

Master Specification Part PC-EDM4

Construction Verification

September 2024



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PC-EDM4 Construction Verification

1 General

- a) This Master Specification Part sets out the requirements for Construction Verification including:
- i) the documentation requirements, as set out in section 2;
 - ii) the obligations of the Construction Verifier, as set out in section 3;
 - iii) the obligations of the Contractor, as set out in section 4;
 - iv) the delegation of authority, as set out in section 5;
 - v) selection of the Construction Verifier, as set out in section 6;
 - vi) the competency and availability of the Construction Verifier, as set out in section 7;
 - vii) the role of the Construction Verifier in relation to Hold Points and Witness Points, as set out in section 8;
 - viii) the role of the Construction Verifier in relation to Non-Conformances, as set out in section 9;
 - ix) the role of the Construction Verifier in relation to Project Plans, as set out in section 10;
 - x) the role of the Construction Verifier in relation to Ongoing Site Observation, Inspections and Assessments, as set out in section 11;
 - xi) the role of the Construction Verifier in relation to CV Audits, as set out in section 12;
 - xii) the role of the Construction Verifier in relation to workforce participation, as set out in section 13;
 - xiii) the Construction Verifier's reporting requirements, as set out in section 14;
 - xiv) the review of As-Built Records, as set out in section 15;
 - xv) the requirements for the Construction Verification Certificates, as set out in section 16;
 - xvi) the scope of the Construction Verification activities, as set out in section 17; and
 - xvii) the Hold Point requirements, as set out in section 18.
- b) Construction Verification must be undertaken by the Construction Verifier in accordance with the requirements of this Master Specification Part.
- c) For the purposes of this Master Specification Part:
- i) "Assessment" means, in relation to PC-EDM4 "Construction Verification", a review of an element's Quality Management Records to confirm the quality Inspections demonstrate the quality checks have been undertaken to check compliance with the Construction Documentation, including where appropriate "spot check" inspections of the element using a risk based approach;
 - ii) "CV Audit" means, in relation to PC-EDM4 "Construction Verification", the review of Quality Management Records and documentation plans to review the implementation of quality safety and environmental management by the Contractor;
 - iii) "Inspection" means, in relation to PC-EDM4 "Construction Verification", the inspection of an element, including inspection and assessments of the element's compliance to the Construction Documentation, review of testing information and review and endorsement of quality records, prior to further works proceeding on the element; and
 - iv) "Ongoing Site Observation" means, in relation to PC-EDM4 "Construction Verification", the ongoing full time observation of an activity including examination, assessment,

inspection, monitoring or analysis of the Contractor's construction activities (including provision of records) to verify compliance with the requirements specified in the Contract Documents.

- d) The Construction Verifier must establish, implement and maintain a quality management system in accordance with the requirements of AS/NZS 9001 Quality management systems - Requirements.

2 Documentation

2.1 Construction Verification Management Plan

- a) The Construction Verifier must prepare a Construction Verification Management Plan which:
- i) describes the management team structures, positions, nominated personnel and subcontractors to be engaged on and off the Site and the roles and tasks of the nominated personnel and subcontractors;
 - ii) describes the minimum skill, expertise and experience levels of each position and details of personnel resource levels;
 - iii) details the Construction Verifier's internal and external lines of authority, communication and reporting, including those with the Principal and the Contractor;
 - iv) describes the locations of the Construction Verifier's personnel and how they will interface with the Contractor's and the Principal's personnel;
 - v) details the delegated authorities of the Construction Verifier's personnel, including identification of personnel with delegated authority to execute certificates on behalf of the Construction Verifier;
 - vi) describes the information management system utilised to manage the Construction Verification activities;
 - vii) details how all Construction Verifier's compliance records are to be maintained, in the form of a schedule;
 - viii) details the framework, including the process of risk assessments set out in section 17.2, for the Construction Verification and includes:
 - A. the proposed timing (relative to construction activities) of progressive verification for the performance of discrete elements of the Construction Verification; and
 - B. the timing for conducting the following of the Contractor's Activities:
 - I. CV Audits (including of the Project Plans);
 - II. Inspections;
 - III. Assessments; and
 - IV. Ongoing Site Observation;
 - ix) includes the procedure for managing outcomes of the construction Inspections, Assessments, Ongoing Site Observation and CV Audits including:
 - A. methodology of recording activities;
 - B. a schedule which identifies all Hold Points to be released;
 - C. a schedule which identifies all Witness Points;
 - D. management of the release of Hold Points and Witness Points (where applicable) for the Contractor's Activities;
 - E. identification and management of Non-Conformances and System Non-Conformances; and

