**NORTH WALES CONSTRUCTION PARTNERSHIP**

**EXCHANGE INFORMATION REQUIREMENTS (EIR)**

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| Project Name: | *Enter project title* |
| Project Address: | *Enter project address…* |
| Date: | *Enter date…* |

**Document Control Sheet**

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**Introduction**

The following exchange information requirements define the organisational, asset and project information requirements to meet the lead appointing party’s minimum needs for NWCP projects in the delivery of BIM. The lead appointed party will be responsible for delivering the scheme in accordance with these EIR’s which are based on the provisions within ISO 19650-1&2:2018. The prospective lead appointed party shall establish the delivery team’s (pre-appointment) BIM Execution Plan (BEP) which shall be included within their tender response together with a capability and capacity assessment summary, mobilisation plan and information delivery risk assessment.

For ease of ISO 19650 includes a number of terminology changes foremost in this document is reference to the Client, Principle Contractor and Designers. We provide the following glossary to assist with the transition to the new terms. Where documents or procedures have been changed under ISO 19650, we have provided their former titling in brackets after the reference for information.

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| Former Title | Title under ISO 19650 |
| Client | Appointing Party |
| Principal Contractor | Lead Appointed Party |
| Designers/Consultants/Supply Chain | Appointed Party(s) |

*Note: the following EIR provides general requirements for a BIM project in accordance with ISO 19650. Sections can be modified and/or added to suit project and client specific needs (Delete this paragraph before issue).*

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| EXCHANGE INFORMATION REQUIREMENTS |
| Reference | **Item** | **Response** |
| 1. INFORMATION MANAGEMENT
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| 1.1 | Level of Information need. | The level of information need has been determined according to its purpose and has been aligned to the RIBA work stages. This information is provided within the Model Production Delivery Table (\*Responsibility Matrix) appended to this document – Appendix 1.  |
| 1.2 | Training Requirements | The project delivery team (\*Lead Appointed Party and Appointed Parties) will be assessed on their BIM competency through the NWCP BIM Assessment form. If the Lead Appointed Party has their own assessment form(s) these can be used in place of the NWCP BIM assessment form however it should cover the criteria/questions contained within the NWCP document to ensure the minimum requirements are met. The scope of the NWCP BIM assessment may be reduced for those with certification through a suitable certification scheme (BSI, BRE, etc.). Additional training needs may be identified to bridge any skills gaps and it will be the responsibility of the individual delivery team member (\*Appointed Parties) to source/provide their own training associated with modelling, analysis and design software and tools required to deliver a compliant BIM project.Responsibility for training associated with the use of the Common Data Environment (CDE) rests with the Lead Appointed Party. |
| 1.3 | Information Delivery Planning and Data Segregation | All project information shall be managed in accordance with the processes described in BS EN ISO 19650 Parts 1 & 2. The structure of the Common Data Environment will be defined for data segregation. The Lead Appointed Party and Appointed parties will be responsible for the delivery of the Project Information requirements as set out in Appendix 1 – Responsibilities Matrix(Formerly the MPDT) will be responsible for the production and management of their own BIM models, including all the elements for which they have ownership as defined in the Responsibility Matrix – Appendix 1. The Lead Appointed Party will take ownership of the federated model, which shall consist solely of linked Project Information Models produced by each individual Appointed Party. Federated COBie data will be produced from the model by the Lead Appointed Party and their Appointed Parties. |
| 1.4 | Federation Strategy, Model Co-ordination and Clash Detection | The process for model co-ordination and clash detection should be in accordance with the procedure and structures described within ISO 19650-1:2018. A model federation strategy will be defined by the Lead Appointed Party and will be managed using a suitable automated clash detection platform such as Autodesk Navisworks, Solibri or similar approved. The Lead Appointed Party shall submit proposals for their clash management platform for agreement. Results shall be circulated via clash models, saved viewpoints and reports in a suitable format. Collision testing will be performed on a fortnightly basis during design development. Appointed Parties should submit individual model files to the Lead Appointed Party in .ifc file format for inclusion in the federated model.Within the Pre –Contract BEP submitted at tender stage, the lead appointed party shall provide details of:* Federation Strategy
* The clash detection process including Software, process overview, responsibilities and outputs
* Technical query overview
* Tolerance Strategy (3D modelling)
* Clash Resolution Process

