Publish Date

INFORMATION PROTOCOL

Company Name

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| 8068-ORG-XX-XX-SP-X-5113 |

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| Project Information | |
| Lead Appointed Party Name | Lead Appointed Party Name |
| Company Name | Company Name |
| Company Address | Company Address |
| Originator Code | ORG |
| Client Name | Client Name |

|  |  |
| --- | --- |
| Project Details | |
| Project Name | Project Name |
| Project Address | Project Address |
| Project Number | Project Number |
| Project Value | Project Value |
| Document Reference | 8068-ORG-XX-XX-SP-X-5113 |

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| Document Status | |
| Status | Status |
| Suitability | Suitability |
| Publish Date | Publish Date |

Document Issue

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Revision | Date | Author | Checked | Approved | Revision Comments |
| *01* | *12/05/2024* | *J. Smith* | *M. Brown* | *T. Johnson* | *Initial draft completed.* |
|  |  |  |  |  |  |
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| B | 0000-ORG-XX-XX-SP-X-XXXX |  |
| C | 0000-ORG-XX-XX-SP-X-XXXX |  |
| D | 0000-ORG-XX-XX-SP-X-XXXX |  |
| E | 0000-ORG-XX-XX-SP-X-XXXX |  |
| F | 0000-ORG-XX-XX-SP-X-XXXX |  |
| G | 0000-ORG-XX-XX-SP-X-XXXX |  |
| H | 0000-ORG-XX-XX-SP-X-XXXX |  |
| I | 0000-ORG-XX-XX-SP-X-XXXX |  |
| J | 0000-ORG-XX-XX-SP-X-XXXX |  |
| K | 0000-ORG-XX-XX-SP-X-XXXX |  |
| L | 0000-ORG-XX-XX-SP-X-XXXX |  |
| M | 0000-ORG-XX-XX-SP-X-XXXX |  |
| N | 0000-ORG-XX-XX-SP-X-XXXX |  |
| O | 0000-ORG-XX-XX-SP-X-XXXX |  |
| P | 0000-ORG-XX-XX-SP-X-XXXX |  |

# Delivery Strategy

## Federation Strategy

The proposed overall modelling and coordination strategy for the project has been developed considering the factors listed below; this will be further developed and updated as additional information and model authors are identified:

* Overall project procurement strategy.
* Availability and level of information need of design phase models.
* Trade contractor capability assessments.
* Survey requirements.
* Required project deliverables.
* The agreed BIM Uses.
* The identified unique project challenges.
* Coordination requirements.
* Concurrent working requirements.
* Security considerations.
* Model Information container size.

It is envisaged that elements of the consultants’ models will be retained where the sub-contractors do not provide modelling and that in these instances the design team shall continue to develop the models in line with the requirement of BS EN ISO 19650-1:2018. Where the trade provides modelling, the design team elements will be switched off / superseded and adherence with the model elements that the model maturity should be in line with a specific project delivering stage.

## Information Transmission

The models will be split into manageable units in line with functional and spatial breakdown strategy demonstrated in section 3.5 of this BEP. The breakdown shall be established per discipline during the start of the project to ensure that the information container sizes do not become so large and manageable for coordination.

If the individual models (in required formats including native and IFC) increase in size to over **300Mb** during the design process, then sub-dividing models for the issue to the rest of the project team will be reviewed so that the models can be efficiently managed. Besides, further sub-division of models may be required if the federated models exceed **300Mb**.

For Revit models, Worksets should be used to assist model management and simplify Information container splitting later.

# Standard Method and Procedure

All information produced for this project shall follow BS EN ISO 19650-2:2018. For details, please refer to Appendix.

Table 1 - Information Container Identifier

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Project No | [1] | Originator | [1] | Functional Breakdown | [1] | Spatial Breakdown | [1] | Form | [1] | Discipline | [1] | Number | [2] | Title / Description |
| XXXX(XX) | - | XXX | - | XX | - | XX | - | X(X) | - | X | - | 0000(00) | \_ |  |

The XX denotes the minimum number of characters for each field, the additional (XX) denotes the additional number of characters, up to the maximum number, for each field.

Note: Although BS EN ISO 19650-2 does not recommend specific field length the project shall follow the maximum field restrictions shown in Table 1 - Information Container Identifier.

Standard delimiters should be used between fields to ensure correct interpretation of the information container ID by software applications.

* [1] Delimiter Hyphen-Minus (U+002D).
* [2] Delimiter Underscore (U+0332).