- F. documentation and records to be provided;
- x) details the Construction Verifier 's comprehensive plans for:
 - A. review of the Construction Documentation;
 - B. Ongoing Site Observation, Inspection, CV Auditing and Assessment of the quality and durability of the Works and the Temporary Works to determine and verify the Contractor's compliance with the Construction Documentation in use for construction;
 - C. identification of resources, methodology, scope, levels and frequency of Ongoing Site Observation and Inspection; and
 - D. off-site surveillance of critical activities, including precasting yards, concrete production plants and steel fabrication;
- xi) includes the Construction Verifier 's strategies, processes, methodologies and procedures for:
 - A. reviewing and assessing the Project Plans;
 - B. ongoing monitoring of the Contractor's construction activities;
 - C. the processes used for determining the levels and scope of surveillance of the Contractor's construction activities, including in relation to occupational health and safety; and
 - D. describing the involvement of the Construction Verifier in the Defect close out process, including post Handover;
- xii) identifies the managing of the Construction Verifier's work to be subcontracted, including quality, reporting and communication aspects; and
- xiii) includes the Construction Verifier's strategies, systems, procedures, processes, methodologies and reporting protocols to be applied to achieve and satisfy the following requirements:
 - A. verification of the Contractor's processes for environmental monitoring and protection;
 - B. verification of the Contractor's processes to address Safety in Design issues; and
 - C. verification of the rectification by the Contractor of Non-Conformances.
- b) The Construction Verification Management Plan must be prepared, submitted and updated in accordance with the requirements of PC-PM1 "Project Management and Reporting".
- c) The Construction Verification activities must not commence until the Hold Point in relation to the Construction Verification Management Plan as set out in PC-PM1 "Project Management and Reporting" has been released.

3 Obligations of the Construction Verifier

- a) In performing its obligations, the Construction Verifier must act:
 - i) impartially, honestly, diligently and reasonably;
 - ii) with the degree of professionalism, knowledge, skill, expertise, experience and care which would be reasonably expected of an expert professional providing services similar to those required under the CSCR;
 - iii) independently of the Principal, Designer's and Contractor's organisation and any of their Subcontractors; and
 - iv) within any timeframe specified.

- b) The Construction Verifier acknowledges that the Principal is relying upon the knowledge, skill, expertise and experience of the Construction Verifier in the performance of its obligations and the Principal is entitled to rely on any certificate or other document signed or given by the Construction Verifier.

4 Obligations of the Contractor

- a) The Contractor must not hinder or restrict the Construction Verifier to undertake its obligations and must:
 - i) not interfere with or attempt to improperly influence the Construction Verifier in the performance of any of its services;
 - ii) give the Construction Verifier access to the Site and to all documentation that is reasonably necessary for the Construction Verifier to carry out its functions; and
 - iii) co-operate with, and not impede, the Construction Verifier in the performance of its duties.
- b) The Contractor is responsible for the Works and Temporary Works, including all health and safety, quality assurance and associated surveillance.

5 Delegation of authority

- a) The Principal may delegate the powers, duties, discretions and authorities vested in the Minister, Minister's representative, Principal's authorised person or Principal to the Construction Verifier.
- b) The Principal must confirm in writing the delegation of authority in accordance with the Contract Documents.
- c) Where the Construction Verifier identifies any ambiguity in the delegation of authority in accordance with this section 5 the Construction Verifier must write to the Principal to clarify the ambiguity.
- d) Provision of the information required under section 5c) will constitute a **Hold Point**. The delegation of authority in relation to any ambiguity must be treated as not delegated until this Hold Point is released.

