

## SECTION 01320A - CONSTRUCTION PROGRESS DOCUMENTATION

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

- A. Drawings, Contract Provisions, Special Provisions, Supplementary **Conditions**, and other Division 1 Specification Sections apply to this Section.

## 1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for various CPM schedules and reports required for proper performance of the Work.
- B. All costs incurred by Contractor to correctly implement and update the schedule shall be borne by Contractor and are part of this Contract.
- C. Schedules required include the following:
  - 1. Contract Construction Progress Schedule in CPM format and related narrative and cash flow projection curves.
  - 2. Submittals Schedule.
  - 3. Schedule of Tests and Inspections.
  - 4. Record, As-Built CPM Schedule.
- D. Reports required include the following:
  - 1. Daily Construction Reports.
  - 2. Material Location Reports.
  - 3. Field Correction Reports.
  - 4. Special Reports.
  - 5. Monthly Progress Reports.
  - 6. Contractor Quality Control Reports.
- E. Related Sections include the following:
  - 1. Division 1 Section "Applications for Payment" for Schedule of Values.
  - 2. Division 1 Section "Project Coordination and Meetings" for Project meeting minutes.
  - 3. Division 1 Section "Quality Requirements" for test and inspection reports.
  - 4. Division 1 Section "Product Requirements" for Product List.

## 1.3 DEFINITIONS

- A. Activity: The fundamental unit of work in a Project plan and schedule. Each activity has defined geographical boundaries and a detailed estimate of resources required to construct the task. Each activity is assigned a unique description, activity number, activity codes, and dollar value.

- B. CPM Network: The structure of the schedule. The network is the representation that defines the construction logic in terms of all the activities with their logical dependencies.
- C. Contract CPM Schedule: A cost-loaded CPM schedule covering the entire Contract Duration from the Notice to Proceed through Final Acceptance of the Work.
- D. Contract Duration/Time: The total time, in calendar days identified in Section III, "Schedule," representing the duration necessary for completion of all physical and administrative requirements under this Contract and any authorized extension thereof.
- E. Critical Path: The critical path is the longest connected chain of interdependent activities in a CPM network that impacts the completion of the Project.
- F. Excusable Delay: An unforeseeable delay, beyond the control of Contractor, experienced due to no fault or negligence by Contractor, its subcontractors, or suppliers.
- G. Predecessor Activity: An activity that precedes another activity in the network.
- H. Cost Loading: The allocation of the Schedule of Values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Price, unless otherwise approved by COTR.
- I. Successor Activity: An activity that follows another activity in the network.
- J. Total Float: The amount of time an activity can be delayed from its earliest start date without delaying the end of Project.
  - 1. Float time is not for the exclusive use or benefit of either the Authority or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
  - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.

#### 1.4 PLANNING

- A. The total Contract Duration and intermediate milestones if applicable, as indicated in Section III, "Schedule," are the Contract requirements.
- B. Contractor shall prepare a practical work plan to complete the Work within the Contract Duration, and complete those portions of work relating to each intermediate milestone date and other Contract requirements. Contractor shall generate a computerized cost-loaded CPM schedule in Precedence Diagram Method (PDM) format for the Work.
- C. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of COTR approval of the Schedule.
- D. Failure of Contractor to comply with requirements of this Section may be considered cause for withholding progress payments or termination for default.

## 1.5 SUBMITTALS

- A. General: Contractor shall provide all schedule submittals on computer disk media as well as tabular printouts, resource curves and histograms, and 24-by-36-inch time-scaled logic diagrams. The latest version of Primavera P3 or SureTrak scheduling software shall be used. All costs incurred by Contractor to correctly implement, computerize and update the CPM Schedule shall be borne by Contractor and are included in the Contract Price. The number of copies of each submittal shall be as described in this Section or as may be requested by COTR.
- B. Contract CPM Schedule: The Contract CPM Schedule and its related narrative as described in this Section shall be submitted along with the projected cash-flow curve as early as practicable after the Notice to Proceed, but in no event later than 30 calendar days after the Notice to Proceed. Within 15 calendar days, COTR will respond with approval or direction to change and Contractor shall resubmit within 10 calendar days, if required.
- C. Daily Progress Report: Submit duplicate copies to COTR by noon on the day following the date of actual progress.
- D. Monthly Progress Report: All components of the Monthly Progress Report described in this Section shall be submitted as attachments to Contractor's monthly Application for Payment.
- E. Record As-Built CPM Schedule: A Record CPM Schedule accurately reflecting actual progress of Work shall be submitted, as part of this Contract's Record Documents. All activities shall have actual dates that are true and accurate.
- F. Qualification Data: For Project Scheduler.