To be reviewed on selection of CDE tools – these may include clash detection and collaboration tools. |
| 1.5 | Collaboration Process | The collaborative production of information shall be carried out in accordance with section 5.6 of ISO 19650-2:2018Information exchange shall be facilitated by sharing and coordinating information through a CDE utilising open standards whenever possible and properly defined operating procedures in accordance with the structure set out in ISO 19650 Parts 1 & 2.File naming, revisions and suitability codes for models and 2D project documentation should be in accordance with the standards defined in Section NA.2 (Information container ID) of ISO 19650-2:2018. |
| 1.6 | HSE/CDM | As part of the H&S requirements for the scheme we as the Appointing Party will specify the information required to support the maintenance of the H&S of the users of the asset. It is the intention that the BIM model will be used as an integral part of the Operation & Maintenance Manual, and for the eventual management of the FM services during the operational phase of the building’s life.In areas with space restrictions or limited access, access zones and withdrawal space required around equipment should be modelled as 3D zones for inclusion in clash detection tests to ensure sufficient space is provided. Structural and load bearing building elements should be clearly defined within appropriate parameter values within the model.The Pre-Construction Information, Construction Phase Plan and H&S file shall be stored on the CDE.Models should include warning symbols (objects) to identify residual risk which should appear on drawings cut from the model. |
| 1.7 | A schedule of any specific information to be either excluded or included from information models; | The specific Asset Information Requirements (AIR) - Appendix 2, have been derived from the North Wales Construction Partnership Digital Construction SIG. This standardised document has been developed for North Wales regional Local Authorities with common requirements. The COBie schema has been reviewed and revised to meet project specific asset information requirements and is appended to this document. The document may require further development as the design evolves and further detail on project specific assets are defined however this should only reduce or exchange assets. For example – the original design may envisage the use of a gas fired boiler for space heating, through design development this is changed to an air source heat pump. As a result the AIR document is updated to reflect the change. |
| 1.8 | A schedule of any particular constraints set by the employer on the size of model files, the size of extranet uploads or emails, or the file formats that can define the size of a volume; | In order to ensure that information is accessible to all parties including the Appointing Party, the delivery team are required to ensure that individual model files do not exceed 500Mb in file size.As a minimum, all models should be provided in the following formats:* Native File Format
* IFC

