BlueprintConstruction-SteelMuseum/Shared%20Documents/Blueprint%20Construction%20-%20Steel%20Museum/6033%20-%20Steel%20Museum/30%20-%20Documents/Current%20Docs/BIM/6033-ACECP-CD-XX-RP-C-0003-Rev01-BIM%20EXECUTION%20PLAN.docx](https://uowtsd.sharepoint.com/teams/ACBA6003IntegratedProject2023-24_GRP-BlueprintConstruction-SteelMuseum/Shared%20Documents/Blueprint%20Construction%20-%20Steel%20Museum/6033%20-%20Steel%20Museum/30%20-%20Documents/Current%20Docs/BIM/6033-ACECP-CD-XX-RP-C-0003-Rev01-BIM%20EXECUTION%20PLAN.docx)

This BEP is issued under the Review procedure and the Originate, Check, Review & Authorise (OCRA) process. The Client has full visibility of this document and all other documents such as plans and technical and non-technical documents which fall under BS EN 19650: -2:2018. All documentation submitted to the client will be under the OCRA process, with procedures approved internally by Blueprint Construction.

## 1.3. Key Information Requirements

The key requirements are also set out in the project Exchange of Information's Requirements (EIR's) 6033-ACECP-XX-XX-T-K-0001-EIR, this further outlines the following information:

| REQUIREMENTS                                       | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Level of detail / Level of Information</b>      | As per Paragraph 1.1 of 6033-ACECP-CD-XX-RP-C-0001-BIM STRATEGY. The Level of Geometry (LoDet) and Level of Information (LoI) required for the Project shall be aligned with the EIR 6033-ACECP-XX-XX-T-K-0001-EIR. At technical design and construction, the LoI and LOD should correspond with Level 5 & LoI Level 6. At hand back and interim hand back points, the level of information need should correspond to the requirements of Stage 6 (Operation). (Su Aung, 2023)         |
| <b>Training requirements</b>                       | Blueprint will provide training for the Clients team Throughout the project phases. With the client needing no formal training. However, Blueprint will provide guidance around the use of the CDE. Viewing access will also be provided to the client team as a minimum                                                                                                                                                                                                               |
| <b>Planning of work and data requirements</b>      | No specific requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Co-ordination and clash detection</b>           | All models issued to the client will undergo a full clash detection checking using REVIZTO software, to mitigate problems before the construction phase.                                                                                                                                                                                                                                                                                                                               |
| <b>Collaboration process</b>                       | As per paragraph 2 6033-ACECP-CD-XX-RP-C-0001-BIM STRATEGY.                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>HSE/CDM</b>                                     | Blueprint shall ensure: (1) the security of information exchange, (2) Information Models; and (3) associated Project Data, in accordance with BS EN 19650-5 formerly PAS 1192-5 (Specification for security-minded building information modelling, digital built environments and smart asset management) to ensure the security of project data, fully compliant with the CDM Regulations 2015 (BSI Standards Publication, 2020).                                                     |
| <b>Security of Information</b>                     | Compliant with BS EN 19650-5 (BSI Standards Publication, 2020). And as per paragraph 4.3 of 6033-ACECP-XX-XX-T-K-0001-EIR and paragraph 3 of 6033-ACECP-CD-XX-RP-C-0001-BIM STRATEGY.                                                                                                                                                                                                                                                                                                  |
| <b>Definition of any co-ordinate/origin system</b> | National grid referencing system for the United Kingdom. <b>Project base point to be provided and consistent across all graphical information</b>                                                                                                                                                                                                                                                                                                                                      |
| <b>Schedule of any software formats</b>            | The Client has proposed and agreed the data software and formats with Blueprint. The parties acknowledge that the software formats could possibly change throughout the course of the project, which will result in an updated EIR being issued to all parties. Blueprint Construction are to ensure any sub-contractors comply with all software requirements and competent personnel are used to produce any information used toward design, that is subject to issue to the client. |

**Table 1-1 - Key Information Requirements**

## 2. Project Information

| Project Information               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Client Project Name</b>        | National Steel Museum of Wales – Amgueddfa Dur Cymru.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Client Project Description</b> | The Project comprises of the structural & Architectural design of a National steel Museum to be constructed as part of a new community project to provide community and leisure facilities to the local town of Port Talbot and surrounding areas.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Project Brief</b>              | <p>Situated in the heart of the steel making town of Port Talbot, ACE Capital Project Ltd are proposing a landmark project that sees the design of a National Steel Museum of Wales – Amgueddfa Dur Cymru.</p> <p>During the heyday of the 1960's the Abbey Steelworks employed upward of 20,000 people and created prosperity and pride within the town. The glory days have sadly passed and with it the local sense of pride. The town is in decline, Amgueddfa Dur Cymru intends to draw upon the history and narrative of steel within Port Talbot to champion the industry and restore the community's pride in their town.</p> <p>The proposal sees the construction of a new building adjacent to the river Afan, as part of a wider masterplan in the heart of Port Talbot town centre, connecting the community back to the river which was once an integral part of the steel making process.</p> <p>The aesthetic of the building was inspired by the industrial buildings situated at the Abbey Steelworks in the 1950's, with the use of steel, masonry and concrete being key. For this reason, the materials</p> |

|                                                   |                                                                                                                                     |
|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
|                                                   | used will be locally reclaimed and recycled where possible to limit the embodied carbon of the building.                            |
| <b>CDM Requirements</b>                           | ACECP Ltd. have been delegated Client duties and BLUEPRINT CONSTRUCTION LTD will act as Principal Contractor and Principal Designer |
| <b>Client or, Supplier Project Office Address</b> | University of Wales Trinity St Davids<br>1 Kings Road<br>Swansea<br>SA1 8PH                                                         |

**Table 2-1 - Project Information**

## 3. Management

### 3.1. Authorities, Roles & Responsibilities

As per ISO 19650-2:2018, different projects have different parties and teams that are involved in the delivery process of a project. All parties involved must adhere to BS EN 19650-2:2018 processes in terms of information management as per Figure 1-1 - Information Management Process Through Delivery Phase of Assets (BSI Standards Publication, 2021). The parties involved, and their relationship is outlined in Figure 3-2.

