**CAPITAL PROJECTS AND**

**FACILITIES MANAGEMENT**

**INFRASTRUCTURE**

**OPERATIONS AND MAINTENANCE MANUAL**

**APRIL 2023**

1. **COMBINED SMALL PROJECTS MANUAL**

**Project Name:** i.e. Aconex project name

*Project Description: Provide a brief description and location*

|  |  |
| --- | --- |
| UoA Project Number: |  |
| UoA Project Building Name(s):  UoA Project Location/Address:  UoA Building Number: |  |
| UoA Project Manager: |  |
| UoA Project Number: |  |
| Consultant: |  |
| Architect: |  |
| Contractor: |  |
| Practical Completion Date: |  |

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1. Document Control Resources

Roles and responsibilities

Insert **‘Applicable’** or **‘Not Applicable’** for Stakeholders involved in the consolidation/review process.

|  |  |  |  |
| --- | --- | --- | --- |
| **Company** | **Role** | **Person(s) or Position(s)** | **Applicable/**  **Not Applicable** |
| Document Controller | Document Controller | XXXX  [The same person on each document] |  |
| Document Owner/Approver | Document Owner/Approver | Director Capital Project Delivery and Facilities Management |  |
| [Contractor] | Document Originator | [Title] |  |
| [Consultant] | Document Reviewer | [Title] |  |
| University of Adelaide | Document Reviewer | Project Manager |  |
| University of Adelaide | Document Reviewer | Senior Technical Officer |  |
| University of Adelaide | Document Reviewer | Facility Manager North Terrace  (High Priority) |  |
| University of Adelaide | Document Reviewer | Facility Manager North Terrace (Medium Priority) |  |
| University of Adelaide | Document Reviewer | Facility Manager North Terrace (Low Priority & Support) |  |
| University of Adelaide | Document Reviewer | Facility Manager North Terrace (Soft Services) |  |
| University of Adelaide | Document Reviewer | Facility Manager  Roseworthy Campus |  |
| University of Adelaide | Document Reviewer | Facility Manager  Waite Campus |  |
| University of Adelaide | Document Reviewer | Senior Space Data Coordinator |  |
| University of Adelaide | Document Reviewer | Maintenance Scheduling Officer |  |

1. Document Approval, Use and Revision History

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Volume** | **Version** | **Date** | **Reason** | **Company** | **Person(s) or Position(s)** | **Comments** |
| [Example:  No. of Volume] | [Example:  Revision Letter or Number] | [Example:  Date of Revision i.e. 2020-02-02] | [Example:  Amendment, Review, Transmitted, etc.] | [Example:  Company Name] | [XXXX [Name]  XXXX [Title]] | [Example:  DRAFT Manual Issued to UoA PM for review] |
| Etc. | Etc. | Etc. | Etc. | Etc. | Etc. | Etc. |

Sample table format as follows:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Volume** | **Version** | **Date** | **Reason** | **Company** | **Issued by**  **(inc. Position)** | **Issued to (inc. Position)** | **Comments** |
| 1 | 1 | 2022-05-18 | 50% review | ABC Builder | [Name]  XXXX  [Title]  XXXX | [Name]  XXXX  [Title]  XXXX | 50% submission sent to UoA for review |
| 1 | 2 | 2022-05-25 | 50% review | UoA | [Name]  XXXX  [Title]  XXXX | [Name]  XXXX  [Title]  XXXX | 50% UoA review received with comments |
| 1 | 2 | 2022-06-08 | 95% review | ABC Builder | [Name]  XXXX  [Title]  XXXX | [Name]  XXXX  [Title]  XXXX | 95% submission sent to UoA for review |
| 1 | 2 | 2022-06-15 | 95% review | UoA | [Name]  XXXX  [Title]  XXXX | [Name]  XXXX  [Title]  XXXX | 95% UoA review received with comments |
| 1 | 3 | 2022-05-29 | 100% review | ABC Builder | [Name]  XXXX  [Title]  XXXX | [Name]  XXXX  [Title]  XXXX | 100% submission sent to UoA for review |
| 1 | 3 | 2022-07-06 | 100% review | UoA | [Name]  XXXX  [Title]  XXXX | [Name]  XXXX  [Title]  XXXX | UoA endorsed 100% documentation package |
| 1 | 4 | 2022-077-07 | Issued for Archiving | ABC Builder | [Name]  XXXX  [Title]  XXXX | [Name]  XXXX  [Title]  XXXX | Sent to UoA for archiving |

Note:

1. This section should only present (3) three review types as per the *“Post-Construction Documentation – O&M Manual Review Matrix”,* i.e.:

* 50% Review;
* 95% Review for PC Endorsement;
* 100% Review; and
* Issued for Archiving.

