

Master Specification

Part PC-EDM3

Independent Design Certification

September 2024



Government of South Australia
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PC-EDM3 Independent Design Certification

1 General

- a) This Master Specification Part sets out the requirements for Independent Design Certification including:
 - i) the documentation requirements, as set out in section 2;
 - ii) the obligations of the Independent Design Certifier, as set out in section 3;
 - iii) the obligations of the Contractor, as set out in section 4;
 - iv) the requirements for the Independent Design Certifier's personnel, as set out in section 5;
 - v) the requirements for engagement of the Independent Design Certifier, as set out in section 6;
 - vi) the Independent Design Certification process requirements, as set out in section 7;
 - vii) the requirements for response time and program, as set out in section 8;
 - viii) the Independent Design Certifier's requirements for Hold Points and Witness Points, as set out in section 9;
 - ix) the requirements for the Independent Design Certificate, as set out in section 10;
 - x) the requirements for amendments to the IFC Design Documentation, as set out in section 11;
 - xi) the scope of the Independent Design Certifier, as set out in section 12; and
 - xii) the Hold Point requirements, as set out in section 13.
- b) The Independent Design Certification must be undertaken by the Independent Design Certifier in accordance with this Master Specification Part.
- c) For the purposes of the Master Specification:
 - i) "Independent Design Analysis" means a separate parallel independent analysis, calculations and modelling based on the design drawings to confirm compliance with the requirements;
 - ii) "Independent Design Certification" means an independent design certification to assure compliance of the design with the CSCR, including the stated objectives and, the Project requirements;
 - iii) "Independent Design Certifier" means the organisation(s) and the nominated representative(s) who provide Independent Design Certification; and
 - iv) "Independent Design Review" means an independent detailed and extensive review or checking of the design inputs, process, documents, drawings, reports, calculation, models and specifications to enable Independent Design Certification of the design.

2 Documentation

2.1 Independent Design Certification Management Plan

- a) Where required by the Contract Documents, the Independent Design Certifier must prepare an Independent Design Certification 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) includes a table which:
 - A. details the Independent Design Certifier internal and external lines of authority, communication and reporting, including those with the Principal and the Contractor;
 - B. describes the locations of the Independent Design Certifier personnel and how they will interface with the Contractor's and the Principal's personnel; and
 - C. details the delegated authorities of the Independent Design Certifier personnel, including identification of personnel with delegated authority to execute certificates on behalf of the Independent Design Certifier;
 - iv) describes the information management system utilised to manage the Independent Design Certification activities;
 - v) details how all compliance records are to be maintained, in the form of a schedule;
 - vi) details the framework for how the Independent Design Certifier will undertake the Independent Design Certification activities;
 - vii) includes the procedure for managing outcomes of the Independent Design Certification activities including:
 - A. Independent Design Analysis;
 - B. Independent Design Review;
 - C. the requirements for Hold Points and Witness Points in accordance with section 9; and
 - D. documentation and records to be provided; and
 - viii) identifies and describes the managing of the Independent Design Certifier's work to be subcontracted, including quality, reporting and communication aspects.
- b) The Independent Design Certification Management Plan must be prepared, submitted and updated in accordance with the requirements of PC-PM1 "Project Management and Reporting".
 - c) The Independent Design Certification activities must not commence until the Hold Point in relation to the Independent Design Certification Management Plan as set out in PC-PM1 "Project Management and Reporting" has been released.

3 Obligations of the Independent Design Certifier

- a) The Independent Design Certifier must:
 - i) be independent of any other commitment or obligation to the Contractor in relation to the Contract Documents, including Subcontractors any design consultants undertaking the design of the Works or Temporary Works;
 - ii) provide early identification of issues that may impact achieving project requirements;
 - iii) assist the Principal in understanding, and expediting acceptance of Design Departures where it delivers value for money; and
 - iv) not have participated in the preparation of any part of the design of the Works and Temporary Works in any manner whatsoever.
- b) The Independent Design Certifier must act:
 - i) impartially, honestly, diligently, and reasonably;
 - ii) in a collaborative manner;

- iii) with the degree of professionalism, knowledge, skill, expertise, experience and care which would be reasonably expected of an expert professional providing services;
 - iv) independently of the Principal, Contractor and any Subcontractor's organisations (e.g. design consultant); and
 - v) within any timeframe specified.
- c) The Independent Design Certifier acknowledges that the Principal is relying upon the knowledge, skill, expertise and experience (competence) of the Independent Design Certifier in the performance of its obligations and is entitled to rely on any certificate or other document signed or given by the Independent Design Certifier.

