Israel Natural Gas Lines ltd.

28/02/2012	Approved	Tony Lupo	R. Ben Arie	H. Mosckovich
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ISRAEL NATURAL GAS LINES LTD (INGL)

Document Title

Special Specification for Schedule

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Reference	: 178056	Document-No.	Rev.
Document Originator	: Rakefet Ben Arie Hacohen	253727	1.0

Table of Contents

1. Introduction

This Section addresses the management process of planning, executing, controlling, and reporting project work.
This process, as facilitated by special services and systems, allows for the orderly development of optimized, time-phased, logically-related plans for project execution

2. General Project Schedule

General Project Schedule is a graphic depiction or listing or both of planned project events, their expected start dates, duration, and relationships to other planned project events.
This product is commonly called *the project execution schedule*. It is the key legal document in the representation of the Contractor's plan for the execution of all project work.
Common project deliverables shall include, but not be limited to: the Initial Project Schedule (IPS), the Detailed Project Schedule (DPS), the Master Summary Schedule (MSS), As-Built Project Schedule, and other similar products as identified in Paragraph 7 **Reports** , below.

2.1 RELATED DOCUMENTS

A. Milestone and Schedule.

B . Refer to ***Guideline for the structure of Construction Site documentation and as built***, for submittal procedures and review processes for work of this Contract.

2.2 COMPLIANCE

A. Contractor-developed project execution schedules, deliverables, diagrams, and all related data shall be in compliance with the principles and definitions of the terms used herein.

B. In the event of discrepancies, this Section shall govern the development and utilization of project planning and execution deliverables (project execution schedules).

C. The Critical Path Method (CPM) of network calculation shall be used to generate the project execution schedule.

2.3 USE OF COMPUTERS

A. Contractor shall use project execution scheduling software in developing, monitoring, and maintaining the project execution schedule and implementing the automated project execution control system. The software shall comprise a single operational database. All related deliverables shall be fully compatible with Microsoft Project scheduling software version 2010.

B. Contractor scheduling software shall import/export data to/from Office Software and TILOS software shall transfer information without degradation in the data, including but not limited to, scheduling logic, activities, activity sequencing, duration, resource loading, etc. Contractor will provide a minimum of 2 licensed copies of MS Project, Office and TILOS software to Company.

C. Deliverable storage media shall be DVS's, current common IBM standard. The deliverable will be submitted in the original software formats, PDF and three hardcopies.

D. The mathematical analysis of all schedule types shall be made by computer. The tabulation for each activity shall include as a minimum the following:

1. Activity Identification Number
2. Activity description
3. Activity code(s): building, trade, other, etc.
4. Schedule and actual/remaining durations for each activity
5. Earliest start date (by calendar date)
6. Earliest finish date (by calendar date)
7. Actual start date (by calendar date)
8. Actual finish date (by calendar date)
9. Latest start date (by calendar date)
10. Latest finish date (by calendar date)
11. Float in calendar days
12. Monetary value of each activity
13. Planned Productivity (detailed by activity)
14. Actual Productivity (detailed by activity)
15. Percentage of activity completed
16. Contractor's earnings based on the reported portion of activity completed
17. Notes with notifications of the changes between two consequent reports
18. PMO column /code for Top Down Reports
19. Every page of the report should include : version ,Data Date, Project Name, page number from total amount of pages and Contractor Name

E. The software shall:

1. Report activity status differently for the network analysis and for the earnings analysis.
2. Compile the total value of completed and partially completed activities.
3. Accept and record the history of revised completion dates as modified by accepted time adjustments.
4. Re-compute all activity dates and float accordingly.

2.4 SCHEDULING PERSONNEL

A. The Contractor shall utilize professional, experienced planning-scheduling personnel in preparation of project execution schedules and all related documents.

B. The Contractor shall retain this capability throughout the entire period of contract execution, all phases. Prior to site mobilization, these services may be at a responsive location other than the Project Site; at mobilization and throughout the construction phase of the works, these services shall be located at the Project Site.

C. The Contractor shall allow the Company to evaluate this capability and review the scheduling work in progress.

2.5 SUBMITTAL REQUIREMENTS

A. The Contractor shall develop project execution schedules and subsequent updates periodically as required, by type, or as specifically requested by the Engineer.

B. The Contractor shall certify project scheduling document sets as submittals. This certification shall be similar to that of the Contract A/E of Record regarding all project design documents.