1. Document Guide

This template is a combined manual incorporating both Contractor and Architectural requirements based upon the Natspec guidelines and reference the University of Adelaide’s Design Standards throughout this document.

Refer to ‘National section Matrix’ for further information relating to the Natspec structure.

Should a section not be applicable, place **‘Not Applicable’** in the respective section.

This template is only to be used for ‘Small Projects’ only and is required to be approved for use by the Manager of Capital Projects.

Provide information in each section within the manual consistently in trade discipline order as follows:-

* Architectural
* Communications
* Electrical
* Fire
* Hydraulic
* Mechanical
* Security
* Structural
* Urban, Structural and Open Spaces

**Exclude all irrelevant matter within this template.**

## Description of the Installation

Provide a full description of the project including but not limited to the following:

1. Overall scope of works
2. Project Specific Location i.e. UniSpace reference
3. Listing of the trades
4. Project stages
5. Project commencement and completion dates
6. Any work which may have been completed by others (i.e. works completed by others and not the Contractor)

|  |  |
| --- | --- |
| Design Standard reference: | Volume K:  ‘Project Description’ |

## Directory of Contacts

Provide in table format a combined contact list which includes Contractors, Consultants, UoA Project Manager and this trade discipline.

Contact details to be provided in order as follows:

1. Company Name
2. Contact Name (Representative)
3. Company Position
4. Contact Number (Representative)
5. Company Address
6. Company Email Address
7. After-Hours Contact Name
8. Contact Number

Sample table format as follows:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Trade Discipline** | **Company Name** | **Contact Name (Representative)** | **Contact Number (Representative)** | **Company Address** | **Company Email Address** | **After-Hours Contact Name and Contact Number** |
| Contractor |  |  |  |  |  |  |
| Consultant |  |  |  |  |  |  |
| UoA Project Manager |  |  |  |  |  |  |
| Trade Discipline |  |  |  |  |  |  |
| Etc. |  |  |  |  |  |  |

|  |  |
| --- | --- |
| Design Standard reference: | Volume K:  ‘Directory of Contacts’ |

## Certificates and Forms

This section is separated into (3) subsections as follows:

1. Legal Compliance and Statutory Authorities
2. Essential Safety Provisions

### Legal Compliance and Statutory Authorities

Provide signed copies of all Legal Compliance and Statutory Certification including but not limited to the following:

1. Certificate of Occupancy [Schedule 19 of the Development Act 1993 and Development Regulations 2008]; and
2. Statement of Compliance – Builder’s Statement [Schedule 19A of the Development Act 1993 and Development Regulations 2008];

Please state below if a specific Certificate is **‘Applicable’** or **‘Not Applicable’** to this section for this project.

Sample table format as follows:

|  |  |
| --- | --- |
| **Legal Compliance and Statutory Authorities Certification Type** | **Applicable/Not Applicable** |
| Development Approval |  |
| Certificate of Occupancy |  |
| Builder’s Statement |  |
| Departures Schedule |  |

Note:

1. Where applicable, include copies of certificates in order as listed above.
2. Refer to SA Development Act and Ministers Specification for further information.

|  |  |
| --- | --- |
| Design Standard references: | Volume K:   * Australian Standards and Codes of Practice * ‘DA, Form 2’s, Builders Statement’ * Schedule 4.12 ‘Post-construction documentation’ * Schedule 4.13 ‘As- built documentation checklist’ |

### Essential Safety Provisions

Provide signed copies of all Essential Safety Provisions certificates and forms including but not limited to the following:

1. Schedule of Essential Safety Provisions [Form 1, Schedule 16 of the Development Regulations];
2. Certificate of compliance with Essential Safety Provisions [Form 2, Schedule 16 of the Development Regulations]; and
3. Certificate of compliance with maintenance procedures [Form 3, Schedule 16 of the Development Regulations]

Please state below if a specific Certificate and/or form is **‘Applicable’** or **‘Not Applicable’** to this section for this project.