4 Obligations of the Contractor

- a) The Contractor (which may be the Designer) including Subcontractors and any design consultants must not:
- i) hinder or restrict the Independent Design Certifier from delivering on its objectives or fulfilling its obligations; and
 - ii) interfere with or attempt to improperly influence the Independent Design Certifier in the performance of any of its services.
- b) The Contractor (including Subcontractors) must:
- i) ensure the Independent Design Certifier is engaged at the earliest possible time in the design process;
 - ii) work in a collaborative manner with the Independent Design Certifier;
 - iii) give the Independent Design Certifier access to the Site and to all documentation that is reasonably necessary for the Independent Design Certifier to carry out its functions; and
 - iv) co-operate with, and not impede, the Independent Design Certifier in the performance of its duties.

5 Independent Design Certifier's personnel

5.1 Competence

- a) The Independent Design Certifier must include competent personnel to perform its obligations with:
- i) sufficient and appropriate qualifications, and
 - ii) knowledge, skill, expertise and experience.
- b) The Independent Design Certifier's personnel must:
- i) meet the requirements for competency;
 - ii) perform the services required of their respective positions; and
 - iii) be available for consultation as may reasonably require from time to time.
- c) The Independent Design Certifier must assess the competence of personnel nominated, assigned, or engaged to undertake Independent Design Certification activities and provide confirmation to the Principal of its competency assessment.

5.2 Prequalification

- a) The Independent Design Certifier must be prequalified with the Department for each technical discipline subject that is part of the Independent Design Certifier's scope.

- b) Where the Independent Design Certifier is not prequalified with the Department within a particular discipline, it must engage a subconsultant that is prequalified for the relevant technical discipline.

5.3 Removal of personnel

- a) Independent Design Certifier personnel and or subconsultant organisations 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 organisations or personnel (as applicable) of at least equivalent competence; and
 - ii) prior to removal and replacement of organisations or personnel (as applicable), there must be an adequate handover to ensure that the new organisation or personnel have a reasonable understanding of the Project and the Independent Design Certifier services.
- b) The Principal may direct to remove personnel and or subconsultant organisations from the performance of any nominated role of Independent Design Certifier's services. The Independent Design Certifier must comply with any such direction.

6 Engagement of the Independent Design Certifier

6.1 General

The Independent Design Certifier may be from a single organisation or several organisations.

6.2 Timing of engagement

- a) The Independent Design Certifier is to be engaged as early as possible to reduce the risk to the Contractor of re-work due to items being identified late in the design process.
- b) The Independent Design Certifier must be engaged prior to the commencement of the Preliminary Design review, unless agreed otherwise by the Principal.

6.3 Engagement by the Principal

- a) This section 6.3 only applies where the Independent Design Certifier is engaged by the Principal.
- b) The Principal must advise the Contractor of the Independent Design Certifier selected to undertake the Independent Design Certification services.
- c) The Principal reserves the right to utilise the Department's Technical Services representatives to undertake Independent Design Certification services.

6.4 Engagement by the Contractor

- a) This section 6.4 only applies where the Independent Design Certifier is engaged by the Contractor.
- b) The Contractor must submit to the Principal the preferred Subcontractor (consultant) for provision of Independent Design Certifier services including:
 - i) evidence of prequalification with the Department for the disciplines for which it will be undertaking services;
 - ii) competency assessment of the nominated personnel; and
 - iii) experience in similar roles.

- c) The Principal will review the preferred Subcontractor submission and consent to the proposed preferred subcontract to undertake the role of Independent Design Certifier (which consent must not be unreasonably withheld).
- d) Provision and acceptance by the Principal of the preferred Subcontractor for the role of Independent Design Certifier will constitute a **Hold Point**.

