

# TECHNICAL SPECIFICATION

PROJECT TITLE: **REPAIR OF GATE NO. 5 ALONG P. REYES STREET, PORT OF SURIGAO, SURIGAO CITY**

## SCOPE OF WORK:

The work includes the furnishing of all labor, materials and equipment required in the Improvement and Widening of Gate 5, Port of Surigao, Surigao City including all appurtenances necessary to complete the work and as known on the drawing.

## GENERAL REQUIREMENT

All works incidental to the completion of the above-mentioned major of work items shall be part of the scope of work. During the execution of the work, the Project – In – Charge shall see to it that port operations shall not be affected and the site must be free of dirt and debris at all times.

## REINFORCED CONCRETE

a) Cement :

Cement used shall be Type I Portland Cement throughout the work.

All cement shall be used within two months of the date of the manufacture.

b) Coarse Aggregates

Coarse Aggregates shall be 25mm uniform size washed, well graded, hard pieces of gravel, crushed gravel, or rock conforming with no decomposed stones.

c) Fine Aggregates

Fine Aggregates shall be washed sand, stone screenings or other inert materials of same characteristics, or any combination thereof composed of clean, hard, strong uncoated grains and free from injurious amount of dust, lumps of clay, shale, alkali, and organic matter. Beach sand shall not be used.

d) Mixing of concrete

All concrete used shall be machine-mixed at the site. Each batch shall be mixed at the mixer's design speed, for at least 1 ½ minutes after all concrete materials are simultaneously placed in the mixer. The ideal rotation speed of the mixer shall be between 14 and 20 rpm.

All mix contents of the mixer shall be thoroughly removed before any succeeding batch is placed. The materials for the first batch shall contain sufficiently excess cement, sand and water to coat the inside walls of the mixer without reducing the required mortar content of the mix. The mixer shall be provided with devices for accurately measuring and controlling the amount of water used in each batch and for automatically recording the number of revolutions of the mixer. Clean, fresh portable water is to be used for the mixing of concrete. Hand mixing of concrete will only be allowed in case of mixer breakdown, in which case it shall be stopped as soon as pouring for the particular section is completed, or at a construction joint as directed by the Engineer.

## *FORMS AND SCAFFOLDINGS*

All forms and scaffoldings to be used in the work must be designed, and constructed by the contractor for rigidity and adequacy for carrying the loads of the green concrete and / or additional superimposed construction loads. The Authority may from time to time verify the adequacy and safety of such temporary works and may require the contractor to submit detailed designed drawings of forms and scaffoldings/ false works proposed to be used. Approval of such drawings or design of forms however, shall not relieve the contractor of his liability on resulting imperfections or damages to the finished concrete, or other damages which may directly result there from.

Forms may be re-used but shall be scrapped by a wire brush of all clinging mortar. Bulges should be planed and realigned prior to its use.

Prior to placing concrete, form surfaces should be oiled for easy form removal. However, the oil coating should not be so thick as to stain and soften the concrete surface. Oil coatings should be applied before rebars are in place.

## *CURING AND WATERPROOFING*

All concrete shall be cured for at least 14 days after the date of placing in accordance with approved and accepted methods.

## *PLACING OF REINFORCEMENT*

Metal reinforcement shall be placed as accurately detailed on drawings and properly secured by approved means.

All bars shall be cold bent unless approved otherwise by the Engineer. Minimum distance between parallel bars shall be one and one-half (  $1 \frac{1}{2}$  ) times the diameter for round bars. The clear distance between bars shall not less than 2.54 cm. ( 1 in ) nor less that one and one-third (  $1 \frac{1}{3}$  ) times the maximum size of the coarse aggregates, whichever is bigger.

All reinforcing steel shall be cleaned of all rust or scale and deleterious materials which tend to destroy the bond between the concrete and the steel.

## **WELDING WORKS**

All sharp edges and corners shall be grind to a minimum radius of 1.0 mm and all sharp irregularities, burrs, slag and spatters on welds shall be removed.

Shearing, flame cutting, and chipping shall be done carefully and accurately.

Surface to be welded shall be free from loose, scale, slag, rust, grease, paint, and any other foreign materials except that the mill scale which withstands vigorous wire brushing may remain. Joint surfaces shall be free from fins and tears. Preparation of edges by gas cutting shall, wherever practicable, be done by mechanically guided torch.

Parts to be fillet welded shall be brought in as close contact as practicable in no event shall be separated by more than 4.75 mm. If the separation is 1.6 mm or greater, the size of the fillet welds shall be increased by the amount of the separation. The separation between facing surfaces of laps joints and the butt joints at contact surfaces which are not completely sealed by welds shall be closed enough to exclude water after painting.

## **ELECTRICAL WORKS**

All electrical materials and workmanship to be covered by this Specification shall comply with the rules and regulations of the following:

- Philippine Electrical Code ( PEC )
- National Electrical Code ( NEC )



- American National Standards Institute ( ANSI )
- Institute of Electrical and Electronics Engineers ( IEEE )
- Insulated Power Cables Engineers Association ( IPCEA )
- Other applicable local laws and regulations.


### **PAINTING WORKS**

- Surface to be painted shall be thoroughly cleaned, well prepared with masonry putty, smooth sanded, when paint is applied.
- Paint shall show no evidence of cracking, chipping or flaking.
- Apply paint on the surfaces to be painted with good, clean brushes. Allow sufficient time between coats to assure thorough drying.
- Where touch-up is necessary, the surface over which the touch-up paint will be applied shall be wire-brushed and or sanded to a degree of roughness to ensure good adhesion between the previous paint and the touch-up coat.
- All coats shall be applied in such a manner as to produce an even film of uniform thickness.
- All works shall be done in workmanlike manner so that the finished surfaces shall be free from runs, drops, ridges, waves, laps and unnecessary brush marks.

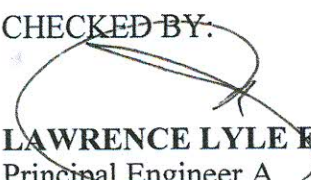
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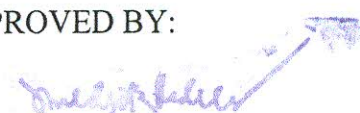
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