

## BIM Execution Plan (BEP)

Date: DD/MM/YYYY

Version: DADA/PROC/TEMP/BEP-V1

**Prepared by:**

Signature

Name

Position

Date

**Approved by:**

Signature

Name

Position

Date

**Authorised by:**

Signature

Name

Position

Date

# Table of Contents

<b>1</b>	<b>INTRODUCTION .....</b>	<b>5</b>
<b>1.1</b>	<b>PURPOSE AND SCOPE OF THE BEP .....</b>	<b>5</b>
<b>1.2</b>	<b>BIM PROJECT EXECUTION PLAN OVERVIEW.....</b>	<b>6</b>
<b>1.3</b>	<b>PROJECT INFORMATION &amp; ORGANISATION .....</b>	<b>6</b>
<b>1.4</b>	<b>PROJECT SCHEDULE / PHASES / MILESTONES: .....</b>	<b>7</b>
<b>1.5</b>	<b>KEY PROJECT CONTACTS.....</b>	<b>7</b>
<b>2</b>	<b>MAJOR BIM GOALS / OBJECTIVES:.....</b>	<b>8</b>
<b>2.1</b>	<b>KEY PERFORMANCE INDICATORS (KPIS).....</b>	<b>9</b>
<b>2.2</b>	<b>BIM USES.....</b>	<b>9</b>
<b>2.3</b>	<b>BIM USE ANALYSIS WORKSHEET: .....</b>	<b>10</b>
<b>3</b>	<b>BIM REQUIREMENTS AND PROCESSES .....</b>	<b>11</b>
<b>3.1</b>	<b>Building Information Modelling (BIM) uses.....</b>	<b>11</b>
<b>3.2</b>	<b>LEVEL OF DEFINITION .....</b>	<b>11</b>
<b>3.3</b>	<b>GEOMETRIC INFORMATION REQUIREMENTS .....</b>	<b>11</b>
<b>3.4</b>	<b>NON-GEOMETRIC INFORMATION REQUIREMENTS .....</b>	<b>11</b>
<b>4</b>	<b>ORGANISATIONAL ROLES / STAFFING.....</b>	<b>12</b>
<b>4.1</b>	<b>BIM ROLES AND RESPONSIBILITIES .....</b>	<b>12</b>
<b>4.2</b>	<b>BIM USE STAFFING .....</b>	<b>12</b>
<b>5</b>	<b>PROJECT PROGRAMME.....</b>	<b>12</b>
<b>5.1</b>	<b>MASTER PROGRAMME.....</b>	<b>12</b>
<b>5.2</b>	<b>BIM IMPLEMENTATION PROGRAMME.....</b>	<b>12</b>
<b>5.3</b>	<b>PROJECT MILESTONES.....</b>	<b>13</b>
<b>6</b>	<b>BIM PROCESS DESIGN.....</b>	<b>13</b>
<b>7</b>	<b>BIM INFORMATION EXCHANGES .....</b>	<b>15</b>
<b>8</b>	<b>BIM DATA REQUIREMENTS .....</b>	<b>16</b>
<b>9</b>	<b>COLLABORATION PROCEDURES .....</b>	<b>16</b>
<b>9.1</b>	<b>COLLABORATION STRATEGY.....</b>	<b>16</b>

<b>9.2</b>	<b>MEETING PROCEDURES.....</b>	<b>16</b>
<b>9.3</b>	<b>MODEL DELIVERY SCHEDULE OF INFORMATION EXCHANGE FOR SUBMISSION AND APPROVAL.....</b>	<b>17</b>
<b>9.4</b>	<b>INTERACTIVE WORKSPACE .....</b>	<b>17</b>
<b>9.5</b>	<b>ELECTRONIC COMMUNICATION PROCEDURES .....</b>	<b>18</b>
<b>10</b>	<b>QUALITY CONTROL.....</b>	<b>19</b>
<b>10.1</b>	<b>OVERALL STRATEGY FOR QUALITY CONTROL .....</b>	<b>19</b>
<b>10.2</b>	<b>QUALITY CONTROL CHECKS.....</b>	<b>19</b>
<b>10.3</b>	<b>MODEL ACCURACY AND TOLERANCES .....</b>	<b>19</b>
<b>11</b>	<b>TECHNOLOGICAL INFRASTRUCTURE NEEDS .....</b>	<b>20</b>
<b>11.1</b>	<b>SOFTWARE .....</b>	<b>20</b>
<b>11.2</b>	<b>COMPUTERS / HARDWARE .....</b>	<b>20</b>
<b>11.3</b>	<b>MODELING CONTENT AND REFERENCE INFORMATION .....</b>	<b>20</b>
<b>12</b>	<b>MODEL STRUCTURE .....</b>	<b>21</b>
<b>12.1</b>	<b>FILE NAMING STRUCTURE .....</b>	<b>21</b>
<b>12.2</b>	<b>MODEL STRUCTURE.....</b>	<b>21</b>
<b>12.3</b>	<b>MEASUREMENT AND COORDINATE SYSTEMS.....</b>	<b>21</b>
<b>12.4</b>	<b>BIM AND CAD STANDARDS .....</b>	<b>21</b>
<b>13</b>	<b>PROJECT DELIVERABLES .....</b>	<b>22</b>
<b>14</b>	<b>DELIVERY STRATEGY / CONTRACT .....</b>	<b>22</b>
<b>14.1</b>	<b>DELIVERY AND CONTRACTING STRATEGY FOR THE PROJECT.....</b>	<b>22</b>
<b>14.2</b>	<b>TEAM SELECTION PROCEDURE .....</b>	<b>22</b>
<b>14.3</b>	<b>BIM CONTRACTING PROCEDURE.....</b>	<b>22</b>
	<b>APPENDIX A: BIM USE ANALYSIS WORKSHEET .....</b>	<b>23</b>
	<b>APPENDIX B: ROLES &amp; RESPONSIBILITIES.....</b>	<b>24</b>
	<b>APPENDIX C: DATA DROP SCHEDULE .....</b>	<b>30</b>
	<b>APPENDIX D: BIM PROCESS DESIGN TEMPLATE.....</b>	<b>31</b>
	<b>APPENDIX E: INFORMATION EXCHANGE TEMPLATE WORKSHEET .....</b>	<b>32</b>
	<b>APPENDIX F: MODEL DEFINITION TEMPLATE WORKSHEET .....</b>	<b>33</b>

## Document History

Issue	Date	Comments

# 1 INTRODUCTION

## 1.1 PURPOSE AND SCOPE OF THE BEP

The Building Information Modelling Execution Plan (BEP) is a core approved document which defines the BIM strategy and processes for the successful completion of **INSERT PROJECT NAME** principally as a Level 2 BIM project in line with the objectives of DADA Enterprises.