# Information Protocol

## Project Identifier

Table 2 - Project Identifier

|  |  |
| --- | --- |
| Code | Project |
| 8068 | Project Name |

This is a single common project identifier, defined at the initiation of the project, to be used by all organizations to identify the project.

## Originator

Table 3 - Originator

|  |  |
| --- | --- |
| Code | Organisation Name |
| XXX | Organisation Name |
| XXX | Organisation Name |
| XXX | Organisation Name |
| XXX | Organisation Name |
| XXX | Organisation Name |

## Project Functional Breakdown

## Simultaneous Working

The project has been divided by function and space to allow simultaneous working in all interlocked spaces and information containers (models), and to standardize project drawing production.

Each Task Team shall follow task team shown in Figure 1 and Table 4 - Functional Breakdown.

Diagram

Description automatically generated

Figure 1 - Information container breakdown structure for simultaneous working

Table 4 - Functional Breakdown

|  |  |
| --- | --- |
| Functional ID | Description |
| ZZ | All spaces/areas |
| XX | Space/Area not applicable |
| 99 | Site |
| Enter ID | Add additional spaces/areas as required |

|  |  |
| --- | --- |
| Functional ID | Description |
|  | |
| Breakdown ID | Description |
|  | |
| Breakdown ID | Description |
|  | |
| Breakdown ID | Description |
|  | |
| Breakdown ID | Description |
|  | |
| Breakdown ID | Description |

## Functional Federation by Discipline

The federated information model prepared for clash review shall follow the strategy shown in Table 5

Table 5 - Federation Strategy by discipline

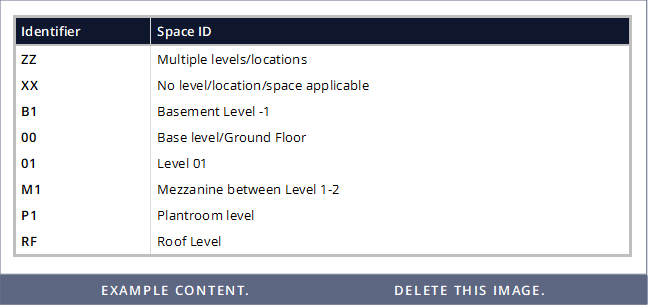
|  |  |
| --- | --- |
| Key | Description |
| Color | Description |
| Color | Description |
| Color | Description |
| Color | Description |
| Color | Description |
| Color | Description |
|  | |

## Project Spatial Breakdown

The task teams shall follow the agreed level identification strategy for the project, the **two-character** alphanumeric identifiers shown in Table 6 to be used.

Table 6 - Spatial Identifier

|  |  |
| --- | --- |
| Identifier | Space ID |
| Identifier | Space ID |
| Identifier | Space ID |
| Identifier | Space ID |
| Identifier | Space ID |
| Identifier | Space ID |
| Identifier | Space ID |
| Identifier | Space ID |
| Identifier | Space ID |



## Form Identifier (ID)

The Form ID relates to a 2-character alphabetic identifier to identify the type of information held within the information container.

Identifiers defined for the project are shown in Table 7, please note the BS EN ISO 19650-2 NA 2021 Form Identifiers [\*] are not used on this project and instead a project specific codes highlighted blue are to be used. The project specific codes are based on Uniclass 2015 FI Tables.