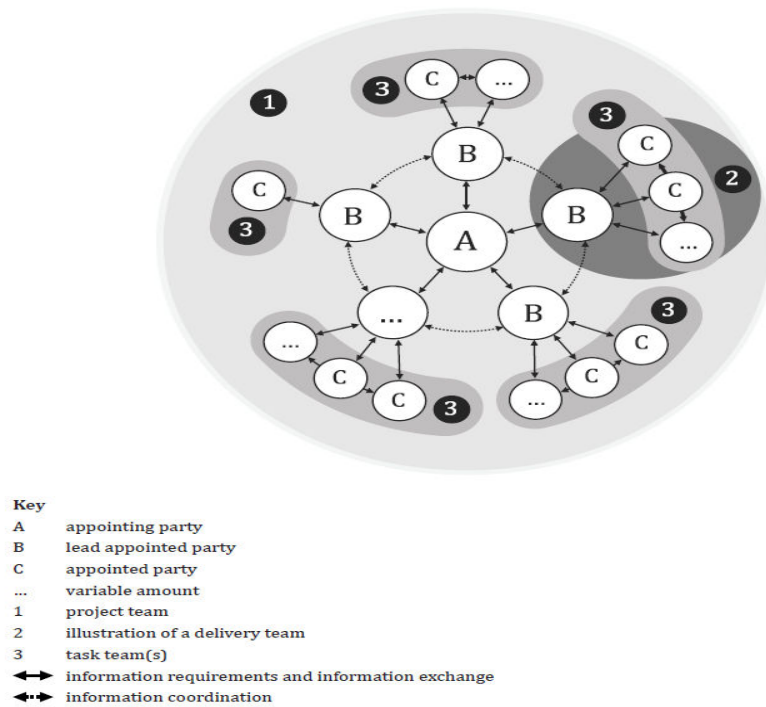


**Figure 3-1 - Interfaces between parties for information management (BSI Standards Publication, 2021).**

A general responsibility matrix and scope can also be found for this project below in Figure 3-2 & Table 3-1. These outline the parties and their interest within the project along with any other key stakeholders.

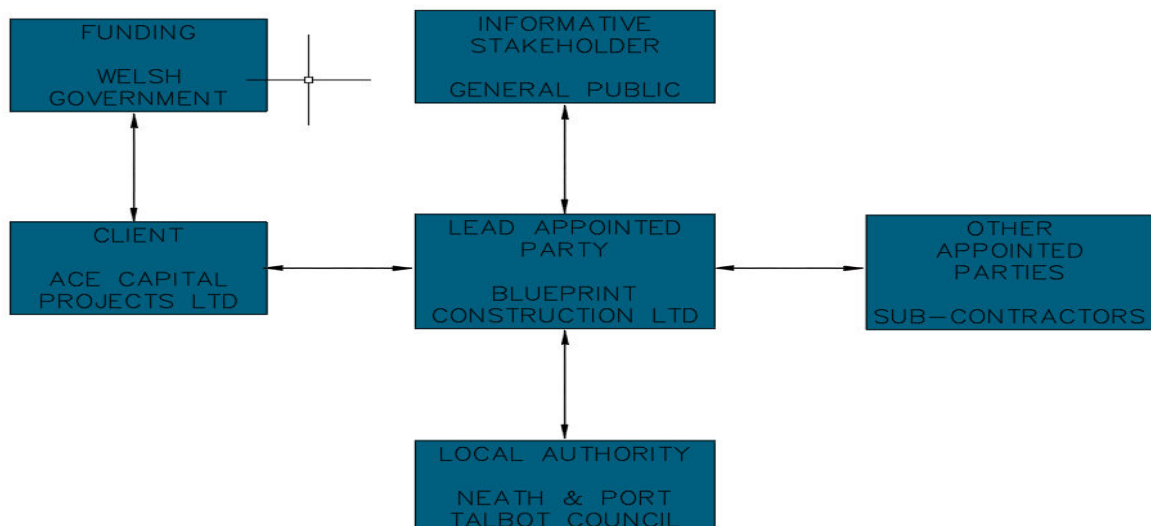


**Figure 3-2 - Parties involved in the project and relationship tree.**

| PARTIES                 | ROLE                                                                                                                                                        | COMPANY / AUTHORITY                        |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| Client                  | Actor responsible for initiating a project and reviewing the brief                                                                                          | ACE CAPITAL PROJECTS LTD (ACECP LTD)       |
| Funding Party           | Along with ACECP Ltd This party is responsible for providing some of the funding toward the project                                                         | WELSH GOVERNMENT                           |
| Lead Appointed Party    | Principal designer & principal Contractor for the project, responsible for regular update of this BEP and BIM procedures for the project as per BS EN 19650 | BLUEPRINT CONSTRUCTION LTD                 |
| Local Authority         | Responsible for agreeing any temporary highways works needed, also responsible to agree highway alterations, with the need of as-built information          | NEATH & PORT TALBOT COUNTY COUNCIL (NPTCC) |
| Informative Stakeholder | No direct involvement but to be provided with non-sensitive information at various stages of the project                                                    | GENERAL PUBLIC & IMMEDIATE COMMUNITY       |
| Other Appointed parties | Sub-contractors who will have input into design information such as pre-fabrication drawings or schedules                                                   | TO BE CONFIRMED (TBC)                      |

**Table 3-1 - Basic Roles of Parties involved.**

### 3.2. BIM Strategy Outline

All parties encouraged to refer to BIM Strategy document 6033-ACECP-XX-RP-C-0001-BIM STRATEGY as a general precursor to this document outlining finding within the Exchange of Information Requirements (EIR's), which includes:

- Level of Detail (LoDet) to be included
- Level of Information (LoI) to be included
- Common Data Environment (CDE)
- Naming Convention
- Co-ordinate / Origin system
- Exchange Format
- Information Security processes

The BIM Strategy can be found on the CDE at the following link: [6033-ACECP-XX-RP-C-0001-BIM STRATEGY.doc](#)

