

Guidelines for The Dry Docking and/or Repair of Dredges and Other Floating Equipment

The following guidelines are set for guidance and strict observance at all times, to wit:

Based on the Maritime Industry Authority (MARINA) rules and regulations, marine vessels, including dredges and support floating equipment, are required to undergo regular dry docking and/or repair. This is to ensure maritime safety through the conduct of both above-water and under-water inspection and the institution of needed repairs, with the purpose of making these vessels "fit for purpose".

I. Objectives

1. To ensure maritime safety as well as onboard officers' and crew's;
2. To strengthen the implementation of the required inspection, dry docking and/or repair of dredging equipment by providing applicable guidelines; and
3. To provide regulations that shall govern the conduct of inspection, dry docking and/or repair of dredging equipment.

II. Definition of Terms

Afloat inspection – a survey conducted on a ship while afloat. It consists of both underwater and above-water inspection.

Anniversary Date – the day and month of each year which corresponds to the date of expiry or the relevant certificate.

Certificate of Dry docking – refers to a certificate issued by a MARINA licensed shipyard to vessels after satisfactory compliance with the mandatory dry docking requirement.

Dry docking – is a procedure in which a ship is taken out of water for cleaning and repair of its hull and integral parts such as rudder, propeller, sea chests and sea valves, among others.

Emergency dry docking – a condition in which a ship is taken out of water at any time to undertake repairs of the affected part(s) of the hull or its integral parts; the emergency dry docking is one which is over and above that which has been scheduled.

Maintenance – means of ensuring that physical assets continue to do what their intended users want them to do. This is a function of keeping physical assets in or restoring them to serviceable condition. It includes servicing, test, inspection, adjustment/alignment, removal, replacement, reinstallation, troubleshooting, calibration, condition determination, repair, modification, overhaul, rebuilding, and dry docking.

Preventive maintenance – is the performance of inspection and/or servicing tasks that have been pre-planned and scheduled for accomplishment at specific points in time to retain the functional capabilities of equipment. It is an activity or set of maintenance activities performed to avoid failures, unnecessary production loss, and safety violations.

Corrective maintenance – formerly termed as interim repair, this is the performance of unplanned (unexpected) or unscheduled maintenance tasks to restore the functional capabilities of equipment from the state of failure, malfunction or breakdown.

Dredge – hydraulic or electrically actuated mechanical plant used for dredging.

Dredging – is the excavation operation done within waterways or other inland bodies of water with the purpose of gathering up bottom sediments and disposing of them at a different location (for flood control, navigation, reclamation, beach nourishment, environmental remediation, mining and construction).

Dredge Master – the Captain of the dredge and is responsible for all activities in the dredging operation, including maintenance, performance, conduct, and safety of the crew and equipment on board.

Crew – a group of people manning and operating the dredge.

Contractor – is the external Service Provider for the dry docking and/or repair of the dredging equipment.

Survey – is performed to ensure that the workmanship of all parts of the ship and its equipment is in all respects satisfactory, and that the ship is provided with lights, shapes, means of making sound signals, distress signals as required by existing regulations and the "International Regulations for Preventing Collisions at Sea" in force.

Underwater inspection (UWI) – an inspection/survey of the ship's hull and its integral parts which are below waterline conducted while the ship is afloat.

Underwater ultrasonic thickness gauging – an underwater activity used in determining the thickness of steel plates and other flat surfaced metal components of the ship such as aluminum and other non-ferrous materials.

III. Classification of DPWH Dredges and Support Vessels

The dredging equipment of the Bureau of Equipment, Department of Public Works and Highways shall be classified as follows:

Equipment Class	Gross Tonnage
Cutter Suction Dredge	50 - 400 GRT
Multi-purpose Amphibious Dredge	15 - 30 GRT
Amphibious Excavator	15 - 25 GRT
Support Vessel	35 - 110 GRT

IV. General Policy Guidelines

1. All dredging equipment are required to undergo regular dry docking and/or repair twice within a period of five (5) years.
2. The next scheduled dry docking of the dredging equipment shall be on the twenty-fourth (24th) month after the last dry docking, which may be extended twice but not to exceed six (6) months per extension, provided that afloat inspection shall be conducted prior to any such extension.

3. Underwater inspection (UWI) shall be required prior to dry docking and/or repair and shall be conducted only by a MARINA-accredited underwater surveying company/entry that is required to adopt MARINA issued guidelines.
4. Survey and inspection of dredging equipment shall be carried out by the Bureau of Equipment or its authorized inspectors.
5. The conduct of UWI shall be performed on waters that offer good visibility of at least one (1) meter from the hull and with currents of no more than one and a half (1-½) knots or 0.77 meters per second.
6. Dry docking and/or repair works shall be undertaken in a MARINA-accredited shipyard. However, dredging equipment with a gross tonnage below fifty (50 GRT) may be undertaken on a makeshift dry dock by a MARINA accredited service provider.
7. A Certificate of Dry Docking shall be issued by the shipyard only after the conduct of the required dry docking and verification of compliance with safety regulations.

V. Requirements for the Approval of Request for Dry-docking and/or Repair of Dredges

Requirements	Offices/Personnel Responsible
Comprehensive report with actual photographs of the subject dredge	Dredge Master
Detailed Budgetary Cost Estimate in Detailed Unit Price Analysis (DUPA) Form	Dredge Master
Detailed proposed Project Management Plan	Equipment Management Division

The process flow for the submission and approval of request for dry docking and/or repair of dredges and the offices/personnel responsible for each process is shown in Annex C of this Department Order.

VI. Roles and Responsibilities

A. Dredge Master (DM)

The Dredge Master shall:

1. Conduct a thorough inspection of his/her dredge to assess its condition and determine if the dredge needs repair or is due for dry docking;
2. Prepare a comprehensive inspection report and a detailed budgetary cost estimate in DUPA form for the dry docking and/or repair of his/her dredge to be submitted to the Chief, Equipment Management Division;
3. Assist the Inspectorate Team from the Floating Equipment Division, BOE during inspection of the dredge;

4. Help in the preparation of a Project Management Plan for the proposed dry docking and/or repair of his dredge;
5. Once the program has been approved and started, monitor the conduct of repair works on his/her dredge on a daily basis and submit a comprehensive report of the works done on the dredge, complete with photographs, to the EMD, copy furnished the BOE, at the end of each week;
6. Be involved in the conduct of performance trial and acceptance of subject dredge after completion of dry docking works; and

B. Equipment Management Division (EMD)

The Chief, EMD shall:

1. Thoroughly review the inspection report and budgetary estimate submitted by the DM before its submission to BOE;
2. Prepare a Project Management Plan for the dry docking and/or repair of subject dredge(s);
3. Notify BOE once a Notice to Proceed (NTP) has been issued and furnish machine copy of Contract Agreement for the dry docking and/or repair works of the subject dredge within two (2) working days; and
4. Notify BOE on the schedule of the conduct of performance trial and acceptance of subject dredge after completion of dry docking works; and
5. Submit to BOE a duly accomplished PMP after acceptance of subject dredge and test result.

The EMD Inspectors, shall:

1. Monitor the conduct of repair works on all dredges assigned to the EMD;
2. Prepare monthly a Statement of Work Accomplished based on the contractor's works; and
3. Represent the EMD during the performance trial of the dredge and the turn-over ceremony.

C. Floating Equipment Division - Bureau of Equipment (FED-BOE)

The Floating Equipment Division-Bureau of Equipment shall assign a team that will regularly monitor the progress of the dry docking and/or repair of DPWH dredges. The Team shall:

1. Conduct ocular inspection of dredges to validate the report and budgetary estimate submitted by the DM;

2. Prepare and submit to the BOE Director thru the FED Chief a comprehensive inspection report of their findings and recommend further actions to be taken;
3. Prepare and submit to the BOE Director thru the FED Chief a Program of Work based on the budgetary cost estimate prepared by the DM;
4. Regularly monitor the conduct of repair and submit a report of their observations to the Chief, FED;
5. Prepare monthly a Statement of Work Accomplished based on the contractor's works;
6. Represent the BOE during the performance trial of the dredge and the turn-over ceremony; and
7. Submit a comprehensive report on the activities performed and of the test result of the performance trial.

Annex B of this Order shows the responsibilities of various offices and personnel thru a detailed process flow for the dry docking and/or repair of dredges and support vessels.

VII. Project Management Plan

Planning is essential to the successful and prompt execution of a project. A project plan serves as the basis for all management efforts related to the project, and shall consist of the following:

1. Defined sequence of tasks to be performed.
2. List of all deliverables associated with the project.
3. An estimate of the resources required to perform each task.
4. Timeline/schedule of all tasks to be performed.
5. A defined budget estimate for the entire project.
6. Roles and responsibilities of various personnel involved in the project.
7. Identification of risks associated with each task and the precautionary measures to be employed.
8. Quality management plan.

The project plan defines the objectives of the project and the approach to be taken. It shall serve as an agreement between all concerned parties. The plan contains the details required to successfully carry out the project.

To set the standard design of Project Plans for the dry docking and/or repair of dredges, a Project Plan Template, developed by BOE, is attached to this Department Order as Annex C.

VIII. Quality Management Plan

Overview

The Quality Management Plan (QMP) details the quality control and quality assurance measures and procedures to be observed during the implementation of the program so that it will meet the requirements as specified.

Objectives

The QMP aims to:

- Describe and define the quality program to be enforced to ensure the project's conformance to specifications and industry standards;
- Set the guidelines for inspection and documentation of activities to ensure conformance with the scope of works as reflected in the approved POW;
- Establish a process for detecting, documenting and addressing unexpected changes or conditions that could affect the quality of operations.

Performance Monitoring

The Dredge Master, EMD inspectors and FED-BOE shall oversee the dry docking and/or repair to ensure adherence to the approved POW and conformance to requirements.

