

## **SPECIFICATION SECTION 04300 - CATCH BASINS, MANHOLES, INLETS AND OUTLETS**

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## **SPECIFICATION SECTION 04300 – CATCH BASINS, MANHOLES, INLETS AND OUTLETS**

### **1. DESCRIPTION**

This Specification Section prescribes the requirements for the construction of Catch Basins, Manholes, Inlets and Outlets to culverts.

### **2. MATERIAL REQUIREMENTS**

#### **2.1 Materials**

The Contractor shall submit to the Engineer for his approval details and samples of materials he intends to use for the construction of Catch Basins, Manholes, Inlets and Outlets to culverts and ditches included in this Specification Section.

#### **2.2 Bedding**

- a) Fine sand fill/bedding shall be black sand complying with the requirements of Table 1 of Vietnamese Standard TCVN 7570-2006 with a fineness modulus of 0.7 to 2.0. Organic and other impurities shall be in accordance with Table 2 of Vietnamese Standard TCVN 7570-2006 as follows:

Clay and balled impurities shall be less than 0.5%

Muds and dirt shall be less than 10%

It will not be necessary to determine the alkali reactivity or the chloride content of the sand for this use.

Sand shall be sampled and tested in accordance with Vietnamese Standard TCVN 7572-2006 (Aggregates for concrete and mortar – Test methods)

- b) Granular material for bedding shall be in accordance with Paragraph 4.2, Table 4 of Vietnamese Standard TCVN 7570–2006 and subject to the approval of the Engineer.
- c) Lean concrete for bedding shall be class C10 conforming with the requirements of Specification Section 07100 Concrete and Concrete Structures.

#### **2.3 Concrete**

Precast and cast insitu concrete used for all structural work described in this Specification Section shall be of the classes indicated on the Drawings and shall conform with the requirements of Specification Section 07100 Concrete and

Concrete Structures.

## **2.4 Reinforcing Steel for Concrete**

All reinforcing steel used in the works shall conform with the requirements of Specification Section 07500 Reinforcing Steel.

## **2.5 Mortared Stone**

Mortared stonework shall conform with the requirements of Specification Section 04400 Mortared Stonework.

## **2.6 Steelwork**

Steelwork items shall comply with the requirements of Vietnamese Standard 22TCN288-2002 and shall be galvanised in accordance with AASHTO M232.

## **2.7 Brickwork**

Brickwork shall conform with the requirements of Specification Section 12250 Brick Masonry.

## **2.8 Mortar**

Mortar for joints or other works shall only be used if required by the Engineer, or so indicated on the Drawings. If or when required mortar shall conform with the requirements of Specification Section 12100 Cement Mortar.

## **2.9 Steel Grating**

Steel grating covers for the Catch Basin for Median as indicated on the Drawings shall comply with the requirements of AS 3679 Grade 250, BS 4360 Grade 43A or ASTM A36.

# **3. CONSTRUCTION REQUIREMENTS**

## **3.1 Shop Drawings and Schedule**

### **3.1.1 Shop Drawings**

The Contractor shall prepare shop drawings and method statements showing his proposed construction details for the Catch Basins, Manholes, Inlets and Outlets to culverts and ditches indicated on the Drawings or as directed by the Engineer.

Shop drawings and method statements shall be submitted to the Engineer for his approval prior to the start of the any construction works, including the start of any precast works.

### 3.1.2 Work Scheduling

Construction of the Catch Basins, Manholes, Inlets and Outlets to culverts and ditches shall not begin until the Engineer has approved the Contractor's shop drawings and method statements. The Contractor shall allow sufficient time in his programme for the submission and approval of his shop drawings and method statements and for any revision and resubmission of such documents that may be required to incorporate the comments of the Engineer.

### 3.1.3 Site Preparation

The Contractor shall carry out any excavation that may be required for Catch Basins, Manholes, Inlets and Outlets in accordance with the requirements of Specification Section 03200 Structural Excavation. The Contractor shall be responsible for all dewatering and temporary support works for the excavations and all other necessary temporary works that may be required during construction.

