
Drainage Services Department Practice Note No. 1/2010

**Guidelines for Hand-over of Completed Works to Operation and
Maintenance Parties**

Version No. : 1

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1. SCOPE

- 1.1 This practice note (PN) provides guidelines of good practice in the hand-over of completed works to the operation and maintenance (O&M) parties. These guidelines serve to supplement those stipulated in the Project Administration Handbook or Development Bureau Technical Circulars (Works). This PN replaces DSD TC No. 3/2005 "Guidelines for Hand-over of Completed Works to Operation and Maintenance Parties" with immediate effect.

2. INTRODUCTION

- 2.1 Better planning and control at various stages of the project implementation process would facilitate smooth handing over of the completed works to the O&M parties. This would avoid possible abortive works, delay to the commissioning process or contractual disputes. The project office should adopt the following good practices as appropriate :-

- (a) early involvement of the O&M parties at various stages of project implementation;
- (b) early submission of O&M manuals for electrical and mechanical installations; and
- (c) confirmation from the O&M parties of the satisfactory completion of all repair and outstanding works prior to the issue of Maintenance Certificate/Defects Liability Certificate.

3. INVOLVEMENT OF THE OPERATION AND MAINTENANCE PARTIES AND OTHER STAKEHOLDERS

- 3.1 The project office should involve the O&M parties at the early stage of project implementation to make sure that their requirements are fully incorporated in the design. In general, the following guidelines shall be followed :-

During Preparation of Consultancy Brief

- (a) Consult the O&M parties on their requirements. The O&M parties shall be asked to critically review their requirements and be reminded that the requirements provided by the O&M parties at this stage would be included in the consultancy brief to form the basis for the subsequent development of the project design memorandum and hand-over arrangements in later stages of the project.

During Planning and Design Stage

- (b) Consult the O&M parties on the design parameters, specifications of the final products and related O&M requirements. This is conducive to the preparation of an agreed design memorandum for the purpose of developing the design and the preparation of tender documents. The designers should liaise with the O&M parties from time to time for any necessary amendments to the design memorandum including the O&M requirements.
- (c) Consult the O&M parties on the criteria and procedures for

testing/commissioning and taking over of the final products.

During Construction Stage

- (d) For small and simple projects, the project office should arrange meetings with the O&M parties, at the beginning and near the completion of the works, to review possible issues which may arise during the construction and hand-over stages, and to establish communication among all relevant parties so that the requirements of all parties can well be addressed.
- (e) For more complex projects, e.g. multi-disciplinary projects, projects in traffic sensitive or flood prone areas, projects having interfacing problems or requiring staged hand-over etc., the Chief Engineer of the project office shall consider establishing a Working Group on Works Coordination and Commissioning involving all stakeholders at the early construction stage. The aims of such a Working Group are to ensure that the final products will be up to the required standards and specifications, and to provide a venue for promptly resolving problems arising during the construction stage. Where applicable, the Working Group shall include members from outside parties such as Fire Services Department, Electrical and Mechanical Services Department, Lands Department and Home Affairs Department. Typical agenda for the Working Group meetings is at Appendix I.

Prior to Testing and Commissioning (T&C) Stage

- (f) Prior to the T&C of the equipment and system, the project office shall prepare a programme, clearly listing out the proposed dates of all T&C involved and required under the contract, to the O&M parties. Sufficient time shall be allowed for the O&M parties to comment on the programme and decide whether they would witness any of these commissioning tests. If required, the project office and the contractor shall prepare and make suitable arrangements for the O&M parties to witness such T&C.
- 3.2 Apart from the above, the project office should also ensure that design documentation, such as schematic design, design memorandum, design drawings and the like, are agreed among all stakeholders, including the O&M parties, before the project moves on to the next stage. For consultants managed projects, the project office should critically review all relevant information submitted by the consultants before sending it out to the O&M parties for comment or agreement.
- 3.3 If there are any significant issues that cannot be resolved at working levels, the project office should promptly bring them to higher levels for resolution.

4. REQUIREMENTS OF OPERATION AND MAINTENANCE MANUALS

- 4.1 O&M Manuals are very important documents for the long term operation and maintenance of the completed facilities. General guidelines on the contents of the O&M Manuals are given at Appendix II. However, detailed requirements of the O&M Manuals should be based on the merits of individual contracts and the O&M parties should be consulted during the planning and design stage. The requirements on the contents of the O&M Manuals should be stated in consultancy briefs and/or contract documents.

4.2 Late submission of O&M Manuals by contractors of electrical and mechanical installations or other special installations very often causes undue delay to the commissioning of the completed works. To prevent this situation from happening, the contract documents should include control mechanism for the submission of O&M Manuals, including linking submission of O&M Manuals with milestone payments and issuance of Completion Certificate. The contractors' performance on the submission of O&M Manuals should be closely monitored and adequately reported in the reports on contractors' performance. Some guidelines on submission timeframe and control mechanism are given at Appendix III.

5. ISSUANCE OF MAINTENANCE CERTIFICATE/ DEFECTS LIABILITY CERTIFICATE

5.1 Works defects may be found during the Maintenance Period/Defects Liability Period (DLP) of a contract. The contractor is obligated to make good the defects if in the Engineer's opinion the defects are due to the contractor's fault or materials or workmanship not being in accordance with the contract.