Inspections

Inspections shall be conducted to verify compliance to instructions, procedures and requirements as defined in the Project Plan.

A four-phase inspection shall be adopted for the monitoring of dry docking and/or repair works. The following are the phases of the inspection:

1. Preparatory Inspection

The PMT shall conduct preparatory inspections prior to start of any work on any definable feature of the project. The preparatory inspection shall:

- Include a review of the plan requirements;
- Check that all materials and equipment have been tested, inspected and approved;
- Examine the work area to make sure all preliminary works had been completed;
- Examine equipment and materials to make sure that they conform to standards and are properly calibrated and in proper working condition;

- Be documented in the PMTs logbook and documentation system.

2. Initial Inspection

The PMT shall conduct initial inspection as soon as representative portion of the definable feature of work has been accomplished. This inspection shall:

- Examine the quality of workmanship;
- Review control testing for compliance with requirements;
- Review dimensional aspects of the project;
- Be documented in the PMT's logbook and documentation system.

3. Monitoring

Monitoring shall be conducted daily, and shall:

- Check continuing compliance with design requirements;
- Be documented in the PMT's logbook and documentation system.

4. Wrap-up/Post Repair Inspection

The wrap up inspection shall:

- Check the conformance of the finished work to design plans;
- Determine items that do not conform to the approved plan;
- Determine deficiencies/unaccomplished tasks.

After the completion of the repair, the FED-BOE Inspectorate Team shall submit a comprehensive report on the activities performed, compliance of the repair to the POW, conformance of the finished work to design and deficiencies, if any.

The contractor shall conduct performance trial of the newly repaired equipment in the presence of representatives from the Dredge Master and crew, FED-BOE, EMD, and COA for five (5) days.

Statement of Work Accomplished (SWA)

This policy shall adopt "The 2016 Implementing Rules and Regulations (I.R.R.) of Republic Act (R.A.) No. 9184 otherwise known as the Government Procurement Reform Act" for the payment of contractors' claims in the dry-docking and/or repair works conducted on dredges and other floating equipment.

1. The SWA should show the amounts which the contractor considers itself to be entitled to up to the end of the month, to cover (a) the cumulative value of the

works it executed to date, based on the items in the Bill of Quantities, and (b) adjustments made for approved variation orders executed.⁽¹⁾

2. The BOE-FED Inspectorate shall check the contractor's monthly SWA. The SWA and a joint inspection report to be prepared by EMD and BOE-FED Inspectorate shall be submitted to the BOE Director thru the Chief, FED.
3. Except as otherwise stipulated in the Instruction to Bidders, materials and equipment delivered on the site but not completely put in place shall not be included for payment.⁽²⁾

Whenever the contractor refuses or fails to satisfactorily complete the work within the specified contract time, an explanation must be submitted to the BOE Director justifying the unsettled work.

To set the standard SWA, a template developed by BOE, is attached to this Department Order as Annex J.

This policy shall also adopt Annex E "Contract Implementation Guidelines for the Procurement of Infrastructure Projects", Items 1-10, 12 and 13, of The 2016 Implementing Rules and Regulations of Republic Act No. 9184 also known as the Government Procurement Reform Act, attached to this Department Order as Annex K.

⁽¹⁾ ⁽²⁾ The 2016 Implementing Rules and Regulations (I.R.R.) of Republic Act (R.A.) No. 9184 otherwise known as the Government Procurement Reform Act

PROCESS FLOW FOR THE DRY DOCKING AND/OR REPAIR OF DREDGES AND SUPPORT VESSELS

PROCESS FLOW	RESPONSIBLE	DETAILS
	<ol style="list-style-type: none"> 1. Regional Director 2. Dredge Master 3. EMD Chief 	<p>The Dredge Master conducts an afloat inspection to determine if the dredge needs dry docking and/or repair and prepares a budgetary cost estimate to be submitted to the EMD. EMD shall then prepare a Project Management Plan (PMP) based on the submitted report and budgetary cost estimate.</p> <p>If, however, an underwater inspection and afloat inspection warrant the need for dry docking of the dredge, an emergency dry docking shall be performed. This is over and above that which has been scheduled.</p>
	<ol style="list-style-type: none"> 1. Dredge Master 2. FED-BOE Inspectorate Team 3. Maintenance and Dry docking Services Section, FED-BOE 	<p>Inspectorate team from the Floating Equipment Division, BOE conducts an ocular inspection of the subject dredge to assess its condition and to validate the scope of the submitted detailed budgetary cost estimate.</p> <p>MDSS staff reviews and evaluate the cost estimate and make corrections, if needed, on the indicated costs based on established Tariff for spare parts and repair of dredges.</p>
	<ol style="list-style-type: none"> 1. FED-BOE Inspectorate Team 2. FED Chief 3. Maintenance and Dry docking Services Section, Chief 	<p>FED Chief submits the inspection report to the Bureau Director and informs the concerned Regional Director of the findings and assessment through a memorandum with the inspection report attached.</p> <p>The MDSS prepares a Program of Work based on the detailed budgetary cost estimate prepared by the Dredge Master submitted by the Regional office, and the findings during the ocular inspection.</p>
	<ol style="list-style-type: none"> 1. FED Chief 2. Maintenance and Dry docking Services Section, FED-BOE 	

PROCESS FLOW FOR THE DRY DOCKING AND/OR REPAIR OF DREDGES AND SUPPORT VESSELS

PROCESS FLOW	RESPONSIBLE	DETAILS
<pre> graph TD B[] --> 8.0[8.0 FED Chief endorses POW to the BOE Director thru the Assistant Bureau Director] A[] --> 8.0 </pre>	<ol style="list-style-type: none"> 1. FED Chief 2. Assistant Bureau Director 	
<pre> graph TD 8.0 --> 8.1{8.1 With issues?} 8.1 -- Yes --> B[] 8.1 -- No --> 9.0[9.0 Assistant Bureau Director forwards POW to the Bureau Director] 9.0 --> 9.1{9.1 With Issues?} 9.1 -- Yes --> B 9.1 -- No --> 10.0[10.0 BOE Director endorses the POW to the Regional Director for approval] </pre>	<ol style="list-style-type: none"> 1. Assistant Bureau Director 2. FED-BOE 3. BOE Director 4. Regional Director 5. BOE Director 	<p>Assistant Bureau Director reviews POW. If the contents are found in order, Assistant Director forwards the POW to the BOE Director, otherwise returns the POW to FED for revision.</p>
<pre> graph TD 10.0 --> 11.0[11.0 Regional Director, thru the EMD Chief, reviews the POW] </pre>	<ol style="list-style-type: none"> 1. EMD Chief 2. Regional Director 	
<pre> graph TD 11.0 --> 12.0[12.0 Regional Director Signs and returns the approved POW to BOE] </pre>	<ol style="list-style-type: none"> 1. FED-BOE 2. Regional Director 	<p>BOE endorses the POW to the Secretary thru the Undersecretary for Technical Services for approval of funds.</p>
<pre> graph TD 12.0 --> 13.0[13.0 BOE prepares and submits sub-allotment request to FS] 13.0 --> 13.1{13.1 Available funds?} 13.1 -- No --> 14.0[14.0 FS informs BOE] 13.1 -- Yes --> C[] 14.0 --> C </pre>	<ol style="list-style-type: none"> 1. FED-BOE 2. FS 	<p>BOE prepares and submits request for sub-allotment to FS for budget earmarking.</p> <p>Copy furnished the Regional Director. FS checks for availability of funds.</p>

PROCESS FLOW FOR THE DRY DOCKING AND/OR REPAIR OF DREDGES AND SUPPORT VESSELS

PROCESS FLOW	RESPONSIBLE	DETAILS
<pre> graph TD C{{C}} --> 14.0[14.0 FS forwards sub-allotment request to Assistant Secretary for Technical Services] 14.0 --> 15.0[15.0 Assistant Secretary recommends approval to the Undersecretary for Technical Services] </pre>	<p>1. FS</p> <p>2. Assistant Secretary for Technical Services</p>	
<pre> graph TD 15.0 --> 16.0[16.0 Undersecretary approves release of funding] </pre>	<p>Undersecretary For Technical Services</p>	
<pre> graph TD 16.0 --> 17.0[17.0 FS releases funds to the Regional Office and notifies BOE] 17.0 --> 18.0[18.0 Regional Office prepares PPMP] </pre>	<p>1. FS</p> <p>2. Regional Office</p> <p>3. BOE</p>	
<pre> graph TD 18.0 --> 19.0[19.0 BAC conducts public bidding] 19.0 --> 20.0[20.0 BAC awards contract to the winning bidder] 20.0 --> NTP[NTP and Contract] 20.0 --> D{{D}} </pre>	<p>1. BAC Regional office</p> <p>2. EMD Chief</p>	<p>BAC Regional office conducts bidding in accordance with RA 9184.</p> <p>The contract is then awarded to the winning bidder.</p> <p>The EMD Chief shall notify FED-BOE once a NTP has been issued and furnish a machine copy of the Contract Agreement.</p> <p>Upon issuance of Notice to Proceed, the Regional Director shall issue a memorandum temporarily relieving the Dredge Master of accountability to the dredge for the duration of DD/R.</p>

