

Part 13 – Assurance, Records and Certification

13.1 Introduction

The *Contractor* self-certifies the quality of the *works*.

This part of the Works Information sets out the obligations of the *Contractor* with regards to:

- the provision of progressive assurance that the *Contractor's* design (where appropriate) and the *works* comply with the requirements of the contract ;
- the provision and maintenance of records;
- the requirements for the retention of records by the *Contractor* and the submission of records to the *Project Manager* ; and
- The certification of all parts of the *works*.

Records means all drawings, CAD files and models, specifications, calculations, schedules, reports, consents, approvals, permits, licences, authorisations and the like that evidence the progress and compliance of the *works* through to the *defects date*.

These records include documents submitted during the course of the *works* to verify compliance with the requirements specified elsewhere in Works Information.

Records shall be sufficiently detailed to provide assurance of compliance with the Works Information and provide support to the *Contractor's* self certification process. All records shall be signed off by a competent person.

The *Contractor* shall utilise the *Employer's* standard record templates for records where provided by the *Project Manager*.

Completion shall not be certified by the *Project Manager* until all records required by the contract have been delivered to and accepted by the *Project Manager*.

13.2 Assurance

The *Contractor* shall provide progressive assurance that the *Contractor's* design (where appropriate) and the constructed works comply with the requirements set out in the contract. The *Contractor's* progressive assurance will also be used by the *Project Manager* and *Employer* to demonstrate that the legal commitments and obligations placed on the contract by the Crossrail Act 2008 have been discharged.

Progressive assurance means that there will be continual confirmation of compliance by the generation of contemporaneous records.

Within 4 weeks of the *starting date*, the *Contractor* shall develop an Assurance Plan and submit it to the *Project Manager* for acceptance. In the case of the first submission of the Assurance Plan the *Project Manager* will reply within 4 weeks of the date of submission. Any further revisions, submissions and responses shall be made within the *period for reply*.

The Assurance Plan shall describe the means by which the *Contractor* will provide progressive assurance on this contract.

Assurance by means of certification of compliance with the Works Information shall also be provided by the *Contractor* subject to the requirements specified in 13.4 below.

The table attached in Appendix 13A indicates (for information only) the parts of the Works Information for which the *Contractor* will most likely be required to provide assurance evidence.

13.3 Deliverables and Records

13.3.1 Deliverables

Within 4 weeks of the *starting date*, the *Contractor* shall produce a Contract Master Deliverables List (CMDL) relevant to the scope of work to be provided utilising the template in Appendix 13H and submit it to the *Project Manager* for acceptance. In the case of the first submission of the CMDL the *Project Manager* will reply within 4 weeks of the date of submission. Any further revisions, submissions and responses shall be made within the *period for reply*. The *Contractor* shall review and submit the CMDL periodically as agreed with the *Project Manager* with final acceptance of the CMDL being granted on Completion or as necessary, on or around the *defects date*. The *Contractor* shall use the Common Site Filing Structure when producing or updating the CMDL. The *Contractor* may, if it chooses, produce the CMDL within the EDMS using the Common Site Filing Structure instead of the template in Appendix 13H..

The CMDL shall:

- include a programme for the production and submission of deliverables;
- identify those deliverables which require approval from Others (for example RfL, TfL, NR, LUL, DLR, ORR and LFEPA) such that sufficient time is allowed to avoid approvals delaying or disrupting the *works*.

The *Contractor* shall submit one copy of the deliverables to the *Project Manager* in electronic format compatible with the software requirements detailed in the Works Information. In addition the *Contractor* shall retain the hard copy of each revision of the submitted deliverable, with signed *Project Manager's* acceptance record until Completion of the whole of the *works*.

Where the *Contractor* submits deliverables or records for onward transmittal to Others one hard copy and one copy in electronic format shall be submitted in accordance with the appropriate standards identified in the Works Information.

Further records may be identified as deliverables on activity specific Inspection and Test Plans.