C. All schedule submissions shall include logic diagrams and computer tabulations, a Master Summary Schedule, a Cash Flow Projection, the Manpower projection and productivity, Material Tracking schedule, and Schedule Narrative. It shall be delivered in the following quantities:

1. Electronic schedule file (2 copies)

2. Detailed and Summary Schedules (3 sets of plots).

3. Computer tabulations (2 copy 8-l/2"x 11" in size).

4. Manpower Projection by trade (2 copy).

5. Cash Flow Projections (2 copy).

6. Equipment and Material Shipping Report (2 copy).

7. Schedule Narrative Report (3 printed copy and 2 digital copy on each electronic schedule file DVD), which shall detail the Contractor's intentions, assumptions, requirements and restrictions considered in development and updates of the schedule. The narrative shall indicate any intention or anticipation of extraordinary means, such as overtime, shift work, work in excess of the standard workweek, necessary for the performance of any element or activity of work. The narrative must also clearly describe any changes in schedule logic or activity durations and the reasons for these changes.

D. The Contractor shall develop project execution schedules as required to demonstrate positive project planning, management, and control. These shall include, but not be limited to: .

1, The Initial Project Schedule (IPS) shall define activities in detail reflecting all design, mobilization, and the first 90 calendar days of the planned construction period. The IPS will provide summary activities for the balance of the project performance period. The level of detail of the summary activities shall be sufficient to establish a reasonable critical path projection and demonstrate sufficient project planning to assure on-time project completion. The reports are using Gant and Time Location Charts

If the Contractor elects to propose that the project work be delineated in terms of one or more execution packages, the IPS shall define these packages in general terms (aggregate, hammock, etc.) to demonstrate that full project life-cycle planning has been effected.

The IPS shall be submitted in format and media as specified in Paragraph 1.5 of this Section with supporting tabular data.

2. Detailed Project Schedule (DPS). The Detailed Project Schedule (DPS) shall be constructed to show the order in which the Contractor proposes to carry out the work, and to indicate the restrictions of access and availability of work areas and the availability and use of manpower, materials and equipment. The Contractor shall utilize the DPS in planning, scheduling, coordinating, and performing the work under this Contract (including all activities of subcontractors, equipment vendors, and suppliers).

The Detailed Project Schedule (DPS) shall be collaborative between the Contractor's on-site Project Manager, subcontractors and professional scheduling personnel.

The DPS shall be the Contractor's working schedule and shall be used to plan, organize and execute the work; record and report actual performance and progress and demonstrate how the Contractor plans to complete all the remaining work as of the end of each progress reporting period.

The DPS shall comply with the various limits imposed by the scope of work and by any contractually specified intermediate milestone and completion dates included in the contract. The degree of detail shall be to the satisfaction of the Engineer.

. The following criteria shall form a further basis for the level of detail:

. The level of detail in the DPS shall be expanded to include that number of work activities on the schedule where, excluding submittal and procurement items, the activity has approximately ten thousand US dollar (40,000 NIS) value of labor and activity duration not to exceed 20 calendar days.

The physical and structural breakdown of the project (WBS).

The contract milestones and completion dates.

The type of work to be performed and the labor crews involved.

The DPS shall be submitted, reviewed, and updated in accordance with requirements of this Section. The reports are using Gant and Time Location Charts Software (MS Project or Tilos)..

3. Master Summary Schedule (MSS). The MSS shall summarize the total project effort per the IPS or DPS as a time-scaled bar chart and Time Location Chart.

This deliverable shall be submitted on a single sheet that shows the total project in approximately 50 to 100 activities. The MSS shall accurately summarize the computerized IPS or DPS and shall have common events for correlating the IPS, DPS, MSS, and other scheduling products as requested. The MSS shall be a direct derivative of the IPS or DPS, not a separate stand-alone document that requires separate updating and maintenance.

Emphasis shall be placed on major milestones and key dependencies among the various parties involved. The MSS shall highlight the critical path activities, showing early and late start for all activities, and shall be updated monthly. The MSS shall be submitted with the IPS and DPS at the times specified above. The reports are using Gant and Time Location Charts Software (MS Project or Tilos)..

4. As-Built Project Schedule. The As-Built Project Schedule shall reflect all of the actual conditions and performance incurred during the course of design and construction. This submission shall serve as the formal record of all as-built execution of the project. Receipt and Engineer acceptance of this submittal is a precedent to the release of the final payment.

A final updated Detailed Project Schedule (As-Built Project Schedule) shall be certified by the Contractor and submitted to the Engineer. It shall reflect all of the actual conditions and performance incurred during the course of design and construction. This submission shall serve as a formal record of the as-built schedule condition. The acceptance of this requirement is a condition precedent to the release of the final payment. Submission shall be made as previously executed, in hard copy with final time analysis, tabular data, general remarks, etc.; and submitted on DVD-ROMs compatible with the Engineer hardware and software systems available at Project Site.