Table 7 - Form Identifier

|  |  |
| --- | --- |
| ID | Information Container Type |
| ~~D\*~~ | ~~Drawing (not used)~~ |
| ~~G\*~~ | ~~Diagram (not used)~~ |
| ~~I\*~~ | ~~Image (not used)~~ |
| ~~L\*~~ | ~~List (not used)~~ |
| ~~M\*~~ | ~~Model (not used)~~ |
| ~~T\*~~ | ~~Textual (not used)~~ |
| ~~V\*~~ | ~~Video/audio (not used)~~ |
| AF | Animation file |
| AF | Animation file |
| AG | Agenda |
| AP | Application |
| BL | Brochure |
| BQ | Bill of quantities |
| CA | Calculations |
| CC | Contract |
| CD | Conversation record |
| CE | Certificate |
| CH | Chart |
| CM | Combined model |
| CO | Correspondence |
| CP | Cost plan |
| CR | Clash rendition |
| CT | Comment |
| DB | Database |
| DE | Diary entry |
| DG | Drawing (not used) |
| DR | Drawing rendition |
| DS | Data set |
| DT | Data sheet |
| DY | Directory |
| EM | Email |
| ES | Estimate |
| EW | Early warning notice |
| FM | Form |
| FN | File note |
| GU | Guide |
| HS | Health and safety |
| IE | Information exchange file |
| IM | Image |
| IN | Instruction |
| IV | Invoice |
| LF | Leaflet |
| LG | Log |
| LI | List |
| LT | Letter |
| M2 | Model - two-dimensional |
| M3 | Model - three-dimensional |
| MA | Manual |
| ME | Memo |
| MI | Minutes |
| MR | Model rendition |
| MS | Method statement |
| MX | Matrix |
| PC | Procedure |
| PE | Press release |
| PH | Photograph |
| PL | Plan |
| PO | Poster |
| PP | Presentation |
| PR | Programme |
| PS | Proposal |
| PT | Permit |
| PW | Process workflow |
| PY | Policy |
| PZ | Protocol |
| QN | Quotation |
| RD | Room data sheet |
| RG | Register |
| RI | Request |
| RN | Regulation |
| RP | Report |
| RQ | Requisition |
| SA | Schedule of accommodation |
| SC | Schematic |
| SD | Standard |
| SH | Schedule or table |
| SK | Sketch |
| SN | Snagging list |
| SO | Subcontract order |
| SP | Specification |
| ST | Study |
| SU | Survey |
| SW | Scope of works |
| SY | Strategy |
| TE | Template |
| TF | Technology file |
| TG | Training record |
| TL | Transmittal |
| TN | Transfer note |
| TQ | Technical query |
| TR | Test result |
| VA | Variation |
| VL | Valuation |
| VS | Visualization |

## Discipline Identifier (ID)

The task teams shall use Discipline identifiers shown in Table 8.

Table 8 - Role Identifier

|  |  |
| --- | --- |
| ID | Role |
| A | architecture |
| B | building surveying |
| C | civil engineering |
| D | demolition/dismantling |
| E | electrical engineering |
| F | facilities/asset management |
| G | ground engineering |
| H | highways and transport engineering |
| I | Not used |
| K | Not used |
| L | landscape architecture |
| M | mechanical engineering |
| O | other discipline |
| P | public health engineering |
| Q | quantity surveying / cost consultancy |
| R | project management |
| S | structural engineering |
| T | town and country planning and building control |
| W | water engineering |
| X | non-discipline specific or not applicable |
| Y | topographical surveying |
| Z | multiple disciplines |

## Number

A number should be assigned to each information container; task teams can use their numbering method as long as it is in line with the BEP requirements, with the number between four and six integer numeric digits in length when the number is one of a sequence, it must not be distinguished by any other of the fields. Please note the leading zeros must be used and make sure not to embody information that is present in other fields.

# Metadata

The project CDE has been set up to allow the use of the status, revision and classification attributes as metadata, the attributes used on this project have been based on Table NA.1 of the BS EN ISO 19650-2:2018.

The codes used on this project are shown in Table 9, revisions should be two integers, prefixed with the letter 'P', e.g. P01. Information containers in the 'work in progress' state should also have a two-integer suffix to identify the version of the preliminary revision, e.g. P02.05.

All Contractual revisions of information containers should be two integers, prefixed with the letter 'C', e.g. C01.