PROCESS FLOW FOR THE DRY DOCKING AND/OR REPAIR OF DREDGES AND SUPPORT VESSELS

PROCESS FLOW	RESPONSIBLE	DETAILS
<pre> graph TD D[D] --> 21.0[21.0 Conduct dry docking and/or repair] 21.0 --> Monitoring[Monitoring] Monitoring --> SWA[SWA] SWA --> 21.0 </pre>	<ol style="list-style-type: none"> 1. Contractor 2. EMD Inspectors 3. Maintenance and Dry docking Services Section, FED-BOE 	<p>The EMD Inspectors and FED-BOE shall regularly monitor the progress of the project throughout its entire duration and prepare monthly a SWA based on the contractor's performance</p>
<pre> graph TD 21.0 --> 22.0[22.0 Post repair inspection] 22.0 --> 22.1{22.1 With issues?} 22.1 -- Yes --> 21.0 22.1 -- No --> 23.0 22.1 --> Report[Post-repair inspection report] </pre>	<p>FED-BOE</p>	<p>Maintenance and Dry docking Services Section, FED-BOE conducts post repair inspection to check for any issues or work overlooked.</p>
<pre> graph TD 22.0 --> 23.0[23.0 Conduct performance trial of the equipment] 23.0 --> 23.1{23.1 With issues?} 23.1 -- Yes --> 22.0 23.1 -- No --> 24.0 23.1 --> PMP[Project Management Plan] </pre>	<ol style="list-style-type: none"> 1. Service Provider 2. Regional Office 3. EMD representatives 4. COA Representative 5. FED-BOE 6. Dredge Master 7. Dredge crew 8. EMD Chief 	<p>The contractor conducts performance trial of the newly repaired equipment in the presence of representatives from the Dredge Master and crew, FED-BOE, EMD, and COA for five (5) days.</p> <p>EMD Chief shall then submit to BOE a duly accomplished PMP after acceptance of test result.</p>
<pre> graph TD 24.0 --> 25.0[25.0 Demobilize and redeploy dredge] 25.0 --> 26.0([26.0 END]) </pre>	<p>Service Provider</p>	

DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

Regional Office No. _____

Project Management Plan

Name of Project

Implementing Office

Date

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I. Project Summary

The project summary should contain the following information:

- Name of the project;
- Implementing office;
- Start date;
- Date contract is awarded;
- Estimated cost of the project;
- Project deliverables;
- Estimated project duration;
- Purpose of the project;
- Acceptance and completion criteria; and
- Major constraints

The project summary also includes the list persons involved in the implementation and management of the project and their contact details. The above information are presented in tabular form.

II. Project Organization

This section shall contain the description of the organization and defines the responsibilities of personnel involved in the project. A narrative of key project member responsibilities may be included in the plan.

Small projects may require fewer personnel and less complex organizational responsibilities; nevertheless, responsibilities have to be defined.

III. List of Activities/Budgetary Cost Estimate

This section shall contain the list of items of work to be performed, estimated duration of each task, materials and personnel needed, and list of tools/equipment to be used. The target start and finish for each activity shall also be indicated in this section.

Attached to this Department Order as Annex D is the sample Budgetary Cost Estimate (BCE) for the dry docking and/or repair of a large cutter suction dredge which shall serve as the template for BCE preparation.

IV. Project Schedule and Timeline

Based from the activity list prepared, a comprehensive project schedule shall be prepared by constructing a Program Evaluation and Review Technique-Critical Path Method (PERT-CPM) diagram and Gantt Chart. These tools help visualize the dependencies of each task, the slack or the allowable time delay for a particular task, and the allocation of resources to each task. Attached as Annex E of this Order is the sample PERT-CPM and Gantt Chart for the activity list presented in Annex D.

V. Project Staffing Plan

The project staffing plan shall show the number of personnel required for the project at any particular time presented in graphical form. This shall be checked and compared against the actual number of personnel present in the project at a particular time.

VI. Safety Plan (Risk Identification and Reduction)

This section shall contain the description of all the risks identified for the project. The contractual, management and technical risks are identified and assessed to identify the necessary control measures to be taken. A sample safety plan is attached to this Order as Annex F.

SAMPLE



Republic of the Philippines
Department of Public Works and Highways
Regional Office No. ____
EQUIPMENT MANAGEMENT DIVISION

Budgetary Cost Estimate for the Repair and Dry Docking of Dredge [Dredge Name]

Cutter Suction Dredge

Scope of Work	Duration (Days)	Materials	Qty	Unit	Unit Cost	Material Cost	Personnel Needed	Qty	Rate/ Day	No. of days	Labor Cost	Total Cost	Schedule	
													Start	End
I Docking and Undocking Services	3													
1 Docking and undocking			1	lot	500,000.00	500,000.00	Shipyards Foreman	1	1,800.00	3	5,400.00	505,400.00		
2 Mooring and unmooring							Tug master	1	2,000.00	3	6,000.00	6,000.00		
3 Erection of Keel blocks							Electrician	2	1,000.00	3	6,000.00	6,000.00		
4 Wharfage							Plumber	2	750.00	3	4,500.00	4,500.00		
5 Dock rental							Common labor	10	500.00	3	15,000.00	15,000.00		
II Hull Preservation Works	3													
1 Scraping/removal of marine growth			1	lot	600,000.00	600,000.00	Technician	1	1,500.00	3	4,500.00	604,500.00		
2 Hydro blasting to remove mineral deposits and contaminants							Hydroblast operator	1	1,500.00	3	4,500.00	4,500.00		
3 Sandblasting to remove oxidized portions (when and where allowed)							Welder	2	950.00	3	5,700.00	5,700.00		
4 Airblowing hull plates prior to painting works							Painter	2	900.00	3	5,400.00	5,400.00		
5 Painting							Draftsman	1	750.00	3	2,250.00	2,250.00		
6 Spraying of fresh water prior to second coating							Common labor	5	500.00	3	7,500.00	7,500.00		
7 Cut and furnish waterline at port and starboard side														
8 Replacing of zinc anodes														
9 Painting of forward and aft draft marks														
III General Services	2													
1 Hammer test of Hull			1	lot	15,000.00	15,000.00	UTG Technician	1	2,000.00	2	4,000.00	19,000.00		
2 UUTG testing of thin/deteriorated plates							Common labor	2	500.00	2	2,000.00	2,000.00		
3 Megger (Megohmmeter) testing of machineries and insulation														

Scope of Work		Duration (Days)	Materials	Qty	Unit	Unit Cost	Material Cost	Personnel Needed	Qty	Rate/ Day	No. of days	Labor Cost	Total Cost	Schedule Start End	
IV	Replating	22													
	1 Bottom and side hull		12mm thk x 6' x 20' MSP	8	pcs	42,352.00	338,816.00	Foreman	1	1,500.00	22	33,000.00	371,816.00		
	2 Deck		10mm thk, MSP 6' x 20'	11	pcs	40,263.00	442,893.00	Fitter	1	950.00	22	20,900.00	463,793.00		
	3 Floorings and walls		8 mm x 6' x 20' ms plate	5	pcs	34,000.00	170,000.00	Welder	2	900.00	22	39,600.00	209,600.00		
	4 Pilot house		8" dia. x 20' BI Pipe, shed, 80	5	pcs	4,000.00	20,000.00	Painter	2	800.00	22	35,200.00	55,200.00		
	5 Frames/brackets/stiffeners		3" x 3" x 20' angle bar.	10	pcs	7,500.00	75,000.00	Common labor	5	500.00	22	55,000.00	130,000.00		
	6 Fenders														
V	Sea Chests and Sea Valves	5						Welder	2	900.00	5	9,000.00	68,000.00		
	1 Servicing			1	lot	59,000.00	59,000.00	Painter	2	750.00	5	7,500.00	7,500.00		
	2 Replacement of defective parts							Common labor	2	500.00	5	5,000.00	5,000.00		
VI	Pump Works	10						Foreman Mechanic	1	1,200.00	10	12,000.00	162,000.00		
	1 Servicing			1	lot	150,000.00	150,000.00	Mechanic	2	850.00	10	17,000.00	17,000.00		
	2 Replacement of defective parts							Common labor	4	500.00	10	20,000.00	20,000.00		
VII	Winch Mechanism Works	4						Foreman	1	1,200.00	4	4,800.00	304,800.00		
	1 Servicing			1	lot	300,000.00	300,000.00	Welder	2	900.00	4	7,200.00	7,200.00		
	2 Replacement of defective parts including steel cables							Common labor	4	500.00	4	8,000.00	8,000.00		
VIII	Cooling System Repair/Overhauling	5						Technician	2	1,000.00	5	10,000.00	460,000.00		
	1 Servicing			1	lot	450,000.00	450,000.00	Common labor	2	500.00	5	5,000.00	5,000.00		
	2 Replacement of defective parts														
IX	Electrical System	5						Electrician	1	800.00	5	4,000.00	24,000.00		
	1 Repair/replacement of parts for motor control, panel boards, lightings, 3-phase motors			1	lot	20,000.00	20,000.00	Common labor	2	500.00	5	5,000.00	5,000.00		
X	Ladder Works	5						Foreman	1	1,200.00	5	6,000.00	156,000.00		
	1 Repair/replacement of ladder structure			1	lot	150,000.00	150,000.00	Welder	2	900.00	5	9,000.00	9,000.00		
	2 Repair/replacement of gear mechanisms, lubricating system							Common labor	3	500.00	5	7,500.00	7,500.00		

