Defence Infrastructure Organisation

DIO BIM Process Compliance

07 December 2021 | V5.1

Version Control

Rev.	Date	Amendment	Review	Approved	Note
2.0	03/04/20	Appendix A and B included DIO Branding Updated	FOI Section 40(2) – Personal information	FOI Section 40(2) – Personal information	For Issue
3.0	28/07/20	DIO Branding added MPP Process Updated	FOI Section 40(2) – Personal information	FOI Section 40(2) – Personal information	For Issue
4.0	26/05/2021	Minor Change Information Manager/PIDP responsibility – TSP/Works Contractor	FOI Section 40(2) – Personal information	FOI Section 40(2) – Personal information	For Issue
5.0	27/07/2021	RIBA 2020 Alignment	FOI Section 40(2) – Personal information	FOI Section 40(2) – Personal information	For Issue
5.1	07/12/2021	Minor Change – JSP315 to DIO-Estrat JSP 850 Amendment to DIO BIM Team POC	FOI Section 40(2) – Personal information	FOI Section 40(2) – Personal information	For Issue

BIM Process Summary

Introduction

BIM is the collaborative development of digital Information (Models, Documents and structured Data) delivered as files and held as linked files in a Common Data Environment (CDE) with library management. BIM is **not** just 3D CAD models but is a structured and standardised method of delivering all types of information for a project that can be used consistently across the whole DIO enterprise.

DIO are currently in the process of transitioning from UK's BS 1192 standards for Information Management to the new ISO 19650 standards. The ISO 19650 standards contain many of the same principles so this should not cause any issue to projects as and when this transition is complete.

Please read the following process guide in conjunction with the GSL Guidance

Background

From April 2016 the Government Construction Strategy (GCS) mandated that every Government funded capital project must achieve BIM Level 2 compliance. As a result, it is now assumed to be business as usual across all non-sensitive DIO projects. The DIO BIM Process is referred to within the Capital Project Process.

The development of the BIM artefacts has been carried out by DIO EStrat-Infra Const Strat and DIO DEx. The implementation of these items will benefit wider DIO initiatives and deliverables.

References

Government Construction Strategy 2016-2020

For further help and guidance contact the DIO BIM team: DIODEx-BIMImplementationTeam@mod.gov.uk

Key Documents and Tools

The key documents to manage and operate BIM (not the project information files) are:

- **Employers Information Requirements** (EIR) – This document details the standards, formats and delivery requirements of DIO. To note under ISO 19650 terminology this is to change to Exchange Information Requirements.
- **BIM Execution Plan** (BEP) – This is the Supplier's response to the EIR and describes how they intend to comply with the EIR. Suppliers are both TSP and Works Contractors. A pre contract BEP is used as part of the tender response or proposal for direct award and following contract award is developed as the post-contract BEP to be used as the working plan.
- **BEP Evaluation Assessment Criteria –** This details the assessment criteria used for evaluating the BEP responses and needs to be provided to tenderers to complete their response against.
- **Information Delivery Plan** (IDP) – This contains a long list of information deliverables and is profiled into the Project Information Delivery Plan (PIDP) containing the list of information items required by the project annotated with which stage they need to be delivered in, by who and to what level of detail.
- **Master Information Delivery Plan** (MIDP) – This is the register of files that are forecast to be delivered to complete the PIDP.
- **BIM Maturity Assessment Tool** (BMAT) – This is a stage by stage questionnaire used to assess the progress increase in information maturity throughout the project stages.
- **Construction Operation Building Information Exchange** (COBie) – This is a structured information exchange protocol and is used to record the transmittal of information and each data drop typically at the end of each stage. Is also referred to as a COBIE Demand Matrix.
- **Common Data Environment** (CDE) – This is a cloud hosting platform, that provides a single secure source of information for any given project, used to collect, manage and disseminate all relevant approved project documents for multi-disciplinary teams in a managed process.
- **DIO Spec 024** (SPEC024) – This specification details the convention for referencing land and property within the MOD.
- **UNICLASS 2015 –** This is an industry standard for asset classification and breakdown structure.

- **New Rules of Measurement** (NRM) – This is the set of rules and guidance for cost management.
- **Service and Facilities Group 20** (SFG20) – This is a classification for an industry library of maintenance task schedules.