Table 9 - Status and Suitability

|  |  |  |
| --- | --- | --- |
| Status Code | Suitability BS EN ISO 19650-2 2018, NA 02/2021 | |
|  |  | Action by |
| Information State (at any project stage): Work in progress (WIP) | | |
| S0 | Information developed within a task team | [C], [B] |
| Information State (at any project stage): Shared (non-contractual) | | |
| S1 | coordination | [B], [C] |
| S2 | information/reference | [A], [B], [C] |
| S3 | review and comment | [B] |
| S4 | review and authorization | [B] |
| S5 | review and acceptance | [A] |
| Information State (at handover stage 6): Published [1] (contractual) | | |
| A1, An [2] | authorisation or acceptance | [A], [B] |
| B1, Bn | partial-authorisation or acceptance | [A], [B] |
| Action by: [A] Appointing Party, [B] Lead Appointed Party, [C] Appointed Party | | |
| [1] A published status code indicates sign-off by either the lead appointed party or the appointing party but did not describe why the information container has been issued—the reasons for issue A*n* status code shall be defined in the project's information standard.  [2] Examples of the use of status code A*n*  A0 - BS 8536-2 2016 Work Stage 0 - Strategy, or RIBA [3] Stage 0 - Strategic Definition  A1 - BS 8536-2 2016 Work Stage 1 - Brief, or RIBA [3] Stage 1 - Preparation and Briefing  A2 - BS 8536-2 2016 Work Stage 2 - Concept, or RIBA [3] Stage 2 - Concept Design  A3 - BS 8536-2 2016 Work Stage 3 - Definition, or RIBA [3] Stage 3 - Spatial Coordination  A4 - BS 8536-2 2016 Work Stage 4 - Design, or RIBA [3] Stage 4 - Technical Design  A4 = information container Authorised and Accepted as suitable for construction  A5 - BS 8536-2 2016 Work Stage 5 - Construct and commission, or RIBA [3] Stage 5 - Manufacturing and Construction  A5 = Authorized and accepted as suitable as a construction record  A6 - BS 8536-2 2016 Work Stage 6 - Handover and Closeout, or RIBA [3] Stage 6 - Handover  A7 - BS 8536-2 2016 Work Stage 7 - Operation and End of Life, or RIBA [3] Stage 7 - Use  [3] RIBA Plan of Work 2020 | | |

# Description

The descriptive text used to aid information container recognition can be used but shall be kept to a minimum, the description should not include information already defined in the other fields, and it shall remain the same on all revisions. To allow human recognition and ease management of information containers outside of CDE, each shared and published information container shall include status and revision reference at the end of description, the revision shall be separated by an underscore as shown in Table 10 - Information container naming example.

Table 10 - Information container naming example

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Project No | [1] | Originator | [1] | Functional Breakdown | [1] | Spatial Breakdown | [1] | Form | [1] | Discipline | [1] | Number | [2] | Information Model/container Title/Description |
| XXXX(XX) | - | XXX | - | XX | - | XX | - | X(X) | - | X | - | 0000(00) | \_ |  |
| 0000 | - | ORG | - | 40 | - | 01 | - | DR | - | E | - | 2000 | \_ | Small Power & Data  Layout\_S1\_P01 |
| 0000 | - | ORG | - | XX | - | XX | - | IE | - | E | - | 0001 | \_ | TIDP\_S1\_P01 |
| 0000 | - | ORG | - | XX | - | XX | - | IE | - | E | - | 0001 | \_ | COBie\_S1\_P01 |

Table 11 - Project Specified Model Information container naming

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Project No | [1] | Originator | [1] | Functional Breakdown | [1] | Spatial Breakdown | [1] | Form | [1] | Discipline | [1] | Number | [2] | Information Model/container Title/Description |
| 0000 | - | ORG | - | XX | - | XX | - | M3 | - | E | - | 9100 | \_ | Revit Model\_S1\_P01 |
| 0000 | - | ORG | - | XX | - | XX | - | M3 | - | E | - | 9200 | \_ | Navis Model\_S1\_P01 |
| 0000 | - | ORG | - | XX | - | XX | - | M3 | - | E | - | 9300 | \_ | IFC Model\_S1\_P01 |

# General Design and Construction Information

General arrangement drawing, coordination drawing, location drawings and schedules of elements, objects, components, and materials for all work scope that is modelled will be generated from the BIM model as sheet sets (data drops) that are contained in the BIM project model for that discipline. Typical details, assembly and component details, and shop drawings may be created separately from the BIM model depending on the Level of Information Need of a particular stage. The details of drawings generated separately from Construction BIM Models shall be approved by the Lead Appointed Party before being shared to permitted parties for construction use.

# Data Strategy

## **Introduction of COBie**

COBie is an acronym for “Construction Operations Building Information exchange.” COBie is an information exchange specification for the life-cycle capture and delivery of information needed by facility managers. It defines the way this information is structured and formats that can be used. COBie is a format of building data for the publication of a subset of building model information and is commonly in the format of excel spreadsheet for delivering construction handover between lifecycles.

COBie exchange format Excel spreadsheets are used to integrate Autodesk Revit project file and the Client’s Facility Management System. The COBie Excel file will contain COBie parameters specified. The COBie parameters requirement is specified in Appendix.

It is the responsibility of each design discipline to ensure the information input into the native models is accurate (validated and verified) and that the data has correctly exported and populated the data *(COBie)* spreadsheet.