Scope of Work		Duration (Days)	Materials	Qty	Unit	Unit Cost	Material Cost	Personnel Needed	Qty	Rate/ Day	No. of days	Labor Cost	Total Cost	Schedule	
														Start	End
3	Repair/replacement of suction pipes, adaptors, suction mouth, mouth rings, elbows, valves, hoses, bolts and nuts, cutter head/teeth, flanges, gaskets, idlers, roller pulleys, swing line and other support appurtenances			1	lot			Painter	3	750.00	5	11,250.00	11,250.00		
XI	Dredge Pump Engine Works	13													
1	Overhauling			1	lot	800,000.00	800,000.00	Mechanic foreman	1	1,200.00	13	15,600.00	815,600.00		
2	Replacement of defective parts		Mechanic					2	700.00	13	18,200.00	18,200.00			
3	Machining works		Common labor					3	500.00	13	19,500.00	19,500.00			
4	Servicing and replacement of defective parts of attached pumps														
XII	Main Generator Engine Works	12													
1	Overhauling (general or top)			1	lot	800,000.00	800,000.00	Mechanic foreman	1	1,200.00	12	14,400.00	814,400.00		
2	Replacement of defective parts		Mechanic					2	700.00	12	16,800.00	16,800.00			
3	Machining works		Common labor					3	500.00	12	18,000.00	18,000.00			
4	Replacement of defective parts														
XIII	Auxiliary Engine Works	12													
1	Servicing			1	lot	400,000.00	400,000.00	Mechanic foreman	1	1,200.00	12	14,400.00	414,400.00		
2	Replacement of defective parts		Mechanic					2	700.00	12	16,800.00	16,800.00			
			Common labor					3	500.00	12	18,000.00	18,000.00			
XIV	Tank Works	5													
1	Checking of all tanks			1	lot	100,000.00	100,000.00	Mechanic	2	700.00	5	7,000.00	107,000.00		
2	Replacement of gaskets		Common labor					3	500.00	5	7,500.00	7,500.00			
3	Repair of deteriorated portions														
4	Application of cement wash on water tank surface														
XV	Hydraulic System Works	10													
1	Servicing of hydraulic motors, pipes, hoses, fittings and tanks			1	lot	100,000.00	100,000.00	Technician	2	1,000.00	10	20,000.00	120,000.00		
2	Replacement of solenoid valves. Cartridges and other parts		Common labor					2	500.00	10	10,000.00	10,000.00			

Scope of Work		Duration (Days)	Materials	Qty	Unit	Unit Cost	Material Cost	Personnel Needed	Qty	Rate/ Day	No. of days	Labor Cost	Total Cost	Schedule	
														Start	End
XVI	Piping System Works	5						Mechanic	1	700.00	5	3,500.00	103,500.00		
	1 Replacement of defective pipings, adaptors and connectors for fuel, raw water, fresh water, and flushing and toilet discharge pipe			1	lot	100,000.00	100,000.00	Common labor	2	500.00	5	5,000.00	5,000.00		
XVII	Miscellaneous Works	5						Technician	1	1,000.00	5	5,000.00	205,000.00		
	1 Repair of expansion joints			1	lot	200,000.00	200,000.00	Mechanic	1	700.00	5	3,500.00	3,500.00		
	2 Repair of on-board discharge pipes, elbows, S-pipes, adaptors		Common labor					2	500.00	5	5,000.00	5,000.00			
	3 Repair of spreaders														
	4 Repair of transmission/reduction gear														
	5 Repair of swivel joint for discharge pipe elbow														
XVIII	Performance Trial	5													
	1 Conduct performance trial in the presence of representatives from FED-BOE, EMD, COA for five (5) days		Diesel	800	Li	45.00	36,000.00						36,000.00		
TOTAL												6,449,609.00			

Prepared by:

Reviewed by:

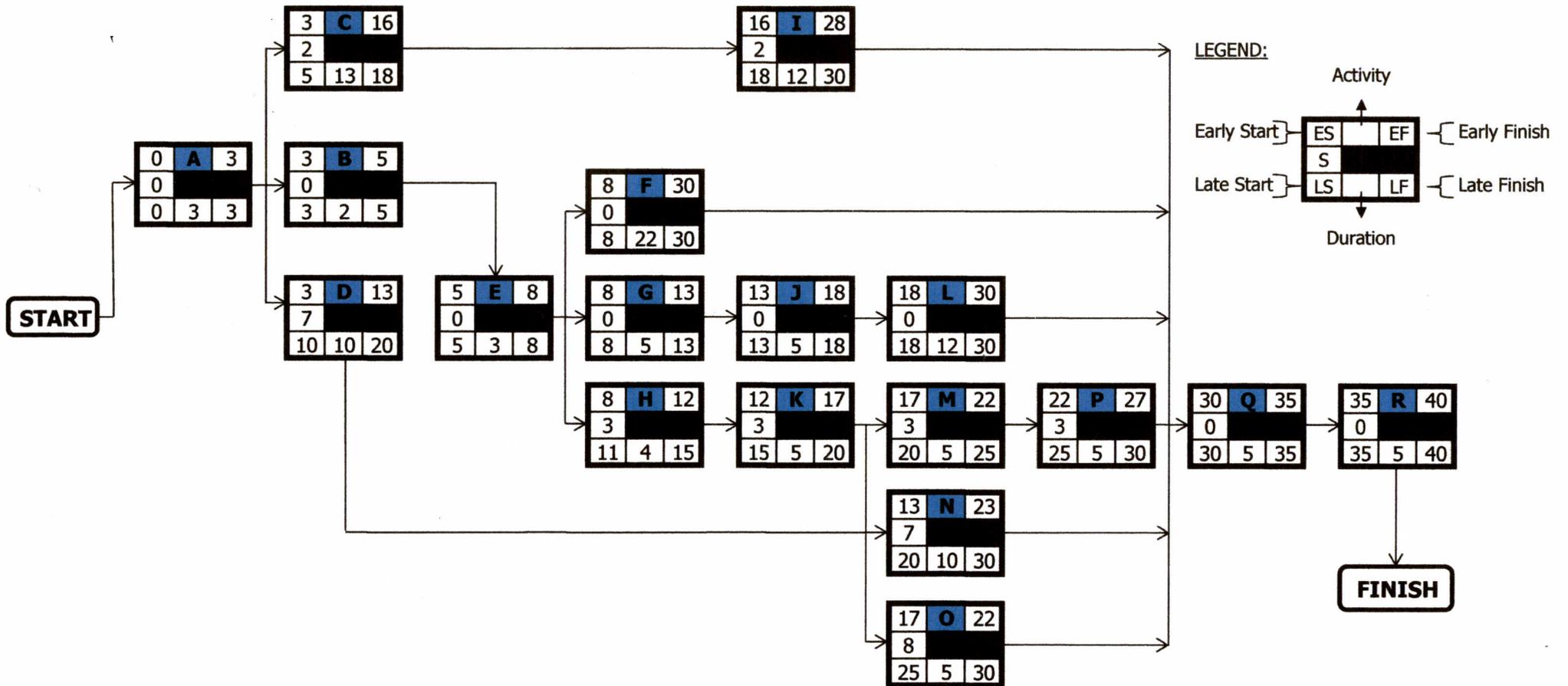
Name
Dredge Master

Name
Assistant EMD Chief

Submitted by:

Name
EMD Chief

SAMPLE PERT-CPM FOR DRY DOCKING AND REPAIR



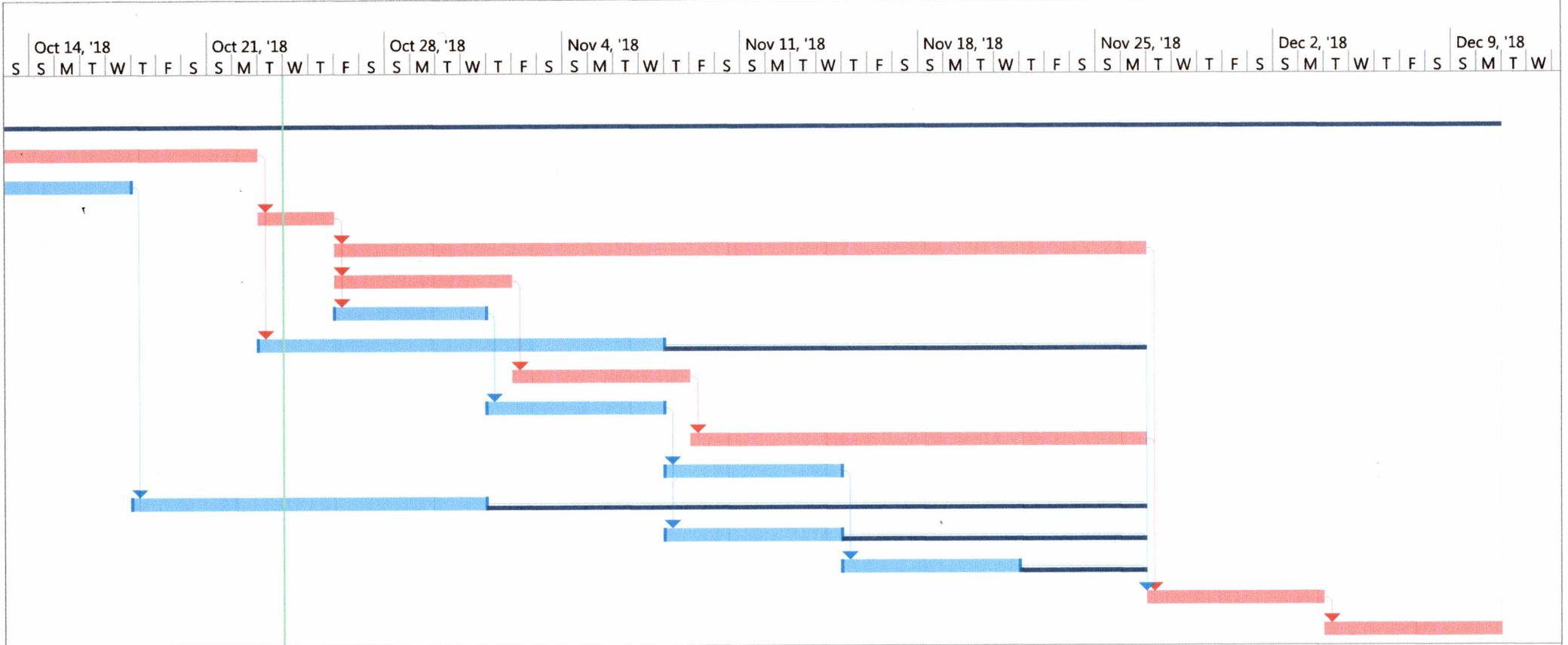
SAMPLE PERT-CPM FOR DRY DOCKING AND REPAIR