DIO PM to complete and forward Table 1 to the DIO BIM Team: DIODEx-BIMImplementationTeam@mod.gov.uk

Project Name:	?
Project Code:	Z9…….
Project Location:	Completed once known
Programme:	Initial ISD
Project Value:	?
Project Manager:	Role e-mail
Commercial Officer:	Role e-mail
Notes to be confirmed:	Tick Box on IMS annotated? Standalone or Framework? Technical Support Provider? BIM Team Support Requirements? Phase of Project (first engagement with BIM Team)

BIM Clause for inclusion in contract

Ref: Appendices A and B provide the necessary requirements to be defined in the contract and need to be obtained from the DIO BIM Team.

Where BIM has not been established at contract level as a failure to incorporate the Government mandated requirement, then instruction to meet this requirement needs to be established on the contract by inclusion of Appendix A for Technical Support Providers or Appendix B for the Works Contractor/s.

BIM stage requirements – please see compliance workflows

Stage 0 – Strategic Definition

1. An initial IDP long list states all deliverables.

Stage 1 – Preparation and Briefing

2. EIR and tenderers compliant pre contract BEP needs establishing at contract level following which the EIR and BEP Evaluation Criteria are a requirement of contract. The TSPs first task is to turn the Long List IDP into a PIPD and agree this with the DIO PM.

3. The EIR, IDP (Long List) and the BEP Evaluation Criteria is issued as part of the tender pack. The DIO / TSP PM will actively engage with the BIM team, with the BIM team undertaking the lead evaluator role for the BIM pre contract BEP evaluation.

4. Following contract award, the TSP will then respond within six weeks with the project specific post contract BEP, a PIDP and a populated MIDP for the stage (noting the MIDP is a live document throughout the life of the project/project phase). This post contract BEP and associated BEP Evaluation Assessment Criteria, will be forwarded to the DIO BIM team for comment prior to acceptance.

5. The TSP will take on the BIM Information Management role and responsibilities for the project and will liaise with the DIO PM and the DIO BIM Information Manager.

6. During the stage the TSP will carry out information delivery in accordance with their BEP and MIDP using the TSP's own Supplier CDE. Initial Building Performance Standard (BPS) compliant BIM models for base design may be available from the DIO CDE through the Standard Design Library. The PM will record if such models and associated data are issued and advise the DIO-Estrat JSP 850 Team of utilisation of the appropriate standard and or gain approval to deviate from the standard, from the DIO-Estrat JSP 850 Team.

7. BIM Models, documents, data and in particular visualisations should be developed to support any option analysis and down selection during this stage. Physical surveys carried out should also be compatible with the BIM models.

8. Information drop is in accordance with the MIDP – work is not complete until the information associated with the work has been published into the DIO's AIM CDE. As an interim approach the TSP or Works Contractor will hold Information (Models, Documents and Data) until the DIO's AIM CDE is in place at which point the supplier will publish all "Published" Information to the AIM CDE as a requirement of the Contract.

9. As a deliverable for the phase the TSP, in consultation with the DIO PM will produce a PIDP for the next phase of works.

10. At the end of the stage the project team (DIO project team, TSP team and when appropriate the Works Contractor team) as a whole will complete a BMAT to record information maturity and confirm completion and delivery of all the information associated with the MIDP, these will be confirmed as part of the evidence for the GWR.

Stage 2 – Concept Design

11. If this stage is the first time that the project has engaged the TSP services, then follow the activities described in stage 1.

12. If the TSP was engaged in stage 1 then repeat activities in stage 1 omitting the pre-contract activities, noting that the post contract BEP and MIDP will need to be updated for the phase.

13. The TSP will take on the BIM Information Management role and responsibilities for the project liaising with the DIO PM and the DIO BIM Information Manager.

14. BIM Models, documents, data and in particular visualisations should be developed to support any option analysis and down selection during this stage. Physical surveys carried out should also be compatible with the BIM models.

15. Information drop is in accordance with the MIDP – work is not complete until the information associated with the work has been published into DIO's AIM CDE. As an interim approach the TSP or Works Contractor will hold Information (models, documents and data) until the DIOs AIM CDE is in place at which point the supplier will publish all "Published" Information to the AIM CDE as a requirement of the Contract.