This document outlines the following to support collaborative processes to produce the information required by DADA Enterprises and provide support to the contract coordinator throughout the entire life cycle of the project:

- Responsibilities
- Requirements and processes
- Best practices
- Methods and protocols
- Relevant business processes
- Supporting software requirements

This document should be considered for use to support information provided for further consultant and contractor appointments and define requirements for consultant deliverables. For additional project phases and further work stages outside of the scope of this document, this information may be superseded under cover of letter distributed by the Client, but fundamental standards and naming / data structures shall be continued throughout the project.

No part of this document should be construed as preventing the Consultants, Specialist Subcontracts and Specialist Suppliers from sharing their respective models at any time and in any format if this is to be helpful to project progress and co-ordination.

[EXPLAIN FURTHER THE PURPOSE OF THIS BEP AND SPECIFY THE INTENDED AUDIENCE. IDENTIFY THE SYSTEMS AND AREAS COVERED BY THIS DOCUMENT AND AREAS THAT ARE NOT]

## 1.2 BIM PROJECT EXECUTION PLAN OVERVIEW

To successfully implement Building Information Modelling (BIM) on a project, the project team has developed this detailed BIM Project Execution Plan. The BIM Project Execution Plan defines uses for BIM on the project (e.g., design authoring, cost estimating, and design coordination), along with a detailed design of the process for executing BIM throughout the project lifecycle.

[INSERT ADDITIONAL INFORMATION HERE IF APPLICABLE. FOR EXAMPLE: BIM MISSION STATEMENT]

Standards		Application											
		Guidance	Collaboration	Project stages	File naming	Object naming	Drawing	Classification	LOD	CDE	Costing	COBie	Contracts
Industry	Additional or superseding standards												
Bespoke	BIM Execution Plan (BEP)	M	M	M	M	M			M	M			

## 1.3 PROJECT INFORMATION & ORGANISATION

This section defines basic project reference information and determines project milestones.

1. CLIENT:
2. PROJECT OWNER:
3. PROJECT NAME:
4. PROJECT LOCATION AND ADDRESS:
5. CONTRACT TYPE / DELIVERY METHOD:
6. BRIEF PROJECT DESCRIPTION: [NUMBER OF FACILITIES, GENERAL SIZE, ETC]
7. ADDITIONAL PROJECT INFORMATION: [UNIQUE BIM PROJECT CHARACTERISTICS AND REQUIREMENTS]

8. PROJECT NUMBERS:

PROJECT INFORMATION	NUMBER
CONTRACT NUMBER:	
TASK ORDER:	
PROJECT NUMBER:	

9. CONTRACT/COST BREAKDOWN STRUCTURE:

10. ASSET BREAKDOWN STRUCTURE:

**1.4 PROJECT SCHEDULE / PHASES / MILESTONES:**

Include BIM milestones, pre-design activities, major design reviews, stakeholder reviews, and any other major events which occur during the project lifecycle.

PROJECT PHASE / MILESTONE	ESTIMATED START DATE	ESTIMATED COMPLETION DATE	PROJECT STAKEHOLDERS INVOLVED
PRELIMINARY PLANNING			
DESIGN DOCUMENTS			
CONSTRUCTION DOCUMENTS			
CONSTRUCTION			

**1.5 KEY PROJECT CONTACTS**

List of lead BIM contacts for each organisation on the project. Additional contacts can be included later in the document.

ROLE	ORGANISATION	CONTACT NAME	LOCATION	E-MAIL	PHONE
Project Manager(s)					
BIM Manager(s)					
Discipline Leads					
Other Project Roles					

## 2 MAJOR BIM GOALS / OBJECTIVES:

State Major BIM Goals and Objectives

Describe how the BIM Model and Facility Data are leveraged to maximize project value (e.g., design alternatives, life-cycle analysis, scheduling, estimating, material selection, pre-fabrication opportunities, site placement, etc.)

PRIORITY (1-3)	GOAL DESCRIPTION	POTENTIAL BIM USES

An example of how to complete the BIM Goal Statement template is as below.

Priority (1-3)	Project Goal	Potential BIM Uses
<b>1= Most Important</b>		
1	Ensure a high quality of design and design documentation	Design Authoring, Design Reviews, 3D Coordination
1	Coordinate the transition of occupants into the building	4D Modeling
2	Increase the productivity of field installation	Design Reviews, 3D Coordination
2	Accurately track the progress of construction	4D Modeling
2	Develop an accurate record of the final building design for use in future renovation projects	Record Model, 3D Coordination
1	Achieve the sustainability targets	Engineering Analysis, LEED Evaluation
3	Effectively monitor the progress of design to ensure target for construction start is achieved	Design Reviews
3	Accurately review the cost impact of changes in a timely manner	Design Authoring, Cost Estimation

## 2.1 KEY PERFORMANCE INDICATORS (KPIs)

A set of KPIs is to be agreed and documented in the Project Execution Plan. These require data input from the relevant project team members. Once agreed, KPIs which affect BIM processes and deliverables are to be documented in the next revision of the BEP.

- Insert KPI 1
- Insert KPI 2
- Insert KPI 3
- Insert KPI 4

## 2.2 BIM USES

Highlight and place an **X** next to the additional BIM Uses to be developed using the BIM model as selected by the project team using the BIM Goal & Use Analysis Worksheet as per example overleaf.

<b>X</b>	<b>PLAN</b>	<b>X</b>	<b>DESIGN</b>	<b>X</b>	<b>CONSTRUCT</b>	<b>X</b>	<b>OPERATE</b>
	PROGRAMMING		DESIGN AUTHORIZING		SITE UTILISATION PLANNING		BUILDING MAINTENANCE SCHEDULING
	SITE ANALYSIS		DESIGN REVIEWS		CONSTRUCTION SYSTEM DESIGN		BUILDING SYSTEM ANALYSIS
			3D COORDINATION		3D COORDINATION		ASSET MANAGEMENT
			STRUCTURAL ANALYSIS		DIGITAL FABRICATION		SPACE MANAGEMENT / TRACKING
			LIGHTING ANALYSIS		3D CONTROL AND PLANNING		DISASTER PLANNING
			ENERGY ANALYSIS		RECORD MODELING		RECORD MODELING
			MECHANICAL ANALYSIS				
			OTHER ENG. ANALYSIS				
			SUSTAINABILITY (LEED) EVALUATION				
			CODE VALIDATION				
	PHASE PLANNING (4D MODELING)		PHASE PLANNING (4D MODELING)		PHASE PLANNING (4D MODELING)		PHASE PLANNING (4D MODELING)
	COST ESTIMATION		COST ESTIMATION		COST ESTIMATION		COST ESTIMATION
	EXISTING CONDITIONS MODELING		EXISTING CONDITIONS MODELING		EXISTING CONDITIONS MODELING		EXISTING CONDITIONS MODELING