ACTIVITIES	DURATION (D) (days)	EARLY START (ES)	EARLY FINISH (EF) (ES+D)	LATE START (LS) (LF-D)	LATE FINISH (LF)	SLACK (S) (LS-ES)
A. Docking and Undocking Services	3	0	3	0	3	0
B. General Services	2	3	5	3	5	0
C. Dredge Pump Engine Works	13	3	16	5	18	2
D. Pump Works	10	3	13	10	20	7
E. Hull Preservation Works	3	5	8	5	8	0
F. Replating	22	8	30	8	30	0
G. Sea Chests and Sea Valves	5	8	13	8	13	0
H. Winch Mechanism Works	4	8	12	11	15	3
I. Auxiliary Engine Works	12	16	28	18	30	2
J. Cooling System Repair/Overhauling	5	13	18	13	18	0
K. Electrical System	5	12	17	15	20	3
L. Main Generator Engine Works	12	18	30	18	30	0
M. Ladder Works	5	17	22	20	25	3
N. Hydraulic System Works	10	13	23	20	30	7
O. Tank Works	5	17	22	25	30	8
P. Piping System Works	5	22	27	25	30	3
Q. Miscellaneous Works	5	30	35	30	35	0
R. Performance Trial	5	35	40	35	40	0

ID	Task Mod	Task Name	Duration	Start	Finish	Predecessors	Sep 30, '18							Oct 7, '18						
							S	M	T	W	T	F	S	S	M	T	W	T	F	
1		★ A. Docking and Undocking Services	3 days	Mon 10/1/18	Wed 10/3/18															
2		★ B. General Services	2 days	Thu 10/4/18	Fri 10/5/18	1														
3		★ C. Dredge Pump Engine Works	13 days	Thu 10/4/18	Mon 10/22/18	1														
4		★ D. Pump Works	10 days	Thu 10/4/18	Wed 10/17/18	1														
5		★ E. Hull Preservation Works	3 days	Tue 10/23/18	Thu 10/25/18	3														
6		★ F. Replating	22 days	Fri 10/26/18	Mon 11/26/18	5														
7		★ G. Sea Chests and Sea Valves	5 days	Fri 10/26/18	Thu 11/1/18	5														
8		★ H. Winch Mechanism Works	4 days	Fri 10/26/18	Wed 10/31/18	5														
9		★ I. Main Generator Engine Works	12 days	Tue 10/23/18	Wed 11/7/18	3														
10		★ J. Cooling System Repair/Overhauling	5 days	Fri 11/2/18	Thu 11/8/18	7														
11		★ K. Electrical System	5 days	Thu 11/1/18	Wed 11/7/18	8														
12		★ L. Auxiliary Engine Works	12 days	Fri 11/9/18	Mon 11/26/18	10														
13		★ M. Ladder Works	5 days	Thu 11/8/18	Wed 11/14/18	11														
14		★ N. Hydraulic System Works	10 days	Thu 10/18/18	Wed 10/31/18	4														
15		★ O. Tank Works	5 days	Thu 11/8/18	Wed 11/14/18	11														
16		★ P. Piping System Works	5 days	Thu 11/15/18	Wed 11/21/18	13														
17		★ Q. Miscellaneous Works	5 days	Tue 11/27/18	Mon 12/3/18	9,6,12,14,15,16														
18		★ R. Performance Trial	5 days	Tue 12/4/18	Mon 12/10/18	17														

Project: gantt
Date: Wed 10/24/18

Task		Manual Task		Deadline	
Split		Duration-only		Critical	
Milestone		Manual Summary Rollup		Critical Split	
Summary		Manual Summary		Progress	
Project Summary		Start-only		Manual Progress	
Inactive Task		Finish-only		Slack	
Inactive Milestone		External Tasks			
Inactive Summary		External Milestone			



Project: gantt Date: Wed 10/24/18	Task		Manual Task		Deadline	
	Split		Duration-only		Critical	
	Milestone		Manual Summary Rollup		Critical Split	
	Summary		Manual Summary		Progress	
	Project Summary		Start-only		Manual Progress	
	Inactive Task		Finish-only		Slack	
	Inactive Milestone		External Tasks			
	Inactive Summary		External Milestone			

SAMPLE

Safety Plan (Risk and Hazard Identification and Reduction) Template

Category	Impact	Risk	Control Measure
Management			
Personnel Availability			
Personnel Skills			
Schedule			
Cost			
Change Control			
Technical			
Mobilization and Set-up			
Repair Works*			
Performance Trial			
Demobilization			
Equipment and Tools*			
Handling			
Usage			

* These should be broken down into individual items. Risks associated with each item should be identified and control measures should be presented thereof.

All applicable provisions of DO No. 74, Series of 2015, "Safety Onboard All DPWH Dredges and Support Vessels", shall be observed during the conduct of dry-docking and repair to ensure safety of all personnel.

SAMPLE



Republic of the Philippines
Department of Public Works and Highways
Regional Office No. ____
EQUIPMENT MANAGEMENT DIVISION

Program of Work for the Repair and Dry Docking of Dredge [Dredge Name]

Cutter Suction Dredge

Scope of Work		Duration (Days)	Materials	Qty	Unit	Unit Cost	Material Cost	Personnel Needed	Qty	Rate/ Day	No. of days	Labor Cost	Total Cost	Schedule Start End	
I	Docking and Undocking Services	3													
	1 Docking and undocking			1	lot	500,000.00	500,000.00	Shipyards Foreman	1	1,800.00	3	5,400.00	505,400.00		
	2 Mooring and unmooring		Tug master					1	2,000.00	3	6,000.00	6,000.00			
	3 Erection of Keel blocks		Electrician					2	1,000.00	3	6,000.00	6,000.00			
	4 Wharfage		Plumber					2	750.00	3	4,500.00	4,500.00			
	5 Dock rental		Common labor					10	500.00	3	15,000.00	15,000.00			
II	Hull Preservation Works	3													
	1 Scraping/removal of marine growth			1	lot	600,000.00	600,000.00	Technician	1	1,500.00	3	4,500.00	604,500.00		
	2 Hydro blasting to remove mineral deposits and contaminants		Hydroblast operator					1	1,500.00	3	4,500.00	4,500.00			
	3 Sandblasting to remove oxidized portions (when and where allowed)		Welder					2	950.00	3	5,700.00	5,700.00			
	4 Airblowing hull plates prior to painting works		Painter					2	900.00	3	5,400.00	5,400.00			
	5 Painting		Draftsman					1	750.00	3	2,250.00	2,250.00			
	6 Spraying of fresh water prior to second coating		Common labor					5	500.00	3	7,500.00	7,500.00			
	7 Cut and furnish waterline at port and starboard side														
	8 Replacing of zinc anodes														
	9 Painting of forward and aft draft marks														
III	General Services	2													
	1 Hammer test of Hull			1	lot	15,000.00	15,000.00	UTG Technician	1	2,000.00	2	4,000.00	19,000.00		
	2 UUTG testing of thin/deteriorated plates		Common labor					2	500.00	2	2,000.00	2,000.00			
	3 Megger (Megohmmeter) testing of machineries and insulation														

Scope of Work		Duration (Days)	Materials	Qty	Unit	Unit Cost	Material Cost	Personnel Needed	Qty	Rate/ Day	No. of days	Labor Cost	Total Cost	Schedule Start End	
IV	Replating	22													
	1 Bottom and side hull		12mm thk x 6' x 20' MSP	8	pcs	42,352.00	338,816.00	Foreman	1	1,500.00	22	33,000.00	371,816.00		
	2 Deck		10mm thk, MSP 6' x 20'	11	pcs	40,263.00	442,893.00	Fitter	1	950.00	22	20,900.00	463,793.00		
	3 Floorings and walls		8 mm x 6' x 20' ms plate	5	pcs	34,000.00	170,000.00	Welder	2	900.00	22	39,600.00	209,600.00		
	4 Pilot house		8" dia. x 20' BI Pipe, shed, 80	5	pcs	4,000.00	20,000.00	Painter	2	800.00	22	35,200.00	55,200.00		
	5 Frames/brackets/stiffeners		3" x 3" x 20' angle bar.	10	pcs	7,500.00	75,000.00	Common labor	5	500.00	22	55,000.00	130,000.00		
	6 Fenders														
V	Sea Chests and Sea Valves	5						Welder	2	900.00	5	9,000.00	68,000.00		
	1 Servicing			1	lot	59,000.00	59,000.00	Painter	2	750.00	5	7,500.00	7,500.00		
	2 Replacement of defective parts							Common labor	2	500.00	5	5,000.00	5,000.00		
VI	Pump Works	10						Foreman Mechanic	1	1,200.00	10	12,000.00	162,000.00		
	1 Servicing			1	lot	150,000.00	150,000.00	Mechanic	2	850.00	10	17,000.00	17,000.00		
	2 Replacement of defective parts							Common labor	4	500.00	10	20,000.00	20,000.00		
VII	Winch Mechanism Works	4						Foreman	1	1,200.00	4	4,800.00	304,800.00		
	1 Servicing			1	lot	300,000.00	300,000.00	Welder	2	900.00	4	7,200.00	7,200.00		
	2 Replacement of defective parts including steel cables							Common labor	4	500.00	4	8,000.00	8,000.00		
VIII	Cooling System Repair/Overhauling	5						Technician	2	1,000.00	5	10,000.00	460,000.00		
	1 Servicing			1	lot	450,000.00	450,000.00	Common labor	2	500.00	5	5,000.00	5,000.00		
	2 Replacement of defective parts														
IX	Electrical System	5						Electrician	1	800.00	5	4,000.00	24,000.00		
	1 Repair/replacement of parts for motor control, panel boards, lightings, 3-phase motors			1	lot	20,000.00	20,000.00	Common labor	2	500.00	5	5,000.00	5,000.00		
X	Ladder Works	5						Foreman	1	1,200.00	5	6,000.00	156,000.00		
	1 Repair/replacement of ladder structure			1	lot	150,000.00	150,000.00	Welder	2	900.00	5	9,000.00	9,000.00		
	2 Repair/replacement of gear mechanisms, lubricating system							Common labor	3	500.00	5	7,500.00	7,500.00		