6.5 Engagement by an alliance or tripartite agreement

- a) This section 6.5 only applies where the Independent Design Certifier is engaged by an alliance or as a tripartite agreement between the Contractor, Principal and Independent Design Certifier.
- b) The Contractor must submit to the Principal the proposed Independent Design Certifier (minimum of two) for Independent Design Certification services, that the Contractor considers are suitable.
- c) The Contractor and Department representatives (nominated by the Principal) must jointly assess the proposed tender submissions for Independent Design Certification services.
- d) Provision and acceptance by the Principal of the preferred Independent Design Certifier prior to engagement within an alliance or by a tripartite agreement will constitute a **Hold Point**.

7 Independent Design Certification process

7.1 General

- a) The Independent Design Certification process must:
 - i) be a structured independent process integrated through the design process and Design Documentation submissions;
 - ii) be a collaborative process that includes the Contractor (including the Designer), the IDC and the Principal;
 - iii) facilitate early engagement with the Independent Design Certifier ahead of provision of the Preliminary Design stage submission;
 - iv) be transparent to the Contractor (including the Designer and any other Subcontractors);
 - v) be in accordance with this Master Specification Part; and
 - vi) include consultation with the Principal (including Departmental personnel as appropriate) including:
 - A. Department's Technical Services; and
 - B. Department's Asset Management Personnel.
- b) The Independent Design Certification process must be integrated with the design process flow in accordance with PC-EDM1 "Design Management".
- c) The Design Management Plan must include processes and procedures for ensuring the results of the Independent Design Certification process are incorporated into the design process and Design Documentation.
- d) Where the Independent Design Certifier is not engaged by the Principal, submission of the documentation detailing the outcome of the Independent Design Certification at each design stage (including Preliminary Design, Detailed Design, Final Design, IFA and post IFC change (as applicable) will constitute a **Hold Point**.
- e) The Design Documentation must not be submitted for the relevant design stage until the Hold Point in accordance with section 7.1d) has been released.
- f) Where the Independent Design Certifier is engaged by the Principal, submission of the documentation detailing the outcome of the Independent Design Certification at each design

stage (including Preliminary Design, Detailed Design, Final Design, IFA and post IFC change (as applicable) must be submitted to the Principal for approval.

- g) The Design Documentation must not be submitted for the relevant design stage until the Principal has provided approval in accordance with section 7.1f).

7.2 Review of the CSCR

- a) The Independent Design Certifier must systematically identify and record the requirements of the CSCR that the Design Documentation is required to achieve (requirements management).
- b) Where the Independent Design Certifier identifies any ambiguity, error or omission in the CSCR, the Independent Design Certifier must consult with the Principal to clarify the requirement.
- c) Provision of a notification to clarify any ambiguity, error or omission in the CSCR will constitute a **Hold Point**.
- d) The notification (in accordance with section 7.2c)) must include a recommendation as to how to resolve the ambiguity, discrepancy or inconsistency.

7.3 Independent Design Review

- a) The Independent Design Certifier must complete an Independent Design Review of the Design Documentation as specified in Independent Design Certifier's scope.
- b) The Independent Design Certifier must review the Design Documentation for compliance with the CSCR, including linking and verification of the Design Documentation to the requirements of the CSCR.
- c) The Independent Design Certifier must ensure extent and level of Independent Design Review detail is commensurate with the risk and complexity of the element subject to Independent Design Certification.
- d) The Independent Design Certifier must:
 - i) identify issues (or potential issues) with compliance of the Design Documentation with the CSCR;
 - ii) communicate to the Principal and the Contractor the status of compliance of the Design Documentation with the CSCR;
 - iii) identify and communicate to the Principal any elements or opportunities that, based on its experience, the Designer should consider, to optimise the design for the Principal; and
 - iv) document the outcome of the Independent Design Certification process at each design stage of the design development including evidence of the elements the Independent Design Certifier has checked and confirmed compliance or otherwise utilise the approved evidence based review register.
- e) The Independent Design Certifier must submit a template evidence based review register for the Principal's approval, which will constitute a **Hold Point**. The Independent Design Certifier must not provide any documented feedback on the Design Documentation to the Contractor until this Hold Point is released.
- f) For the purposes of section 7.3d)iv), following the release of the Hold Point in accordance with section 7.3e) the submitted template evidence based review register will become the approved evidence based review register.