5. Other. As required by the Contractor to plan, execute, control and report the project progress. As requested by the Engineer.

E. The Initial Project Schedule (IPS) and Master Summary Schedule (MSS) shall be part of the group of primary submittals delivered to the Engineer or his/her representative following Contract Award and prior to the issuance of the Notice to Proceed (NTP). It shall be revised based on the IPS submitted with the proposal and shall address any review comments submitted by the Engineer. The IPS shall reflect the contract performance period, based on the cumulative calendar days between the Initial Limited Notice to Proceed and the Final Completion milestone activities. The requirements of the IPS are described in detail elsewhere in this Section.

F. Other Schedules and Reports. The delivery period shall be the tenth calendar day af-

ter. Data Date, normally the end of the calendar month. The schedules and report submittals shall meet the Contractor's internal requirements and shall demonstrate positive project planning, execution, and control. These schedule submittals shall comply with, but not be limited to, the following formatting:

1. Schedule submittals shall comprise time-scaled, linked Gantt chart networks and other tabular reports as required.

2. The submittals shall indicate clearly all contract milestones and completion dates.

3. The submittals shall describe a continuous flow of project work activity information, left to right, along an ever-increasing timeline. There shall be no depiction of work from right to left (no negative lags). Critical path(s) shall be identified clearly and graphically.

4. The submittal network diagrams shall be optimized to facilitate review and interpretation.

5. The Contractor shall organize and group work activities on the network diagrams. These project activity groups shall be delineated by separate areas (e.g. sections coordinates and/or phasing), by major work divisions (e.g. earthwork, concrete, pipes, etc.), and other similar organizational schema. If the Contractor delineates the work by separate work packages (e.g. site delivery, work permits, etc.), these packages shall be included in the upper level organization and work-breakdown-structure (WBS), and summarized in the MSS. These activity work groups, areas, and divisions shall be labeled for ease of reference.

6. Activity relationships or logic ties which cannot be graphically demonstrated as continuous lines between different segments of the network shall be identified as remote restraints, with corresponding event numbers clearly identified. All activities, with exception of the start activity (usually Contract Award) and the finish activity (usually final completion) shall have predecessor and successor logic ties.

7. Schedule float shall belong to the "project." Expenditure of available float, established in the baseline schedule in effect (IPS or DPS) shall be for the benefit of the project. Means to limit or control ownership of float, such as inclusion of unnecessary "Lag" assignments and "Constraint" assignments, excessive activity duration (not supported through resource loading), and excessive periods of final clean-up and punchlist correction activities, will not be acceptable. Use of Lag and Constraint assignments must be clearly justified. Justification may be provided in either (or both) the required narrative report or the notes/comments field ("log record" field in P3 v.3.1) of the electronic schedule file and visible on the plotted copy of the schedule.

8. The submittal media also shall be in digital format on DVD-ROM. This data disk should be compatible with the Engineer Project Management hardware and software being used. The disk shall have a printed label affixed imprinted with project name, date of data creation, and content. This disk shall also include the information utilized (narrative, daily reports, etc.) to prepare the schedule submittals for each report period.

2.6 EXCEPTIONS AND SUBSTITUTIONS

Requests for exceptions or substitutions to the project execution schedule submittal requirements shall be submitted to with the respective schedule submission for consideration and acceptance by the Engineer. Requests shall be specific to each activity (by ID). Global requests shall not be considered. Requests shall identify why the activity cannot be developed to comply with the applicable specification.

2.7 UPDATING PROJECT SCHEDULES

A. As of date (Data Date) shall be the end of the calendar month.

B. As part of each update submission, the status of work in progress shall be identified and reported with the percent complete and/or remaining duration graphically indicated on each activity remaining in progress as of the last report period. The update shall be submitted in conjunction with monthly progress payments.

C. Changes to the schedule, inserted during the progress update process, shall be limited to the changes that reflect the actual performance (e.g. actual progress that resulted in “out-of-sequence” performance shall correct the logic to reflect the actual sequence of performance). Attention must be paid to ensure that successor logic ties are not removed such that the activity gains un-due or false available float. Changes made during the progress update process will not constitute official revision to the Contractor’s baseline. Revisions to the baseline schedule (IPS or DPS) shall be developed and submitted in accordance with the requirements for submission of baseline schedules (IPS or DPS) and Paragraph 3.7 K of this Section.