### 3.3. Delivery Team

For information delivery requirement as per BS EN 19650-2:2018 individual roles and responsibilities are outlined as required and described in the table below:

| Design & Construction – Blueprint Construction Ltd                                |                 |                                                                                                                                                                                                                                                                           |
|-----------------------------------------------------------------------------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Design and Construction Information Manager / BIM Manager – Civil Engineer</b> | Mathew Catlin   | Ensures all BIM models and documentation issued are fully compliant as per the BEP and also the BS EN 19650 standards, responsible for authorizing documentation under the review process. Acts as main point of communication to the client for any BIM related queries  |
| <b>Quantity Surveyor / Project Manager</b>                                        | James Lloyd     | Provides financial updates to the client fully complying with relevant regulations and issuing any information following the BIM strategy for security reasons and also using the relevant BIM naming conventions.                                                        |
| <b>Building Services Engineer / Energy and Environmental Advisor</b>              | Ayesha Williams | Responsible for assessing environmental impact of the project along with designating sustainable energy requirements, producing documentation following design and technical standards along with BIM standards and BIM Execution Plan.                                   |
| <b>Site Manager/ Social &amp; Economic Advisor</b>                                | Inderdeep Sidhu | Responsible for producing site reports for the social and economic aspects of the project, will also produce site management documentation in terms of temporary works and site queries whilst adhering fully to the BEP.                                                 |
| <b>Quantity Surveyor / Geotechnical &amp; Environmental Advisor</b>               | Somma Howard    | Works alongside the Project manager to provide financial documentation, along with, creating documentation on geotechnical and environmental policies and issues found within the site for addressing all reports will be formulated using this BEP and ISO 19650-2:2021. |

**Table 3-2 - Blueprint Construction Delivery Team Roles & Responsibilities**

### 3.4. BIM Goals & Objectives

This projects BIM goals & objectives comply with the client's EIR's which has been discussed in our BIM strategy: [6033-ACECP-XX-RP-C-0001-BIM STRATEGY.doc](#) which is then undertaken in accordance with the project timelines and also the project MIDP (Master Information Delivery Plan).

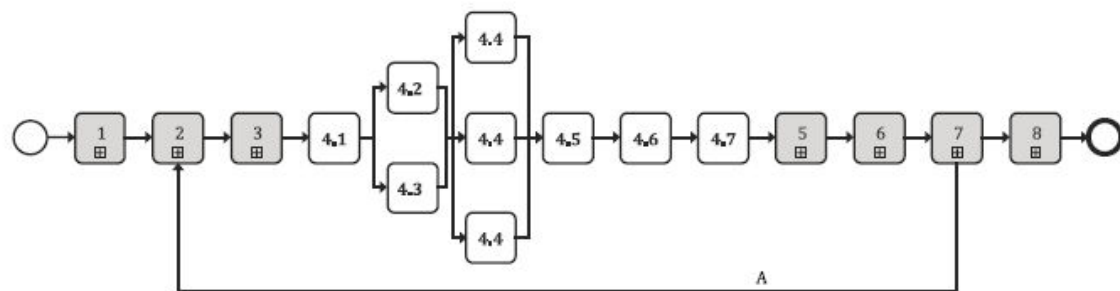
| BIM Goals / Objectives                                        | BIM Uses                                                                                                                                                       | Goal      | Responsibility |
|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------------|
| <b>Lead Design Coordination</b>                               | Delivery and coordination of multidisciplinary design, between architecture and structural disciplines                                                         | Essential | BLU            |
| <b>LoDet in BIM Models</b>                                    | Deliver BIM models with correct Level of Detail (LoD) as previously agreed in the EIR and BIM Strategy                                                         | Essential | BLU            |
| <b>Visualizations</b>                                         | BIM Models shall be used for visualizations                                                                                                                    | Essential | BLU            |
| <b>Data Classification</b>                                    | All project information kept within the strictest security level under BS EN 19650-5:2020                                                                      | Essential | BLU            |
| <b>Cost estimating and quantification support</b>             | BIM Models can provide details to undertake costings to the client                                                                                             | Optional  | BLU            |
| <b>Digital Fabrication</b>                                    | Models to supply information to third parties to assist with the pre-fabrication of any given materials                                                        | Essential | BLU            |
| <b>Engineering analysis</b>                                   | Create, measure and define structural analysis for steel framed structure and skeleton of proposal                                                             | Optional  | BLU            |
| <b>Environmental, climatic and sustainable analysis (BPM)</b> | Environmental analysis for the project                                                                                                                         | Optional  | BLU            |
| <b>Risk Management</b>                                        | Use of models and Drawings to include risk factors in order to mitigate any risk determined at the design stage                                                | Essential | BLU            |
| <b>Hazard Management &amp; Health &amp; Safety</b>            | Identify all hazards and risks identified within the models based on the risk information cycle within PAS 1192-6:2018 (British Standards Institution , 2018). | Essential | BLU            |
| <b>As-built BIM Model</b>                                     | BIM models to include all the information from Assets built in the project in the Handover phase for the maintenance & operation phases.                       | Essential | BLU            |

|                                                      |                                                                                                                   |           |     |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-----------|-----|
| <b>Asset Management/<br/>Facility<br/>Management</b> | Create an AIM (Asset Information Model) which contains all information from Assets and Facilities of the project. | Essential | BLU |
| <b>Hand Over and<br/>Hand Back</b>                   | Ensures information produced in the delivery stage shall be correctly amended for upcoming delivery stages        | Essential | BLU |

**Table 3-3 - BIM Goals and Objectives**

## 4. Information Delivery Strategy

BS EN ISO 19650-2:2021 Clause 5.4 states that within the stage of appointment the project has different activities within the information management process, this is further outlined in Figure 4-1 (BSI Standards Publication, 2021).



### Key

- 4.1 confirm the delivery team's BIM execution plan
- 4.2 establish the delivery team's detailed responsibility matrix
- 4.3 establish the lead appointed party's exchange information requirements
- 4.4 establish the task information delivery plan(s)
- 4.5 establish the master information delivery plan
- 4.6 complete lead appointed party's appointment documents
- 4.7 complete appointed party's appointment documents
- A information model progressed by subsequent delivery team(s) for each appointment

**NOTE 1** Activities shown in parallel are to highlight that these activities can be undertaken concurrently.

**Figure 4-1 - Information Delivery Strategy (BSI Standards Publication, 2021)**

## 4.1. Project Common Data Environment (CDE)

The project CDE will be host to all project documentation including design 3D & 2D models, 2D CAD drawings, schedules, reports etc. any other document that complies with BS EN ISO 19650-2:2021 under clause 5.6 and 5.7 (BSI Standards Publication, 2021).