13.3.2 *Contractor* Records

13.3.2.1 General

Contractor records are records that the *Contractor* shall maintain and retain at a location to be accepted by the *Project Manager*.

Any *Contractor* record/archiving procedure shall clearly indicate responsibilities for records retention and include details of the location and back up arrangements

13.3.3 Access, Submission and Retention

Access to *Contractor* records is to be provided to the *Employer*, the *Project Manager* and Others authorised by the *Project Manager* who shall be allowed to copy records as necessary.

Each record detailed for retention by the *Contractor* is to be in the form of both etched CD and hard copy with due attention being paid to Clause 4.2.4 of ISO 9001:2008 with regards to legibility, identity, retrievability and protection. Superseded documents are considered to be records.

13.3.4 Submission of Deliverable and Assurance Records

The *Project Manager* shall provide to the *Contractor* the current revision of the standard forms in electronic format for the *Contractor* to generate certain quality records. These standard forms are compatible with EDMS but do not affect the need for the *Contractor* to provide information and documents specified in the contract.

The *Employer* shall provide the *Contractor* access to EDMS for loading and managing documents and to record certain contract deliverables. (see 13.4 below). The *Contractor* shall be responsible for the management, operation, training of personnel and for all data input into the system.

Records shall be collated, packaged, indexed and submitted by the *Contractor* in a phased manner for each element, structure, activity or section in accordance with Works Information.

13.3.5 Project Technical Request Database

The *Employer* shall provide access for the *Contractor* to the Project Technical Request database, a web based software package for the purposes of managing Requests for Information, Field Change Documents and Non Conformance Reports.

13.3.6 Redlines, As Built and Operational Records

13.3.6.1 General

The *Contractor* shall manage the “Redline (revision X)” (hereinafter described as Redline) process in accordance with the Management of Redlines Procedure (Appendix 13R – Document No: CRL1-XRL-Z-GPD-CR001-50010).

Further, the *Contractor* shall manage the As Built Drawing Process in accordance with the Management of As Built (Appendix 13S – Document No: CRL1-XRL-Z-GPD-CR001-50018).

The *Contractor* shall keep a full set of the latest Issued for Construction (IFC) drawings, associated data and specifications on Site and available to the *Project Manager* and/or the *Employer*. The IFC drawings shall be marked up (i.e. Redlined) using red lines (for deletions), green lines (for additional), blue lines (for notes/special) and other information to accurately record all changes during construction, including any *Project Manager's* instructions and Requests For Information, Field Change Documents (FCD), Non-Conformance Reports (NCR) and any other relevant data. Changes from the Works Information design to red line position when identified by any of the above communications, or for any other reason, shall be fully dimensioned and clearly sketched on the drawing. Any change from the IFC drawings to the red line condition which is recorded on documents other than drawings e.g. standards, shall be referenced on the Redline with a note to the associated instruction, Request For Information, Field Change Document or other relevant data. These shall reference the communications noted on the drawing. Revision clouds shall be used to aid the identification of any changes. Such drawings shall be issued at Redline and status code at S0 (Work In Progress) in the EDMS.

The *Contractor* is required to submit the Redline to the *Project Manager* (as Scanned PDF or electronically DGN) by uploading each individual drawing onto the EDMS, together with the *Employer's* standard Register and Issue Record (RIR) on a formal transmittal to the *Project Manager* for review and acceptance under cover of a communication using the EDMS.

All electronically re-drafted Revision C (contractual) and Status Code AB (as-built) drawings shall be in accordance with the *Employer's* CAD standards (Std No: CR-STD-005; Doc No: CRL1-XRL-Z-GPD-CR001-50010) & BS1192 Collaborative Production or Architectural, Engineering and Construction - Code of Practice.