## 1.6 QUALITY ASSURANCE

- A. Project Scheduler Qualifications: Minimum of two years experience and not less than one project of similar size and scope, with capability to produce CPM reports and diagrams within 24 hours of COTR's request. Project Scheduler will be classified as one of Contractor's key personnel.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 PROJECT SCHEDULER

- A. Engage a project scheduler, either as Contractor's employee or as Contractor's consultant, to provide planning, evaluation, and reporting using CPM scheduling, and to prepare required schedules.
  - 1. Project Scheduler shall be an active participant at all meetings related to Project progress, alleged delays, and time impact.

### 3.2 CONTRACT CPM SCHEDULE

- A. Scheduling Requirements: The Contract CPM Schedule shall be a computerized cost-loaded, time-scaled CPM Schedule in PDM format that includes the following:
1. The order, sequence, and interdependence of all significant work items including mobilization, demobilization, testing and commissioning, construction, procurement, fabrication, and delivery of critical or special materials and equipment; utility interruption coordination; submittals and approvals of critical Samples, Shop Drawings, procedures, or other reasonable requirements that may be requested by COTR.
  2. Work by the Authority, or utility agencies, and other third parties that may affect or be affected by Contractor's activities.
  3. Adequate referencing of all work items to identify subcontractors or other performing parties.
  4. Activity Coding may be provided by the COTR to establish minimum requirements for structure and values for the first 5 code fields.
  5. Activity durations not in excess of 14 calendar days, except nonconstruction activities such as procurement and fabrication. Activities shall be broken down in the level of detail prescribed by COTR.
  6. Activities that are cost loaded to show the direct costs required to perform the Work, including work by subcontractors.
  7. A narrative that explains the basis for Contractor's determination of construction logic, estimated durations, cost allocations, estimated quantities and production rates, hours per shift, workdays per week, and types, numbers, and capacities of major construction equipment to be used. A listing of nonworking days and holidays incorporated into the schedule shall be provided.
- B. Critical Path Activities: The Contract CPM Schedule shall be prepared to include the data for the total Contract and the critical path activities shall be identified, including critical paths for interim completion dates. Scheduled start or completion dates imposed on the schedule by Contractor shall be consistent with Contract milestone dates. Milestone dates shall be the scheduled dates specified in Section III, "Schedule," if applicable, and shall be prominently identified. The Contract CPM Schedule shall accurately show all as-built activities completed from the issuance of the Notice to Proceed up to the submittal of this schedule.
- C. Assignment of Costs to Activities for Progress Payments:
1. Contractor shall assign cost to construction activities on the Contract CPM Schedule. Costs shall not be assigned to submittal activities unless specified otherwise but may, with COTR's approval, be assigned to fabrication and delivery activities. Costs shall be assigned to testing and commissioning activities, O&M manuals, punchlist activities, and Project Record Documents.
  2. Each activity cost shall reflect an accurate value subject to approval by COTR.
  3. The total cost assigned to activities shall equal the total Contract Price.
  4. Activities shall be cost coded as directed by COTR.
- D. Required Submittals: On a monthly basis, Contractor shall submit five copies of each of the following components of the Contract CPM Schedule:
1. A time-scaled plot of the schedule network in PDM format showing logic ties for all activities including submittals and procurement activities.

2. Computer-generated CPM Schedule Reports that contain the following data for each work item: activity identification number, description, resource loading, duration, early start and early finish calendar dates, late start and late finish calendar dates, and total float in calendar days. The reports shall also show the logic ties of successor and predecessor work items. The reports shall be sorted as follows, or other sorts as required by COTR:
  - a. By activity identification.
  - b. By total float x early start.
  - c. By early start x early finish x total float.
3. The narrative described in Subparagraph 3.2-A-6 above.
4. A cash-flow report showing monthly expenditures projected over the life of the Contract. A cumulative cash-flow curve based on early and late schedule events shall also be submitted. These reports shall be derived from the Contract CPM Schedule.