7.4 Independent Design Analysis

- a) In addition to the Independent Design Review, the Independent Design Certifier must complete Independent Design Analysis of the Design Documentation as specified in Independent Design Certifier's defined scope.

- b) The Independent Design Analysis must:
 - i) be based on the Design Documentation;
 - ii) undertake completely Independent Design Analysis, calculations and models to confirm the Design Documentation, complies with the requirements of the CSCR; and
 - iii) undertake an extensive review and checking of the Design Documentation including material specifications, construction procedures and detailing.

7.5 Independent Design Certification and report

- a) The Independent Design Certifier must develop an Independent Design Certification Report which must include:
 - i) identification of the technical discipline and Design Documentation that the report relates to;
 - ii) details of the scope of Independent Design Certification services completed;
 - iii) the evidence of the review undertaken at each design stage;
 - iv) the evidence of the review of Independent Design Analysis completed; and
 - v) a copy of the Independent Design Certificates provided,

(Independent Design Certification Report).
- b) The Independent Design Certification Report must be prepared at the conclusion of the Independent Design Certification process and submitted to the Principal and where the Contractor is a party to the IDC agreement the Contractor at the completion of the Independent Design Certification services.
- c) Provision and acceptance of the Independent Design Certification Report will constitute a **Hold Point**. Where the Contractor is a party to the IDC agreement the release of this Hold Point will be a condition precedent to Handover and Completion.

7.6 Correspondence with the Independent Design Certifier

- a) The Principal may correspond or meet directly with the Independent Design Certifier at any time. Correspondence between the Principal and the Independent Design Certifier must be in writing.
- b) All correspondence and meeting minutes between the Contractor and Independent Design Certifier (excluding commercial correspondence) must be in writing and copied to the Principal for their information.

7.7 Technical meetings

- a) On request of the Principal or Contractor, the Independent Design Certifier must attend and independently participate in technical design review meetings or workshops held between the Principal and Contractor.
- b) On request of the Principal or Contractor the Independent Design Certifier must present the outcome of their design review or analysis completed through the Independent Design Certification process.

8 Response time and program

- a) The response time to undertake Independent Design Review and Independent Design Analysis must be commensurate with the complexity, size and scale of the Works and Applicable Temporary Works and the Independent Design Certification services to be undertaken.
- b) The minimum response time for Independent Design Certification Services is:

- i) Independent Design Review – 5 Business Days; and
 - ii) Independent Design Analysis – 10 to 15 Business Days depending on the complexity of the Design Package.
- c) The Independent Design Certifier must review the complexity and scale of the Works, Applicable Temporary Works, the Independent Design Certification services, the Contract Program and propose project specific response times for each Design Package at each design stage.
 - d) In the event of a misalignment in the Independent Design Certifier's response times and the Contract Program, the Contractor or the Independent Design Certifier may consult the Principal to provide a determination on the appropriate response times.
 - e) The Contract Program must include the agreed response times nominated by the Independent Design Certifier, or by the Principal in accordance with section 8d), to undertake Independent Design Certification services.

9 Independent Design Certifier's requirements for Hold Points and Witness Points

9.1 General

The Independent Design Certifier'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 9.

9.2 Review of documentation

In relation to a Hold Point or Witness Point related to documentation, the Independent Design Certifier 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 9.3 and notify the Principal and the Contractor as to whether the Independent Design Certifier 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.

9.3 Documentation Hold Point and Witness Point review period

In addition to the requirements of PC-QA1 "Quality Management Requirements" or PC-QA2 "Quality Management Requirements for Major Projects" (as applicable), the review period for the Independent Design Certifier 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 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 Independent Design Certifier will have 3 less Business Days than the Principal and a minimum of 1 Business Day (whichever is the greater); and
- 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 Independent Design Certifier.

9.4 Design Departures

- a) If, at any time, the Independent Design Certifier believes there is or may be a Design Departure, the Independent Design Certifier must give notice in accordance with PC-EDM1 "Design Management".