### 2.3 BIM USE ANALYSIS WORKSHEET:

[USE **APPENDIX A** FOR TEMPLATE BIM GOAL & USE ANALYSIS WORKSHEET TO COMPLETE AS PER EXAMPLE BELOW]

BIM Use*	Value to Project	Responsible Party	Value to Resp Party	Capability Rating			Additional Resources / Competencies Required to Implement	Notes	Proceed with Use
				Scale 1-3 (1 = Low)					
	High / Med / Low		High / Med / Low	Resources	Competency	Experience			YES / NO / MAYBE
<b>Record Modeling</b>	HIGH	Contractor	MED	2	2	2	Requires training and software		YES
		Facility Manager	HIGH	1	2	1	Requires training and software		
		Designer	MED	3	3	3			
<b>Cost Estimation</b>	MED	Contractor	HIGH	2	1	1			NO
<b>4D Modeling</b>	HIGH	Contractor	HIGH	3	2	2	Need training on later software Infrastructure ne	High value to owner due to phasing complications Use for Phasing & Construction	YES
<b>3D Coordination (Construction)</b>	HIGH	Contractor	HIGH	3	3	3	Coordination software required	Modeling learning curve possible	YES
		Subcontractors	HIGH	1	3	3	Coordination software required		
		Designer	MED	2	3	3			
<b>Engineering Analysis</b>	HIGH	MEP Engineer	HIGH	2	2	2			MAYBE
		Architect	MED	2	2	2			
<b>Design Reviews</b>	MED	Arch	LOW	1	1	1		Reviews to be from design model no additional detail required	NO
<b>3D Coordination (Design)</b>	HIGH	Architect	HIGH	2	2	2	Coordination software required	Contractor to facilitate Coord.	YES
		MEP Engineer	MED	2	2	1			
		Structural Engineer	HIGH	2	2	1			
<b>Design Authoring</b>	HIGH	Architect	HIGH	3	3	3			YES
		MEP Engineer	MED	3	3	3			
		Structural Engineer	HIGH	3	3	3			
		Civil Engineer	LOW	2	1	1	Large learning curve	Civil not required	
<b>Programming</b>	MED							Planning Phase Complete	NO

### 3 BIM REQUIREMENTS AND PROCESSES

#### 3.1 BUILDING INFORMATION MODELLING (BIM) USES

Refer to Section 2 for a complete list of BIM uses that have been categorised by the client. Uses identified as High should be fulfilled for **Insert Project Name**. Moderate and Low uses that are to be implemented on this project should be agreed through team collaboration with Client.

#### 3.2 LEVEL OF DEFINITION

Requirements for development of geometry definition and model usability are mapped against project work stages to support the project deliverables and support BIM uses.

These requirements are to be understood by all consultants, stakeholders and incorporated in the post-contract BEP.

#### 3.3 GEOMETRIC INFORMATION REQUIREMENTS

Define a Model Production Delivery Table (MPDT) with stakeholder in alignment with the project design responsibilities matrix and provide comments to this effect.

#### 3.4 NON-GEOMETRIC INFORMATION REQUIREMENTS

INSERT COBie REQUIREMENTS (MATRIX) BASIC PARAMETER REQUIREMENTS AND CLIENT SPECIFIC REQUIREMENTS FOR ASSET DATA]

It is important that all stakeholders familiarise themselves with the parameter requirements and ensure that BIM object templates and component lists take into consideration the data type required.

## 4 ORGANISATIONAL ROLES / STAFFING

Determine the project's BIM Roles/Responsibilities and BIM Use Staffing

### 4.1 BIM ROLES AND RESPONSIBILITIES

Describe BIM roles and responsibilities such as BIM Managers, Project Managers, Draftspersons, etc. [USE TEMPLATE **APPENDIX B** TO DEFINE TEAM]

### 4.2 BIM USE STAFFING

For each BIM Use selected, identify the team within the organisation (or organisations) who will staff and perform that Use and estimate the personal time required.

## 5 PROJECT PROGRAMME

### 5.1 MASTER PROGRAMME

The main elements of the master programme has been developed to include BIM processes, design, procurement, construction, commissioning and completion. The project team is required to adhere to this programme and commit resource as necessary to achieve the required dates.

Detailed programmes have been realised within the constraints set by the master programme. This includes a design programme, a construction programme, an operation programme and a BIM implementation programme.

### 5.2 BIM IMPLEMENTATION PROGRAMME

Considering the master project programme, and through engagement with the Client and project team, the following constraints and milestones have been identified as impacting the BIM implementation programme:

- Site conditions
- Planning permission
- Tender process
- Key data drops
- BIM data exchange trial

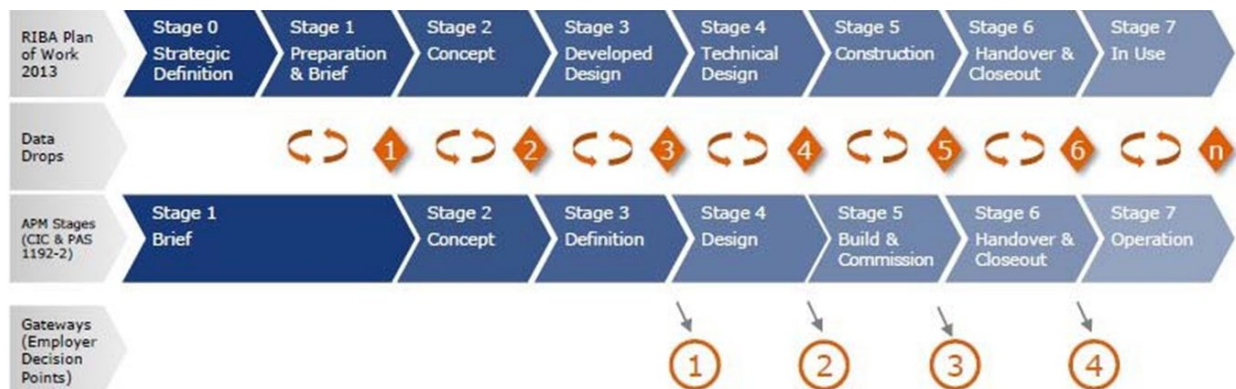
### 5.3 PROJECT MILESTONES

The following milestones are based on the Master Programme dated *00/00/0000*:

MILESTONE	DATE
<i>INSERT PROJECT MILESTONE 1</i>	<i>00/00/0000</i>
<i>INSERT PROJECT MILESTONE 2</i>	<i>00/00/0000</i>
<i>INSERT PROJECT MILESTONE 3</i>	<i>00/00/0000</i>

Critical milestones for the execution of *Insert Project Name* as a fully collaborative BIM project are the data drops.