13.3.6.2 Records for parts of the *works* where the *Contractor* is not responsible for design.

On completion of the work, or as requested by the *Project Manager*, the *Contractor* shall create the Redline drawings, as outlined in section 13.3.6.1 and transmit to the *Project Manager* under cover of a formal transmittal note for electronically re-drafting at Revision C (Contractual) and status code at AB (As-Built) to reflect the as-built (operational) condition.

13.3.6.3 Records for parts of the *works* where *Contractor* is responsible for design.

The *Contractor* shall submit a list of those drawings on a RIR considered necessary for operational and/or maintenance purposes to the *Project Manager* for acceptance. As requested by the *Project Manager*, the *Contractor* shall create the Redline drawings, as outlined in section 13.3.6.1. The *Contractor* shall forward the Redline drawings to the *Project Manager* four weeks prior to Completion of the *works* that includes parts designed by the *Contractor*. When the *Project Manager* accepts that the Redline drawings reflect the as-built condition, by notification, the *Contractor* shall electronically re-draft at Revision C (Contractual) and Status Code at AB (As-Built) to reflect the As-Built (operational) condition in EDMS. All references on the Redline drawings to changes, such as technical queries, Requests For Information, Field Change Documents, Non-Conformance Reports, standards or other relevant data, shall be incorporated into the Revision C, Status Code AB (As-Built) such that the references are removed.

13.3.6.4 Drawings not required to be “As-Built”

Drawings in the following categories are not required to be “As-Built” except where an element of permanent *works* is also shown on the same drawings, in which case the permanent *works* element only is required as an “As-Built”:

RIBA stage E and Preliminary Design drawings to be further developed by *Contractor*. However, construction drawings developed from these must be “As-Built”.

Temporary works drawings, except where the temporary works are required for interim maintenance, operational or safety purposes.

Systemwide stageworks drawings leading up to the final arrangement

Drawings showing temporary traffic management schemes including temporary road closures except where such drawings are required for interim maintenance, operational or safety purposes.

Construction access except where such access is also permanent works access.

Site clearance and demolition, except where a structure is partially demolished, or there is a requirement to inform a follow on contractor of specific risks not removed by demolition or site clearance.

13.3.6.5 Supplier Manufacturer & Standard Details

Revision C drawings which are used to manufacture or fabricate an element or component off-site e.g. single component and component assembly drawings or standard detail drawings and assembly drawings stonemason drawings, etc, are not required to be “As-Built”, except that if a component is not fabricated in accordance with the Revision C drawing and an accepted change to the drawing has resulted in all instances of that component being revised then the drawing must be produced “As-Built” to indicate the change.

If a component is not fabricated in accordance with the Revision C drawing but is still installed on-site then this should be recorded on the relevant assembly or GA

drawing showing where or how the component is located, arranged, configured and connected to other elements. This as-built drawing would also record the NCR reference accepting the non-compliant component. In this case the component drawing itself does not need revising to "As-Built" drawings.

13.3.6.6 Not Used

13.3.7 Material Proposal Schedule

The *Contractor* shall develop a Material Proposal Schedule (MPS) for planned procurement activities for acceptance by the *Project Manager*. The MPS shall identify

- Architectural and non-architectural items
- Samples/mock ups required including Test Panels and Quality Benchmarking where required
- PTR/RFI reference numbers
- Material approvers(*Contractor*/subcontractor organisation/persons including applicable BREEAM specialists)
- Target submission dates`

13.3.8 Materials Compliance Record (MCR)

The *Contractor* shall utilise the template attached in Appendix 13J (MCR) for the purpose of recording material and product acceptances for the *works* and submit such records to the *Project Manager* for acceptance.

Note:_The MCR template is not valid for raising or approval of any change or deviation to material compliance with contract documents and specifications.

The Project Manager will agree which of the Material Compliance Records are required for formal submission and acceptance including items requiring acceptance by Others.

13.4 Certification to be Provided

13.4.1 Manufacturing Certification

The *Contractor* shall procure that subcontractors provide manufacturing and fabrication certification in accordance with the requirements of the Works Information. The *Contractor* submits such certification with the relevant Sub-Construction or Construction Certification Package.