6 Selection of the Construction Verifier

- a) The selection of the Construction Verifier is to be as detailed within the CSCR.
- b) Where, as detailed in the CSCR, the Construction Verifier is to be engaged directly by the Principal, the Principal must advise the Contractor of the party that will undertake the role of the Construction Verifier within 10 Business Days of the date the Construction Verifier's contract is executed.
- c) Where, as detailed in the CSCR, the Construction Verifier is engaged after the Commencement Date as a tripartite agreement or directly by the Contractor, within 10 Business Days of the Commencement Date, the Contractor must:
 - i) submit to the Principal details of the proposed Construction Verifier including supporting information demonstrating that the Construction Verifier complies with the requirements of section 7 and that the Construction Verifier is suitable to undertake the Construction Verification; and
 - ii) undertake an assessment and provide evidence to the Principal on the competency of all personnel engaged to undertake Construction Verification activities.
- d) Provision of the proposed Construction Verifier in accordance with section 6c), will constitute a **Hold Point**. The Contractor must not engage the proposed Construction Verifier until this Hold Point is released.

7 Competency and availability of the Construction Verifier

7.1 General

- a) Where a Department prequalification exists for a technical discipline that is part of the scope of the Construction Verifier, the Construction Verifier must be prequalified for that discipline or must engage a sub-consultant that is prequalified for the relevant technical discipline with the Department.
- b) The Construction Verifier must include personnel with a sufficient degree of knowledge, skill, expertise and experience to perform its obligations.
- c) The Construction Verifier's personnel must:
 - i) meet the requirements for qualifications, and competency as stated in the CSCR;
 - ii) perform the services required of their respective positions; and
 - iii) be available for consultation as any party may reasonably require from time to time.
- d) Key Construction Verifier personnel making up the Construction Verifier must not be removed without the prior written consent of the Principal (which consent must not be unreasonably withheld) and if any are removed:
 - i) they must be replaced by personnel of at least equivalent qualifications, knowledge, skill, expertise and experience; and
 - ii) prior to removal and replacement personnel, there must be a proper and adequate handover to ensure the new personnel have a reasonable understanding of the Project and the role of the Construction Verifier.
- e) The Principal may direct the Construction Verifier to remove organisations or personnel from the performance of the role of the Construction Verifier. The Construction Verifier must comply with any such direction.

7.2 Construction Verifier's representatives

- a) The Construction Verifier must notify the Principal and Contractor in writing of the names of the person or persons that are authorised to sign the certificates and documents on behalf of the Construction Verifier, which will constitute a **Hold Point**. The Construction Verifier must not sign any certificates or documents until this Hold Point is released.
- b) The Construction Verifier must appoint a Construction Verification Manager.
- c) The Construction Verification Manager must ensure that all certificates and documents are signed by the person or persons notified in section 7.2a).
- d) The Construction Verification Manager must:
 - i) be appointed for the full duration of the Construction Verifier's activities;
 - ii) have the authority and responsibility for ensuring that the requirements of Construction Verification are implemented and maintained; and
 - iii) comply with the experience and qualification requirements in the CSCR.

8 Hold Points and Witness Points

8.1 General

The Construction Verifier's role in relation to Hold Points and Witness Points is as detailed in PC-QA1 "Quality Management Requirements" or PC-QA2 "Quality Management Requirements for Major Projects" (as applicable) and this section 8.

8.2 Review of documentation

In relation to a Hold Point or Witness Point related to documentation, the Construction Verifier must review the submitted document (as detailed in PC-QA1 “Quality Management Requirements” or PC-QA2 “Quality Management Requirements for Major Projects” (as applicable)) within the review period in accordance with section 8.3 and notify the Principal and the Contractor as to whether the Construction Verifier is of the opinion that:

- a) the document complies with the CSCR; or
- b) the document does not comply with the CSCR and the reasons for that opinion.