Scope of Work		Duration (Days)	Materials	Qty	Unit	Unit Cost	Material Cost	Personnel Needed	Qty	Rate/ Day	No. of days	Labor Cost	Total Cost	Schedule	
														Start	End
3	Repair/replacement of suction pipes, adaptors, suction mouth, mouth rings, elbows, valves, hoses, bolts and nuts, cutter head/teeth, flanges, gaskets, idlers, roller pulleys, swing line and other support appurtenances			1	lot			Painter	3	750.00	5	11,250.00	11,250.00		
XI	Dredge Pump Engine Works	13													
1	Overhauling			1	lot	800,000.00	800,000.00	Mechanic foreman	1	1,200.00	13	15,600.00	815,600.00		
2	Replacement of defective parts		Mechanic					2	700.00	13	18,200.00	18,200.00			
3	Machining works		Common labor					3	500.00	13	19,500.00	19,500.00			
4	Servicing and replacement of defective parts of attached pumps														
XII	Main Generator Engine Works	12													
1	Overhauling (general or top)			1	lot	800,000.00	800,000.00	Mechanic foreman	1	1,200.00	12	14,400.00	814,400.00		
2	Replacement of defective parts		Mechanic					2	700.00	12	16,800.00	16,800.00			
3	Machining works		Common labor					3	500.00	12	18,000.00	18,000.00			
4	Replacement of defective parts														
XIII	Auxiliary Engine Works	12													
1	Servicing			1	lot	400,000.00	400,000.00	Mechanic foreman	1	1,200.00	12	14,400.00	414,400.00		
2	Replacement of defective parts		Mechanic					2	700.00	12	16,800.00	16,800.00			
			Common labor					3	500.00	12	18,000.00	18,000.00			
XIV	Tank Works	5													
1	Checking of all tanks			1	lot	100,000.00	100,000.00	Mechanic	2	700.00	5	7,000.00	107,000.00		
2	Replacement of gaskets		Common labor					3	500.00	5	7,500.00	7,500.00			
3	Repair of deteriorated portions														
4	Application of cement wash on water tank surface														
XV	Hydraulic System Works	10													
1	Servicing of hydraulic motors, pipes, hoses, fittings and tanks			1	lot	100,000.00	100,000.00	Technician	2	1,000.00	10	20,000.00	120,000.00		
2	Replacement of solenoid valves. Cartridges and other parts		Common labor					2	500.00	10	10,000.00	10,000.00			

Scope of Work		Duration (Days)	Materials	Qty	Unit	Unit Cost	Material Cost	Personnel Needed	Qty	Rate/ Day	No. of days	Labor Cost	Total Cost	Schedule				
														Start	End			
XVI	Piping System Works	5						Mechanic	1	700.00	5	3,500.00	103,500.00					
	1 Replacement of defective pipings, adaptors and connectors for fuel, raw water, fresh water, and flushing and toilet discharge pipe			1	lot	100,000.00	100,000.00	Common labor	2	500.00	5	5,000.00	5,000.00					
XVII	Miscellaneous Works	5						Technician	1	1,000.00	5	5,000.00	205,000.00					
	1 Repair of expansion joints			1	lot	200,000.00	200,000.00	Mechanic	1	700.00	5	3,500.00	3,500.00					
	2 Repair of on-board discharge pipes, elbows, S-pipes, adaptors							Common labor	2	500.00	5	5,000.00	5,000.00					
	3 Repair of spreaders																	
	4 Repair of transmission/reduction gear																	
	5 Repair of swivel joint for discharge pipe elbow																	
XVIII	Performance Trial	5																
	1 Conduct performance trial in the presence of representatives from FED-BOE, EMD, COA for five (5) days		Diesel	800	Li	45.00	36,000.00						36,000.00					
TOTAL												6,449,609.00						

Prepared by:

Submitted by:

Name
Dredge Master

Name
EMD Chief

Recommending Approval

Approved

Name
Assistant Regional Director

Name
Regional Director

SAMPLE

Accomplishment Monitoring Form

Scope of Work	Duration (Days)	Schedule		Percentage of Work Completed						
		Start	End	As of (date)	As of (date)	As of (date)	As of (date)	As of (date)	As of (date)	
I Docking and Undocking Services										
1 Docking and undocking										
2 Mooring and unmooring										
3 Erection of Keel blocks										
4 Wharfage										
5 Dock rental										
II Hull Preservation Works										
1 Scraping/removal of marine growth										
2 Hydro blasting to remove mineral deposits and contaminants										
3 Sandblasting to remove oxidized portions (when and where allowed)										
4 Airblowing hull plates prior to painting works										
5 Painting										
6 Spraying of fresh water prior to second coating										
7 Cut and furnish waterline at port and starboard side										
8 Replacing of zinc anodes										
9 Painting of forward and aft draft marks										
III General Services										
1 Hammer test of Hull										
2 UUTG testing of thin/deteriorated plates										
3 Megger (Megohmmeter) testing of machineries and insulation										
IV Replating										
1 Bottom and side hull										
2 Deck										
3 Floorings and walls										

Scope of Work	Duration (Days)	Schedule		Percentage of Work Completed							
		Start	End	As of (date)	As of (date)	As of (date)	As of (date)	As of (date)	As of (date)	As of (date)	
4 Pilot house											
5 Frames/brackets/stiffeners											
6 Fenders											
V Sea Chests and Sea Valves											
1 Servicing											
2 Replacement of defective parts											
VI Pump Works											
1 Servicing											
2 Replacement of defective parts											
VII Winch Mechanism Works											
1 Servicing											
2 Replacement of defective parts including steel cables											
VIII Cooling System Repair/Overhauling											
1 Servicing											
2 Replacement of defective parts											
IX Electrical System											
1 Repair/replacement of parts for motor control, panel boards, lightings, 3-phase motors											
X Ladder Works											
1 Repair/replacement of ladder structure											
2 Repair/replacement of gear mechanisms, lubricating system											
3 Repair/replacement of suction pipes, adapters, suction mouth, mouth rings, elbows, valves, hoses, bolts and nuts, cutter head/teeth, flanges, gaskets, idlers, roller pulleys, swing line and other support appurtenances											

Scope of Work		Duration (Days)	Schedule		Percentage of Work Completed						
			Start	End	As of (date)	As of (date)	As of (date)	As of (date)	As of (date)	As of (date)	
XI	Dredge Pump Engine Works										
	1 Overhauling										
	2 Replacement of defective parts										
	3 Machining works										
	4 Servicing and replacement of defective parts of attached pumps										
X	Main Generator Engine Works										
	1 Overhauling (general or top)										
	2 Replacement of defective parts										
	3 Machining works										
	4 Servicing/replacement of parts of all attached pumps										
XI	Auxiliary Engine Works										
	1 Overhauling (general or top)										
	2 Replacement of defective parts										
	3 Machining works										
	4 Servicing/replacement of parts of all attached pumps										
XII	Auxiliary Generator Set AC-DC										
	1 Servicing										
	2 Replacement of defective parts										
XIII	Tank Works										
	1 Checking of all tanks										
	2 Replacement of gaskets										
	3 Repair of deteriorated portions										
	4 Application of cement wash on water tank surface										
XIV	Hydraulic System Works										
	1 Servicing of hydraulic motors, pipes, hoses, fittings and tanks										
	2 Replacement of solenoid valves. Cartridges and other parts										

Scope of Work		Duration (Days)	Schedule		Percentage of Work Completed						
			Start	End	As of (date)	As of (date)	As of (date)	As of (date)	As of (date)	As of (date)	
XV	Piping System Works										
	1 Replacement of defective pipings, adaptors and connectors for fuel, raw water, fresh water, and flushing and toilet discharge pipe										
XVI	Miscellaneous Works										
	1 Repair of expansion joints										
	2 Repair of on-board discharge pipes, elbows, S-pipes, adaptors										
	3 Repair of spreaders										
	4 Repair of transmission/reduction gear parts										
	5 Repair of swivel joint for discharge pipe elbow										
Support Vessel											
I	Propulsion System Works										
	1 Servicing of propeller/pitch and static balance										
	2 Checking of alignment of tailshaft with respect to main engine										
	3 Replacement of flax packing										
II	Rudder Works										
	1 Servicing and replacement of defective parts										
	2 Servicing of rudder stock										
	3 Alignment of rudder stock										
	4 Polishing of rudder stock sleeves and refacing of flange										

Prepared by:

Submitted by:

Activity	Day 1		Pass/ Fail	Day 2		Pass/ Fail	Day 3		Pass/ Fail	Day 4		Pass/ Fail	Day 5		Pass/ Fail	Remarks
	Time			Time			Time			Time						
	Start	End		Start	End		Start	End		Start	End		Start	End		
Alarm system																
Fire fighting equipment																
IV Electrical System Test																
Check panel boards																
Check voltage and amperage																
Check lightings																
V Control Panel Test																
Check all controls in the control																
VI Dredging Trial																
Cutter suction dredging for 2																
Cutter suction dredging for 2																
Cutter suction dredging for 2																
Spud test (advancing using spuds *max swing of 30 degrees on both sides																

Remarks

Inspected by:

Activity	Day 1			Day 2			Day 3			Day 4			Day 5		
	Time		Pass/ Fail												
	Start	End		Start	End		Start	End		Start	End		Start	End	
V Control Panel Test															
Check all controls in the control desk															
VI Dredging Trial															
Cutter suction dredging for 2 straight hours @ rated RPM															
Cutter suction dredging for 2 straight hours @ 80% RPM															
Bucket dredging for 2 hours															
VII Navigational and Stability Test															
Cruising without side pontoons															
with 1/3 floater in water															
with floaters in upright position															
Cruising with side pontoons															
with 1/3 floater in water															
with floaters in upright position															
Maneuvering test															