### 3.3 DAILY CONSTRUCTION REPORTS

- A. Prepare a daily construction report, recording the following information concerning events at the site, coordinate with requirements in Division 1 Section "Quality Requirements," and submit duplicate copies to COTR by noon of the day following day of actual progress:
  1. List of subcontractors (by trade group) at the site.
  2. List of separate contractors at the site.
  3. Approximate count of personnel (by trade group) at the site.
  4. Equipment (by trade group) at the site.
  5. High and low temperatures, general weather conditions.
  6. Accidents (refer to accident reports).
  7. Meetings and significant decisions.
  8. Unusual events (refer to special reports).
  9. Stoppages, delays, shortages, losses.
  10. Meter readings and similar recordings.
  11. Emergency procedures.
  12. Orders and requests of governing authorities.
  13. Change Notices/Directives and Contract Modifications received, implemented.
  14. Services connected, disconnected.
  15. Equipment or system tests and startups.
  16. Partial Completions, occupancies.
  17. Substantial Completions authorized.
  18. Material deliveries.

### 3.4 MATERIAL LOCATION REPORTS

- A. At weekly intervals, prepare a comprehensive list of materials delivered to and stored at the site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for all materials or items of equipment being fabricated or stored away from the building site. Submit copies of list to COTR at weekly intervals.

### 3.5 FIELD CORRECTION REPORT

- A. When the need to take corrective action that requires a departure from the Contract Documents arises, prepare a detailed report including a statement describing the problem and recommended changes. Indicate reasons the Contract Documents cannot be followed. Submit a copy to COTR immediately.

### 3.6 SPECIAL REPORTS

- A. When an event of unusual or significant nature occurs at the site, prepare and submit a special report. List the chain of events, persons participating, response by Contractor's personnel, an evaluation of the results or effects, and similar pertinent information. Advise COTR in advance when such events are known or predictable.
  - 1. Include tabular CPM reports, time-scaled logic diagrams, resource curves and histograms, and narratives as requested by COTR.
- B. Submit special reports directly to COTR within seven calendar days of an occurrence. Submit a copy to other parties affected by the occurrence.

### 3.7 MONTHLY PROGRESS REPORTING

- A. General: Approval of Contractor's monthly Application for Payment shall be contingent, among other factors, on the submittal of a satisfactory monthly schedule update.
- B. Monthly Schedule Update Meetings: Monthly schedule updates shall be the product of joint review meetings between Contractor, COTR, and major active subcontractors. The joint review shall focus on actual progress for the preceding month, planned progress for the upcoming month supported by a Contractor-prepared Four-Week Look-Ahead Schedule, impact to schedule if any due to change notices issued, adverse weather, and any effected changes to the Construction CPM Schedule. The agreed on progress, and changes, if any, shall be incorporated into the schedule update to be submitted. The update shall always represent the actual history of accomplishment of all activities, and will form the basis for Contractor's Application for Payment. Contractor's delay claims shall be presented for discussion and, when possible, resolution.
- C. Required Submittals: On a monthly basis, Contractor shall submit two copies in electronic format of the updated CPM schedule and five copies of each of the following components of the Monthly Progress Report:
  - 1. A monthly progress narrative, the content of which shall be prescribed by COTR, but shall include as a minimum a description of overall progress for the preceding month, a critical path analysis, a discussion of problems encountered and proposed solution thereof, delays experienced and proposed recovery measures, a monthly reconciliation of weather impact, the status and impact of contract modifications, documentation of any logic changes, and any other changes made to the schedule since the previous monthly update.

2. CPM schedule reports listing completed activities, activities in progress, and remaining activities in the format requested by COTR. For each activity, Contractor shall provide those details identified in Subparagraph 3.2-D-2.
  3. Monthly and cumulative cash-flow curves that show actual vs. planned cash-flow status.
  4. Documentation of delivered material in the form of paid invoices or other evidence that Contractor has clear title for the material delivered.
- D. If critical activities of the schedule are delayed and such delay is not excusable as defined in this Section, the remaining sequence of activities and/or duration thereof shall be adjusted by Contractor through such measures as additional manpower, additional shifts, or the implementation of concurrent operations until the schedule produced indicates Work will be completed on schedule. Except as provided elsewhere in the Contract, all costs incurred by Contractor to recover from inexcusable delays shall be borne by Contractor.
- E. The monthly schedule update shall form the basis for Contractor's Application for Payment. The progress payment for an activity shall be based on its agreed on percentage of completion. On unit-priced contracts, the approval of Contractor's monthly requisition is contingent on the submittal of a satisfactory monthly schedule update; however, the basis of payment will be the actual measurement of COTR-accepted, in-place units of work.

