

**Specification (Measurement)**

**Transport and Main Roads Specifications  
MRS305 Dredging**

**July 2017**

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## 1 Introduction

This Specification applies to dredging of navigation channels.

This Specification shall be read in conjunction with MRS01 *Introduction to Specifications* and other Specifications as appropriate.

This Specification forms part of the Transport and Main Roads Specifications Manual.

## 2 Measurement of work

### 2.1 Standard Work Items

In accordance with the provisions of Clause 2 of MRS01 *Introduction to Specifications*, the Standard Work Items incorporated in this Specification are listed in Table 2.1.

**Table 2.1 - Standard Work Items**

Standard Item No.	Description	Unit of Measurement
<b>Dredging</b>		
77601	Establishment of dredge equipment	lump sum
77602	Disestablishment of dredge equipment	lump sum
77603	Establishment and disestablishment of dredge discharge pipeline	lump sum
77604	Dredging (volume) at [ <i>insert dredge area designation</i> ]	m <sup>3</sup>
77605	Dredging (hourly rates)	hour
77606	Standby	hour
77607	Preparation and implementation of the Works Plan	lump sum

### 2.2 Work Operations

#### Item 77601 Establishment of dredge equipment

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) transport to site and preparation of all plant and equipment to dredge insitu material and to deliver spoil to the disposal or nourishment site
- c) establishment of a site compound if required
- d) supply and installation of signage required by approvals and permits, and
- e) demonstrating completion of plant preparation by undertaking at least one hour of productive dredging.

#### Item 77602 Disestablishment of dredge equipment

Work Operations incorporated in the above item include:

- a) Work operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) removal from site of the compound, temporary set outs, tide boards and signage

- c) removal from site of plant and equipment, and
- d) repair or reinstatement of damage caused by the Contractor's operations.

**Item 77603 Establishment and disestablishment of dredge discharge pipeline**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) transport to site of pipeline and associated plant
- c) installation of pipeline and associated plant
- d) removal from site of pipeline and associated plant, and
- e) repair or reinstatement of damage caused by the Contractor's operations.

**Item 77604 Dredging (volume) at [*insert dredge area designation*]**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) productive dredging
- c) positioning the dredging equipment to and from the berth or relocating between dredge areas
- d) maintenance of dredge logs, and
- e) discharge at the disposal site or nourishment area and profiling as required.

**Item 77605 Dredging (hourly rates)**

Work Operations incorporated in the above item include:

- a) Work operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) productive dredging
- c) positioning the dredging equipment to and from the berth or relocating between dredge areas
- d) maintenance of dredge logs, and
- e) discharge at the disposal site or nourishment area and profiling as required.

**Item 77606 Standby**

Work Operations incorporated in the above item include:

- a) Work operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) maintenance of dredge logs.

**Item 77607 Preparation and implementation of the works plan**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specification*,
- b) preparation of the EMP (C), Safety Plan and Works Program
- c) amendments of the Safety Plan required to be deemed acceptable
- d) amendments of the EMP (C) and Works Program to be approved by the Superintendent

- e) revision of the Works Program to reflect the actual works program, and
- f) monitoring, implementation and revision of the EMP (C) and the Safety Plan during the works.

### 2.3 Calculation of quantities

#### 2.3.1 Item 77601 - Establishment of dredge equipment

This shall be paid as a single Item when all of the Work Operations have been completed.

#### 2.3.2 Item 77602 - Disestablishment of dredge equipment

This shall be paid as a single Item when all of the Work Operations have been completed.

#### 2.3.3 Item 77603 - Establishment and disestablishment of dredge discharge pipeline

This item shall be paid on meeting the performance criteria defined in the following table.

**Table 2.3.3 – Item 77603 Performance criteria**

Amount to be paid for Establishment	Time for Payment
30%	When the requirements for Work Operations (a) and (b) have been fulfilled.
30%	On completion of installation.
40%	When the requirements for Work Operations (d) and (e) have been fulfilled.

#### 2.3.4 Item 77604 Dredging (volume)

Volumes for payment shall be calculated using the TIN Terrain Modelling System to calculate the volume of material between two surfaces.

The volume removed (dredged) shall be calculated as the difference between  $V_{pre}$  and  $V_{post}$  where:

$V_{pre}$  = Volume between the surveyed surface of the predredge survey and the maximum payable depth surface, and

$V_{post}$  = Volume between the surveyed surface of the postdredge survey and the maximum payable depth surface.

Volumes for payment:

- are compacted in situ volumes
- shall not include infill
- shall not include an allowance for the survey tolerances
- shall not include dredging outside the dredge areas or below the maximum payable dredge depth for the given dredge area, and
- shall not consider hopper volumes or flow meter volumes.

Progress payments prior to the volume calculation after the post dredge survey shall be considered, subject to:

- a maximum of 75% of the minimum volume based on the tendering pre-dredge survey, and
- provision of satisfactory evidence through the dredge logs and records that the claimed amount has been dredged.

**2.3.5 Item 77605 - Dredging (hourly rates)**

Time shall be measured on the basis of the dredge logs, supporting evidence and the inspector's observations and records. Time for dredging shall only apply to productive dredging. Other work operations are deemed to be included in the hourly rates.

**2.3.6 Item 77606 - Standby**

Time shall be measured on the basis of the dredge logs, supporting evidence and the inspector's observations and records.

**2.3.7 Item 77607 - Preparation and implementation of the Works Plan**

This item shall be paid on meeting the performance criteria defined in the following table:

**Table 2.3.7 – Item 77607 Performance criteria**

<b>Amount to be paid for Preparation and implementation of the Works Plan</b>	<b>Time for Payment</b>
80%	Progress Payment 1 when the requirements for Work Operations (a) to (d) have been fulfilled.
20%	On issue of the Certificate of Practical Completion.