Remarks _____

Inspected by:

Activity	Day 1			Day 2			Day 3			Day 4			Day 5		
	Time		Pass/ Fail												
	Start	End		Start	End		Start	End		Start	End		Start	End	
VI Dredging Trial															
Bucket dredging for 2 hours															
VII Navigational and Stability Test															
Cruising and maneuvering without side pontoons															
Cruising and maneuvering with side pontoons															

Remarks _____

Inspected by:

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ANNEX "E" CONTRACT IMPLEMENTATION GUIDELINES FOR THE PROCUREMENT OF INFRASTRUCTURE PROJECTS

1. VARIATION ORDERS - CHANGE ORDER/EXTRA WORK ORDER

- 1.1. Variation Orders may be issued by the procuring entity to cover any increase/decrease in quantities, including the introduction of new work items that are not included in the original contract or reclassification of work items that are either due to change of plans, design or alignment to suit actual field conditions resulting in disparity between the preconstruction plans used for purposes of bidding and the "as staked plans" or construction drawings prepared after a joint survey by the contractor and the Government after award of the contract, provided that the cumulative amount of the positive or additive Variation Order does not exceed ten percent (10%) of the original contract price. The addition/deletion of works under Variation Orders should be within the general scope of the project as bid and awarded. The scope of works shall not be reduced so as to accommodate a positive Variation Order. A Variation Order may either be in the form of either a change order or extra work order.
- 1.2. A Change Order may be issued by the implementing official to cover any increase/decrease in quantities of original work items in the contract.
- 1.3. An Extra Work Order may be issued by the implementing official to cover the introduction of new work necessary for the completion, improvement or protection of the project which was not included as items of work in the original contract, such as, where there are subsurface or latent physical conditions at the site differing materially from those indicated in the contract, or where there are duly unknown physical conditions at the site of an unusual nature differing materially from those ordinarily encountered and generally recognized as inherent in the work or character provided for in the contract.
- 1.4. Any cumulative positive Variation Order beyond ten percent (10%) of the original contract price shall be subject of another contract to be bid out if the works are separable from the original contract. In exceptional cases where it is urgently necessary to complete the original scope of work, the Head of the Procuring Entity may authorize a positive variation order that will make the cumulative value of the positive Variation Orders go beyond ten percent (10%) but not more than twenty percent (20%) of the original contract price, subject to the guidelines to be determined by the GPPB: Provided, however, That appropriate sanctions shall be imposed on the designer, consultant or official responsible for the original detailed engineering design which failed to consider the Variation Order beyond ten percent (10%).
- 1.5. In claiming for any Variation Order, the contractor shall, within seven (7) calendar days after such work has been commenced pursuant to Item 3.2 hereof; or, within twenty eight (28) calendar days after the circumstances or reasons justifying a claim for extra cost shall have occurred, deliver a notice giving full and detailed particulars of any extra cost in order that it may be investigated at that time. Failure to provide either of such notices in the time stipulated shall constitute a waiver by the contractor for any claim. The preparation and submission of Variation Orders are as follows:

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- a) If the procuring entity's representative/Project Engineer believes that a Change Order or Extra Work Order should be issued, he shall prepare the proposed Order accompanied with the notices submitted by the contractor, the plans therefore, his computations as to the quantities of the additional works involved per item indicating the specific stations where such works are needed, the date of his inspections and investigations thereon, and the log book thereof, and a detailed estimate of the unit cost of such items of work, together with his justifications for the need of such Change Order or Extra Work Order, and shall submit the same to the Head of the Procuring Entity for approval.
- b) The Head of the Procuring Entity or his duly authorized representative upon receipt of the proposed Change Order or Extra Work Order shall immediately instruct the appropriate technical staff or office of the procuring entity to conduct an on-the-spot investigation to verify the need for the work to be prosecuted and to review the proposed plan, and prices of the work involved.
- c) The technical staff of appropriate office of the procuring entity shall submit a report of their findings and recommendations, together with the supporting documents, to the Head of the Procuring Entity or his duly authorized representative for consideration.
- d) The Head of the Procuring Entity or his duly authorized representative, acting upon the recommendation of the technical staff or appropriate office, shall approve the Change Order or Extra Work Order after being satisfied that the same is justified, necessary, and in order.
- e) The timeframe for the processing of Variation Orders from the preparation up to the approval by the procuring entity concerned shall not exceed thirty (30) calendar days.

2. ADDITIONAL/EXTRA WORK COSTING

- 2.1. For Variation Orders, the contractor shall be paid for additional work items whose unit prices shall be derived based on the following:
 - a. For additional/extra works duly covered by Change Orders involving work items which are exactly the same or similar to those in the original contract, the applicable unit prices of work items original contract shall be used.
 - b. For additional/extra works duly covered by Extra Work Orders involving new work items that are not in the original contract, the unit prices of the new work items shall be based on the direct unit costs used in the original contract (*e.g.*, unit cost of cement, rebars, form lumber, labor rate, equipment rental, etc.). All new components of the new work item shall be fixed prices, provided the same is acceptable to both the Government and the contractor, and provided further that the direct unit costs of new components shall be based on the contractor's estimate as validated by the procuring entity concerned via documented canvass in accordance with existing rules and regulations. The direct cost of the new work item shall then be combined with the mark-up

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factor (*i.e.*, taxes and profit) used by the contractor in his bid to determine the unit price of the new work item.

- 2.2. Request for payment by the contractor for any extra work shall be accompanied by a statement, with the approved supporting forms, giving a detailed accounting and record of amount for which he claims payment. Said request for payment shall be included with the contractor's statement for progress payment.

3. CONDITIONS UNDER WHICH CONTRACTOR IS TO START WORK UNDER VARIATION ORDERS AND RECEIVE PAYMENTS

- 3.1. Under no circumstances shall a contractor proceed to commence work under any Change Order or Extra Work Order unless it has been approved by the Head of the Procuring Entity or his duly authorized representative.

- 3.2. However, under any of the following conditions, the procuring entity's representative/Project Engineer may, subject to the availability of funds and within the limits of his delegated authority, allow the immediate start of work under any Change Order or Extra Work Order:

- i) In the event of an emergency where the prosecution of the work is urgent to avoid detriment to public service, or damage to life and/or property; and/or
- ii) When time is of the essence;

Provided, however, That such approval is valid on work done up to the point where the cumulative increase in value of work on the project which has not yet been duly fully approved does not exceed five percent (5%) of the adjusted original contract price;

Provided, further, That immediately after the start of work, the corresponding Change Order or Extra Work Order shall be prepared and submitted for approval in accordance with the above rules herein set. Payments for works satisfactorily accomplished on any Change Order or Extra Work Order may be made only after approval of the same by the Head of the Procuring Entity or his duly authorized representative.

Provided, finally, That for a Change Order or Extra Work Order involving a cumulative amount exceeding five percent (5%) of the original contract price, no work thereon may be commenced unless said Change Order or Extra Work Order has been approved by the Head of the Procuring Entity or his duly authorized representative.

4. ADVANCE PAYMENT

- 4.1. The procuring entity shall, upon a written request of the contractor which shall be submitted as a contract document, make an advance payment to the contractor in an amount not exceeding fifteen percent (15%) of the total contract price, to be made in lump sum or, at the most, two installments according to a schedule specified in the Instructions to Bidders and other relevant Tender Documents.

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- 4.2. The advance payment shall be made only upon the submission to and acceptance by the procuring entity of an irrevocable standby letter of credit of equivalent value from a commercial bank, a bank guarantee or a surety bond callable upon demand, issued by a surety or insurance company duly licensed by the Insurance Commission and confirmed by the procuring entity.
- 4.3. The advance payment shall be repaid by the contractor by deducting fifteen percent (15%) from his periodic progress payments a percentage equal to the percentage of the total contract price used for the advance payment.
- 4.4. The contractor may reduce his standby letter of credit or guarantee instrument by the amounts refunded by the Monthly Certificates in the advance payment.

5. PROGRESS PAYMENT

- 5.1. Once a month, the contractor may submit a statement of work accomplished (SWA) or progress billing and corresponding request for progress payment for work accomplished. The SWA should show the amounts which the contractor considers itself to be entitled to up to the end of the month, to cover (a) the cumulative value of the works it executed to date, based on the items in the Bill of Quantities, and (b) adjustments made for approved variation orders executed.
- 5.2. The procuring entity's representative/project engineer shall check the contractor's monthly SWA and certify the amount to be paid to the contractor as progress payment. Except as otherwise stipulated in the Instruction to Bidders, materials and equipment delivered on the site but not completely put in place shall not be included for payment.
- 5.3. The procuring entity shall deduct the following from the certified gross amounts to be paid to the contractor as progress payment:
 - a) Cumulative value of the work previously certified and paid for.
 - b) Portion of the advance payment to be recouped for the month.
 - c) Retention money in accordance with the condition of contract.
 - d) Amount to cover third party liabilities.
 - e) Amount to cover uncorrected discovered defects in the works.

6. RETENTION MONEY

- 6.1. Progress payments are subject to retention of ten percent (10%) referred to as the "retention money." Such retention shall be based on the total amount due to the contractor prior to any deduction and shall be retained from every progress payment until fifty percent (50%) of the value of works, as determined by the procuring entity, are completed. If, after fifty percent (50%) completion, the work is satisfactorily done and on schedule, no additional retention shall be made; otherwise, the ten percent (10%) retention shall be imposed.

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6.2. The total "retention money" shall be due for release upon final acceptance of the works. The contractor may, however, request the substitution of the retention money for each progress billing with irrevocable standby letters of credit of from a commercial bank, bank guarantees or surety bonds callable on demand, of amounts equivalent to the retention money substituted for and acceptable to Government, provided that the project is on schedule and is satisfactorily undertaken. Otherwise, the ten percent (10%) retention shall be made. Said irrevocable standby letters of credit, bank guarantees and/or surety bonds, to be posted in favor of the Government shall be valid for a duration to be determined by the concerned implementing office/agency or procuring entity and will answer for the purpose for which the ten percent (10%) retention is intended, i.e., to cover uncorrected discovered defects and third party liabilities.