16. As a deliverable for the phase the TSP will produce a PIDP for the next phase of works.

17. At the end of the stage the project team (DIO project team, TSP team and when appropriate the Works Contractor team) as a whole will complete a BMAT to record information maturity and confirm completion and delivery of all the information associated with the MIDP - these will be confirmed as part of the evidence for the GWR.

Stage 3 – Spatial Coordination

18. If this stage is the first time that the project has engaged the TSP services, then follow the activities described in stage 1.

19. If the TSP was engaged in stage 1/2 then repeat activities in Stage 1 omitting the pre-contract activities, noting that the post contract BEP and MIDP will need to be updated for the phase.

20. The TSP will take on the BIM Information Management role and responsibilities for the project and will liaising with the DIO PM and the DIO BIM Information Manager.

21. The discipline models should be developed according to the desired design maturity and level of detail. The model and visualisations can then be used to support planning applications, stakeholder engagement and business cases.

22. If the Works Contractor is to be procured for this phase, the EIR, BEP Evaluation Criteria, and PIDP will be included in the Production Information Pack and made a requirement of contract and the DIO / TSP PM will actively engage with the DIO BIM team to ensure the full BIM requirement is contracted for.

23. Discipline models, the federated Industry Foundation Classes (IFC) model and COBie should also be included to allow tenderers to fully understand the scope of works, allow buildability assessments and, if appropriate, 4D modelling (3D model linked to the construction schedule to check timing and sequencing).

24. As part of the tender return the Works Contractor(s) will submit a pre contract BEP to detail how they intend to satisfy the EIR, PIDP and MIDP. The TSP will then use the BEP Evaluation Assessment Criteria to score the BIM section of the tender with the DIO BIM Team acting as the lead evaluator/moderator (unless otherwise agreed by the DIO BIM Team).

25. Within 6 weeks of contract award the Works Contractor will issue to the TSP a post contract BEP and MIDP for the stage. The TSP will then use the BEP Evaluation Criteria to score the post contract BEP and supply to the DIO BIM Team for sign off.

26. Information drop is in accordance with the MIDP – work is not complete until the information associated with the stage has been published into DIO's AIM CDE. As an interim approach the TSP or Works contractor will hold Information (Models, Documents and Data) until the DIO's AIM CDE is in place at which point the supplier will publish all "Published" Information to the AIM CDE as a requirement of the Contract.

27. As a deliverable for the phase the TSP/Works Contractor (as appropriate) will produce a PIDP for the next phase of works.

28. At the end of the stage the project team (DIO project team, TSP team and when appropriate the Works Contractor team) as a whole will complete a BMAT to record information maturity and confirm completion and delivery of all the information associated with the MIDP - these will be confirmed as part of the evidence for the GWR.

Stage 4 – Technical Design

29. If this stage is the first time that the project has engaged the TSP services, then follow the tender activities described in stage 1.

30. If contracting for the Works Contractor, then follow the tender activities as described in stage 3.

31. If the TSP and / or Works Contractor was engaged in stage 3 the supplier's post contract BEP and MIDP will need to be updated for the phase.

32. The Works Contractor will take on the BIM Information Management role and responsibilities for the project, liaising with the DIO / TSP PM and the DIO BIM Information Manager.

33. As required in the EIR and PIDP the contractor should detail location and volume protocols based on Spec024 and asset classifications based on UNIClass2015 NRM and SFG20.

34. The Works Contractor will develop the design in accordance with requirements of the contracted PIDP to a full detail design using their own Supplier CDE.

35. All data and information used in the design development must be sourced from the BIM 3D models if they exist. 2D plans, sections and elevations must be produced from the federated model.

36. Regular design coordination and clash detection reports are to be issued to the TSP from the Works Contractor and DIO PM as part of the regular project reporting.

37. Information drop is in accordance with the MIDP – work is not complete until the information associated with the stage has been published into DIO's AIM CDE. As an interim approach the TSP or Works contractor will hold Information (models, documents and data) until DIO's AIM CDE is in place at which point the Supplier will publish all "Published" Information to the AIM CDE as a requirement of the Contract.