Sample table format as follows:

|  |  |
| --- | --- |
| **Legal Compliance and Statutory Authorities Certification Type** | **Applicable/Not Applicable** |
| Schedule of Essential Safety Provisions [Form 1, Schedule 16 of the Development Regulations] |  |
| Certificate of compliance with Essential Safety Provisions [Form 2, Schedule 16 of the Development Regulations] |  |
| Certificate of compliance with maintenance procedures [Form 3, Schedule 16 of the Development Regulations] |  |

Note:

1. Where applicable, include copies of certificates in order as listed above.
2. Refer to SA Development Act and Ministers Specification for further information.
3. Refer to Minister’s Specification SA76 for further information.
4. Alternative Solutions needs to be added (and SAFMS approval).

|  |  |
| --- | --- |
| Design Standard references: | Volume K:  Australian Standards and Codes of Practice |

## Warranties

Provide in table format a combined warranties schedule for each trade discipline listing all Warranty periods including but not limited to:

1. Manufactures Warranties;
2. Installation Warranties;
3. Material Warranties;
4. Defects Liability Warranties; and
5. Assignment of warranties

Sample table format as follows:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Trade Discipline** | **Manufactures Warranties** | **Installation Warranties** | **Material Warranties** | **Defects Liability Warranties** |
| Trade Discipline |  |  |  |  |
| Etc. |  |  |  |  |

Note:

1. Copies of warranties for each trade discipline are to be included in this section.
2. Confirmation that warranties have been assigned to the University of Adelaide.
3. Warranties commence from the date of practical completion (identify any departures where warranties do not commence from date of practical completion).
4. Should a warranty not apply insert ‘Not Applicable’.
5. Warranty expiry dates to be included in Asset Register (refer to section 2.2.3, 3.2.3 and 4.2.3).
6. Mark each product data sheet to clearly identify the specific products and components used in the installation and the data applicable.
7. Product information to be inserted in order as listed in table provided below.

Sample table format as follows:

|  |  |  |
| --- | --- | --- |
| **Trade Discipline** | **Contractor** | **Product Brochure Title** |
|  |  |  |
|  |  |  |
|  |  |  |

|  |  |
| --- | --- |
| Design Standard reference: | Volume B:  ‘Warranties’ |

## Training Plans and Records

The contractor is to provide full details of training provided to end users including copies of documentation issued (e.g. presentations and attendance records).

|  |  |
| --- | --- |
| Design Standard references: | Volume K:  ‘Training Records’ |

## User Guides

When required, the UoA Project Manager is to provide a user guide for end user training. Refer to documentation standard for further information.

|  |  |
| --- | --- |
| Design Standard references: | Volume K:   * ‘Building User Guide’ * ‘Safe Operating Procedures (SOP)’ |

## Occupational Health and Safety / Hazardous Materials

The Contractor is to provide the following:

1. A copy of Safety in Design register
2. A copy of Safety in Construction (Risk Assessment) register
3. Copies of Asbestos clearance certificates
4. Safe Operating Procedures (SOP) that have been developed during the project delivery process (to be produced by Faculties)

|  |  |
| --- | --- |
| Design Standard references: | Volume K:   * ‘Risk Register’ * ‘Safety in Design/Workplace Health and Safety’ |

## Document Register

Provide a combined document register including As-Built drawings, Specifications, Space Charging base floor plans in table format including the following necessary components as follows:

1. Document Number
2. Document Name/Title
3. Discipline (i.e. Architectural, Electrical etc.)
4. Document Author (i.e. Builder name, Consultant name etc.)
5. Revision
6. Revision Date

Sample table format as follows:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Document Number** | **Document Name/Title** | **Discipline (i.e. Architectural, Electrical etc.)** | **Document Author (i.e. Builder name, Consultant name etc.)** | **Revision** | **Revision Date** |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
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|  |  |  |  |  |  |

Note:

1. Documents to be submitted separately with the Manual in both pdf and dwg format.
2. If a ‘full’ document register is provided (all disciplines etc) then clearly identify the documents relevant to the manual.
3. Provide a separate table similar to the above sample table for **shop drawings/manufacturers’ drawings** separating the project specific documentation from generic.
4. The Document Register table is to be recorded in this section only.
5. Documents listed will only be reviewed and endorsed and labelled “As Built”/”as Constructed”/”Record Set”).

|  |  |
| --- | --- |
| Design Standard references: | Volume K:   * Schedule 4.12 ‘Post-construction documentation’ * Schedule 4.13 ‘As- built documentation checklist’ |

## Asset Register

The Contractor (in conjunction with the Consultant) are to provide an asset register reflecting all new, removed/demolished assets during the construction process.