[USE THE DATA DROP TEMPLATE FOUND IN **APPENDIX C** TO DEFINE THE DROP SCHEDULE]



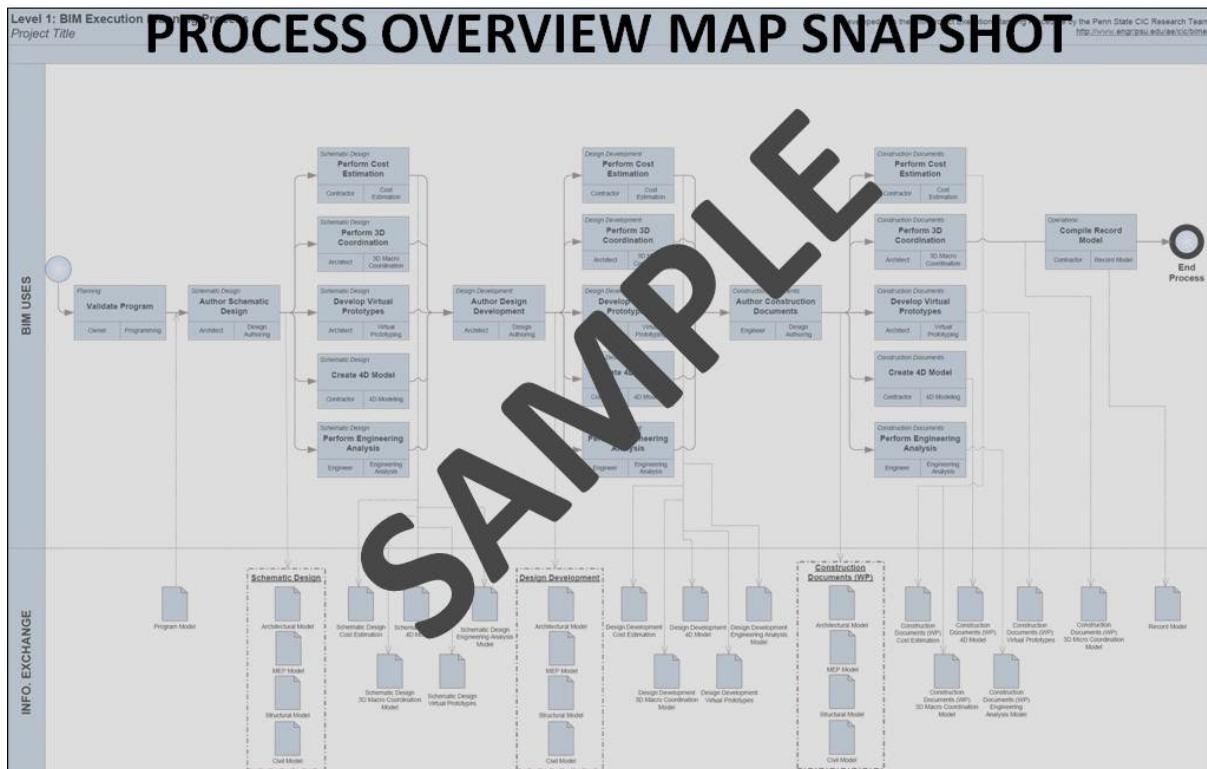
## 6 BIM PROCESS DESIGN

Provide process maps for each BIM Use selected in section D: Project Goals/BIM Objectives. These process maps provide a detailed plan for execution of each BIM Use. They also define the specific Information Exchanges for each activity, building the foundation for the entire execution plan.

The plan should include the Overview Map (Level 1) of the BIM Uses, a Detailed Map of each BIM Use (Level 2), and a description of elements on each map, as appropriate.

[THE FOLLOWING PROCESS MAPS HAVE BEEN INCLUDED IN **APPENDIX D** AS TEMPLATES FOR YOU TO CUSTOMISE. IT MAY BE THE CASE THAT NOT ALL ARE NEEDED, WHEREAS ADDITIONAL PROCESS MAPS MAY BE REQUIRED]

1. Existing Conditions Modelling
2. Cost Estimation
3. Phase Planning (4D Modelling)
4. Programming
5. Site Analysis
6. Design Reviews
7. Design Authoring
8. Energy Analysis
9. Structural Analysis
10. Lighting Analysis
11. 3D Coordination
12. Site Utilisation Planning
13. 3D Control and Planning
14. Record Modelling
15. Maintenance Scheduling
16. Building System Analysis



## 7 BIM INFORMATION EXCHANGES

Model elements by discipline, level of detail, and any specific attributes important to the project are documented using information exchange worksheet.

[CUSTOMISE INFORMATION EXCHANGE TEMPLATE IN **APPENDIX E**]

**INFORMATION EXCHANGE (IE)**

Information	Responsible Party
A Accurate Size & Location, include materials and object parameters	JACO Architect
B General Size & Location, include parameter data	SOH Contractor
C Schematic Size & Location	CE Civil Engineer
	MEP Mechanical Engineer
	SE Structural Engineer
	TE Trade Contractors

BIM Use Title	Programming	Design Authoring	Existing Conditions Modeling	Cost Estimation	3D Coordination	Design Reviews										
Project Phase	Planning	Design	Design	Design	Design	Design Reviews										
Time of Exchange (SD, DD, CD, Construction)																
Responsible Party (Information Receiver)																
Receiver File Format																
Application & Version																
Model Element Breakdown	Info	Resp. Party	Additional Information	Info	Resp. Party	Additional Information	Info	Resp. Party	Notes	Info	Resp. Party	Notes	Info	Resp. Party	Notes	
<b>A SUBSTRUCTURE</b>																
Foundations																
			Standard Foundations													
			Special Foundations													
			Slab on Grade													
Basement Construction																
			Basement Excavation													
			Basement Walls													
<b>B SHELL</b>																
Superstructure																
			Floor Construction													
			Floor Construction													
Exterior Enclosure																
			Exterior Walls													
			Exterior Windows													
			Exterior Doors													
Roofing																
			Roof Coverings													
			Roof Openings													
<b>C INTERIORS</b>																
Interior Construction																
			Partitions													
			Interior Doors													
			Fittings													
Stairs																
			Stair Construction													
			Stair Finishes													
Interior Finishes																
			Wall Finishes													
			Floor Finishes													
			Ceiling Finishes													
<b>D SERVICES</b>																
Conveying Systems																
			Elevators & Lifts													
			Escalators & Moving Walks													
			Other Conveying Systems													