8.3 Documentation review period

The review period for the Construction Verifier that applies for the relevant Hold Point or Witness Point related to documentation after the date that all the relevant details and information from the Contractor in accordance with PC-QA1 “Quality Management Requirements” or PC-QA2 “Quality Management Requirements for Major Projects” (as applicable) has been received is:

- a) where the period is expressly specified in the Hold Point or Witness Point table (as applicable), as set out in the relevant Master Specification Part;
- b) where a period is only specified for the Principal, the Construction Verifier will have 3 less Business Days than the Principal and a minimum of 1 Business Day (whichever is the greater);
- c) where no period is expressly specified in the Hold Point or Witness Point table (as applicable), as set out in the relevant Master Specification Part, then 7 Business Days (or where a relevant Third Party Agreement exists such longer period as contemplated by a relevant Third Party Agreement) for the Construction Verifier; and
- d) where the release of a Hold Point or Witness Point (as applicable) is delegated to the Construction Verifier and a period is specified for the Principal, then the period as set out in the relevant Master Specification Part for the Principal.

8.4 Construction quality

- a) Unless otherwise requested by the Principal, the Construction Verifier for each construction related Hold Point as determined by the risk-based approach in accordance with the Construction Verification Management Plan that is notified in accordance with PC-QA1 “Quality Management Requirements” or PC-QA2 “Quality Management Requirements for Major Projects” (as applicable) must:
 - i) undertake all necessary monitoring, observation and inspection;
 - ii) attend to the release at the notified inspection time in accordance with PC-QA1 “Quality Management Requirements” or PC-QA2 “Quality Management Requirements for Major Projects” (as applicable); and
 - iii) examine all relevant information and documentation regarding the Hold Point.
- b) The Construction Verifier for each construction related Witness Point that is notified in accordance with PC-QA1 “Quality Management Requirements” or PC-QA2 “Quality Management Requirements for Major Projects” (as applicable) may (as determined by the risk-based approach in accordance with the Construction Verification Management Plan):
 - i) undertake all necessary monitoring, observation and inspection;
 - ii) attend to the release at the notified inspection time in accordance with PC-QA1 “Quality Management Requirements” or PC-QA2 “Quality Management Requirements for Major Projects” (as applicable); and
 - iii) examine all relevant information and documentation regarding the Witness Point.
- c) Where the release of a Hold Point or Witness Point (as applicable) related to construction quality inspection is delegated to the Construction Verifier, the Construction Verifier must either:

- i) release the Hold Point or Witness Point (as applicable) at the time of the inspection in accordance with PC-QA1 “Quality Management Requirements” or PC-QA2 “Quality Management Requirements for Major Projects” (as applicable); or
 - ii) advise the Contractor why the Hold Point or Witness Point (as applicable) cannot be released, and what may be required to enable the Hold Point or Witness Point (as applicable) to be released.
- d) Except for Witness Points where the risk-based approach in accordance with the Construction Verification Management Plan does not require the Construction Verifier to attend the Witness Point and unless otherwise requested by the Principal, where the release of a Witness Point related to construction quality inspection is not delegated to the Construction Verifier, the Construction Verifier must provide a written recommendation to the Principal as soon as practicable for the Principal to review the recommendation and comply with the Principal’s obligations in relation to the response period set out in PC-QA1 “Quality Management Requirements” or PC-QA2 “Quality Management Requirements for Major Projects” (as applicable).
- e) Unless otherwise requested by the Principal, where the release of a Hold Point related to construction quality inspection is not delegated to the Construction Verifier, the Construction Verifier must provide a written recommendation to the Principal as soon as practicable for the Principal to review the recommendation and comply with the Principal’s obligations in relation to the response period set out in PC-QA1 “Quality Management Requirements” or PC-QA2 “Quality Management Requirements for Major Projects” (as applicable).

9 Control of Non-Conformances

The Construction Verifier’s role in relation to Non-Conformances is as detailed in PC-QA1 “Quality Management Requirements” or PC-QA2 “Quality Management Requirements for Major Projects” (as applicable).

10 Review of Project Plans

- a) The Construction Verifier must undertake review and comment on Project Plans for compliance with the CSCR. Outcomes of the review of Project Plans must be provided to both the Principal and the Contractor identifying any issues or omissions, including what would be considered standard industry practice for the works being undertaken.
- b) The Construction Verifier’s role in relation to Project Plans is as detailed in CSCR.
- c) Where the Observational Method is adopted for the Project, which will be documented in the Design Management Plan, the Construction Verifier must confirm through review of the Design Management Plan its roles and responsibilities (if any) with respect to ensuring implementation of the method.