All project parties will have different levels of access to the CDE some will have editing rights and some others will have read-only rights. The CDE used on this project will be Microsoft Teams along with Microsoft SharePoint. The CDE will be managed by Blueprint Construction and the table showing access rights can be found below:

| PARTIES                 | Common Data Environment (CDE) Rights | COMPANY / AUTHORITY                        |
|-------------------------|--------------------------------------|--------------------------------------------|
| Client                  | Read-Only                            | ACE CAPITAL PROJECTS LTD (ACECP LTD)       |
| Funding Party           | Read-Only                            | WELSH GOVERNMENT                           |
| Lead Appointed Party    | Editing & management Rights          | BLUEPRINT CONSTRUCTION LTD                 |
| Local Authority         | No Access                            | NEATH & PORT TALBOT COUNTY COUNCIL (NPTCC) |
| Informative Stakeholder | No Access                            | GENERAL PUBLIC & IMMEDIATE COMMUNITY       |
| Other Appointed parties | Editing Only Rights                  | TO BE CONFIRMED (TBC)                      |

**Table 4-1 - Outline CDE Rights**

Any further requirements for any additional parties must be agreed with the client, the new organisation must be able to adhere to the security requirements outlined in this BIM Execution Plan and BS EN ISO 19650-5:2020 (BSI Standards Publication, 2020).

Further to this as outlined in BS EN ISO 19650-1:2018 Clause 12.1 covers how the CDE should manage information within a container information structure. The revision of each container should be clearly identified within the CDE and on the documentation as standard (BSI Standards Institution, 2018).

The container information used for this project can be clearly outlined below in Figure 4-2.

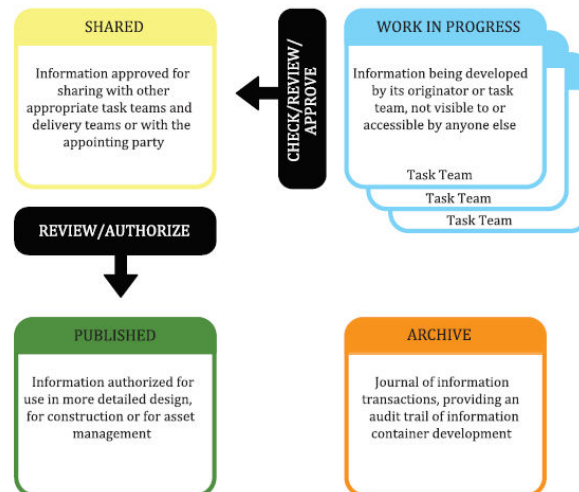


**Figure 4-2 - Project Common Data Environment Workflow States**

## 4.2. Responsibility Matrix

A responsibility matrix has been generated in order to provide agreement between appointed parties, ensuring full understanding of task responsibility in accordance with BS EN ISO 19650-2:2021 (BSI Standards Publication, 2021).

Responsibility Matrix provided in table below:

### KEY ID

*R : Responsible for undertaking activity*    *A : Accountable for activity completion*

*C : Consulted during activities*                      *I : Informed following activity completion*

| Task                                                  | Appointing Party (ACECP) | Lead Appointed Party (BLU) | Local Authority (NPTCC) | Informative Stakeholder (PUBLIC) | Funding Party (WG) | Other appointed Parties (SUB) |
|-------------------------------------------------------|--------------------------|----------------------------|-------------------------|----------------------------------|--------------------|-------------------------------|
| Confirm the delivery team's BIM execution plan        | A                        | R                          |                         |                                  |                    |                               |
| Establish the delivery team's detailed responsibility | A                        | R                          |                         |                                  |                    |                               |
| Establish the lead appointed party's                  | A                        | R                          |                         |                                  |                    |                               |

|                                                                 |   |     |   |   |   |   |
|-----------------------------------------------------------------|---|-----|---|---|---|---|
| exchange information requirements (EIR's)                       |   |     |   |   |   |   |
| Establish the master information delivery plan                  | A | R   |   |   |   |   |
| Complete lead appointed party's appointment documents           | A | R   |   |   | I |   |
| Generate information                                            | A | R   | C |   |   | I |
| Undertake quality assurance check                               | A | R   |   |   |   |   |
| Review information and approve for sharing                      | A | R   |   |   |   |   |
| Information model review                                        | A | R   |   |   |   |   |
| Submit information model for lead appointed party authorization | A |     |   |   |   |   |
| Review and authorize the information model                      | A | R   |   |   | I |   |
| Regularly update of project Status, including milestones        | I | R   |   | I | I |   |
| Update Hazard & health and safety information and log           | I | A/R |   |   |   | I |
| Submit information model for appointing party acceptance        | A | R   |   |   | I |   |
| Review and accept the                                           | A | R   |   |   |   |   |

|                                             |   |   |   |  |  |   |
|---------------------------------------------|---|---|---|--|--|---|
| information model                           |   |   |   |  |  |   |
| Archive the project information model       | A | R | C |  |  |   |
| Capture lessons learned for future projects | A | R | C |  |  | R |

**Table 4-2 - Responsibility Matrix**

### 4.3. Task Information Delivery Plan (TIDP)

Blueprint should provide ACECP with a Task Information Delivery Plan (TIDP) this is to be completed for each set of tasks this is to be prepared for each task under ISO 19650 standards, and in consistent measure. This is so the multiple TIDP's created can be used to formulate the Master Information Delivery Plan (MIDP) (Richards et al., 2013).

### 4.4. Master Information Delivery Plan (MIDP)

The MIDP will be developed by the Information Manager/BIM Manager from the different TIDP's that has been produced for each task, these are then agreed with different stakeholders.

The Project will use a BS EN ISO 19650-2 2018 and IAN 184/16 compliant MIDP template. This is the single and collaboratively agreed information delivery plan for the project, which remains a 'live' document and will continue to develop in content as the project progresses.

The MIDP will list the information deliverables for the project, including but not limited to models, drawings or renditions, specifications, schedules and shall be managed by the Lead BIM Manager. (Richards et al., 2013).