[CUSTOMISE MODEL DEFINITION TEMPLATE IN **APPENDIX F**]

**MODEL DEFINITION (MD)**

Information	Responsible Party
A Accurate Size & Location, include materials and object parameters	JACO Architect
B General Size & Location, include parameter data	SOH Contractor
C Schematic Size & Location	CE Civil Engineer
	MEP Mechanical Engineer
	SE Structural Engineer
	TE Trade Contractors

Project Phase Deliverable	Planning	Design	Construction	Operations					
Author File Format (if varies, specify in notes)									
Application & Version									
Model Element Breakdown	Info	Resp. Party	Additional Information	Info	Resp. Party	Notes	Info	Resp. Party	Notes
<b>A SUBSTRUCTURE</b>									
Foundations									
			Standard Foundations						
			Special Foundations						
			Slab on Grade						
Basement Construction									
			Basement Excavation						
			Basement Walls						
<b>B SHELL</b>									
Superstructure									
			Floor Construction						
			Floor Construction						
			Green Roof						
			Interior Columns						
			Beams						
			Trusses						
Exterior Enclosure									
			Exterior Walls						
			Curtain wall System						
			Exterior Windows - Glass Panels						
			Cladding						
			Exterior Doors						
Roofing									
			Roof Coverings						
			Roof Openings						
<b>C INTERIORS</b>									
Interior Construction									
			Partitions						
			Interior Doors						
			Fittings						
Stairs									
			Stair Construction						
			Stair Finishes						
Interior Finishes									
			Wall Finishes						
			Floor Finishes						
			Ceiling GFR						
			Drop Ceilings						
			Ceiling Finishes						
<b>D SERVICES</b>									

## 8 BIM DATA REQUIREMENTS

The section should include the owners BIM requirements. It is important that the owner's requirements for BIM be considered so that they can be incorporated into the project's BIM process.

## 9 COLLABORATION PROCEDURES

### 9.1 COLLABORATION STRATEGY

Describe how the project team will collaborate. Include items such as communication methods, document management and transfer, and record storage, etc.

### 9.2 MEETING PROCEDURES

The following are examples of meetings that should be considered.

MEETING TYPE	PROJECT STAGE	FREQUENCY	PARTICIPANTS	LOCATION
BIM REQUIREMENTS KICK-OFF				
BIM EXECUTION PLAN DEMONSTRATION				
DESIGN COORDINATION				
CONSTRUCTION OVER-THE-SHOULDER PROGRESS REVIEWS				
ANY OTHER BIM MEETINGS THAT OCCUR WITH MULTIPLE PARTIES				

### 9.3 MODEL DELIVERY SCHEDULE OF INFORMATION EXCHANGE FOR SUBMISSION AND APPROVAL

Document the information exchanges and file transfers that will occur on the project.

INFORMATIO NEXCHANGE	FILE SENDER	FILE RECEIVER	ONE-TIME or FREQUENCY	DUE DATE or START DATE	MODEL FILE	MODEL SOFTWARE	NATIVE FILE TYPE	FILE EXCHANGE TYPE
DESIGN AUTHORING - 3D COORDINATION	STRUCTURAL ENGINEER	(FTP POST) (COORDINATION LEAD)	WEEKLY	[DATE]	STRUCT	DESIGN APP	.XYZ	.XYZ .ABC
	MECHANICAL ENGINEER	(FTP POST) (COORDINATION LEAD)	WEEKLY	[DATE]	MECH	DESIGN APP	.XYZ	.XYZ .ABC

### 9.4 INTERACTIVE WORKSPACE

The project team should consider the physical environment it will need throughout the lifecycle of the project to accommodate the necessary collaboration, communication, and reviews that will improve the BIM Plan decision making process. Describe how the project team will be located. Consider questions like *“will the team be collocated?”* If so, where is the location and what will be in that space?

## 9.5 ELECTRONIC COMMUNICATION PROCEDURES

The following document management issues should be resolved, and a procedure should be defined for each: Permissions / access, File Locations, FTP Site Location(s), File Transfer Protocol, File / Folder Maintenance, etc

FILE LOCATION	FILE STRUCTURE / NAME	FILE TYPE	PASSWORD PROTECT	FILE MAINTAINER	UPDATED
FTP SITE: ftp://ftp.****.com/***/** ***	ROOT PROJECT FOLDER	FOLDER	YES ***** ***	JIM McBIM	ONCE
	ARCH ROOT FOLDER	FOLDER			ONCE
	ARCH-11111-BL001.xyz	.xyz			DAILY
NETWORK drive location	ROOT PROJECT FOLDER	FOLDER	NO	JIM McBIM	ONCE
Project Management Software www.*****.com					

## 10 QUALITY CONTROL

### 10.1 OVERALL STRATEGY FOR QUALITY CONTROL

Describe the strategy to control the quality of the model.

### 10.2 QUALITY CONTROL CHECKS

The following checks should be performed to assure quality.

CHECKS	DEFINITION	RESPONSIBLE PARTY	SOFTWARE PROGRAM(S)	FREQUENCY
VISUAL CHECK	Ensure there are no unintended model components and the design intent has been followed			
INTERFERENCE CHECK	Detect problems in the model where two building components are clashing including soft and hard			
STANDARDS CHECK	Ensure that the BIM and AEC CADD Standards have been followed (fonts, dimensions, line styles, levels/layers, etc)			
MODEL INTEGRITY CHECKS	Describe the QC validation process used to ensure that the Project Facility Data set has no undefined, incorrectly defined or duplicated elements and the reporting process on non-compliant elements and corrective action plans			

### 10.3 MODEL ACCURACY AND TOLERANCES

Models should include all appropriate dimensioning as needed for design intent, analysis, and construction. Level of detail and included model elements are provided in the Information Exchange Worksheet.

PHASE	DISCIPLINE	TOLERANCE
DESIGN DOCUMENTS	ARCH	ACCURATE TO +/- [ # ] OF ACTUAL SIZE AND LOCATION
SHOP DRAWINGS	MECH CONTRACTOR	ACCURATE TO +/- [ # ] OF ACTUAL SIZE AND LOCATION

## 11 TECHNOLOGICAL INFRASTRUCTURE NEEDS

### 11.1 SOFTWARE

List software used to deliver BIM. Remove software that is not applicable.