D. Project execution schedules shall be updated to include all computer tabulations. These shall be reviewed jointly by the Contractor and the Engineer and shall accurately reflect the values claimed in the Application for (Progress) Payment request. The joint review meeting shall include the following updated information supported by the due documentation (daily logs, letters , minutes of meetings) :

1. Actual start dates.

2. Actual completion dates.

3. Actual productivity.

4. Activities with suspended performance, to include the reason for suspension and forecast of when the activity progress will resume.

5. Activity percent completion.

6. Influence of change orders.

E. The following project schedule update reports shall be generated from the project execution scheduling software. Output reports shall show all activities, including restraints, for the duration of the project:

1. Activity sort by preceding event number from lowest to highest and then in the order of the following event number.

2. Activity sort by the amount of total float, then in order of preceding event number.

3. Activity sort by early start for the next sixty (60) calendar days

4. Activity sort by late finish for the next sixty (60) calendar days

5. Activity sort(s) by organizational responsibility.

6. Activity sort(s) by building/facility.

7. Activity sort(s) by work divisions (e.g. earthwork, piping a.s.o.)

F. The project schedule update meeting shall provide a complete and accurate report of procurement and construction progress effective the AS OF date (past and present orientation). Further using the project schedule update deliverables, the Contractor shall delineate its plans to continue the work, near-, mid-, and long term (future orientation).

G. As part of the monthly updating report package, the Contractor shall prepare a Narrative Schedule Report describing:

1. Physical progress during the report period.

2. Plans for continuing the work during the forthcoming period.

3. Actions planned to correct any negative float predictions.

4. Explanation of potential problems which may result in potential delays, along with steps taken to overcome the problems.

5. Evaluation on project performance and schedule impact on the overall project completion date.

H. The Contractor shall submit other schedule update reports and diagrams as required by this Section or as requested by the Engineer.

I. All schedule report materials shall be treated and controlled as project submittals and according to the 'Guideline for the structure of Construction Site documentation and as built'.

J. Remedy for Non-compliance. If the Contractor fails to submit any of the update deliverables, the Engineer may withhold authorization of Contractor-submitted applications for payment or initiate withholding of retention until such time as the condition is remedied.

2.8 ENGINEER REVIEW PROCESS

A. The Engineer shall accept or reject, in writing, any submission by the Contractor under this Section within fifteen (15) calendar days after receipt of all required information.

B. At the request of the Engineer, the Contractor shall be required to participate in any meetings necessary to reach a mutual agreement and acceptance of any project execution schedule, report, update, or any revisions thereof.

C. The Engineer may request additional data if deemed necessary by the review process. The Contractor shall comply with the request for such information.

D. If any of the required submissions are returned to the Contractor for corrections, addi-

tions, or revisions they shall be resubmitted in the media prescribed within fifteen (15) calendar days after the request for resubmission date. Review and response by the Engineer shall be given within fifteen (15) calendar days after receipt of each new submission.

E. Remedy for Non-compliance. If the Contractor fails to submit the IPS, DPS, MSS, Manpower Requirements Forecast, Cash Flow Projection, or revisions thereof in the media or within the time prescribed, the Engineer may withhold authorization of the application for payment until such time as the Contractor submits the required information.

3. Detailed Schedule Features

The project execution schedule shall be the common point of reference by which the various parties to the contract measure their performance. It shall represent the hard database or hard baseline, by which the parties to the contract measure each other's performance and assess their respective rights and obligations. The project execution schedule shall be the critical tool for effective project management, analysis, control, and overall performance. Project schedule deliverables shall:

A. Reflect the Contractor's assessment of the project scope, time, and quality requirements and its determination of means and methods to be applied to project planning, execution, and control.

B. Reflect various levels of detail as defined by the Contractor's physical and structural breakdown of the project (Work Breakdown Structure, WBS). The degree of detail shall be to the satisfaction of the Engineer. As an order of magnitude in determining the number of work activities to be included, the Contractor shall consider paring one work activity for each ten thousand dollar (US $10,000.00) value of work (specifically labor) installed. Exempted from this general valuation are all design submittals and procurement items /

C. Code work activities to identify major subcontractors. The Contractor shall validate that the responsibilities so depicted have been confirmed by said subcontractors. This confirmation validates the subcontractor commitment of required resources to accomplish the activity work in accordance with the sequence and durations indicated.

D. Include the following activities:

1. All engineer-specific activities affecting the Contractor's delivery of materials and equipment to and removal from secured storage facilities; deliveries of all Company-furnished materials and equipment to the Contractor for Contractor installation, including Contractor inspection of any such materials and equipment.

2. Design development activities, design reviews, and construction document prepara-

tion.

3. Activities for the preparation, submittal, and acceptance of coordination, shop, and working drawings, and work samples.