7. CONTRACT COMPLETION

Once the project reaches an accomplishment of ninety five (95%) of the total contract amount, the procuring entity may create an inspectorate team to make preliminary inspection and submit a punch-list to the contractor in preparation for the final turnover of the project. Said punch-list will contain, among others, the remaining works, work deficiencies for necessary corrections, and the specific duration/time to fully complete the project considering the approved remaining contract time. This, however, shall not preclude the procuring entity's claim for liquidated damages.

8. LIQUIDATED DAMAGES

8.1. Where the contractor refuses or fails to satisfactorily complete the work within the specified contract time, plus any time extension duly granted and is hereby in default under the contract, the contractor shall pay the procuring entity for liquidated damages, and not by way of penalty, an amount, as provided in the conditions of contract, equal to at least one tenth (1/10) of one (1) percent of the cost of the unperformed portion of the works for every day of delay.

8.2. A project or a portion thereof may be deemed usable when it starts to provide the desired benefits as certified by the targeted end-users and the concerned procuring entity.

8.3. To be entitled to such liquidated damages, the procuring entity does not have to prove that it has incurred actual damages. Such amount shall be deducted from any money due or which may become due the contractor under the contract and/or collect such liquidated damages from the retention money or other securities posted by the contractor whichever is convenient to the procuring entity.

8.4. In case that the delay in the completion of the work exceeds a time duration equivalent to ten percent (10%) of the specified contract time plus any time extension duly granted to the contractor, the procuring entity concerned may rescind the contract, forfeit the contractor's performance security and takeover the prosecution of the project or award the same to a qualified contractor through negotiated contract.

8.5. In no case however, shall the total sum of liquidated damages exceed ten percent (10%) of the total contract price, in which event the contract shall

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automatically be taken over by the procuring entity concerned or award the same to a qualified contractor through negotiation and the erring contractor's performance security shall be forfeited. The amount of the forfeited performance security shall be aside from the amount of the liquidated damages that the contractor shall pay the government under the provisions of this clause and impose other appropriate sanctions.

8.6. For terminated contracts where negotiation shall be undertaken, the procedures prescribed in the IRR shall be adopted.

9. SUSPENSION OF WORK

9.1. The procuring entity shall have the authority to suspend the work wholly or partly by written order for such period as may be deemed necessary, due to force majeure or any fortuitous events or for failure on the part of the contractor to correct bad conditions which are unsafe for workers or for the general public, to carry out valid orders given by the procuring entity or to perform any provisions of the contract, or due to adjustment of plans to suit field conditions as found necessary during construction. The contractor shall immediately comply with such order to suspend the work wholly or partly.

9.2. The contractor or its duly authorized representative shall have the right to suspend work operation on any or all projects/activities along the critical path of activities after fifteen (15) calendar days from date of receipt of written notice from the contractor to the district engineer/regional director/consultant or equivalent official, as the case may be, due to the following:

- a. There exist right-of-way problems which prohibit the contractor from performing work in accordance with the approved construction schedule.
- b. Requisite construction plans which must be owner-furnished are not issued to the contractor precluding any work called for by such plans.
- c. Peace and order conditions make it extremely dangerous, if not possible, to work. However, this condition must be certified in writing by the Philippine National Police (PNP) station which has responsibility over the affected area and confirmed by the Department of Interior and Local Government (DILG) Regional Director.
- d. There is failure on the part of the procuring entity to deliver government-furnished materials and equipment as stipulated in the contract.
- e. Delay in the payment of contractor's claim for progress billing beyond forty-five (45) calendar days from the time the contractor's claim has been certified to by the procuring entity's authorized representative that the documents are complete unless there are justifiable reasons thereof which shall be communicated in writing to the contractor.

9.3. In case of total suspension, or suspension of activities along the critical path, which is not due to any fault of the contractor, the elapsed time between the effective order of suspending operation and the order to resume work shall be allowed the contractor by adjusting the contract time accordingly.

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10. EXTENSION OF CONTRACT TIME

- 10.1. Should the amount of additional work of any kind or other special circumstances of any kind whatsoever occur such as to fairly entitle the contractor to an extension of contract time, the procuring entity shall determine the amount of such extension; provided that the procuring entity is not bound to take into account any claim for an extension of time unless the contractor has, prior to the expiration of the contract time and within thirty (30) calendar days after such work has been commenced or after the circumstances leading to such claim have arisen, delivered to the procuring entity notices in order that it could have investigated them at that time. Failure to provide such notice shall constitute a waiver by the contractor of any claim. Upon receipt of full and detailed particulars, the procuring entity shall examine the facts and extent of the delay and shall extend the contract time completing the contract work when, in the procuring entity's opinion, the findings of facts justify an extension.
- 10.2. No extension of contract time shall be granted the contractor due to (a) ordinary unfavorable weather conditions and (b) inexcusable failure or negligence of contractor to provide the required equipment, supplies or materials.
- 10.3. Extension of contract time may be granted only when the affected activities fall within the critical path of the PERT/CPM network.
- 10.4. No extension of contract time shall be granted when the reason given to support the request for extension was already considered in the determination of the original contract time during the conduct of detailed engineering and in the preparation of the contract documents as agreed upon by the parties before contract perfection.
- 10.5. Extension of contract time shall be granted for rainy/unworkable days considered unfavorable for the prosecution of the works at the site, based on the actual conditions obtained at the site, in excess of the number of rainy/unworkable days pre-determined by the government in relation to the original contract time during the conduct of detailed engineering and in the preparation of the contract documents as agreed upon by the parties before contract perfection, and/or for equivalent period of delay due to major calamities such as exceptionally destructive typhoons, floods and earthquakes, and epidemics, and for causes such as non-delivery on time of materials, working drawings, or written information to be furnished by the procuring entity, non-acquisition of permit to enter private properties within the right-of-way resulting in complete paralyzation of construction activities, and other meritorious causes as determined by the Government's authorized Engineer and approved by the procuring entity. Shortage of construction materials, general labor strikes, and peace and order problems that disrupt construction operations through no fault of the contractor may be considered as additional grounds for extension of contract time provided they are publicly felt and certified by appropriate government agencies such as DTI, DOLE, DILG, and DND, among others. The written consent of bondsmen must be attached to any request of the contractor for extension of contract time and submitted to the procuring entity for consideration and the validity of the performance security shall be correspondingly extended.

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11. ACCREDITATION OF TESTING LABORATORIES

11.1. To help ensure the quality of materials being used in infrastructure projects, the Bureau of Research and Standards (BRS) of the DPWH, Department of Science and Technology (DOST), or Department of Trade and Industry (DTI) shall accredit, in accordance with industry guidelines, the testing laboratories whose services are engaged or to be engaged in infrastructure projects. All government infrastructure project owners must accept results of material test(s) coming only from DOST/BRS accredited laboratories.

12. EVALUATION OF CONTRACTORS PERFORMANCE

12.1. Subject and Scope

All Procuring Entities implementing government infrastructure projects are mandated to evaluate the performance of their contractors using the NEDA-Approved Constructors Performance Evaluation System (CPES) Guidelines for the type of project being implemented. These guidelines cover all infrastructure projects awarded by the government regardless of contract amount and funding source. CPES evaluation shall be done during construction and upon completion of each government project. To ensure continuous implementation of CPES, all Procuring Entities concerned are required to include in their Projects' Engineering and Administrative Overhead Cost the budget for the implementation of CPES pursuant to NEDA Board Resolution No. 18 (s. 2002).

12.2. Evaluation Guidelines

For project types which do not have specific CPES Guidelines, the Procuring Entities concerned may formulate and adopt their own implementing Guidelines specific to their needs provided the NEDA-INFRACOM poses no objections to their adoption, and provided further that said Guidelines are made known to all prospective bidders.

12.3. Implementation Mechanism for CPES

All Procuring Entities implementing infrastructure projects are required to establish CPES Implementing Units (IUs) in their respective offices/agencies/corporations. The CPES Implementing Units shall be responsible for the implementation of the CPES Implementing guidelines, including but not limited to, the supervision of Constructors Performance Evaluators (CPEs) to be accredited by the Construction Industry Authority of the Philippines (CIAP). The procuring entity's CPES IU shall be responsible for the following: a) pre-screening of applications of CPEs, b) funding for CPES accreditation training and seminars; and c) yearly evaluation of CPEs.

12.4. Submission and Dissemination of Evaluation Results

All Procuring Entities implementing CPES shall submit the results of their performance evaluation to the CIAP on a monthly basis or as often as necessary. The procuring entity's CPES-IU shall likewise develop and maintain a databank and disseminate the CPES reports to the concerned units/departments within the procuring entity and to other interested users.

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12.5. Utilization of Evaluation Results

The CIAP shall consolidate all of the CPES evaluation results received and shall disseminate the same to all Procuring Entities concerned. The CPES rating and other information shall be used by the concerned government agencies for the following purposes: (a) pre qualification/eligibility screening of constructors; (b) awarding of contracts; (c) project monitoring and control; (d) issuance of Certificate of Completion; (e) policy formulation/review; (f) industry planning; (g) granting of Incentives/Awards, and, in adopting measure to further improve performance of contractors in the prosecution of government projects.

13. OTHER RULES AND GUIDELINES

The rules and regulations for the other aspects of contract implementation shall be included in the manuals to be issued by the GPPB, such as, but not limited to, the following:

- a) Sub-contracting;
- b) Interference with Traffic and Adjoining Properties;
- c) Clearance of Project Site of Obstruction;
- d) Inspection and Testing;
- e) Daywork;
- f) Measurement of Works; and
- g) Other Implementation Aspects.