- b) The Independent Design Certifier (where relevant) must review and advise its opinion to the Principal and the Contractor regarding the suitability and reasonableness of the proposed Design Departure, including the reasons for that opinion, within 10 Business Days, unless otherwise agreed with the Principal, of the later of:
 - i) receipt of the Design Departure Application; and
 - ii) receipt of additional information requested in accordance with PC-EDM1 "Design Management".

10 Independent Design Certificate

- a) The Independent Design Certifier must provide an Independent Design Certificate to confirm the Independent Design Certification services have been completed for each Design Package.
- b) The Independent Design Certificates must reflect the form included in Appendix 1: Independent Design Certificate.
- c) The Independent Design Certificate must not be qualified in any way that could lessen the certificate without the written acceptance of the Principal.
- d) Where the Independent Design Certifier identifies an issue that will limit providing an Independent Design Certificate or will require a condition to the Independent Design Certificate, the Independent Design Certifier must immediately raise the issue or condition to the Contractor's and Principal's attention for clarification.
- e) Provision of the Independent Design Certificate will constitute a **Hold Point**. The release of this Hold Point is a condition precedent to the Contractor submitting an Issued for Acceptance (IFA) Design Documentation submission.

11 Amendments to the IFC Design Documentation

- a) Any proposed change to the Design Documentation, after the issue of the IFC Design Documentation, must be assessed by the Contractor (and any relevant design Subcontractors) to determine if the proposed change may be a substantial or material change to the design and warrants assessment by the Independent Design Certifier in accordance with PC-EDM1 "Design Management".
- b) In addition to the assessment of the proposed change to IFC Design Documentation in accordance with PC-EDM1 "Design Management" the Contractor must confirm the need for Independent Design Review and Independent Design Analysis by the Independent Design Certifier, which will be subject to the Witness Point in accordance with PC-EDM1 "Design Management".
- c) Where the Principal, Contractor or Independent Design Certifier determines the proposed change warrants assessment by the IDC, the proposed design change must be referred to the Independent Design Certifier.
- d) The Independent Design Certifier must undertake Independent Design Review and Independent Design Analysis (as applicable) of the proposed design changes to confirm the revised Design Documentation complies with the requirements of the CSCR.
- e) Provision of an amended Independent Design Certificate to the proposed design changes will constitute a **Hold Point**. The release of this Hold Point is a condition precedent to the Contractor submitting an Issued for Acceptance (IFA) Design Documentation submission.

12 Scope of Independent Design Certification Services

12.1 General

- a) The Independent Design Certifier must undertake the Independent Design Certification in accordance with the Independent Design Certifier's defined scope.

- b) The Principal will assess the complexity of the infrastructure, probability, and consequences (including risks to human life) of the failure or non compliance of the elements and site location (including environmental and heritage risks) and nominate the scope of the Independent Design Certification in the CSCR.
- c) The Independent Design Certifier must review the Principal's nominated Independent Design Certification scope to assess whether it is commensurate with the risk of failure or non-compliance of the infrastructure element, and:
 - i) where, in its professional opinion, the Independent Design Certifier considers the scope is commensurate with the risk of the design element, it will accept the scope; or
 - ii) where, in its professional opinion, the Independent Design Certifier does not consider the scope is commensurate with the risk of the design element or identifies an error or omission in its scope, it must submit to the Principal a recommended revised scope.

12.2 Structures

The scope of Independent Design Certification of structural (including Applicable Temporary Works) elements must include:

- a) Independent Design Review of:
 - i) the Design Basis;
 - ii) specifications for materials;
 - iii) critical detailing and geometry;
 - iv) confirmation that the structure achieves the specified durability; and
 - v) the accuracy of the Design Documentation;
- b) Independent Design Analysis of the structures as a whole and individual structural elements; to ensure:
 - i) overall strength, stability and serviceability;
 - ii) the proposed erection procedures and temporary load conditions are appropriate;
 - iii) suitability of falsework, particularly regarding lateral stability, for Applicable Temporary Works; and
 - iv) the appropriateness of any Applicable Temporary Works or demolition work.