## 3.2 Delivery, Storage and Handling

Materials delivered to Site shall be inspected for damage, unloaded, and stored with minimum handling. Any damaged materials shall be rejected and replaced at the Contractor's expense.

## 3.3 Connections

Culvert pipes or ditch sections shall be placed or cast and properly bedded before being cast into or built into Catch Basins, Manholes or Inlet and Outlet structures.

## 3.4 Manhole and Catch Basin Covers, and Frames

Covers (R.C. or Steel Grating) to manholes and catch basins shall be fabricated, precast or prefabricated, supplied and installed complete with steel frames and lifting points as indicated on the Drawings.

# 4. MEASUREMENT AND PAYMENT

## 4.1 Method of Measurement

a) Catch Basin and Manhole quantities shall be measured for payment on the

basis of the constituent parts, which together comprise the complete Catch Basins and Manholes. To these quantities of work the applicable unit prices from the applicable Specification Sections shall be applied.

- b) Inlet and Outlet structures to pipe and box culverts shall be measured for payment on the basis of the constituent parts, which together comprise the complete Inlet and Outlet structures. To these quantities of work the applicable unit prices from the applicable Specification Sections shall be applied.
- c) The Catch Basins, Manholes, Inlets and Outlets provisions and material requirements identified in this Specification Section shall be measured for payment in the pay items identified in Table 1 below.
- d) Any Catch Basins, Manholes, Inlets and Outlets Works not specifically identified in this Specification Section but which are necessary for the performance of the Works shall be deemed to be Indirectly Paid Work.
- e) If shown on the Drawings or required by the Engineer, galvanized step irons and galvanized ladders built into the catch basin and manhole walls shall not be measured for payment separately and are deemed to be Indirectly Paid Work.

## 4.2 Basis of Payment

The work under this Specification Section shall be paid for in accordance with the applicable unit prices as indicated in the Bill of Quantities for the Specification Sections set out in Table 1 below. Payment shall be full compensation for performing the requirements of the Contract for the items of work as specified including all preparatory works, supplying, transporting and placing all materials, and for furnishing all labour, materials, tests, tools, equipment, Temporary Works and any incidentals to complete the work as shown on the Drawings and as required in accordance with these Specifications and/or as directed by the Engineer.

Table 1. Measurement and Payment

Description of Work	Measurement By	Payment Through
Excavation, backfill and stone blinding	The number of cubic meters of the actual volume of excavation or fill or stone blinding in place based on the	- The respective class of excavation specified in Specification Section 03200 Structural Excavation

	outside dimensions of the catch basin or box/pipe culvert inlets and outlets in accordance with the Drawings or the approved shop drawings	- Backfilling specified in Specification Section 03200 Structural Excavation  - Stone blinding specified in Specification Section 03200 Structural Excavation
Mortared stonework	The number of cubic meters of mortared stonework placed within the limiting dimensions in accordance with the Drawings or the approved shop drawings	Specification Section 04400 Mortared Stonework
Concrete, formwork and falsework	The number of cubic meters of the volume of concrete in place according to the Drawings or the approved shop drawings	The respective Class of Concrete specified in Specification Section 07100 Concrete and Concrete Structures
Reinforcing steel	The computed weight as indicated in the reinforcing schedules	Specification Section 07500 Reinforcing Steel
Rock filled gabion baskets	The number of cubic meters of completed gabion baskets in accordance with the Drawings or approved shop drawings	Specification Section 12800 Gabions
Dry stone riprap	The number of cubic meters of dry stone	Specification Section

	riprap installed according to the limiting dimensions designated on the Drawings or approved shop drawings. No measurement will be made for the toe key to the riprap	12950 Stone Riprap
(1) Steel; gratings, covers and frames to manholes and catch basins (if required) and  (2) Lifting points and steel frames(if required) to concrete covers and  (3) Galvanised step irons and ladders (if required)	Not measured separately	Indirectly Paid Work

**Note: There are no pay items included in the Bill of Quantities for this Specification Section.**