READ THIS FIRST

This Project Spec Document may need additional modifications to suit your project. It is recommended that you proofread each section, paying attention to any “Notes” boxes such as this one--you should remove these “Notes” sections as you go. Also, do a search for all bracket characters “ [ ] “ as they are used to show you areas containing options or project specific details (you can use Microsoft Word’s Find feature {Ctrl-F} to jump to an open bracket “ [ “ character quickly). Again, these bracket characters should be removed.

It is important that every paragraph be numbered to allow for easy referencing. If you use the document’s built in styles and formatting your outline should be fine (turn on the formatting toolbar by going to View > Toolbars > Formatting). Most paragraphs will use the style “Numbered Material” and can be promoted (Shift) or demoted (Shift-Tab).

You should not have to manually enter extra spaces, carriage returns or outline characters such as A, B, C, or 1.01, 1.02; the formatting will do this for you. The entire document is 11 pt. Arial. If you paste items in, you may need to reapply the “Numbered Material” format.

Coordinate this Section with 01 91 00 – Commissioning or 01 91 00.13 – Commissioning Activities, 01 78 23 - Operations and Maintenance Documentation, and Technical Specifications.

Review with Engineer, Project Manager, Maintenance, Facilities and other Stakeholders to tailor this section to the needs and requirements of the specific project.

Content of Appendix A is the responsibility of AV Maintenance, and whether or not to use Appendix B, and the content of Appendix B, are the responsibility of the PM, AV Maintenance, and AV F&I.

1. GENERAL
   1. SUMMARY
      1. Prior to Substantial Completion or Partial Substantial Completion, the Contractor shall provide orientation and training to a level that allows Port personnel to operate and maintain the Work per the documentation included in the draft Operation and Maintenance (O&M) Manual per Section 01 78 23.13 – Aviation Operations and Maintenance Documentation .
         1. Training shall be provided for all modes, functions, operations and maintenance of all products, systems or equipment by project competent personnel familiar with the items installed, sequence of operations, maintenance procedures and troubleshooting.
      2. Video requirements to capture training on operations and maintenance procedures for specific products, systems or equipment are as identified in this Section.
      3. All systems and parts of the Work shall be commissioned and functional prior to conducting training on that system or piece of equipment.
      4. Draft O&M Manual(s) submittal(s) shall be Accepted or Accepted as Noted prior to conducting training.

For Airport work include the reference to Appendix A. For non-Airport work review with Project Manager, Maintenance, Facilities and other Stakeholders to tailor Appendix A to the needs and requirements of the specific project.

* + 1. Provide training in conformance with:
       - 1. Appendix A: Standard Training Days and Times.

For work at the Airport, coordinate with PM, Maintenance (CPL group) and F&I on whether to include Appendix B. If Appendix B is included, it is the PM responsibility to coordinate with design team to populate the template with project-specific information as part of Div 1 development. This is typically used only for large projects.

* + - * 1. Appendix B: Training Hour Requirements.
  1. REQUIREMENTS/QUALIFICATIONS

For Airport work, RE shall confirm with PM, Maintenance and F&I on level of training required and corresponding and duration of of training sessions and adjust information below as needed.

* + 1. The Training Plan and Syllabus shall be developed by the Contractor. Detailed content of the training sessions shall be submitted for acceptance by the Engineer prior to the scheduling of any training.
       1. All required training or instructions from manufacturer’s representatives required shall be conducted during the scheduled training sessions.
       2. All training material and aides shall be provided during each training session and shall be included in the draft and final O&M Manual submittals.
       3. Attendence and questions and answers from the training sessions shall be documented and included in the final O&M Manual submittal(s).
       4. Group the training for each trade. For example, a piece of equipment may have training for both electricians and mechanics. Sequence the training so all the electrical training is combined and separate from the the mechanical training, and provide overlap where appropriate to minimize multiple trades having to to be in attendance concurrently. Engineer must accept combined craft group training.

Standard is 3 shifts, but this does not include shifts on weekends for some trades – check with PM (will need to be included in Expense budget) and AV Maintenance if this needs to change to up to 5 shifts and/or if two sessions for each shift is required – edit as needed...

* + 1. Training sessions shall be repeated to cover three (3) [up to five (5)] Port operational and maintenance shifts (day, swing, graveyard[, weekends]) as identified in Appendix A. [Training sessions shall be repeated two (2) times for each shift, at least two (2) weeks apart, for a total of six (6)[up to ten (10)] identical training sessions.

Include C and D **if** Appendix B is **not used**. Insert ‘Not Used' if Appendix B is used instead.

* + 1. The training time for each session will be [number (#)] hours for each type of equipment and [number (#)] hours for each system, where a system is multiple pieces of equipment functioning together.
    2. Each training session shall include formal classroom training and equipment/ system site specific hands-on field training. Remote (virtual) training may be considered by the Port on a case by case basis and requires approval by the Engineer.
    3. The Engineer can require additional training, at no cost to the Port, if the instruction is not deemed adequate for safe turnover and operations by Port personnel.