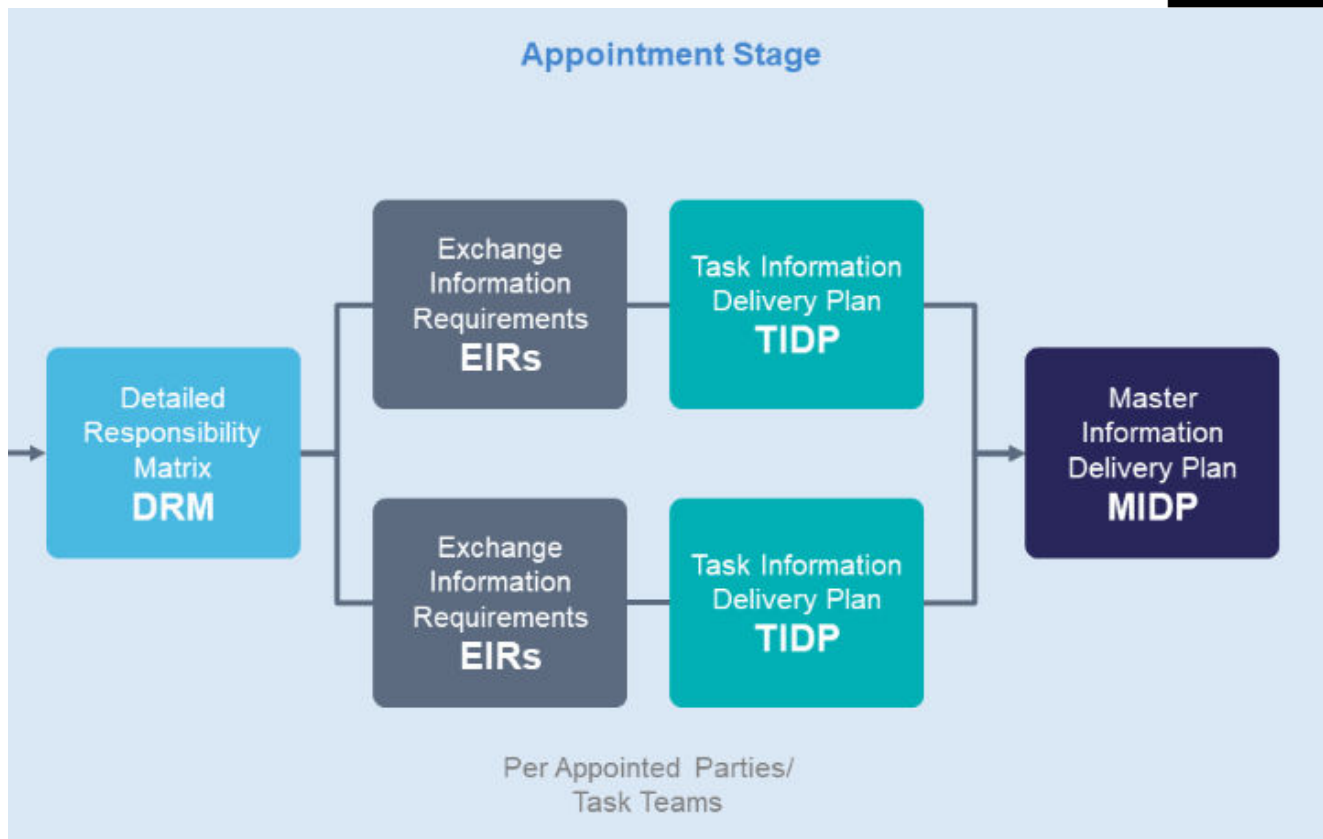
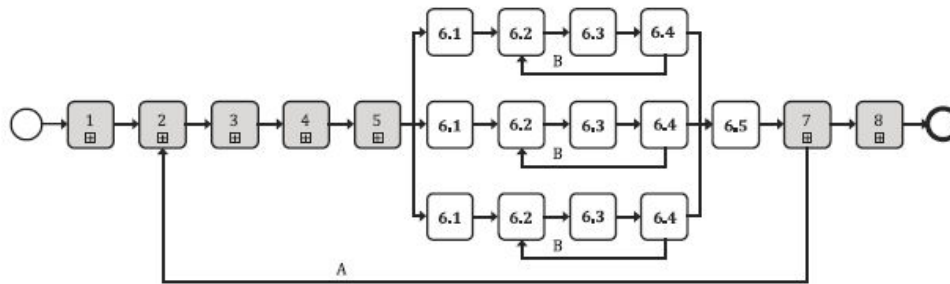


Figure 4-3 - Appointment Stage Process including TIDP & MIDP (Machon, 2022)

## 5. Production of Information

In accordance with Clause 5.6 of BS EN ISO 19650-2:2021 the explanation is provided of generating and managing data within each task team within the CDE (BSI Standards Publication, 2021).



#### Key

6.1 check availability of reference information and shared resources

6.2 generate information

6.3 complete quality assurance check

6.4 review information and approve for sharing

6.5 information model review

A information model progressed by subsequent delivery team(s) for each appointment

B new information container revision

**NOTE 1** Activities shown in parallel highlight the production of information by each task team prior to the information model review.

**NOTE 2** The information model review undertaken in 6.5 can be repeated until such time as the information model is ready to be submitted for lead appointed party authorization.

**Figure 5-1 - Collaborative Production of Information (BSI Standards Publication, 2021).**

## 5.1. Design Approval Process (OCRA)

As previously stated in the BIM Strategy and EIR's the design approval process will be split up into 4 stages outlined below:

| ROLE       | RESPONSIBILITY                                                                                          |
|------------|---------------------------------------------------------------------------------------------------------|
| Originator | Self-check the deliverable for errors including technical, spelling, punctuation, language, and format. |

|            |                                                                                                                                                                                    |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Checker    | Carry out checks at appropriate times during the development of the deliverable, so it complies with the relevant standards.                                                       |
| Reviewer   | Carry out an independent review of the deliverable against the client's requirements and ensure the relevant standards and processes have been applied.                            |
| Authoriser | Assure themselves the Technical Assurance Standard has been applied correctly in order to sign on behalf of Blueprint stating the deliverable is approved for issue to the Client. |

**Table 5-1 - OCRA Roles & Responsibilities**

Microsoft Teams Site has been setup and relevant folders have been used under the BIM naming convention this is to ensure an organised flow of documentation can be stored efficiently and also backed up by the cloud for security purposes. Also incorporating ISO 19650-2:2021 codes for folder structures (BSI Standards Publication, 2021).