38. As a deliverable for the phase the TSP / Works Contractor (as appropriate) will produce a PIDP for the next phase of works.

39. At the end of the stage the project team (DIO project team, TSP team and when appropriate the Works Contractor team) as a whole will complete a BMAT to record information maturity and confirm completion and delivery of all the information associated with the MIDP - these will be confirmed as part of the evidence for the GWR.

Stage 5 – Manufacturing and Construction

40. If this stage is the first time that the project has engaged the TSP services, then follow the tender activities described in stage 1.

41. If this is the first time contracting for the Works Contractor, then follow the tender and post contract activities as described in stage 3.

42. If the TSP and / or Works Contractor were engaged in previous stages, the supplier's post-contract BEPs and MIDPs will need to be updated for the phase.

43. The Works Contractor will take on the BIM Information Management role and responsibilities for the project, liaising with the DIO / TSP PM and the DIO BIM Information Manager.

44. Throughout stage 5 the Works Contractor continues to mature the BIM model with as-built data and information.

45. At the end of the stage the BIM model will hold a complete asset record as required by the PIDP.

46. The TSP will undertake the assurance role, verifying and validating information that is then published to the authorities AIM CDE in accordance with the MIDP.

47. Once DIO's AIM CDE has been implemented, the TSP and / or the Works Contractor as appropriate for the phase will publish information into the AIM CDE.

48. Information Drop is in accordance with the MIDP – work is not complete until the information associated with the stage has been published into DIO's AIM CDE. As an interim approach the TSP or Works contractor will hold Information (Models, documents and data) until DIO's AIM CDE is in place at which point the supplier will publish all "Published" Information to the AIM CDE as a requirement of the Contract.

49. At the end of the stage the project team (DIO project team, TSP team and when Works Contractor team) as a whole will complete a BMAT to record information maturity and confirm completion and delivery of all the information associated with the MIDP - these will be confirmed as part of the evidence for the GWR.

Stage 6 – Handover

50. The Works Contractor will take on the BIM Information Management role and responsibilities for the project, liaising with the DIO / TSP PM and the DIO BIM Information Manager.

51. Throughout stage 6 the Works Contractor continues to mature the BIM model with as-built data and information as a result of any works undertaken during the Defects Liability period.

52. The TSP will undertake the assurance role, verifying and validating information that is then published to DIO's AIM CDE as a result of the defects liability period.