RE shall confirm with PM, Maintenance and F&I if project warrants the use of Port professional videographers.. If yes, include paragraph G (and PM to include in budget) and insert ‘NOT USED’ for F; otherwise include F and insert ‘NOT USED’ for G and/or adjust as needed.

* + 1. For Training Sessions, Contractor shall provide high definition video resolution in mp4 file format with size not to exceed 2GB for each file. Audio shall be of a quality easily understood.

[OR]

* + 1. For Training Sessions, video recordings will be conducted by the Port unless noted otherwise in the technical specifications.
    2. As agreed to by the Engineer, manufacturer’s standard training videos may be accepted where project conditions do not warrant special instructions.
    3. Training sessions shall be included on the Baseline Schedule and monthly Progress Schedule updates.

Confirm with Port Health & Safety on paragraph J and 3.02.A.n.

* + 1. [Contractor shall provide an approved passive fall protection system for facilitation of training for up to 12 workers (i.e. guard railing systems, warning lines , etc. as accepted by the Port). When corresponding equipment training is located and conducted at heights, all rules and regulations shall be followed in accordance to WAC 296-880].
  1. SUBMITTALS
     1. Training Plan and Syllabus: The Contractor shall submit for review and acceptance the Training Plan and Syllabus detailing the content as shown below in 3.02.A no less that thirty (30) days prior to the proposed training date(s).
     2. Include all training materials and aides in the draft O&M manual.
     3. Training sign in sheets shall be submitted following completion of training session(s) on each piece of equipment or system.
     4. Include all training materials, aides, questions and answers, and videos in the final O&M manuals.

1. PRODUCTS - Not Used
2. EXECUTION
   1. GENERAL
      1. The appropriate trade or manufacturer's representative shall provide the instructions on each major piece of equipment or system. This person may be the start-up technician for the piece of equipment, the installing Contactor or manufacturer’s representative.
      2. Trainers shall have practical building operating expertise with an in-depth knowledge of all modes of operation of the specific piece of equipment installed in this project. Contractor shall provide project competent personnel familiar with the item(s) installed, sequence of operations, maintenanece procedures and troubleshooting to instruct in the operation and maintenance of the equipment and systems. More than one party may be required to execute the training.
   2. TRAINING PLAN, PROCESS AND CONTENT
      1. Training Plan
         1. For each piece of equipment or system listed on the CMMS Form per Section 01 78 23.13 – Aviation Operations and Maintenance Documentation, the plan shall cover the following elements:
            1. Equipment (included in training)
            2. Intended audience (specific craft(s))
            3. Location of training (offsite/factory, classroom, field, remote)
            4. Proposed dates and times and locations

The time and place of the training session shall be coordinated by the Contractor with the Engineer.

Training more than a one hour drive from [SeaTac Airport or other location] requires approved scheduling a minimum of sixty (60) days in advance.

* + - * 1. Objectives
        2. Detailed outline including overview for each system or piece of equipment.
        3. Subjects covered (description, duration of discussion, special methods, etc.)
        4. Duration of training on each subject
        5. Instructor for each subject
        6. Instructor qualifications
        7. Methods (classroom lecture, site walk-through, operational demonstrations, written handouts, etc.)
        8. Questionnaire/Testing and evaluation of Port staff for understanding of systems and equipment, safety features, and functional operation.
        9. Identify required certifications for operating or maintaining equipment.
        10. [Passive Fall Protection system per 1.02.J]
    1. Training Process and Content:
       1. Contractor shall provide a training sign in sheet per training session and submit it after trainees have signed in and the training is complete.
       2. Training content shall:
          1. Utilize the accepted Training Plan and instructions in the O&M Manual(s) to emphasize safe and proper operating requirements, preventative maintenance, special tools needed and recommended spare parts inventory
          2. Include equipment and system overview with schematics and/or one-line diagrams.
          3. Review sequence of operations.
          4. Include classroom, site familiarization walks and hands-on training for each piece of equipment and system to illustrate all modes of operation including, but not limited to, startup, shutdown, emergency procedures, manual vs automatic, interrelationships with other equipment or systems.
          5. Review routine preventative and periodic maintenance including schedules for all pieces of equipment.
          6. Review relevant health and safety issues and concerns.
          7. Review maintenance associated with maintaining warranties.
          8. Review common troubleshooting and maintenance issues, problems and solutions.
          9. Review of any peculiarities of equipment installation or operation.
       3. During any demonstration, should the system fail to perform in accordance with the requirements of the O&M Manual or sequence of operations, the system shall be repaired or adjusted as necessary and the demonstration repeated – which shall be re-sheduled based upon Port staff availability.

1. MEASUREMENT AND PAYMENT
   1. GENERAL
      1. No separate measurement or payment will be made for the work required in this section. The cost for this portion of the work will be considered incidental to, and included in the payments made for the applicable bid items in the [Schedule of Unit Prices] [Lump Sum price] bid for the Project.

End of Section