5.2. It is essential that all repair and outstanding works are completed satisfactorily. If not, the Engineer shall notify the contractor of any defects before the expiry of the Maintenance Period/DLP but in no case later than 14 days after its expiry. Failure to notify the contractor of any defects may affect the Government's right to having these defects repaired by the contractor. To protect the Government's right, the Engineer shall arrange a joint site inspection with the contractor and all O&M parties (including other government department(s) where appropriate) to check whether all outstanding works have been completed satisfactorily and any further works are required. The Engineer should not consider that all known defects or outstanding works are completed satisfactorily without obtaining written confirmation from the O&M parties. If the O&M parties do not respond to the Engineer's request for inspection or written confirmation on the acceptability of the completed works within a reasonable time, the project office shall refer the matter to higher levels for resolution.

6. ENQUIRES

6.1 Enquiries on this PN should be directed to SE/CM4, Consultants Management Division.

7. APPENDIX

Appendix I Typical Meeting Agenda for Working Group on Works Coordination and Commissioning

Appendix II Suggested Contents of O&M Manuals for Civil Engineering Works and Electrical and Mechanical Works

Appendix III Guidelines on Submission Timeframe and Control Mechanism for O&M
Manuals involving Electrical and Mechanical Works

A handwritten signature in black ink, appearing to read 'W H K O', with a long horizontal flourish extending to the right.

(W H K O)
Deputy Director of Drainage Services



**Typical Meeting Agenda for Working Group
on Works Coordination and Commissioning**

1. Progress review
2. Proposed modification to the original design
3. E&M design submissions
4. Testing and commissioning programme
5. Interface between contracts and hand-over / partial hand-over of works
6. Commissioning risks and their management
7. Submission of O&M manuals and as-built drawings
8. Staff, materials and equipment requirements
9. Training of Employer's staff
10. Commissioning procedures
11. Safety issues
12. Witness of testing and commissioning
13. Records of commissioning and checks
14. Provision of spare parts
15. Changeover of utilities accounts
16. Storage and custody of project records

Suggested Contents of O&M Manuals for Civil Engineering Works

1. Content list.
2. General description of the system layout and a brief account on the functions of the system if necessary.
3. Hydraulic performance of the system where applicable.
4. Future maintenance requirements like the frequency of inspection and detailed requirement for the inspection including features to be inspected, inspection proforma, apparatus required, and special expertise and safety precautions required.
5. Any limitations or specific areas requiring special attention, e.g. the bottle neck of the system, settlement occurring during construction, locations where there are insufficient covers to the pipeworks, etc.
6. Interference with the rights of private parties, e.g. tunnel protection zone extending onto existing private lots.
7. Access for maintenance.
8. Guidance notes to govern the quality of future maintenance and division of responsibilities among the O&M parties for complicated installations.
9. As-built drawings : List of as-built drawings submitted under the Contract.
10. Testing certificates and records.

Suggested Contents of O&M Manuals for Electrical and Mechanical Works

1. Content list.
2. General description : general description of the Plant supplied and the principles of operation.
3. Equipment description : detailed technical description of individual items of the Plant.

4. Operation : step-by-step procedure for the operation of the Plant under all design conditions, including, among other things, the description of the protection and alarm systems installed, parameters to be monitored and recorded together with recommended time intervals and sample logging sheets, routine adjustments required to maintain the optimum efficiency of the plant and detailed procedures and recommended frequencies for checking, recalibrating and cleaning the instrumentation equipment.
5. Maintenance : full details of preventive, predictive and corrective maintenance and major overhaul procedures.
6. Trouble shooting diagrams.
7. Safety precautions in the operation and maintenance of the works.
8. Concise data : data associated with the Plant and information of the manufacturers, technical schedule etc. for use as ready reference source.
9. Spares and tools : comprehensive parts list for each item of the Plant and manufacturers' information.
10. As-built drawings : List of as-built drawings submitted under the Contract.
11. Testing certificates and records (including system settings records after commissioning).

Guidelines on Submission Timeframe and Control Mechanism for O&M Manuals involving Electrical and Mechanical Works

Submission Timeframe

1. First draft of the Manual to be submitted within a suitable time period after the shop drawings approval stage but in no case later than 2 months prior to commencement of installation.
2. Second draft of the Manual (updated to take account of any modifications made during installation) acceptable to the Engineer and for use of the O&M parties, to be provided at least 3 months prior to commencement of the commissioning tests.
3. Final Draft Manual (modified after the commissioning tests) to be submitted not later than 2 months after completion of the commissioning tests.
4. Final Manual (incorporated with any necessary amendments) to be submitted before the end of the Maintenance Period/Defects Liability Period.

Control Mechanism

1. X% of the total value of all relevant items in the Bills of Quantities/Schedule of Quantities will be certified on approval by the Engineer of the first draft of the O&M Manual.
2. Y% of the total value of all relevant items in the Bills of Quantities/Schedule of Quantities will be certified on approval by the Engineer of the final draft of the O&M Manual.
3. The total value of all relevant items in the Bills of Quantities/Schedule of Quantities will be certified on approval by the Engineer of the final O&M Manual updated to take account of modifications made during the Maintenance Period/Defects Liability Period.
4. Issue of the Maintenance/Defects Liability Certificate will be conditional upon the satisfactory completion of the final O&M Manual.