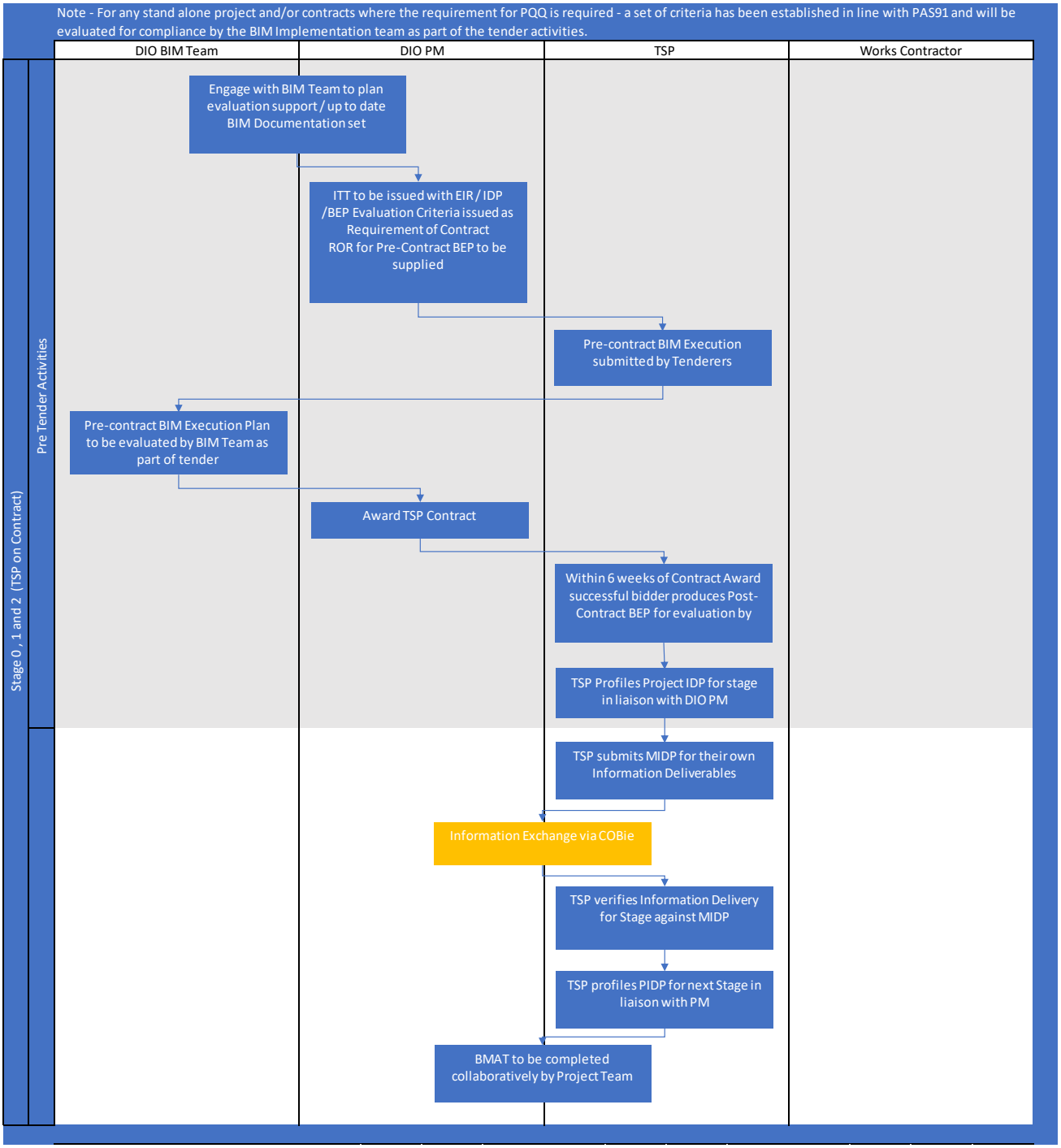
53. Information drop is in accordance with the MIDP – work is not complete until the information associated with the work has been published into DIO's AIM CDE. As an interim approach the TSP and/or Works contractor will hold Information (Models, documents and data) until DIO's AIM CDE is in place at which point the supplier will publish all "Published" Information to the AIM CDE as a requirement of the Contract.