BIM USE	DISCIPLINE (if applicable)	SOFTWARE	VERSION
DESIGN AUTHORIZING	ARCH	XYZ DESIGN APPLICATION	VER. X.X (YEAR)

### 11.2 COMPUTERS / HARDWARE

Understand hardware specification becomes valuable once information begins to be shared between several disciplines or organisations. It also becomes valuable to ensure that the downstream hardware is not less powerful than the hardware used to create the information. To ensure that this does not happen, choose the hardware that is in the highest demand and most appropriate for the majority of BIM Uses.

BIM USE	HARDWARE	OWNER OF HARDWARE	SPECIFICATIONS
DESIGN AUTHORIZING	XXX COMPUTER SYSTEM	ARCHITECT X	PROCESSOR OPERATING SYSTEM, MEMORY STORAGE, GRAPHICS, NETWORK CARD, ETC.

### 11.3 MODELING CONTENT AND REFERENCE INFORMATION

Identify items such as families, workspaces, and databases.

BIM USE	DISCIPLINE (if applicable)	MODELING CONTENT / REFERENCE INFORMATION	VERSION
DESIGN AUTHORIZING	ARCH	XYZ APP FAMILIES	VER. X.X (YEAR)
ESTIMATING	CONTRACTOR	PROPRIETARY DATABASE	VER. X.X (YEAR)

## 12 MODEL STRUCTURE

### 12.1 FILE NAMING STRUCTURE

Determine and list the structure for model file names.

FILE NAMES FOR MODELS SHOULD BE FORMATTED AS:	
DISCIPLINE - PROJECT NUMBER – BUILDING NUMBER.XYZ (example: ARCH-11111-BL001.xyz)	
ARCHITECTURAL MODEL	ARCH-
CIVIL MODEL	CIVIL-
MECHANICAL MODEL	MECH-
PLUMBING MODEL	PLUMB-
ELECTRICAL MODEL	ELEC-
STRUCTURAL MODEL	STRUCT-
ENERGY MODEL	ENERGY-
CONSTRUCTION MODEL	CONST-
COORDINATION MODEL	COORD-

### 12.2 MODEL STRUCTURE

Describe and diagram how the Model is separated, e.g., by building, by floors, by zone, by areas, and/or discipline.

### 12.3 MEASUREMENT AND COORDINATE SYSTEMS

Describe the measurement system (Imperial or Metric) and coordinate system (geo-referenced) used.

### 12.4 BIM AND CAD STANDARDS

Identify items such as the BIM and CAD standards, content reference information, and the version of IFC, etc.

STANDARD	VERSION	BIM USES APLICABLE	ORGANISATIONS APLICABLE
CAD STANDARD		DESIGN AUTHORIZING	ARCHITECT
IFC	VERSION/MVD(s)	RECORD MODELING	CONSTRUCTION MANAGER

## 13 PROJECT DELIVERABLES

In this section, list the BIM deliverables for the project and the format in which the information will be delivered.

BIM SUBMITTAL ITEM	STAGE	APPROXIMATE DUE DATE	FORMAT	NOTES
	Design Development			
	Construction Documents			
	Construction			
Record Model	Close out		(.xyz)	See Record Model Information Exchange to ensure that the proper information is contained in this model

## 14 DELIVERY STRATEGY / CONTRACT

### 14.1 DELIVERY AND CONTRACTING STRATEGY FOR THE PROJECT

What additional measures need to be taken to successfully use BIM with the selected delivery method and contract type?

### 14.2 TEAM SELECTION PROCEDURE

How will you select future team members regarding the above delivery strategy and contract type?

### 14.3 BIM CONTRACTING PROCEDURE

How should BIM be written into the future contracts?

## APPENDIX A: BIM USE ANALYSIS WORKSHEET

[CLICK ON THE EMBEDDED EXCEL DOCUMENT BELOW TO CUSTOMISE FOR YOUR PROJECT]

BIM Use*	Value to Project High / Med / Low	Responsible Party	Value to Resp Party High / Med / Low	Capability Rating			Additional Resources /	Notes
				Scale 1-3 (1 = Low)				
				Resources	Competency	Experience		
<b>Maintenance Scheduling</b>								
<b>Building Systems Analysis</b>								
<b>Record Modeling</b>								
<b>Cost Estimation</b>								
<b>4D Modeling</b>								
<b>Site Utilization Planning</b>								

CLICK TO EDIT

## APPENDIX B: ROLES & RESPONSIBILITIES

BIM roles and responsibilities are described in this section. Please refer to the current version of the project execution plan for overall scopes of services.

R = Responsible (Undertaking task)

A = Approving Authority (Delegating tasks and validating compliance) C = Consulted (Providing input to achieve the task)

I = Informed (Kept informed about the tasks and/or outputs)

\*= as required

Responsibilities	Employer	Project Manager	Cost Manager	Design Team	Lead Designer	Bim Leader	Information Manager	Main Contractor	Cdm-C	Facilities Manager	Specialist Contractor
CDE											
Advise on a CDE	A	I				C	R				
Provide a CDE	R	I	I	I	I	I	I	I	I	I	
Set up the CDE	A	C	C	C	C	C	R	C	C	C	
Maintain the CDE		C		I	C	C	R	C			
Download/upload all project information from/to the CDE	R	R				R	R	R	R	R	
Resources											
Appoint consultants, including Information Manager						C					
Ensure that the necessary software and hardware are in place within the organisation to support efficient delivery of the project	R	R	R	R	R	R	R	R	R	R	R
Assess all sub-contracted organisations (design or construct) according to the BIM assessment criteria contained in the Capability Assessment	I	I	R	R	R	R		R			R
Report any emerging skill gaps within the team		I		R	R			R			

Responsibilities	Employer	Project Manager	Cost manager	Design team	Lead Designer	BIM Leader	Information Manager	Main Contractor	CDM-C	Facilities manager	Specialist Contractor
Provide guidance to assist in procuring the right type of training from credible industry professionals	I	I	I	I	I	R	I	I	I	I	I
Co-ordinate training for your own organisation	R	R	R	R	R	R	R	R	R	R	R
Project strategy											
Establish BIM requirements for the project, long term	C	I				R					
Develop, implement and update as necessary the post-contract BEP, which all project team members need to agree to and use	A	I		C	C	R					
Agree and implement the data structure and maintenance standards for the information models	C	I	C	C	C	C	R			C	
Acquire and update as necessary the post-contract BEP to include construction responsibilities	I	I				I	I	R			I
Develop and implement the information delivery plan, sufficient to ensure all deliverables are accounted for		C				I	I	R			I
Acquire and update the MPDT indicating model progression in respect of work packages including Level Of Definition with dates of delivery								R			
Develop and implement the BIM implementation programme	A	R				C					
Develop and implement the information exchange protocol		I				C	R				
BIM guidance and monitoring of the project team	I	C				I	R				