Non-graphical data should be prioritised over graphical data to limit file sizes. Model LOD (Level of Detail) shall be appropriate for the production of construction drawing information in the first instance. LOD3 should be sufficient at stage 6 and any higher LOD included as necessary for coordination and construction.The BEP shall define the model exchange frequency and particulars.  |
| 1.9 | Compliance plan | Information shall comply with the standards defined in ISO 19650-1&2:2018. The successful tenderer is to indicate proposed standards and procedures for review and approval within the Post Appointment BEP.Requirements for Lead Appointed Party proposals for the management of the co-ordination process. The lead appointed party shall provide a plan detailing the process to be implemented to ensure compliance with their BEP. |
| 1.10 | Co-ordinates | Spatial coordinates used in all information models should be defined in terms of a common projectorigin and orientation, using a conventional Cartesian axis and common unit of length. The details should be provided in the project’s information standard using a statement or a diagram.SI units (see the BS EN ISO 80000 series) should be used for distance. The basic unit of lengthshould be metres for infrastructure projects or millimetres for building projects, and geometricalinformation should be created at a scale of 1:1.The origin should be related to both the project grid and to the site context and is best located withinor close to the project or site extent. The orientation should be related to a specific geospatial north.The accuracy achievable using the chosen units and origins might need to be checked.A statement or diagram within the project’s information standard should relate the project spaceto a named global geospatial system in three dimensions (decimal degrees latitude, longitude andelevation in metres) and a plan orientation (decimal degrees clockwise rotation from north). It shouldbe noted that a decimal latitude in degrees requires eight decimal places to achieve positioning towithin 1 mm.Alternatively, reference can be made to a standard named projection such as the UK OrdnanceSurvey grid. |
| 1.11 | Software Formats | The Lead Appointed Party shall establish the Appointed Party’s proposed mobilisation. In doing this the Lead Appointed Party shall consider their approach, timescales, and responsibilities for procuring, implementing, configuring and testing additional software, hardware and IT infrastructure.The Lead Appointed Party shall confirm the schedule of software (including versions), hardware and IT infrastructure the delivery team will use within their BIM execution plan.All North Wales authorities are currently migrating to the Technology Forge Cloud FM system. The system is still under development. It is expected that information held within the Project AIM and COBie output will be used in the development and testing of the chosen FM software package.The Lead Appointed Party will provide a CDE with appropriate management tools and security of data via industry standard encryption. The employer will be provided access to all information provided in the specified data drops via a secure area of the CDE. |
| 1. COMMERCIAL MANAGEMENT
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| 2.1 | Exchange Information |  Each information exchange requires information in the following formats: • Native Model Files • Corresponding IFC model files • COBie – COBie-UK-2012 Version 2.4 (End of RIBA stage 4 and stage 6) • PDF files (no older than version 7) for 2D deliverables only. |
| 2.2 | Client’s strategic purposes | The Lead Appointed Party is to put forward a strategy for issuing the Asset Information Model that can be incorporated in the CAFM system at a later date.The AIM requirements (Appendix 2) within this EIR consists of building elements defined as key “Maintained Assets” and will require COBie information suitable for transfer to the CAFM system by the Appointing Party (when operational). The Level of Information Need required at each project stage and the delivery team member responsible for producing each element is stated in the responsibility matrix (formerly model production delivery table - MPDT), deliverables shall be scheduled within MIDP (Master Information Delivery Plan) which shall be provided within the BEP.  |
| 2.3 | Responsibility matrix | Model ownership and responsibilities associated with information management will be defined and agreed between the Appointing Party, Third Party, Lead Appointed Party and Appointed Parties. This information will be recorded within an Information management assignment matrix based on the table provided in Annex A of ISO 19650-2:2018. The completed matrix shall be included within the Post Appointment BEP. |
| 2.4 | Schedule of BIM standards | All documents / models produced on the Project shall comply with the following standards:* **BIM Framework – Information Protocol to Support BS EN ISO 19650-2 the Delivery of Assets.** – Standard Protocol for use in projects using Building Information Models (Contractual).
* **ISO 19650-1:2018** – Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) – Information management using building information modelling: Concepts and principles
* **ISO 19650-2:2018** – Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) – Information management using building information modelling: Delivery phase of the assets
* **BS 1192-4:2014** – Collaborative production of information Part 4: Fulfilling employer’s information exchange requirements using COBie – Code of Practice
* **PAS 1192-6:2018** - Specification for collaborative sharing and use of structured Health and Safety information using BIM
* **PAS 1192-5:2015** - Specification for security-minded building information modelling, digital built environments and smart asset management
* **Uniclass 2015 Classification** – Unified classification system for the construction industry
* **BS8541-1** - Library objects for architecture, engineering and construction Part 1: Identification and classification –Code of practice
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| 2.5 | Schedule of changes to standard roles and responsibilities. | A schedule of any changes shall be produced to the standard roles, responsibilities, authorities and competences set out in the contract.  |
| 1. COMPETENCE ASSESSMENT
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| 3.1 | Assessment details | In order to assess BIM Maturity, software compatibility, drafting and information management standards necessary to deliver a BIM project, prior to their appointment, all supply chain members responsible for the production and management of design information and BIM deliverables shall complete the NWCP Supply Chain Assessment form for evaluation prior to their appointment. If the Lead Appointed Party has their own assessment form(s) these can be used in place of the NWCP BIM assessment form however it should cover the criteria/questions contained within the NWCP document to ensure the minimum requirements are met. This assessment shall form part of the PIP which will be provided by the Lead Appointed Party as part of the Pre and Post- Appointment BEP. If any parties have a valid Certificate from a recognised authorising body (BSI, BRE, Lloyds Register) this may reduce the scope of the assessment, these will be identified within the Assessment form. You must provide details of your certification scheme for validation. |
| 3.2 | Changes to tender documentation | The EIR and Pre-Contract Award BEP will form part of the tender documentation. |
| 3.3 | BIM tender assessment. | Details of the method of tender assessment will be provided in the Pre and Post Appointment BEP which includes responses to the NWCP assessment documents as described in Section 3.1. Where Appointed Parties are directly instructed, tender assessments will be undertaken by the Appointing Party with the assistance of the Lead Appointed Party. |

APPENDIX 1 – Responsibility Matrix (formerly MPDT)

APPENDIX 2 – Asset Information Requirements (AIR)