4. Administrative activities (bonding, insurance, etc.).

5. Activities defining mobilization and demobilization.

6. Activities defining purchase, manufacture, and delivery of all major materials, equipment, and specialty items.

7. Activities defining approvals required by Israeli Authorities or other third parties.

8. Activities defining all subcontract work.

9. Activities defining access to and availability of work areas.

E. Reflect the assignment of responsibility for performing specific activities.

F. Reflect the identification of interfaces and dependencies with preceding, concurrent, and follow-on contractors and subcontractors.

G. Reflect the requests for all project systems testing and commissioning. These shall include the testing and commissioning, including submission and acceptance of all test reports.

H. Reflect activities defining all closeout and commissioning actions.

I. Reflect the planning for and activities defining acceptance inspections by the Engineer as well as clearing all punch list items.

J. Identify manpower, material, or equipment restrictions.

K. Include milestones and activities as directed by the Engineer for inclusion.

L. Identify General Contract Milestones and completion dates as listed in the various Contract and Specifications Sections, and shall include, but not be limited to:

1. Contract Award

2. Notice to Proceed (NTP)

3. Kick off Meeting and IPS submittal

4. Mobilization

4. Shop drawings

5. Construction

7. Substantial Completion

8. Commissioning

9. Final (Contract) Completion

10. Company Turnover

11. Other events as specified

M. Identify Engineer-Specific Contract Milestones, coordination actions, and completion dates. The Contractor shall effect full coordination and integration of these efforts and shall indicate the planning and execution of same in all project execution schedules.

N. Include any other activity or milestone to effect optimum project planning, execution, and control.

O. Facilitate the inclusion of data and, as necessary, the development of coding of said data, to produce various tracking and control reports, as described herein.

P. Be entered with time duration in units of work days. Multiple calendars may be defined to provide for the varying standard work week as applicable (e.g. shipping is normally on a 7-day work week, site works a 6-day work exempt of Israeli holidays U.S. holidays, etc.) All defined calendars shall provide for holidays as identified elsewhere in the Contract.

Q. Assess activity duration based on labor, equipment, and materials. The Contractor is responsible for the means, methods and sequencing of project planning, execution, and control. Contractor activity duration shall be developed by the Contractor. Engineer activity duration shall be provided by the Engineer. Activity duration shall be the result of manpower and resource planning, on site-conditions, and the obligations imposed on the project by contract time restraints.

1. All construction / installation activities shall be Resource Loaded, inclusive of all labor (by trade or industry standard crews), materials and equipment. Resource loading in baseline schedules shall result in the calculation of Planned Productivity and in updated schedule shall result in the calculation of Actual Productivity. As stated in Paragraph 1.6 of this Section, activity loading shall be assigned to the respective resources of the activity, with exception of design activities.

2. In developing project execution schedules, the Contractor may use resource constraints to optimize and level manpower and equipment requirements. Each shall be separately noted.

3. The Contractor is not required to load manpower for design, submittal or procurement activities.

4. All work activities shall be sequenced as appropriate, within the limits of the total float available. This leveling technique shall be noted clearly on each schedule submittal.

5. Critical or near-critical paths resulting from the use of manpower leveling constraints shall be minimized. Near-critical paths shall be defined as those paths having twenty (20) calendar days or less of total float at the time of the submittal.

6. Ensure that the duration of construction activities shall not exceed twenty (20) calendar days. Those activities in excess shall be broken down to conform.

7. Ensure that activity duration in excess of twenty (20) calendar days shall be limited to non-construction activities such as design development, design review, material pro-

curement, equipment delivery, concrete curing, etc.

R. Ensure that schedules shall be developed utilizing an identification system. Codes or other means shall be used to identify bid items, work items, areas, procurement, material delivery, and so forth.

S. Be so constructed to delineate:

1. Activities that must be completed before a subsequent activity can be started (sequential as opposed to parallel).

2. Activities that can be worked concurrently.

3. Activities that must be started immediately following a completed activity.

4. OTHER PROJECT SCHEDULING SYSTEM CAPABILITIES AND REPORTS

A. From its system database the Contractor project execution scheduling software shall produce various project execution control and tracking reports. Format, media, and quantities of same shall be as defined herein, as required by the Engineer, or as developed by the Contractor in response to a project management requirement.

B. The system database shall be capable of providing:

1. Submittal Register/Log/Schedule
2. Cash Flow Projection
3. Manpower Requirements
4. Productivity Rates
5. Shipping Log / Materials Tracking Schedule
6. Earned Value and Application for (Progress) Payment
7. Other Planning, Execution, and Controls

C. Submittal Register/Log/Schedule. Submittal actions shall be treated as work activities and included in the Contractor's automated project execution control system.