Responsibilities	Employer	Project Manager	Cost manager	Design team	Lead Designer	BIM Leader	Information Manager	Main Contractor	CDM-C	Facilities manager	Specialist Contractor
Responsible for ensuring that all sub-contracted organisations (design or construct) meet the requirements set forth in the EIR		C		R	R			R			
Provide any existing information including historical data and existing conditions models.	R		R						I		
Geometry											
Create a site set-up model with coordinated, measurements and bearings to be used disseminated to all design team members				I	R			I			
Provide a virtual model according to the Levels of Development, the MPD and the non-geometric requirements				R	R			R			R
Share information models for coordination					R			R			R
Implement the BEP within the organisation			R	R	R	R	R	R	R	R	R
Full coordination of the design and design team				C	R						
Provide energy analysis model(s) for evaluation by the project team				R	R						
Provide structural analysis model(s) for evaluation by the project team				R							
Create clash detection reports of the federated models					R						
Ensure the implementation of BIM acknowledges Facilities Management (FM) and operation and maintenance deliverables	I	I				I		R		C	C
Incorporate sub-contract (design and construct) models				R	R			R			R

Responsibilities	Employer	Project Manager	Cost manager	Design team	Lead Designer	BIM Leader	Information Manager	Main Contractor	CDM-C	Facilities manager	Specialist Contractor
Ensure that all drawings are derived from the information models		I		R	R			R			R
Export and publish files according to file data exchange schedule		I		R	R			R			R
Data											
Specify data requirements including the purpose for the information required and the timing of its delivery	A	I	C	C	C	R	I	C	C	C	C
Provide data about facility in both its spatial and physical aspects according to the COBie requirements of the EIR		I		R	R			R		I	R
Provide data specific to a particular system or component in line with individual scope of works								R			C
Delegate aspect of the EIR downwards to the next tier		I		R	R			R			R
Create, acquire and store required information				R	R		R	R	R	R	R
Review and approve the data deliverable prior to submission		I		R	R	C	R	R			R
Construction management											
Provide 4D construction phasing		I						R			C
Provide 4D construction sequencing		I						R	I		C
Provide 4D logistics simulations including crane strategy		I						R	I		R
Update all 4D simulated models to reflect current project conditions and to illustrate progress		I						R	I		C

Responsibilities	Employer	Project Manager	Cost manager	Design team	Lead Designer	BIM Leader	Information Manager	Main Contractor	CDM-C	Facilities manager	Specialist Contractor
Quality assurance and control											
Report on changes to budget, cost and design	A		R					R			
Audit and coordinate virtual models, including full intermittent clash detection according to the BIM programme		I		C	R			C			C
Report on general model quality in terms of geometry, materiality and metadata		I					R				
Report on adherence to the project BEP with regards to model Level Of Definition, model completeness and BIM standards compliance		I				I	R				
Report on functionality of the model for 4D and 5D use by other consultants		I					R	C			
Review of received data against the EIR data requirements				R	R		R	R			R
Support the Lead Designer by undertaking third party 3D coordination and clash detection processes to assist design coordination reviews		I		C	R			C			C
Meetings											
Make use of information models during design team and the Employers team meetings					R			R			
Hold BIM workgroup meetings		C	C*	C	R	I	I				

Responsibilities	Employer	Project Manager	Cost manager	Design team	Lead Designer	BIM Leader	Information Manager	Main Contractor	CDM-C	Facilities manager	Specialist Contractor
Hold key work stage BIM steer meetings	C	C	C	C	C	R	R	C		C	
Hold lessons learned meeting following completion of phases	I	R	R	R	R	R	R	R	R	R	R
Reporting and Governance											
Provide monthly status reports of BIM development using project pro-forma	I	C	R		R	R	R	R	C	C	R
Provide monthly procurement model highlighting work packages which have been let and/or procured	I	I						R			C
Provide monthly model showing actual programme progress against planned	I	I						R			C
Report on supply chain performance during construction	I	I						R			C