Data entry should be an ongoing process throughout the project; it should be carefully controlled with regular in-house data checks carried out by each discipline. Checks to include:

* Project data parameters have been correctly input.
* Organisation contact details are correct and up to date.
* No data amendments are made once extracted from the 3D models.
* Data has been entered in the correct fields and format (e.g. alphanumeric).
* Data has been entered at the correct type/instance level.
* Model and project protocols have been followed (identification conventions, levels etc.).
* Duplicate objects removed from the models.
* Data (COBie)export settings and parameter mappings are correct.

The integrity of data, included within the data *(COBie)* scheme, should be ensured as follows:

* Every Component should be assigned to at least one Space.
* Every Component should be assigned to one Type.
* Every Component should be assigned to at least one System.
* Every Space should be assigned to at least one Zone.
* Every reference to other sheets should be valid.
* Every reference to Pick List enumerations and classifications should be valid.
* Enumerations specified in the Attributes and Pick Lists should be adhered to.

Consultants are asked to supply details of their data *(COBie)* workflows, data entry and in-house data checking procedures to Lead Appointed Party Name - Company Name.

The following diagram illustrates the workflows of data collection and validation, the platform for all data collection and validation associated with handover is eDocuments. Within this digital handover solution, all relevant information, including H&S file, O&M’s, drawings, models, asset data, etc. will be collated.

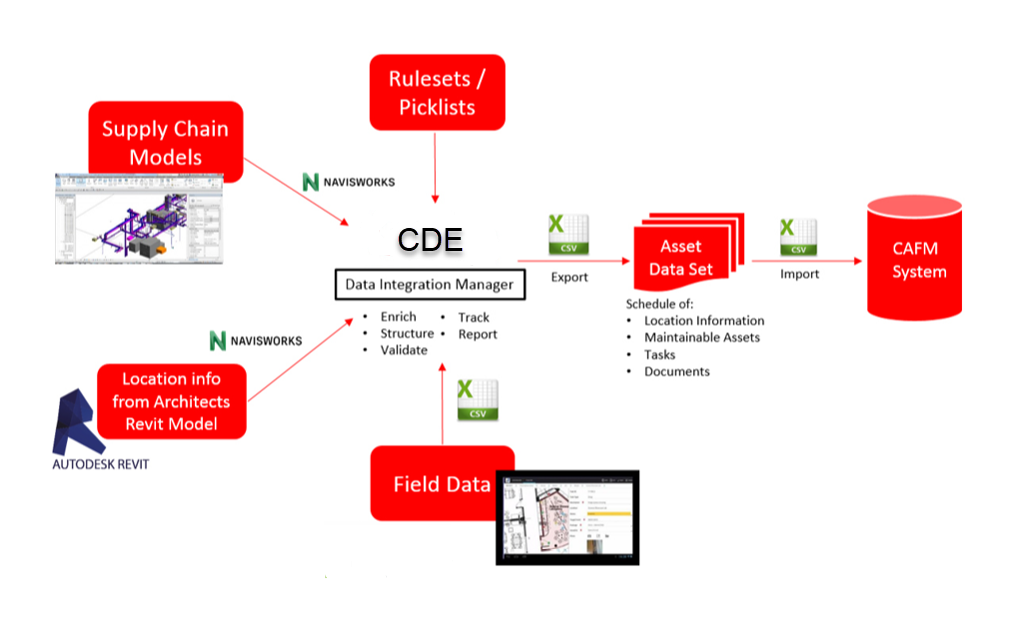


Figure 2 - Data Strategy

# Exchange Information Requirements

On the agreed dates, all parties will submit their 3D Models and associated data drops. All models are to be entirely clash checked before issue. All data drops are to be thoroughly checked and the information verified before issue.

Lead Appointed Party Name - Company Name will audit the models for data quality/consistency and BEP compliance during and at the end of each project milestone / work-stage. A data audit report will be issued documenting results. Where possible, Lead Appointed Party Name - Company Name will guide data entry, shared parameters and COBie export settings upon request.

Exchange information requirements at each stage or gateway will be made up as follows:

* Native discipline-based 3D model files product is specific for all design and analysis models. Revit (.rvt) files.
* 3D discipline-based models extracted from native files, for collaboration and clash detection. IFC; NWD; NWF.
* COBie-COBie-UK-2012 version 2.4 extracted from native files.
* PDF files (for associated documentation)- no older than version 7.0.
* 2D drawing files in dwg format cut from the submitted models.