D. Cash Flow Projection.

1. Using the Resource assigned to each activity of the IPS or DPS, the Contractor shall develop a Resource Earned Value illustrated by a computer listing and a graphic display, both of which shall depict the estimated cash draw-down in the aggregate, by month, over the life of the project. The cash flow projection shall be updated each month to show actual cash-draw down and a forecast of remaining payments to be made over the life of the project.

2. Contractor shall submit a tabular and graphic document that shall depict the

monthly cash flow estimate versus the actual monthly invoice amount. This document shall be submitted at same time as supporting for the monthly progress payment request.

E. Manpower Requirements.

1. The Contractor shall prepare a manpower analysis in the form of a series of graphic displays depicting manpower by principal trades individually and in the aggregate, and in accordance with the IPS and DPS. Manpower does not have to be incorporated for non-construction activities. The graphs shall display the number of man-days of effort, for each month, over the life of the project on both an early start and a late start basis. This submission shall be computerized and shall be correlated with the manpower assigned to each activity of the IPS and DPS.

2. The Manpower Requirements Forecast shall be updated monthly and shall include the manpower actually used by the various crews as of the current report period and the manpower required to complete all remaining contract work. The forgoing shall be supplied for each principal trade and for the project as a whole. The Contractor's graphics shall be in the following forms:

a) "Envelope "S" Curve" showing the cumulative manpower requirement on both an early start and a late start basis as well as the actual cumulative manpower supplied to the project.

b) Net manpower requirement (daily or weekly average) for the duration of the project on both an early start and a late finish basis, as well as the actual manpower supplied to the project.

c) Detailed, by activity, Planned and Actual Productivity Reports based on the planned resources and actual resource usage.

F. Shipping Log / Materials Tracking Schedule

1. The Contractor shall prepare a materials/equipment procurement and delivery schedule to assist in planning, execution and monitoring the project construction. The Materials Tracking Schedule shall be prepared as a report generated from the IPS or DPS. The report shall contain:

a) Specification Section/Paragraph

b) Item Description

c) Date needed for construction

d) Quantity needed for construction

e) Source (Vendor) Contractor furnished or GFE

f) Contractor Purchase Order Date

g) Scheduled Shipping Date

h) Scheduled Job Site Arrival Date

i) Shipping Method Air/Ocean Classified/Unclassified

j) Actual Shipping Date

k) Actual Arrival date

l) Date Cleared Customs

m) Quantity Actually Received

2. Materials tracking shall be tied to the respective work activity

3. The Contractor shall maintain a "materials stored on site" payment breakdown to include the following:

- Material Vendor Bill of Lading
- Actual packaging and shipping Dates
- Subtotal Stored Material Quantity

G. Earned Value and Application for (Progress) Payment.

1. Engineer consideration of subsequent monthly applications for payment will be contingent on the submission of similar progress reports. These shall be derived from the IPS or DPS, whichever is in effect.

2. During project execution, the Contractor shall submit for acceptance, as part of its monthly report package, an updated DPS, as defined in this Section. The Engineer will render a determination of compliance and may reject in full or accept in part any value claimed but not substantiated per the above.

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5. USE OF SCHEDULING PRODUCTS IN SUBSTANTIATION

A. The IPS and DPS shall serve as the Contractor's substantiation of its plan of action for the execution of the works. As accepted by the Engineer, it forms the baseline against which all performance is measured and progress payments are made.

B. In the course of the execution of the works, should the Contractor request of the Engineer consideration of any proposed variation away from the accepted baseline, these proposals shall be thoroughly substantiated by specialized project scheduling time and value analysis products. These products shall be developed from the project execution scheduling software.

C. The Contractor shall effect necessary safeguards to ensure that the act of preparing any substantiation proposal, in presenting alternatives to the accepted current baseline, shall not corrupt the operational database. Accurate maintenance of the operational database is a deliverable of the project.

D. During the course of the execution of the works, should the Contractor consider revising the network logic, the impact of potential change orders, the impact of project delays, or submitting requests for extension of the contracted time or equitable adjustments, the Contractor shall submit to the Engineer full justification as part of the proposal package. The justification shall include a written summary of the Contractor's Time Impact Analy-

sis1, including a description of the impact upon all float. System products used in justification shall include, but not be limited to:

1. Each Time Impact Analysis shall include a fragnet demonstrating how the Contractor proposes to incorporate the change order or delay into the DPS. [A fragnet is defined as a sequence of new activities and/or revisions of existing activity properties that is proposed to be added to the existing schedule to demonstrate the influence of the activity on the schedule.] The fragnet is a system product supporting the Contractor's proposal in justification. It is not part of the project execution schedule until accepted by the Engineer.