| Blueprint Construction - Steel Museum > 6033 - Steel Museum |                              |  |                   |                       |  |
|-------------------------------------------------------------|------------------------------|--|-------------------|-----------------------|--|
|                                                             | Name                         |  | Modified          | Modified By           |  |
|                                                             | 10 - Project Management      |  | October 13, 2023  | Mathew Catlin (222... |  |
|                                                             | 20 - Correspondence          |  | October 13, 2023  | Mathew Catlin (222... |  |
|                                                             | 30 - Documents               |  | October 13, 2023  | Mathew Catlin (222... |  |
|                                                             | 40 - Photos                  |  | October 13, 2023  | Mathew Catlin (222... |  |
|                                                             | 50 - Structural Design       |  | October 13, 2023  | Mathew Catlin (222... |  |
|                                                             | 60 - BIM                     |  | November 15, 2023 | Mathew Catlin (222... |  |
|                                                             | 6033 - Document Register.xls |  | October 31, 2023  | Mathew Catlin (222... |  |

**Figure 5-2 - Microsoft Teams CDE Folder Setup**

### 5.1.1. Design Co-ordination

In accordance with ACECP Ltd Exchange of Information Requirements, they require interoperable access to REVIZTO software in order to view and ensure clash detection of structural and architectural elements are considered this is done with the hopes to reduce the number of errors found on site and ultimately saving time and money for the project. Regular design co-ordination meeting will be undertaken with the client on a regular basis in order to undertake design reviews at each stage of the project. The drawings, models and design documentation will all be stored with the CDE and will follow the ISO 19650-2:2021 status

codes and naming conventions (BSI Standards Publication, 2021). They will also be used as communication tools within the co-ordination meeting as discussion points and visualisation resources for both parties, some other things considered will be:

- Review H&S & CDM issues
- Aim to resolve any clashes identified through REVIZTO.
- Review design Documentation, drawings & models.
- Resolve buildability issues.
- Provide updates on project timescales.
- Suggest possible design improvements.

### 5.1.2. Clash Detection

Once the models have been established regular clash detection meeting will take place in order to identify areas of concern for the project these will then be tracked and documented through REVIZTO and acted upon accordingly with multi-disciplinary agreement to the solution. This will then be communicated and agreed with ACECP Ltd. Further guidance for the use of REVIZTO software can be found at the following link: [REVIZTO Guidance](#) (Johnson, 2017).

The tool will be deployed to all task team members, with the client also given interoperable access to the 3D models.

## 5.2. Health & Safety Management

The project's H&S management team will also be in accordance with PAS 1192-6:2018 where a strict structured and managed process will be used to record health and safety information throughout the project lifecycle (British Standards Institution, 2018).

Any Health and safety observations recorded by any party whilst on site will be recorded via Microsoft Forms template, this will then be collected and statistically analysed each month in order to identify trends on site. These trends will then be reported back to the client teams at regular intervals.

Further to this all-design documentation will notably record hazards identified at design stage these hazards will then be presented in the form of a hazard log additionally, prior to any works starting formally.

### 5.3. Connecting BIM to Site

Blueprint Construction has proposed to use SiteMate software a tool which can help formalise documentation and ensure BIM is used on a site environment the software will help undertake the following:

| Site Task                             | Description                                                                                                                                                                               |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Undertake Site inspections            | The software has the ability to record site inspections providing instant access from tablet to multiple users.                                                                           |
| Capture Site Progress                 | Ability to take progress photos along with bodies of text that can be uploaded directly to the CDE.                                                                                       |
| Raise Non-Conformance Reports (NCR's) | An NCR template is encrypted within the software making them easy to create and download to store within the CDE                                                                          |
| Raise Technical Queries (TQ's)        | A TQ template is encrypted within the software making them easy to create and download to store within the CDE also has availability to view these on site and track for as-built records |
| Inspection Test Plans (ITP's)         | An ITP template is encrypted within the software making them easy to create and download to store within the CDE                                                                          |
| Request for Information (RFI's)       | A RFI template is encrypted within the software making them easy to create and download to store within the CDE                                                                           |
| Quality Checklists                    | An NCR template is encrypted within the software making them easy to create and download to store within the CDE                                                                          |

**Table 5-2 - SiteMate Capabilities**

## 6. Information Model Delivery

At this stage of the project the lead appointed party will submit the model and relevant design and construction information to ACECP Ltd. Blueprint would encourage any collaboration or comments at this stage prior to any works starting, this is to avoid any delays within the project

surrounding misinformation or changes to design etc. this will follow clause 5.7 of ISO 19650-2:2021 (BSI Standards Publication, 2021) and within the figure below:

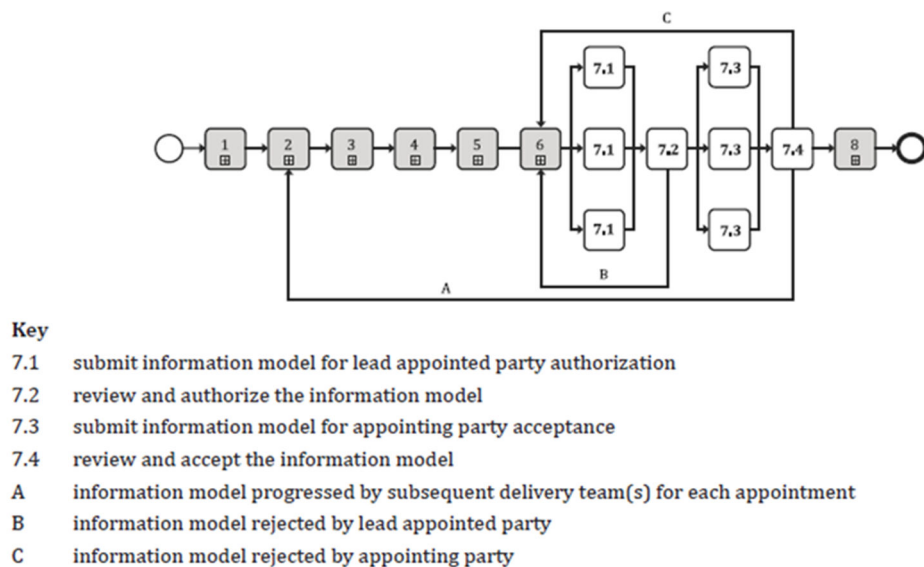


**Figure 6-1 - Collaborative Production of Information (BSI Standards Publication, 2021)**

## 6.1. Asset Data Strategy in response to AIR

The Asset Information requirements (AIR) set out by ACECP Ltd. within [6033-ACECP-XX-XX-L-K-0001-AIR](#) the document shows a data requirement matrix which is based on the category (uniclass 2015). This sets out the structure for naming conventions within the design in order to be able to fully achieve the LoD required by the client, any models produced are to follow this matrix in order to be able to achieve manageable assets at the end of the project.