The responsibilities for exchange information requirements are as follows:

Table 12 - Responsibilities for EIR

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Reference | Design Stage | Responsibility | Check 1 | Check 2 |
| Pre-Main Contractor Contract | Data Drop 1 | End of Stage 1  [Brief] | Architect | Appointing Party | - |
| Data drop 2 | End-Stage 2  [Concept] | Architect | Appointing Party | - |
| Data Drop 3 | End-Stage 3  [Definition] | Architect | Appointing Party | - |
| Data Drop 4 | End-Stage 4  [Design] | Architect | Appointing Party | - |
| Post-Main Contract | Data Drop 5 | End-Stage 5  [Construct and commission] | Lead appointed Party | Architect | Appointing Party |
| Data Drop 6 | Stage 6  [Handover & Closeout] | Lead appointed Party | Architect | Appointing Party |
| Data Drop 7 | Stage 7  [Operation and End of Life] | Lead appointed Party | Architect | Appointing Party |

# Digital Plan of Work (dPoW)

The dPoW can be found in Appendix. this represents a detailed responsibility matrix for the various model elements. Definitions for Level of information need are in line with section **Error! Reference source not found.**

The Digital Plan of Work is essential to outline the following items:

* How the project is broken down into model elements.
* Which elements are to be modelled.
* Who is responsible for modelling each of those elements.
* What the minimum Level of information need each element is to be modelled to.
* If and when the responsibility of elements changes hands.

# CDM Strategy and PAS 1192-6 Compliance

In our function as Principal Contractor, we shall leverage the project models and BIM Deliverables to address the critical requirements of the CDM regulations 2015 as summarized below.

Table 13 - CDM Strategy

|  |  |  |
| --- | --- | --- |
| CDM General Aims | BIM Support | Relevant BIM Deliverables |
| sensibly plan the work, so the risks involved are managed from start to finish | 4D linking of the programme to the model including logistics models | Communication & Engagement Site Logistics Methodology Programme Validation (4D) |
| have the right people for the right job at the right time | BIM Capability Assessments carried out and any additional training or upskilling needs identified |  |
| cooperate and coordinate your work with others | Design to be fully coordinated ahead of manufacture/installation to avoid unplanned site activities associated with clashes etc. | Design Review |
| have the right information about the risks and how they are being managed | Residual design risks to be embedded in the model-by-model authors | Health & Safety |
| communicate this information effectively to those who need to know | Model-based workforce engagements, safety briefings and site inductions using 4D sequencing, residual risk annotations, etc. Live project information to be available on the CDE at all times | Communication & Engagement Health & Safety |
| consult and engage with workers about the risks and how they are being managed | Collaborative model-based planning sessions carried out with key stakeholders and delivery team | Site Logistics Methodology |
| **Principal Contractor’s Duties**  Plan, manage, monitor, and coordinate health and safety in the construction phase of a project. This includes: | | |
| liaising with the client and principal designer | Model-based presentation sessions | Communication & Engagement |
| preparing the construction phase plan PDF | Drawings to be extracted from 3D models | Design Development |
| organising cooperation between contractors and coordinating their work | Collaboration workflows and procedures described in this BEP to be stringently adhered to and current information to be available on CDE as required | Design Review |
| Make sure: | | |
| suitable site inductions are provided | Model and 4D sequencing used to familiarise workers with the project and critical activities | Health & Safety |
| reasonable steps are taken to prevent unauthorised access | Hoarding and access and egress routes modelling carried out and incorporated into the project model | Site Logistics Methodology |
| workers are consulted and engaged in securing their health and safety | Collaborative model-based planning sessions carried out with key stakeholders and delivery team | Site Logistics Methodology |
| welfare facilities are provided | Federated model to be used during planning stages to locate appropriate facilities in safe zones and reviewed through construction | Site Logistics Methodology |
| **Principal Designer’s Duties**  Plan, manage, monitor, and coordinate health and safety in the pre-construction phase of a project. This includes: | | |
| identifying, eliminating, or controlling foreseeable risks | Residual design risks to be embedded in the model-by-model authors | Health & Safety |
| ensuring designers carry out their duties | Stringent adherence to BEP workflows | Design Development |
| Prepare and provide relevant information to other duty holders. | Use of CDE to share required and up to date information | Design Development |
| Liaise with the principal contractor to help in the planning, management, monitoring, and coordination of the construction phase | Use of CDE and collaboration workflows | Design Development |