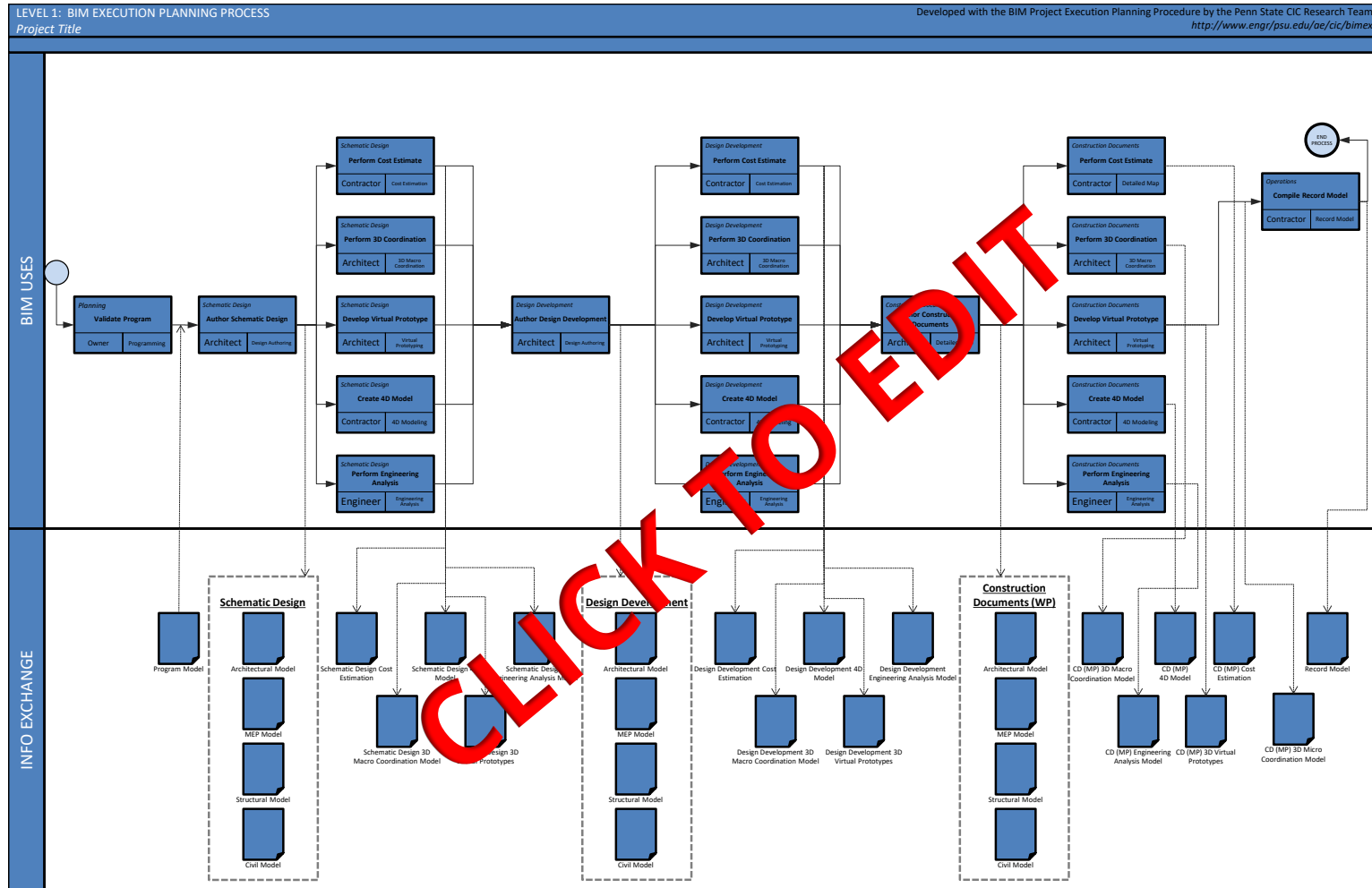
## APPENDIX C: DATA DROP SCHEDULE

Additional discipline models and the parties responsible are to be added to all required data drops.

DATA DROP	DATE	PROJECT STAGE	FILE SUBMITTED	FORMAT	RESPONSIBLE PARTY
1	<i>Dd/mm /yy</i>	1	<i>COBie drop</i>	.XLS	<i>Architect name</i>
			Architectural Model	.IFC	<i>Architect name</i>
2	<i>Dd/mm /yy</i>	2	<i>COBie drop</i>	.XLS	<i>All design consultants</i>
			Architectural Model	.IFC	<i>Architect name</i>
			Structural & Structural Model	.IFC	<i>Civil &amp; Structural Engineer</i>
			MEP Model	.IFC	<i>MEP Engineer name</i>
3	<i>Dd/mm /yy</i>	3	<i>COBie drop</i>	.XLS	<i>All design consultants</i>
			Architectural Model	.IFC	<i>Architect name</i>
			Structural & Structural Model	.IFC	<i>Civil &amp; Structural Engineer</i>
			MEP Model	.IFC	<i>MEP Engineer name</i>
4	<i>Dd/mm /yy</i>	4	<i>COBie drop</i>	.XLS	<i>All design consultants</i>
			Architectural Model	.IFC	<i>Architect name</i>
			Structural & Structural Model	.IFC	<i>Civil &amp; Structural Engineer</i>
			MEP Model	.IFC	<i>MEP Engineer name</i>
5	<i>Dd/mm /yy</i>	5	<i>COBie drop</i>	.XLS	<i>Contractor name</i>
			Project Information Model	.IFC	<i>Contractor name</i>
			Specialist designer model	.IFC	<i>Specialist name</i>
6	<i>Dd/mm /yy</i>	6	<i>COBie drop</i>	.XLS	<i>Contractor name</i>
			Asset Information Model	.IFC	<i>Contractor name</i>
7+	<i>Dd/mm /yy</i>	7	<i>COBie drop</i>	.XLS	<i>Facilities Manager</i>
			Asset Information Model	.IFC	<i>Facilities Manager</i>

# APPENDIX D: BIM PROCESS DESIGN TEMPLATE

[CLICK ON THE EMBEDDED POWERPOINT DOCUMENT BELOW TO CUSTOMISE FOR YOUR PROJECT]



## APPENDIX E: INFORMATION EXCHANGE TEMPLATE WORKSHEET

[CLICK ON THE EMBEDDED EXCEL DOCUMENT BELOW TO CUSTOMISE FOR YOUR PROJECT]

### INFORMATION EXCHANGE (IE)

Information	
A	Accurate Size & Location, include materials and object parameters
B	General Size & Location, include parameter data
C	Schematic Size & Location

Disciplines (OmniClass Table 33)	
11	Planning
21	Design
25	Project Management
31	Surveying
41	Construction
55	Facility Use Disciplines
81	Support Disciplines
99	Other Disciplines

<b>BIM Use Title</b>		
<b>Project Stage</b>		
<b>Time of Exchange (SD, DD, CD, Construction)</b>		
<b>Responsible Party (Information Receiver)</b>		
<b>Receiver File Format</b>		
<b>Application &amp; Version</b>		
<b>Model Element Breakdown</b>		
<b>01</b>	<b>SUBSTRUCTURE</b>	
01	10	<b>Foundations</b>
01	10	10 Standard Foundations
01	10	20 Special Foundations
01	20	<b>Subgrade Enclosures</b>
01	20	10 Walls for Subgrade Enclosures
01	40	<b>Slabs-On-Grade</b>
01	40	10 Standard Slabs-On-Grade

## APPENDIX F: MODEL DEFINITION TEMPLATE WORKSHEET

[CLICK ON THE EMBEDDED EXCEL DOCUMENT BELOW TO CUSTOMISE FOR YOUR PROJECT]

### MODEL DEFINITION (MOD)

Information		Disciplines (OmniClass Table 33)	
A	Accurate Size & Location, include materials and object parameters	11	Planning
B	General Size & Location, include parameter data	21	Design
C	Schematic Size & Location	25	Project Management
		31	Surveying
		41	Construction
		55	Facility Use Disciplines
		81	Support Disciplines
		99	Other Disciplines

Project Stage Deliverable			10 Conception Stage		
Author File Format (if varies, specify in notes)					
Application & Version					
Model Element Breakdown			Info	Resp Party	Notes
01	<b>SUBSTRUCTURE</b>				
01	10	<b>Foundations</b>			
01	10	10 Standard Foundations			
01	10	20 Special Foundations			
01	20	<b>Subgrade Enclosures</b>			
01	20	10 Walls for Subgrade Enclosures			
01	40	<b>Slabs-On-Grade</b>			
01	40	10 Standard Slabs-On-Grade			
01	40	20 Structural Slabs-On-Grade			