## 6.2. As-Built Information

This procedure is yet to be drafted but will incorporate all design documentation being issued at as-built status to the client after the completion of works. At this stage all relevant standards will be used to provide 2D and 3D drawings and models, along with other technical specifications. The Technical Query (TQ) process adopted from the SiteMate field software will assist in the production of red-line drawings and then as-builts by clearly outlining any changes to design. This process will be managed closely by the BIM manager and will be piloted once an element of completed works is ready for handover.

## 7. Software Solutions

| Data Information Type                   | Software                           | File Format | Utilised    |
|-----------------------------------------|------------------------------------|-------------|-------------|
| Structure Models and Drawings           | Autodesk Revit                     | RVT         | 2024        |
| Structural Calculation/Analysis         | Autodesk Robot Structural Analysis | RTD         | 2024        |
| Documents/Reports/Technical Notes etc   | Microsoft Word                     | DOCX        | 365         |
| CAD Review                              | Autodesk AutoCAD                   | DWG         | 2024        |
| Schedules                               | Microsoft Excel                    | XLSX        | 365         |
| Presentations                           | Microsoft PowerPoint               | PPTX        | 365         |
| PDF Viewing and Compiling               | Foxit Phantom                      | PDF         | 9.0.0.29935 |
| 2D Drawings                             | Autodesk Civil 3D                  | DWG         | 2024        |
| Project Communication and Collaboration | Microsoft Teams                    |             |             |
| Project CDE                             | Microsoft Teams/SharePoint         |             |             |
| 3D Model Collaboration with ACECP Ltd.  | Revizto                            |             | v5          |
| Quality and Inspection                  | SiteMate                           |             |             |

**Table 7-1 - Agreed Software's & Exchange Formats**

### 7.1. Model Origin and Orientation

The origin and orientation of the project are based on the project location and its reference to other global or local grids.

Our coordinate system specified by ACECP Ltd. is:

- OSGB1936.BritishNadGrid
- Our Origin is:

| Point                                          | Angle to True North | Easting (m) | Northing (m) | Datum (m) |
|------------------------------------------------|---------------------|-------------|--------------|-----------|
| Site Location Grid Origin (Project Base Point) | TBC                 | TBC         | TBC          | TBC       |
| Top Right                                      | TBC                 | TBC         | TBC          | TBC       |

|              |     |     |     |     |
|--------------|-----|-----|-----|-----|
| Bottom Right | TBC | TBC | TBC | TBC |
| Top Left     | TBC | TBC | TBC | TBC |
| Bottom Left  | TBC | TBC | TBC | TBC |

**Table 7-2 - Site Origins**

## 7.2. Units

The units on this project will be derived from software’s “associative dimensioning” tools and the layout and accuracy of these are proposed as follows:

| Type of Information    | Millimetres | Meters    | Degrees  | Radians | Clockwise | Counter Clockwise |
|------------------------|-------------|-----------|----------|---------|-----------|-------------------|
| Survey                 |             | x / 0.000 | x / 0.00 |         | x         |                   |
| Structural Models      |             | x / 0.00  | x / 0.00 |         | x         |                   |
| Architectural Models   |             | x / 0.000 | x / 0.00 |         | x         |                   |
| Architectural Drawings | x / 0.      |           | x / 0.00 |         | x         |                   |
| Structure Drawings     | x / 0.      |           | x / 0.00 |         | x         |                   |

**Table 7-3 - Project Units**

## 7.3. BIM Naming Convention

To achieve the require BIM maturity all documentation will outline the BIM naming convention which is presented within ISO19650-2:2021, details of the naming convention can be further found outlining the project code, organisation, role, number, revision etc. (BIMicon, 2021)

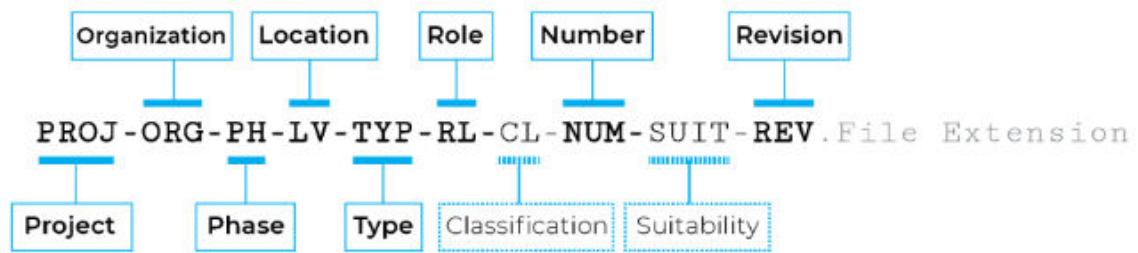


**Figure 7-1 - BIM Naming Convention Structure**

An example of this for this project is as follows:

| Project |   | Originator |   | Level or Location |   | File Type |   | Discipline |   | Number |
|---------|---|------------|---|-------------------|---|-----------|---|------------|---|--------|
| 6033    | - | ACECP      | - | XX                | - | RP        | - | C          | - | 0001   |
| 6033    | - | ACECP      | - | GF                | - | M3        | - | S          | - | 0001   |

All further coding requirements for this project can be found within Appendix A.