13.4.2 Design Certification

13.4.2.1 General

The *Contractor* shall establish and maintain controls over *Contractor* designed elements of the *works* which will ensure that the *Contractor's* design output documents are traceable to the *Employer's* requirements documents and that the

required level of technical acceptance has been obtained prior to the issue of detailed design deliverables for construction. Details of design certification are detailed under Appendix 13 B.

13.4.2.2 Design Certification Sequence

Staged Design Completion Certificate (SDCC)

A staged Design Compliance Certificate (SDCC) is issued by the *Contractor* to certify that his design is compliant with the *Employer's* requirements, the project requirements, and the Conceptual Design Statement (CDS) and has been integrated within the applicable interface designers.

A SDCC is issued following review and approval of the corresponding CDS and is accepted by the *Project Manager*. Final Design Submission (FDS)

A Final Design Submission is produced by the *Contractor* at the end of the detailed design phase. It shall illustrate how the design has been completed in accordance with the Conceptual Design Statement and shall identify any changes. It will reference the complete set of design deliverables.

Copies of all checked and approved design calculations shall be provided at the same time as the FDS for record purposes.

The FDS will include a Design Completion Certificate commensurate with the full maturity of the design.

13.4.2.3 Design and Compliance Certificate (DCC)

The Design Compliance Certificate is produced by the *Contractor* certifying that the design is in conformity with all project requirements and the accepted Conceptual Design Statement plus agreed changes.

The DCC forms part of the assurance deliverables and is produced at the completion of the detailed design.

13.4.3 Construction Certification

Construction and Sub-construction Certificates shall be issued by *the Contractor* to provide the documentary evidence required by *Project Manager* to demonstrate that the *works* have been constructed in accordance with:

- the contract ;
- the *Contractor's* design accepted by the *Project Manager*, and

The *Contractor* shall prepare a register of proposed Sub-construction and Construction Certificates for the *works* for acceptance by the *Project Manager*. The register shall indicate the planned and actual dates at which certificate and documentary evidence are to be presented to the *Project Manager* for acceptance.

Each Sub-construction and Construction Certificate shall include a definition of its scope and refer to any relevant Design Acceptance Certificates. The *Project Manager* will provide references to such Design Acceptance Certificates for design

by Others. Where no specific Design Acceptance Certificate relating to a part of the *works* exists (for example drainage, roadworks, fencing, utility diversions and other enabling works etc) then the whole contract design acceptance certificate for the contract shall be referenced.

Each Sub-construction and Construction Certificate shall be supported by the associated records.

Utility diversions shall have their own sub-construction certificate and shall be referenced to the whole contract design acceptance certificate for the contract.

Where assets remain under the control of the *Employer* until transfer in its entirety to the relevant 3rd Party or Infrastructure Manager then Works Information Part 13 shall be applied. Where the asset is to be immediately transferred upon completion to the control of a 3rd party, i.e. London Underground, Network Rail, Docklands Light Railway, National Grid Gas, etc., the requirements of the applicable 3rd party and relevant 'Parts' of the Works Information for supporting documentation shall be implemented.

Refer Appendix 13 E, 13F and 13G for details.

13.5 Asset Management & Traceability

The *Employer* will develop and manage asset information provision processes which should provide assurance that asset information is of suitable quality and to minimise the overall cost of asset information provision to both the *Contractor* and the *Employer*. These processes may be refined over the life of the contract to improve the effectiveness of asset information provision.

The *Contractor* shall be responsible for the provision of asset labels; the *Contractor* shall complete and submit to the *Project Manager* the Asset Data Collection forms in a timely manner thus allowing the *Employer* to issue the required asset label information.