Note:

1. The Contractor must provide item 1.9 (2) two months prior to Practical Completion for review and approval by the University of Adelaide.
2. Provide the asset register in the template provided supplied in an .xls file document.
3. Consultant to identify assets which have been removed/demolished.
4. At start-up phase the UoA representative is to complete responsibility column of asset register to identify Infrastructure or Departmental maintained assets.
5. Asset register to be submitted in conjunction with the Defects Liability Period (DLP) Maintenance Schedule.

|  |  |
| --- | --- |
| Design Standard reference: | Volume K:  ‘Asset/equipment register’  Schedule 4 for ‘asset register’ template |

## Defects Liability Period (DLP) Maintenance Schedule

The Contractor is required to provide a combined maintenance schedule in a spreadsheet, provided by the University. Provide maintenance schedule (2) two months prior to Practical Completion.

Sample table format as follows:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Equipment Code** | **Site** | **PM Procedure** | **Date for First DLP PM** | **Date of Last DLP PM** | **Freq. 1 Interval** | **Interval Type** |
| INF0000001 | NT - DLP | DLP (M) | 2020-07-01 | 2021-07-01 | 1 | m |
| INF0000001 | NT - DLP | DLP (Q) | 2020-10-01 | 2021-07-01 | 3 | m |
| INF0000001 | NT - DLP | DLP (A) | 2020-12-01 | 2021-07-01 | 12 | m |

Note:

1. Refer to DLP Scheduling procedure provided by the University of Adelaide.
2. Schedule to identify all items that have an ESP function (where applicable).
3. Provide completed DLP Maintenance Schedule in conjunction with the Asset Register.
4. Contractor to complete all columns of the DLP maintenance schedule template with exception for column C which will be completed by the University of Adelaide.
5. The Contractor must provide maintenance schedule (2) two months prior to Practical Completion.

|  |  |
| --- | --- |
| Design Standard reference: | Volume K:  ‘Maintenance Schedule’ |
| Refer to the template document PM Schedules.xls |

## Care and Maintenance Instructions

The Contractor is to provide all details for care and maintenance instructions for this trade discipline as recommended by manufacturers/suppliers. These shall include but not limited to the following:

1. Step by step procedures for safe trouble shooting, maintenance and repair
2. Cleaning and maintenance instructions

Note:

1. Contactor contact details are to be recorded in Section 1.2.
2. The Contractor must provide care and maintenance instructions (2) two months prior to Practical Completion.
3. Mark each product data sheet to clearly identify the specific products and components used in the installation and the data applicable.
4. Product information to be inserted in order as listed in table provided below.

Sample table format as follows:

|  |  |  |
| --- | --- | --- |
| **Trade Discipline** | **Contractor** | **Product Brochure Title** |
|  |  |  |
|  |  |  |
|  |  |  |

|  |  |
| --- | --- |
| Design Standard reference: | Volume K:  ‘Maintenance Information’ |

## Installation, Dismantling and Technical (Performance) Data

The Contractor is to provide full details of installation, dismantling and reassembly instructions including manufacturer’s technical (performance) literature that includes a description of the functionality and mode of operation of each system provided for this trade discipline including but not limited to:

1. Equipment brochures
2. Specifications
3. Data sheets
4. Drawings

Note:

1. All installations must be carried out in accordance with manufacturer specifications and data sheets to ensure product performance over its intended life and so as not to invalidate any warranties.
2. Mark each product data sheet to clearly identify the specific products and components used in the installation and the data applicable.
3. Product information to be inserted in order as listed in table provided below.

Sample table format as follows:

|  |  |  |
| --- | --- | --- |
| **Trade Discipline** | **Contractor** | **Product Brochure Title** |
|  |  |  |
|  |  |  |
|  |  |  |

|  |  |
| --- | --- |
| Design Standard reference: | Volume K:  ‘Equipment Details And Manufacturers Technical Data’ |

## Operating Instructions

The Contractor is to provide operating instruction of each system provided for this trade discipline including but not limited to:

1. Safe starting, operating and shutting-down procedures for the equipment installed
2. Control sequences and flow diagrams for the systems installed (where applicable)
3. Fire mode interconnection and operation
4. Legends for colour-coded services (where applicable)

Note:

1. Mark each product data sheet to clearly identify the specific products and components used in the installation and the data applicable.
2. Product information to be inserted in order as listed in table provided below.

Sample table format as follows:

|  |  |  |
| --- | --- | --- |
| **Trade Discipline** | **Contractor** | **Product Brochure Title** |
|  |  |  |
|  |  |  |
|  |  |  |

|  |  |
| --- | --- |
| Design Standard reference: | Volume K:  ‘Equipment Details And Manufacturers Technical Data’ |

## As-Built Drawings

The Contractor (in conjunction with the Consultant) are to provide ‘as built’ drawings reflecting all changes made in the specifications and working drawings during the construction process, showing the exact dimensions, geometry, and location of all elements of the work completed under the contract.