### 3.8 DELAYS AND REQUESTS FOR EXTENSION OF TIME

- A. The determination for an extension of the Contract Time will be made by the Contracting Officer according to the Contract Provision "Default."
- B. Contractor acknowledges and agrees that delays in activities, irrespective of the party causing the delay, which according to the computer mathematical analysis do not affect any critical activity or milestone dates on the CPM network at the time of the delay, shall not become the basis for an extension of the Contract Time. The only basis for any extension of time will be the demonstrated impact of an excusable delay on the critical path. In demonstrating such impact, Contractor shall provide adequate detail as required by the Contract, and Contractor must prove that:
1. An event occurred.
  2. Contractor was not responsible for the event in that the event was beyond the control of Contractor, and was without fault or negligence of Contractor, subcontractor, or supplier, and the event was unforeseeable.
  3. The event was the type for which an excuse is granted according to the "Default" provision of this Contract.
  4. Activities on the critical path of the Work were delayed.
  5. The event in fact caused the delay of the Work.
  6. The requested additional time is an appropriate and reasonable extension of the Contract Time, given the actual delay encountered.
- C. Time Extensions for Unusually Severe Weather:
1. If unusually severe weather conditions are the basis for a request for an extension of the Contract Time, such request shall be documented by data substantiating that weather conditions were abnormal for the period of time and could not have been reasonably



anticipated, and that weather conditions had an adverse effect on the critical activities of the scheduled construction.

2. The schedule of anticipated adverse weather below will constitute the base line for monthly (or a prorated portion thereof) weather/time evaluation by the Contracting Officer. On issuance of the Notice to Proceed and continuing throughout the Contract on a monthly basis, actual adverse weather days will be recorded by Contractor on a calendar day basis (include weekends and holidays) and compared to the monthly anticipated adverse weather days set forth below.
  - a. For purposes of this clause, the term "actual adverse weather days" shall include days that can be demonstrated to have been impacted by adverse weather.
  - b. Monthly Anticipated Adverse Weather Calendar Days:
    - 1) January - 7.
    - 2) February - 5.
    - 3) March - 6.
    - 4) April - 6.
    - 5) May - 8.
    - 6) June - 6.
    - 7) July - 6.
    - 8) August - 7.
    - 9) September - 5.
    - 10) October - 5.
    - 11) November - 5.
    - 12) December - 6.
  - c. The number of actual adverse weather days shall be calculated chronologically from the first to the last day in each month. Contractor shall not be entitled to any claim for time extension based on adverse weather unless the number of actual adverse weather days exceeds the number of anticipated adverse weather days, and unless such adverse weather days prevent work for 50 percent or more of Contractor's workday. In preparing the Contract Schedule, Contractor must reflect the above anticipated adverse weather days on all weather-dependent activities. Weather-caused delays shall not result in any additional compensation to Contractor.
3. On days where adverse weather is encountered, Contractor shall list all critical activities under progress and shall indicate the impact adverse weather had, if any, on the progress of such activities. This information must be presented at the end of the adverse weather day to COTR or its authorized representative for its review and approval.
4. If Contractor is found eligible for an extension of the Contract Time, the Contracting Officer will issue a modification extending the time for Contract completion. The extension of time will be made on a calendar day basis.

D. Required Submittals:

1. Provide time-impact analysis that illustrates impact during update period in which event occurred, that event has been mitigated to greatest possible extent, and that event still impacts overall completion of Project.
2. Include with request, two copies of submittal of impacted schedule, in electronic format, and photocopies of all relevant documents that support the claim.



3. Submit all required items within the following time periods:
  - a. 10 calendar days of event occurrence.
  - b. 10 calendar days of Contractor's knowledge of impact.
  - c. 14 calendar days of written request by COTR.
4. Expiration of time periods without submittal shall constitute forfeiture of rights for these specific impacts.

### 3.9 RECORD, AS-BUILT CPM SCHEDULE

- A. After all Contract work items are complete, and as a condition of final payment, Contractor shall submit three copies of a Record, As-Built CPM Schedule showing actual start and finish dates for all work activities and milestones, based on the accepted monthly updates. These schedule submittals shall be in tabular and in time-scaled PDM plot formats.

END OF SECTION 01320