# Appendix A – BIM Naming Convention Codes

The following table enumerates each field, and the next section explains each field in detail:

|             | PROJ             | ORG                                        | PH                            | LV                            | TYP                   | RL                            | CL                      | NUM                    | SUIT                    | REV                       |
|-------------|------------------|--------------------------------------------|-------------------------------|-------------------------------|-----------------------|-------------------------------|-------------------------|------------------------|-------------------------|---------------------------|
| Field       | Project          | Originator                                 | Phase                         | Levels and location           | Type                  | Role                          | Classification          | Number                 | Suitability             | Revision                  |
| Obligation  | Required         | Required                                   | Required                      | Required                      | Required              | Required                      | Optional                | Required               | Meta-data               | Meta-data                 |
| Description | Code for project | Code for organisation creating information | Code for phase of the project | Code to locate file reference | Code for type of file | Code for role of organization | Code to reference asset | Sequential file number | Code for status of data | Code for revision of data |

## 8. 1.2.1. Codes in Naming Convention

### 9. • PROJ

Project. A code between 2 and 6 characters that identifies the project. In case collaboration occurs with other organizations, it should be independent of the organization's project code. For example:

101JB, 2021\_B01, etc.

### 10. • ORG

Originator. A code between 2 and 6 characters that informs about the organization that created the file. For example, BIMicon, ISO, and so on.

### 11. • PH

Phase. Code that denotes the phase of the project at the moment of issuing the file. Some examples are the following:

| Phase                      | Code |
|----------------------------|------|
| Schematic Design           | SD   |
| Design Development         | DD   |
| Construction Documentation | CD   |

### 12. • LV

Level. This code specifies the location of the content of the file in relation to the building:

| Levels & Locations |                 |
|--------------------|-----------------|
| ZZ                 | Multiple Levels |

|    |                                        |
|----|----------------------------------------|
| XX | No Level Applicable                    |
| GF | Ground Floor                           |
| 00 | Base Level of Building or linear Asset |
| 01 | Floor 01                               |
| 02 | Floor 02                               |
| M1 | Mezzanine above Level 1                |
| M2 | Mezzanine above Level 2                |
| B1 | Floor -01                              |
| B2 | Floor -02                              |

### 13. • TYP

Type. Code that points to the kind of information contained in the file:

| Codes for Drawings & Models |                                                                         |
|-----------------------------|-------------------------------------------------------------------------|
| AF                          | Animation File                                                          |
| CM                          | Combined Model                                                          |
| CR                          | Specific for the clash process                                          |
| DR                          | 2d Drawing                                                              |
| M2                          | 2D Model file                                                           |
| M3                          | 3D Model file                                                           |
| MR                          | Model rendition file for other renditions, thermal or acoustic analysis |
| VS                          | Visualisation                                                           |
| Codes for Documents         |                                                                         |
| BQ                          | Bills of Quantities                                                     |
| CA                          | Calculations                                                            |
| CO                          | Correspondence                                                          |
| CP                          | Cost Plan                                                               |

|    |                           |
|----|---------------------------|
| DB | Database                  |
| FN | File Note                 |
| HS | Health & Safety           |
| IE | Information Exchange      |
| MI | Minutes/Action Notes      |
| MS | Method Statements         |
| PP | Presentation              |
| RD | Programme                 |
| RI | Request for information   |
| RP | Report                    |
| SA | Schedule of accommodation |
| SH | Schedule                  |
| SN | Snagging List             |
| SP | Specification             |
| SU | Survey                    |

#### 14. • RL

Role. Code to identify the function of the organization in the project:

| Codes for Disciplines and Roles |                                |
|---------------------------------|--------------------------------|
| A                               | Architect                      |
| B                               | Building Surveyor              |
| C                               | Civil Engineer                 |
| D                               | Drainage, Highways Engineer    |
| E                               | Electrical Engineer            |
| F                               | Facilities Manager             |
| G                               | Geographical and Land Surveyor |
| H                               | Heating & Ventilation Designer |

|   |                         |
|---|-------------------------|
| I | Interior Designer       |
| K | Client                  |
| L | Landscape Architect     |
| M | Mechanical Engineer     |
| P | Public Health Engineer  |
| Q | Quantity Surveyor       |
| S | Structural Engineer     |
| T | Town and County Planner |
| W | Contractor              |
| X | Sub-Contractor          |
| Y | Specialist Designer     |
| Z | General                 |

#### 15. • CL

Classification. Field used to classify assets for Facility Management. It is mandatory to specify the classification system in the BIM Execution Plan. Among the many possible classification systems, these are the common ones; OmniClass, ISO 12006, and Uniclass.

#### 16. • NUM

Number. It is a sequential code assigned to each file when it belongs to a series of files. In the case of drawings extracted from a BIM model, it will use code the sheets numbering inside the model. For example:

| Sheets Numbering |                              |
|------------------|------------------------------|
| Architectural    | A01_001, A01_002, A01_003... |
| Structural       | S01, S02, S03...             |
| Multi-purpose    | 0B1, 0GF, 001, 002, 003...   |

#### 17. • SUIT

Suitability. This code defines the current state of the document. Use the following abbreviations:

| Status                  | Description                | Graphical | Non- Graphical | Document |
|-------------------------|----------------------------|-----------|----------------|----------|
| <b>Work in Progress</b> |                            |           |                |          |
| SO                      | Initial Status of WIP      | Yes       | Yes            | Yes      |
| <b>Shared</b>           |                            |           |                |          |
| S01                     | Suitable for co-ordination | Yes       | Yes            | Yes      |

|                       |                          |     |     |     |
|-----------------------|--------------------------|-----|-----|-----|
| S02                   | Suitable for Information | Yes | Yes | Yes |
| S03                   | Suitable for review      | No  | Yes | Yes |
| S04                   | Suitable for approval    | No  | Yes | Yes |
| <b>Published Docs</b> |                          |     |     |     |
| A01,A02,A03           | Approved/Accepted        | Yes | Yes | No  |
| B01,B02,B03           | Partial sign off         | Yes | Yes | No  |

#### 18. • REV

Revision. The code used to denote the version of the document. This is the preferred way to version and supersede any files instead of prefixing a date. The following table contains standard conventions to number revisions:

| Revision Numbering |                                            |
|--------------------|--------------------------------------------|
| Numeric            | 01, 02, 03...                              |
| Alfa-numeric       | A01, A02, A03...<br>Rev01, Rev02, Rev03... |

Appendix A was taken from (BIMicon, 2021) this is the system of naming that will be followed by Blueprint Construction Ltd.

## Reference list

BIMicon (2021). *A Simple BIM Naming Convention Based on ISO 19650 Part 1 - BIMicon*. [online] BIMicon. Available at: <https://www.bimicon.com/bim-naming-convention-based-on-iso19650-part1/> [Accessed 26 Feb. 2024].

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