Note:

1. Documents to be submitted separately with the Manual in both pdf and dwg format.
2. Expectation - drawings are transmitted via Aconex. Provide Aconex transmittal reference numbers.
3. Provide other related documents not included in the body of the manual (exception being the asset register).
4. Identify measurement points used to achieve commissioning data.
5. All drawings to include legends/keys/schedules where applicable.

|  |  |
| --- | --- |
| Design Standard references: | Volume K:   * ‘As-built documentation’ * ‘Documentation conventions’ * Schedule 4.12 ‘Post-construction documentation’ * Schedule 4.13 ‘As- built documentation checklist’ |

## Commissioning and Testing Data

The Contractor is to provide commissioning and testing records for each system and component for this trade discipline.

Note:

1. All records must be witnessed and verified by the UoA Project Manager in consultation with the Consultant and/or Designer.
2. Schedules of the parameter settings of each protective device (Including fixed and adjustable circuit breakers, protective relays, adjustable photoelectric switches, pressure switches, and any other control and monitoring device, as established during commissioning and maintenance).
3. Mark each product data sheet to clearly identify the specific products and components used in the installation and the data applicable.
4. Information to be inserted in order as listed in table provided below.

Sample table format as follows:

|  |  |  |
| --- | --- | --- |
| **Trade Discipline** | **Contractor** | **Product Brochure Title** |
|  |  |  |
|  |  |  |
|  |  |  |

|  |  |
| --- | --- |
| Design Standard reference: | Volume K:  ‘Commissioning Data’ |

## Specialist Tools and Testing Equipment

This section is expected to contain:

A combined Specialist tools and testing equipment register in table format used for the operation, maintenance and dismantling or assembly of the plant and equipment for each system including the following necessary components as follows:

1. Building Name
2. Level Number
3. Room Number
4. Tool Type
5. Tool Reference
6. Number of Tools

Sample table format as follows:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Trade Discipline** | **Item Number** | **Building Name** | **Level Number** | **Room Number** | **Tool Type** | **Tool Reference** | **Number of Tools** |
| Trade Discipline |  |  |  |  |  |  |  |
| Etc. |  |  |  |  |  |  |  |

Note:

1. This applies to special, non-generic tools and instruments that are not commercially available for the operation, maintenance and dismantling or assembly of the plant and equipment.
2. Provide a register/transmittal of handover of tools including both signatories from Builder and UoA.
3. Should a section not apply insert ‘Not Applicable’.

|  |  |
| --- | --- |
| Design Standard reference: | Volume K:  ‘Schedule of spares and consumables’ |

## Spares and Consumables

The Contractor is to provide a combined spares, special tools register and portable indicating instruments in table format which are used for the operation, maintenance, dismantling or assembly of plant and equipment: Include the following necessary components as follows:

1. Manufacturers Name
2. Manufacturers Address
3. Manufacturers Contact Number
4. Catalogue Number
5. Name of Local Distributor
6. Address of Local Distributer
7. Expected Replacement Frequency
8. Storage of Spares
9. Number of Spares

Sample table format as follows:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Trade Discipline** | **Manufacturers Name** | **Manufacturers Address** | **Manufacturers Contact Number** | **Catalogue Number** | **Name of Local Distributor** | **Etc.** |
| Trade Discipline |  |  |  |  |  |  |
| Etc. |  |  |  |  |  |  |

Note:

1. Provide a register/transmittal of handover of tools including both signatories from Builder and UoA.
2. Should a section not apply insert ‘Not Applicable’.

|  |  |
| --- | --- |
| Design Standard reference: | Volume K:  ‘Schedule of spares and consumables’ |

## Imported Equipment

The Contractor is to provide in table format a combined list of imported equipment including type, cost, and country of origin and importer details.

Sample table format as follows:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Trade Discipline** | **Type of Equipment** | **Cost** | **Country of Origin** | **Importer Details** |
| Trade Discipline |  |  |  |  |
| Etc. |  |  |  |  |

Note:

1. Details of any specialized equipment and/or materials which may be subject to procurement risk.
2. Should a section not apply insert ‘Not Applicable’.

|  |  |
| --- | --- |
| Design Standard reference: | Volume K:  ‘Schedule of spares and consumables’ |