The *Employer* shall operate managed processes to ensure consistent asset information is provided for each contract. In order to ensure consistent approaches to asset hierarchies and asset classification, the development and population of the asset hierarchies shall be undertaken by the *Employer*. Classification of assets will be based upon the Uniclass Standard and shall be undertaken by the *Employer*.

Contractors shall be issued by the *Employer* with Asset Data Collection Forms relevant to their contract with the required attributes specified. *Contractors* shall populate the Asset Information Provision with all requested details and within the timescales specified in the information request.

The *Employer* will provide suitable briefing and training sessions to *Contractors* to ensure that they are aware of their responsibilities within the overall process.

An example data collection form is included in Appendix 13L.

All asset data shall conform to the *Employer's* standards as specified in the Standards Baseline and the *Employer's* Asset Information Management Plan – CRL1-XRL-O8-XTC-CR001-00007.

At an appropriate time the *Contractor* shall be provided with extracts of the *Employer's* Asset Information Management System (AIMS) database by the *Project Manager* containing planned assets to be constructed/ modified/ demolished/preserved/ interfaced by the *Contractor* as detailed in the Asset Information Management Plan CRL1-XRL-O8-XTC-CR001-00007. These extracts will contain assets adjacent to the Site which the *Contractor* may need to be aware of.

Throughout the contract, the *Contractor* shall be responsible for the safe storage and management of the extracts of the *Employer's* Asset Information Management System (AIMS) supplied to them. They shall maintain suitable controls to prevent the loss, deletion, corruption or degradation of the Asset Register consistent with current industry good practice.

The *Contractor* shall populate the extracts of the *Employer's* Asset Information Management System (AIMS) to support future operational, maintenance and asset management activities. The Asset Information Management System (AIMS) extracts shall be updated to contain the complete asset listing covering the contracted works.

The Asset Information Management System (AIMS) shall enable storage and access of the following information to *Employer's* standards:

- Asset identification
- Asset location
- Asset classification to the classification standards of the relevant infrastructure manager
- Asset status
- Asset criticality
- Asset attributes specific to the relevant class of asset
- The capability to store identifiers to allow linkage to other information systems

The Asset Information Management System (AIMS) extracts shall be populated by the *Contractor* with all specified data updates to comply with *Employer* requirements and shall be fully populated no later than four weeks after the relevant asset has been installed/ set to work. The *Contractor* shall maintain at all times traceability of all assets and line wide replaceable units, including failure during testing and commissioning and product swap-out.

All assets, down to the line replaceable unit, shall have a unique identification number that is capable of being used to consistently identify the asset electronically and manually. Unique identification shall be compliant with the *Employer's* Asset Identification Standard (CRL1-XRL-O6-STD-CR001-00031).

All assets installed or supplied by the *Contractor* shall have a durable label or name plate appropriate to the environment either securely fixed to the asset, or securely fixed adjacent to the asset. These labels shall be compliant with *the Employer's*

standards. These labels shall be compliant with *the Employer's Asset Identification Standard* (CRL1-XRL-O6-STD-CR001-00031).

The *Contractor* shall be accountable for the management, storage and population of the Asset Register data and shall attend, and contribute to *Employer* data governance meetings when required.

If changes are required to *Employer* standard reference data, then the *Contractor* shall notify the *Project Manager*.

The *Contractor* shall ensure that all data population and updates are consistent with the *Employer's* quality requirements. This shall include ensuring that the accuracy, validity, precision, completeness and timeliness of asset information comply with the *Employer's* standards listed as:

- Asset Identification Standard CRL1-XRL-O6-STD-CR001-00031
- Asset Information Management Plan CRL1-XRL-O8-XTC-CR001-00007.
- The *Contractor* shall instigate suitable checks and audits of data quality to demonstrate that *Employer's* standards are being complied with and shall demonstrate the effectiveness and outputs of these processes to the *Project Manager*, when requested.
- Requirements for the coding and numbering of *Employer* assets shall be compliant with the *Employer's* Asset Identification Standard (CRL1-XRL-O6-STD-CR001-00031).