11 Ongoing Site Observation, Inspections and Assessment

The Construction Verifier must undertake sufficient Ongoing Site Observation, Inspections and Assessments to verify that the construction related Contractor’s Activities comply with the CSCR.

12 CV Audit of Contractor’s Activities

- a) The Construction Verifier must undertake CV Audits of the construction related Contractor’s Activities in accordance with the Construction Verification Management Plan and this Master Specification Part.
- b) When directed by the Principal, the Construction Verifier must undertake additional CV Audits of the construction related Contractor’s Activities.
- c) Environmental CV Audits must be in accordance with AS/NZS ISO 19011 Guidelines for Auditing Management Systems and undertaken at least on a quarterly basis.

- d) Within 24 hours of a CV Audit concluding, the Construction Verifier must provide a CV Audit summary to the Principal and the Contractor, including notification of any major Non-Conformances and System Non-Conformances (as applicable) identified.
- e) The Construction Verifier must provide the finalised CV Audit report, including notification of any Corrective Action Requests to the Principal and the Contractor within 5 Business Days of a CV Audit concluding.

13 Workforce participation

Where required by the Principal and where an Industry Participation Plan is required to be submitted by the Contractor, the Construction Verifier must undertake a review of the Industry Participation Plan and a review of the procedures the Contractor used to calculate the actual participation achieved, including a review of the:

- a) methodology to identify people with barriers to employment and up-skilling;
- b) tools and methodology to report on hours and targets; and
- c) integration of the Contractor's (including Subcontractor's) workforce participation processes.

14 Reporting

14.1 General

- a) All advice and comments provided by the Construction Verifier to the Principal and Contractor must be in writing.
- b) The Construction Verifier must prepare and submit to the Principal, and the Contractor (where engaged either through tripartite agreement or directly through the Contractor), monthly reports within 7 days after the end of the month, including the status of Ongoing Site Observation, Inspections, Assessments and CV Auditing until 8 weeks after the date of Completion.

14.2 Progress reports

The monthly progress report in accordance with section 14.1 must contain a status update of the Construction Verification activities including:

- a) executive summary (limited to one page);
- b) a list or schedule of Construction Verification activities undertaken during the reporting period;
- c) a summary of key risks and issues relating to the Works and Temporary Works as identified through the activities of the Construction Verifier;
- d) a list of any Corrective Action Requests raised by the Construction Verifier during the reporting period including details on the verification and the rectification by the Contractor;
- e) a summary of CV Audit findings on the Contractor's Quality Management System and status of actions in closing out the associated Non-Conformances and System Non-Conformances;
- f) a summary of Inspections undertaken including where Hold Points or Witness Points have not been able to be released and a summary of the required repeat Inspections (including the reasons for the repeated Inspections);
- g) any act, matter or thing which has or is likely to have a material adverse effect on the progress and provision of the Construction Verification activities, together with detailed particulars on how the Construction Verifier is dealing or proposes to deal with any such act, matter or thing; and
- h) the Construction Verifier's current and planned resources and staffing levels.

14.3 Construction Verifier's Final Report

- a) The Construction Verifier's must provide a report to the Principal, and the Contractor (where engaged either through tripartite agreement or directly through the Contractor), which must include:
 - i) an executive summary (limited to 2 pages);
 - ii) summary of all Construction Verification activities undertaken;
 - iii) review of and statement on the accuracy of:
 - A. the accepted As-Built Records in accordance with PC-CN2 "Asset Handover";
 - B. the completion Design Documentation in accordance with PC-EDM1 "Design Management";
 - C. the O&M Manuals;
 - D. the Training Manuals; and
 - E. all testing and commissioning records in accordance with PC-CN1 "Testing and Commissioning"; and
 - iv) a copy of the Construction Verification Certificates,
(Construction Verifier's Final Report).
- b) Where the Construction Verifier is directly engaged by the Principal the submission and acceptance by the Principal of the Construction Verifier's Final Report in accordance with section 14.3a) will constitute a **Hold Point**. The release of this Hold Point will be a condition precedent to completion of the Construction Verifier's contract.
- c) Where the Construction Verifier is engaged either through a tripartite agreement or directly by the Contractor the submission and acceptance by the Principal of the Construction Verifier's Final Report in accordance with section 14.3a) will constitute a **Hold Point**. The release of this Hold Point will be a condition precedent to Handover and Completion.