2. Each analysis shall demonstrate the estimated time impact based on the events of delay, the date the change was given to the Contractor, the status of construction at that point in time, and the event time computation of all activities effected by the change or delay. The event times used in the analysis shall be those included in the latest update of the DPS or as adjusted for the events of delay.

3. Other specialized project scheduling time and value analysis products illustrating the influence of each change, delay, etc. upon the current contract schedule completion date, as required.

E. The package, with a letter of transmittal, shall be delivered in hardcopy as a proposal, with data tabular reports as needed, and on digital media. The DVD shall be compatible with the Engineer project management hardware and software in use at the Project Site. The proposal package, including all network changes, activity status, and supporting data agreed to shall be reviewed by the Engineer as a submittal.

F. Delays. Time extensions will be considered and granted only to the extent that equitable time adjustments for the activity or activities affected exceed the total or remaining float along the direct logic path at the time of actual delay or at the time notice to proceed was issued for a change. Each Time Impact Analysis shall be submitted in triplicate and within fifteen (15) calendar days after a delay occurs, with the Contractor's detailed proposal, or notice of direction for proceeding with a change order is given to the Contractor, whichever occurs first.

G. Rights. In cases where the Contractor does not submit a Time Impact Analysis for a specific change order or delay within the specified period of time, the Contractor shall be deemed to have irrevocably waived any rights to any additional time and compensation.

H. Procedures. Acceptance or rejection of each Time Impact Analysis by the Engineer will be made after reasonable review and analysis of the Contractor's Time Impact Analysis, unless subsequent meetings and negotiations are necessary. Upon acceptance, a copy of the Time Impact Analysis signed by the Engineer or authorized representative will be returned to the Contractor for incorporation into the schedule.

I. Fragnet Incorporation. Upon mutual agreement by both parties, fragnets illustrating the influence of change orders and delays shall be incorporated into the DPS during the first

[1] See Society of Construction Law Delays and Disruptions Protocols recommends the use of TIA methodology only

update after agreement is reached, without waiting to receive an executed modification, if one is to be issued. Upon acceptance, this schedule shall be entered for the record as the "Revised Baseline" DPS.

J. Disputes. In the event the Contractor does not agree with the decision of the Engineer regarding the impact of a change or delay, it shall be resolved in accordance with the Disputes Clause of the Contract.

K. Changes. The Contractor shall make no changes to the logic, duration or manpower baseline in any previously accepted network unless and until a complete and detailed explanation, as noted above, has been submitted to and accepted by the Engineer in writing.

6. RESPONSIBILITY FOR COMPLETION

If, in the opinion of the Engineer, the Contractor's execution of the works falls behind the accepted IPS or DPS (whichever is in effect), the Engineer or the Engineer shall so notify the Contractor, in writing. The Contractor shall take any and all steps necessary within the agreed work period parameters to improve progress. These attempts at recovery shall incur no additional cost to the Company. The Contractor shall execute the works diligently and shall seek to complete all works at or before the agreed upon contract completion date.

7. Risk and Block roads Management

Risk and Block Roads are the list of negative events of the project which threatens to undermine the schedule, or operational performance goals set for the project. Each risk or block road event is characterized by the probability of the identified adverse event or situation occurring and its potential impact on project schedule, or performance, or a combination of these impacts.
The Project risks and Road Blocks will be submitted in a Table (Risk and Road Blocks Register including the impact and frequency of each item).
Risk and Block Roads Management consists of a re-iterative cycle of nine management and management support tasks inextricably linked to project management activity. The tasks are:

Base lining

Identification

Understanding

Prioritization

Reduction

Quantification

Testing

Enhancement

Monitoring & Control.

These tasks, depicted sequentially in Figure 5.1, represent the required management process to be developed , operated and maintained throughout the project.

The process is characterized by the review cycles which ensure that:

Regular assessments are undertaken to identify emergent risk and roadblocks events

Plans are updated to reflect the status of reduction of emergent risk and road-blocks events

The emergent risks and roadblocks events will be reduced according to a plan to be monitored continuously

Re-analysis of complex s and interactions takes place every month.

Application of the process will ensure that ownership of the Risks and Road Blocks and the ac-countability for their reduction are appropriately addressed, and that full visibility of the process and information is available to the Client as well

Documentation of all project information will be logged for a permanent record of the effectiveness of the identification, recovery plan implementations and decision making.