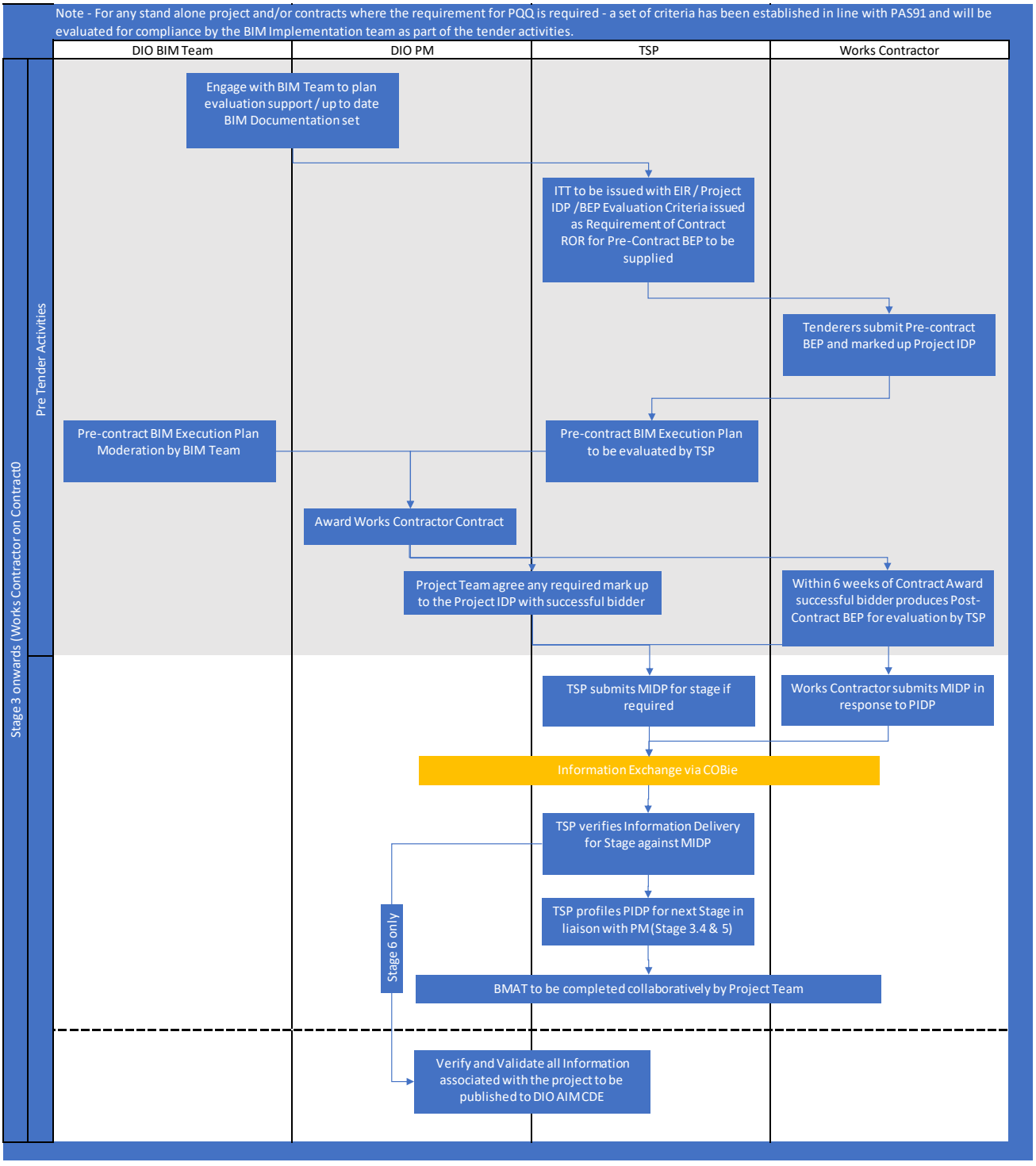
54. At the end of the stage the BIM model will hold a complete asset record as required by the PIDP. Note this will include any information associated with the project's defects liability. The TSP will ensure and provide assurance, that all information deliverables as per the PIDP have been delivered.

55. At the end of the stage the project team (DIO project team, TSP team and when appropriate the Works Contractor team) as a whole will complete a BMAT to record information maturity and confirm completion and delivery of all the information associated with the MIDP - these will be confirmed as part of the evidence for the GWR.

56. The TSP is to confirm that all information deliverables subject to the TSP's engagement, and the Works Contractor have been uploaded into the AIM CDE (or confirms where the information will be held until publication into the AIM CDE is requested)

BIM Compliance Workflows




Note - For any stand alone project and/or contracts where the requirement for PQQ is required - a set of criteria has been established in line with PAS91 and will be evaluated for compliance by the BIM Implementation team as part of the tender activities.
DIO BIM Team
DIO PM
TSP
Works Contractor
Stage 3 onwards (Works Contractor on Contract0
Pre Tender Activities
Engage with BIM Team to plan evaluation support / up to date BIM Documentation set
ITT to be issued with EIR / Project IDP /BEP Evaluation Criteria issued as Requirement of Contract ROR for Pre-Contract BEP to be supplied
Tenderers submit Pre-contract BEP and marked up Project IDP
Pre-contract BIM Execution Plan Moderation by BIM Team
Pre-contract BIM Execution Plan to be evaluated by TSP
Award Works Contractor Contract
Project Team agree any required mark up to the Project IDP with successful bidder
Within 6 weeks of Contract Award successful bidder produces Post-Contract BEP for evaluation by TSP
TSP submits MIDP for stage if required
Works Contractor submits MIDP in response to PIDP
Information Exchange via COBie
TSP verifies Information Delivery for Stage against MIDP
TSP profiles PIDP for next Stage in liaison with PM (Stage 3.4 & 5)
Stage 6 only
BMAT to be completed collaboratively by Project Team
Verify and Validate all Information associated with the project to be published to DIO AIM CDE