15 Review of As-Built Records

The Construction Verifier must progressively review the As-Built Records to assess and advise the Principal and Contractor on their accuracy and completeness including:

- a) review of the Quality Management Records including progressively marked up documents;
- b) identify any discrepancies with the As-Built Records including the assessment of their completeness and accuracy; and
- c) identify any discrepancies with the O&M Manuals and Training Manuals including the assessment of their completeness and accuracy.

16 Construction Verification Certificate

- a) For each completed Construction Package the Construction Verifier must provide a signed Construction Verification Certificate, as detailed in Appendix 1: Construction Verification Certificate.
- b) The Construction Verification Certificate must be signed as "Construction Verifier's representative" and submitted to the Principal and, where engaged either through tripartite agreement or directly through the Contractor, to the Contractor.

17 Scope of Construction Verification activities

17.1 General

- a) The Construction Verifier must undertake the Construction Verification activities in accordance with this Master Specification Part.
- b) The Construction Verifier must undertake the Construction Verification activities of the Contractor's Activities to the extent necessary to verify that these activities comply with the requirements of the Construction Documentation in use for construction.
- c) The Construction Verifier must be involved in the Defect close out process, including post Completion.
- d) The Construction Verification activities exclude the verification that the Design Documentation complies with the CSCR.
- e) The selection of the scope of the Construction Verification activities is to be determined on a risk-based approach.

17.2 Construction Verifier's risk assessment

- a) The Construction Verifier must adopt a risk based approach to ensure the level of Construction Verification is commensurate with the risk of non-compliance of each activity to the CSCR, including the Construction Documentation and is mitigated SFAIRP.
- b) To confirm the level of Construction Verification is commensurate with the risk of the element, the Construction Verifier must undertake a risk assessment, including consultation with representative of the Principal and Contractor.
- c) The risk assessment of Construction Verification activities must review and document the level of Ongoing Site Observation, Inspection, Assessments, CV Audits and Witness Points (related to construction quality inspections) and attendance of the construction related Contractor's Activities to verify (as a minimum) that:
 - i) the Works and Temporary Works are constructed safely;
 - ii) the Works and Temporary Works are constructed in accordance with the Construction Documentation;
 - iii) the Quality Management Records and reporting comply with the CSCR; and
 - iv) the Quality Management Systems and processes comply with the CSCR.
- d) Where the Construction Verifier is engaged either through a tripartite agreement or directly by the Contractor, in the event the risk assessment identifies any ambiguity or a different level of Construction Verification the Construction Verifier must write to the Principal to confirm the scope of Construction Verification activities.

17.3 CV Audits

The Construction Verifier must undertake CV Audits of the Contractor's processes as a minimum in accordance with Table PC-EDM4 17-1.

Table PC-EDM4 17-1 CV Audits

CV Audit	CV Audit frequency
Work health and safety documentation	Quarterly
Quality assurance documentation	Quarterly
Environmental management	Quarterly
Off-site construction activities, including concrete and asphalt plants and precast facilities	Within 2 weeks of commencing activity.

17.4 Road elements

Unless agreed otherwise by the Principal, the indicative elements for verification of road elements are detailed in Table PC-EDM4 17-2.

Table PC-EDM4 17-2 Road elements

Element	Verification
Proof rolling of pavement sub-grades	Ongoing Site Observation
Construction of pavements	Inspection
Construction of kerbing and guttering	Inspection
Temporary pavements	Assessment
Trenching and excavation prior to installation of road drainage	Assessment
Excavation and fill activities	Inspection
Road drainage elements installation (prior to backfilling)	Inspection
Permanent line marking	Inspection
Temporary line marking	Assessment
Street furniture and signage	Assessment
Accessibility including in accordance with PR-PF-D1 "Designing for Accessibility"	Assessment
Traffic management installation at major traffic management changes	Inspection
Maintenance of traffic management infrastructure	Assessment
Concrete pavement construction	Inspection

17.5 Structural elements

Unless agreed otherwise by the Principal, the indicative elements for verification of structural elements are detailed in Table PC-EDM4 17-3.