The *Contractor* shall nominate a relevant senior employee as Data Owner who shall be accountable for the management, storage and population of the Asset Register data. The Data Owner shall attend, and contribute to *Employer* data governance meetings when required.

13.6 Critical Readiness Review

The *Contractor* shall undertake and be the chair of the Readiness Review for Critical Activities (Readiness Review for Critical Activities Template CRL1-XRL-Z-ZTM-CR001-50025) that are to be carried out prior to commencing new construction activities which are associated with higher than routine risks.

The *Contractor* shall ensure that applicable representation from the *Project Manager* is in place and that during the meeting any output is clarified and that the review is fully endorsed by the *Contractor* and of those attending on behalf of the *Employer*.

The proposed schedule of Readiness Reviews for Critical Activities shall be included in the *Contractor's* plans. Examples would include (but not limited to):

- Possessions
- Activities critical to the programmes of interfacing contractors

- Start of construction by new, major sub-contractor
- TBM manufacturing
- Site logistics
- TBM launch
- TBM operational logistics
- TBM breakthrough
- Cross-passage construction
- SCL tunnelling
- SCL pre-start meeting
- Shaft construction
- Shaft sinking pre-start
- Monitoring
- Monitoring pre-start

Readiness Review for Critical Activities (template: CRL1-XRL-Z-ZTM-CR001-50025) is provided for guidance and shall be made available to the *Contractor* during the Kick-Off Meeting along with supporting forms/templates:

- Permission to mobilise certificate (CRL1-XRL-Z-ZTM-CR001-50022)
- Permission to mobilise checklist (CRL1-XRL-Z-ZTM-CR001-50023)
- Site start-work checklist (CRL1-XRL-Z-ZTM-CR001-50024)

Readiness Checklist for Major Excavation & SCL (CRL1-XRL-Z-ZTM-CR001-50029)

Each Critical Readiness Review shall comprise of:

- inclusion in the *Contractors* P6 Programme, and reviewed in one or more planned meetings with the *Project Manager* well in advance of the due construction commencement date.
- A checklist based on the Permission to Mobilise Checklist: Readiness Review for Critical Activity completed and signed off by the *Contractor* at the Readiness Review Meeting(s).
- The checklist shall be further developed by the *Contractor* and may be replaced by the *Contractor's* preferred checklist provided that the items identified in the Readiness Review Checklist are addressed and accepted by the *Project Manager*.
- The review shall also encompass the state readiness of the required documentation, certification and open audit/surveillance items.
- Review meeting(s) shall be chaired by the *Contractor* and attended by major sub-contractors and *Project Manager* and their appointed representatives.

- The completed, signed checklist shall be uploaded onto the EDMS prior to the start of the relevant construction activity.

13.7 Appendices

Appendix 13A	Parts of the Works Information requiring Assurance Evidence
Appendix 13B	Design Certificates
Appendix 13 B1	Staged Design Compliance Certificate (SDCC)
Appendix 13 B2	Design Compliance Certificate (DCC)
Appendix 13C	Sub-/Construction Certificate Package Listing
Appendix 13D	Certificate Package Review Statement
Appendix 13E	Sub-Construction Certificate
Appendix 13F	Construction Certificate
Appendix 13G	Whole contract Construction Certificate
Appendix 13H	Contract Master Deliverables List Template
Appendix 13J	Materials Compliance Record
Appendix 13K	Inspection Request Form
Appendix 13 L	Asset Data Collection Form
Appendix 13 M	Readiness Review for Critical Activities
Appendix 13 N	Permission to Mobile Certificate
Appendix 13 O	Permission to Mobilise Checklist
Appendix 13 P	Site Start-Work Checklist
Appendix 13 Q	Readiness Checklist for Major Excavation & SCL
Appendix 13 R	Management of Redlines Procedure
Appendix 13 S	Management of As Builts Procedure