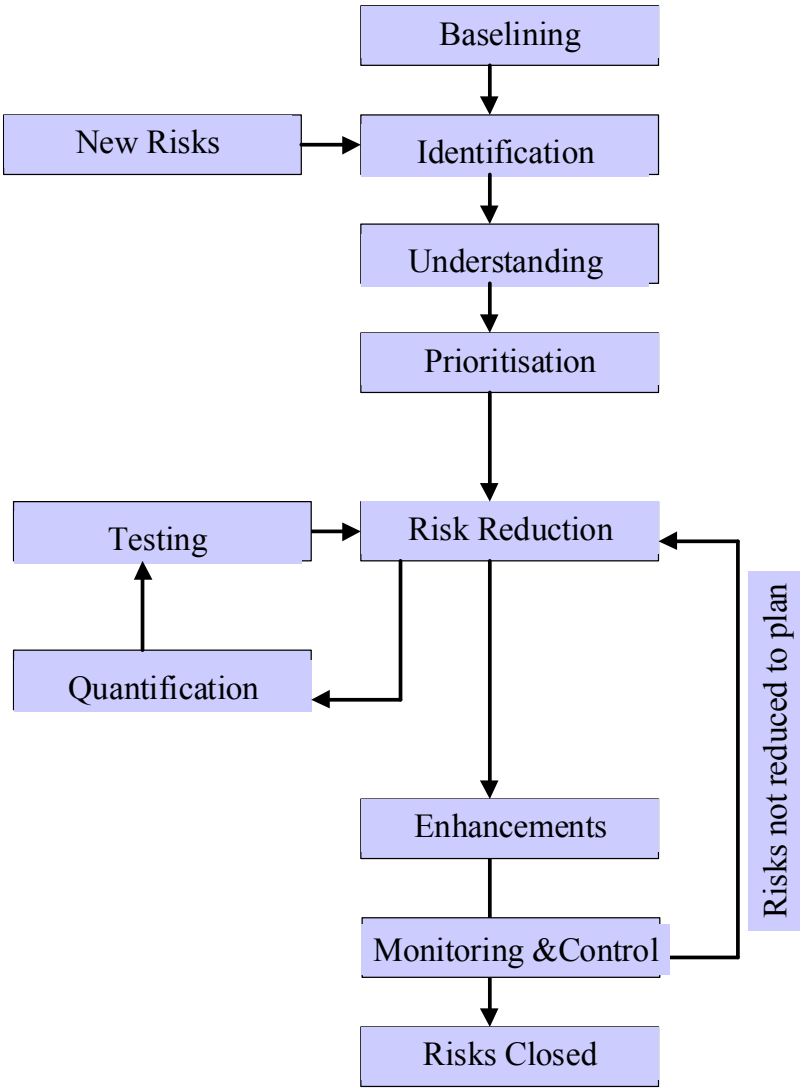

Figure 5.1 – The Management Process as a Closed-Loop Re-iterative Cycle

The Roadblocks report will comprise as a minimum:

The date of the roadblock identification
The name of the Responsible to remove the roadblock
The Contractor will submit a table format to the Engineer for approval.

8. Reports

8.1 Schedule Related reports

Serial	Report	Reference	Remarks
1	Method Statement	Contract	
2	IPS	See D.1 present document	20 days after NTP
3	MMS	See D.3 present document	Every Schedule Report
4	DPS	See D.2 present document	50 days after NTP
5	Risk and Road Block Register	See part 5 present section	50 days after NTP
6	Roadblocks Status	Update of the Risk and Road Blocks Register	Every month
7	Daily Report	Daily look ahead	Every day
8	Weekly Report	Weekly Progress and Weekly Look Ahead	Every Week
9	Monthly Report	Monthly Progress and Monthly Look Ahead	Every Month
10	As Built	Actual dates supported by daily logs and test management plan –see D.4 present document	Together with As Made Drawings

8.2 Schedule Monthly reports

Serial	**Report**	**Reference**	
1	Project Description	Basic Data	
2	Executive Summary	Basic Narrative	
3	Major Accomplishments this Month	Activities Executed this Month	
4	Major Activities Planned but not accomplished	Main activities with missed targets	
5	Milestone Schedule Achievement		
6	Key Roadblocks	Update of the Risk and Road Blocks Register	
7	Resolution Plan		

8	Critical Path Analysis	Critical Path Narrative	
9	Overall Progress Curve	Earned Value Curve	
10	Shipment and Vendors Schedule		
11	Schedule Update Report	Monthly Progress and Monthly Look Ahead	
12	Pictures		

Revision Record

Rev. No.	Date	Description	Prepared	Checked	Approved