Table PC-EDM4 17-3 Structural elements

Element	Verification
Piling operations	Ongoing Site Observation
Erection and installation of temporary structures	Inspection
Erection and installation of permanent structures	Inspection
Reinforcement and formwork of in-situ structural concrete	Inspection
Formwork, pre-cast structural bridge elements	Assessment
Formwork, of other precast structural concrete	Assessment
Pouring and finishing (including curing compounds) of in-situ structural concrete	Ongoing Site Observation
Reinforcement, pouring and finishing of pre-cast structural bridge elements	Inspection
Pouring and finishing of pre-cast structural concrete elements	Assessment
Installation of precast structural elements	Inspection
Manufacture of precast structural drainage elements, for example box culverts and headwalls	Assessment
Bearing testing	Assessment
Bearing installation	Inspection
Installation of bridge fitments and fixings, for example barriers, expansion joints and throw screens	Inspection
Fabrication of structural steelwork	Assessment
Surface treatments of structural steelwork	Inspection
Installation of structural steelwork	Assessment
Installation of reinforced soil wall panels and structural elements	Inspection
Backfilling of reinforced soil walls	Inspection

17.6 Electrical elements

Unless agreed otherwise by the Principal the indicative elements for verification of electrical elements are detailed in Table PC-EDM4 17-4.

Table PC-EDM4 17-4 Electrical elements

Element	Verification
Installation of traffic signals	Inspection
Commissioning of traffic signals (SAT)	Ongoing Site Observation
Commissioning of traffic signals (SIAT)	Assessment
Installation of ITS equipment	Inspection
Factory Acceptance Testing of ITS equipment	Ongoing Site Observation
Commissioning of ITS equipment (SAT)	Inspection
Commissioning of ITS equipment (SIAT)	Assessment
Installation of road lighting	Inspection
Commissioning of road lighting (SAT)	Ongoing Site Observation
Commissioning of road lighting (SIAT for smart lighting)	Assessment

17.7 Environment and sustainability

Unless agreed otherwise by the Principal the indicative elements for verification of compliance with the environmental requirements are detailed in Table PC-EDM4 17-5.

Table PC-EDM4 17-5 Environmental

Element	Verification
Works around waterways and water bodies	Assessment
Works around high value vegetation (refer PC-ENV1 "Environmental Management")	Ongoing Site Observation
Works around non-high value vegetation	Assessment
Environmental management of Contractor's Activities	Assessment

18 Hold Points

Table PC-EDM4 18-1 details the review period or notification period and type (documentation or construction quality) for each Hold Point referred to in this Master Specification Part.

Table PC-EDM4 18-1 Hold Points

Section reference	Hold Point	Documentation or construction quality	Review period or notification period
5d)	Clarification in the delegation of authority	Documentation	10 Business Days review
6d)	Proposed Construction Verifier	Documentation	10 Business Days review
7.2a)	Provision of names of the person(s) that are authorised to sign certificates and documents on behalf of the Construction Verifier	Documentation	10 Business Days review
14.3b)	Construction Verifier's Final Report	Documentation	10 Business Days review
14.3c)	Construction Verifier's Final Report	Documentation	10 Business Days review

19 Appendix 1: Construction Verification Certificate

Project name:

Construction Verifier:

Certificate number:

Construction Verification has been undertaken on the Construction Package and associated documentation listed below. In undertaking the Construction Verification I certify in my professional assessment:

- a) Construction Verification services as defined in the Construction Verifier's scope has been completed; and
- b) that the Works comply with the Construction Documentation based on the activities undertaken by the Construction Verifier.

Construction Package

Construction Package number	Construction Package name

Conditions of certification:*

* Note: Written approval from the Principal of any conditions to certification must be submitted with the certificate.

Construction Verifier representative

Name:		Qualifications	
Position:		Signed:	
Date:			