12.3 Geotechnical engineering

- a) The scope of Independent Design Certification for geotechnical elements must include:
 - i) Independent Design Review of:
 - A. geotechnical desktop study and investigations, assumptions and interpretations;
 - B. the design assumptions, parameters, methodologies;
 - C. the material properties adopted;
 - D. AS1170.4 Structural design actions, Part 4: Earthquake actions in Australia;
 - E. site sub-soil class category; and
 - F. the accuracy of the Design Documentation; and
 - ii) Independent Design Analysis of:
 - A. geotechnical capacities and movements of foundations;
 - B. retaining structures and revetments;

- C. slope stability; and
 - D. long term and short-term volumetric change and movements of soil.
- b) Independent Design Review of the application and implementation of the Observational Method (where specified) must:
- i) confirm the suitability of the method;
 - ii) confirm the Designer's proposed plan for implementation of the Observational Method;
 - iii) ensure the Independent Design Certifier is available during construction to certify implementation of this method by the Designer; and
 - iv) confirm the accuracy of the Design Documentation.

12.4 Road and path design

- a) Authority for acceptance of traffic control devices remains with the Commissioner of Highways' representative (Department's Traffic Services).
- b) The scope of Independent Design Certification of roadways design must include Independent Design Review of:
- i) the context sensitive design approach;
 - ii) the Design Basis;
 - iii) the road geometric design, including review of the of the digital road design model (e.g. 12da);
 - iv) the compliance with the Department Pavement Marking Manual;
 - v) the roadside design including:
 - A. urban and rural roadway corridor (verge);
 - B. roadside safety barriers; and
 - C. CPTED assessments;
 - vi) paths for walking and cycling including:
 - A. pathways and ramps geometric design;
 - B. accessibility of pedestrian facilities; and
 - C. integration of road, pedestrian and cyclist facilities with other design elements (e.g. urban design / landscaping); and
 - vii) the accuracy of the Design Documentation.

12.5 Stormwater management and drainage design

The scope of Independent Design Certification of the stormwater managements and drainage design must include Independent Design Review of:

- a) the Design Basis;
- b) the design storm events, and hydrology;
- c) road and underground pipe drainage network (minor event) including:
 - i) design calculations including computer models (e.g. drains), parameters and methodologies;
 - ii) pit, pipe and culvert network;
 - iii) gutter flows and aquaplaning; and

- iv) achievement of any constraint to stormwater discharge;
- d) stormwater management infrastructure (major event) including:
 - i) integration with any relevant approved stormwater management plan;
 - ii) flood models design calculations and hydraulic model(s) (e.g. TUFLOW and or DRAIN); and
 - iii) afflux and changes in flooding risk from rare events;
- e) water quality and environmental management including:
 - i) sensitive design elements and achievement of water quality targets;
 - ii) stormwater basins and wetland design, including retention time, water quality treatment;
 - iii) fish passage requirements;
 - iv) pollution control infrastructure (where specified in the Contract Documents); and
 - v) pump systems; and
- f) the accuracy of the Design Documentation.

12.6 Pavements

The scope Independent Design Certification of the pavement designs must include Independent Design Review of:

- a) subgrade material properties adopted within the pavement design;
- b) pavement material properties;
- c) design traffic and pavement loading;
- d) any geotechnical issues which may affect pavement performance;
- e) the maintenance strategies and whole of life analysis;
- f) sustainability assessment; and
- g) the accuracy of the Design Documentation.

12.7 Traffic modelling

The scope of Independent Design Certification traffic modelling must include Independent Design Review of:

- a) the Design Basis;
- b) design methodology;
- c) signalised intersection modelling;
- d) the Design Documentation and its achievement of the specified (and modelled) level of service;
- e) traffic weaving and ramp operation;
- f) review of the of the digital traffic model (e.g. Aimsun or SIDRA);
- g) confirmation the traffic outcome achieved the nominated benefit;
- h) traffic demand and route assessment modelling outcomes; and
- i) integration of traffic modelling outcomes with ITS operation.

12.8 Lighting design

The scope of Independent Design Certification of lighting design must include Independent Design Review of:

- a) the Design Basis;
- b) the lighting and electrical design including:
 - i) light luminance (lux levels);
 - ii) lighting wiring;
 - iii) switchboards; and
 - iv) conduit design;
- c) maintenance access strategies and maintenance methodologies;
- d) the compliance to electrical regulations;
- e) the compliance with Office of the Technical Regulator's requirements; and
- f) the accuracy of the Design Documentation.

12.9 Traffic signals and intelligent transport systems

The scope of Independent Design Certification of traffic signals or intelligent transport systems must include Independent Design Review of:

- a) the Design Basis;
- b) power distribution system;
- c) schematic and line diagrams;
- d) communications system and network architecture;
- e) conduit and pit design;
- f) camera coverage;
- g) sightline distance and alignment;
- h) mounting;
- i) equipment suitability;
- j) the compliance to the CSCR, including all Reference Documents, and the relevant Master Specification Parts;
- k) the compliance to electrical regulations and Office of the Technical Regulator's requirements;
- l) the witness of equipment and subsystem testing and commissioning;
- m) the maintenance access strategies & maintenance methodologies; and
- n) the accuracy of the Design Documentation.

12.10 Environment and heritage

The scope Independent Design Certification of environmental assessments must include Independent Design Review of:

- a) integration of the design with nominated environmental constraints (refer to PC-ENV3 "Environmental Design");
- b) integration of the design with nominated heritage constraints;
- c) the Design Basis;

- d) compliance with the Department Environment and Heritage Technical Manual;
- e) the compliance with the EPA's guidelines;
- f) noise assessment(s), including:
 - i) modelling assumptions, inputs, monitoring, parameters and methodologies; and
 - ii) the compliance with PC-ENV4 "Noise Assessment, Treatment Design, and Implementation" (including the Department's Road Traffic Noise Guidelines); and
- g) the accuracy of the Design Documentation.

12.11 Sustainability

The scope Independent Design Certification of sustainability initiatives must include Independent Design Review of:

- a) compliance with the Department Sustainability Manual;
- b) assessment of project specific sustainability initiatives including:
 - i) mandatory and Principal nominated initiatives; and
 - ii) Contractor nominated initiatives; and
- c) inclusion of sustainability initiatives in the Design Documentation.

12.12 Landscape, architectural design and public realm

The scope of Independent Design Certification of the landscaping and architectural design must include Independent Design Review of:

- a) the suitability of the planting palette;
- b) the suitability of landscaping design;
- c) provision of suitable open space and public realm amenity;
- d) the estimated canopy cover at maturity;
- e) integration of the architectural (urban) design with the design principles;
- f) architectural fixtures, fittings and detailing;
- g) CPTED assessments;
- h) maintainability and longevity of the landscape and urban design and public realm;
- i) compliance with the CSCR, the urban design strategy (or equivalent) and any urban design and landscaping reports (where applicable); and
- j) the accuracy of the Design Documentation.

12.13 Utility Services

The scope of Independent Design Certification of the Utility Services include must include Independent Design Review of:

- a) coordination of Utility Services with the design of the work (i.e. clash detection);
- b) the Design Basis (assumptions and parameters) for relocation or protection of Utility Services;
- c) the compliance of the relocation or protection with the Utility Service Authorities requirements; and
- d) the accuracy of the Design Documentation.

13 Hold Points

Table PC-EDM3 13-1 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-EDM3 13-1 Hold Points

Section reference	Hold Point	Documentation or construction quality	Review period or notification period
6.4d) and 6.5d)	Provision of the and acceptance by the Principal of the preferred Subcontractor for Independent Design Certifier	Documentation	10 Business Days review
7.1d)	Documentation detailing the outcome of the Independent Design Certification	Documentation	5 Business Days review
7.2c)	Clarification of ambiguity, error or omission in the CSCR	Documentation	5 Business Days review
7.3e)	Template evidence based review register	Documentation	5 Business Days <u>review</u>
7.5c)	Independent Design Certification Report	Documentation	5 Business Days review
10e)	Independent Design Certificate	Documentation	5 Business Days review
11e)	Amended Independent Design Certificate	Documentation	5 Business Days review

