**PART M61**

**DRAINAGE MAINTENANCE**

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**1. GENERAL**

This Part specifies the requirements for the maintenance of drainage elements. For the purpose of this part grids shall also be treated as drainage elements.

**2. QUALITY REQUIREMENTS**

The Contractor shall prepare and implement a Quality Plan that includes detailed procedures for documentation and/or instructions as follows:

1. Work plan for undertaking work in a watercourse and high risk Phytophthora areas.
2. Procedure for verifying compliance to ‘protect action’ requirements where drainage elements occur in Roadside Significant Sites.

If not part of the Post Tender Submission, the procedures shall be submitted at least 28 days prior to the commencement of site work.

**3. RESPONSE TIMES**

Rectification of misaligned, broken or collapsed pit covers / lids / grids units shall be undertaken in conjunction with Clause M06.3.2 "Loop Inspections".

All other drainage activities reaching intervention level shall be rectified within 30 days for urban areas and 60 days for rural areas, from the time of inspection or notification.

Where it is not possible to rectify within the specified response time, the Contractor shall implement appropriate hazard warning within the time specified, until the repair can be completed.

Rectification of any specific maintenance defects (DR) shall be undertaken within the timeframes agreed to between the Superintendent and the Contractor.

**4. ADDITIONAL REQUIREMENTS**

The Contractor shall maintain drainage elements to the extent detailed in DPTI Operational Instruction 20.1 "Care Control & Management of Roads (Highways) by the Commissioner of Highways" (Refer to Appendix 34).

Other than clearing culverts, pits and drains, any work within a watercourse shall constitute a **HOLD POINT**.

**5. HOLD POINTS**

The following is a summary of Hold Points, vide Part 140 "Quality System Requirements", referenced in this Part:

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| **CLAUSE REF.** | **HOLD POINT** | **RESPONSE TIME** |
| 4.0 | Work within a water course | 14 days |

**MAINTENANCE ACTIVITIES**

**CLEAR DRAINAGE ELEMENTS (DC / DR)**

**Application** This standard applies to drainage elements draining the road network

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| **Defects** | **Intervention Level** | **Compulsory Intervention Level** | **Performance Requirement** |
| **Routine Maintenance:**  Misaligned, collapsed or broken pit covers / lids, blocked grid units.  Bridge expansion joints and scupper / drainage points blocked  Grids ineffective.  Vegetation growth affecting elements.  **Specific Maintenance:**  Loss of capacity or blocked drainage elements.  Broken, damaged, cracked or spalled drainage elements including grid units (excluding covers and lids), sunken junction boxes and subsidence under drainage units. | Material within 200 mm of any steel component of grids units shall be cleared.  Vegetation growth exceeding 450 mm high within 500 mm of structural elements.  Pit lid condition presents safety hazard.  **MDR Recording:**  Defects shall be recorded on the MDR as DC.  Specific Maintenance shall be recorded on the MDR as DR | **Side Entry Pits and connecting Drains:** Defects that restrict the capacity of the drainage element more than 80% or causing flooding to the roadway or private property.  **Grids:** Material within 150 mm of the top of a grid.  **Bridges:** Bridge expansion joints and drainage points blocked.  **Pits & Grids:** Hazardous misalignment of any pit cover or grid unit or pit lids missing. | **Alignment:** Any misaligned pit covers / lids or grid units are seated correctly.  **Culverts and Pits and connecting Drains:** operating at 100% of the design capacity.  **Grids:** Grid pits clear of all debris.  **Bridges:** Expansion joints cleaned.  **Environmental:** No vegetation impeding waterway.  No vegetation > 150 mm high within 500 mm of a structural drainage element.  Ensure prevention of sedimentation of waterways when undertaking work.  Remove seedling trees with potential to damage drainage infrastructure. |

**MAINTENANCE ACTIVITIES**

**CLEAR OPEN AND LINED DRAINS (DD / DO)**

**Application:** This standard applies to open and lined drainage elements

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| **Defects** | **Intervention Level** | **Compulsory Intervention Level** | **Performance Requirement** |
| **Routine Maintenance:**  Restrictions to the free flow of drainage away from the carriageway.  Restrictions include: obstructions (solid debris), vegetation, siltation, scour, ponding of water and windrow material as a result of any grading.  Downstream siltation and erosion.  **Specific Maintenance:**  Damaged, stepped, or cracked concrete lined drains. | Defects that restrict the flow capacity of the drainage element by more than 50% of the design capacity.  Vegetation greater than 450 mm high.  **MDR Recording:**  Defects shall be recorded on the MDR as DD.  Specific Maintenance shall be recorded on the MDR as DO. | Defects that:  Cause flooding to the roadway or private property.  Divert water flow from its normal course. | **Alignment:** Direction and width of the drainage element shall be as designed.  **Capacity:** All open and lined drainage elements operate at 100% of the design capacity.  **Open and Lined drains**: Free flowing along its length without ponding, overflow or vegetation growth  **Spacing:** Turn out / cut off drains shall be appropriate to the grade (the maximum spacing shall be 100 m).  Drainage shall be directed along contours.  **Environmental:**  No vegetation > 150 mm high.  Work shall not cause downstream scouring or sedimentation |

**MAINTENANCE ACTIVITIES**

**CLEAR SUBSOIL DRAINS (DS)**

**Application:** This standard applies to blocked subsoil drains

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| **Defects** | **Intervention Level** | **Compulsory Intervention Level** | **Performance Requirement** |
| **Routine Maintenance:**  Siltation at sub-soil drain outlets.  Blocked weep holes in drainage structures.  **Specific Maintenance:**  Nil. | Over-wet or distressed areas attributable to blocked subsoil drains visible.  **MDR Recording:**  Defects shall be recorded on the MDR as DS. | Not applicable. | **Capacity:** Sub soil drains shall be free flowing for a distance of 2 metres from the outlet point.  **Environmental:** No Vegetation > 150 mm high within 500 mm of the inlet/outlet.  Work shall not cause downstream scouring or sedimentation |

**MAINTENANCE ACTIVITIES**

**SCOUR REPAIR (SS)**

**Application:** This standard applies to scour occurring within the shoulders and drainage elements as a result of a storm or flood event.

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| **Defects** | **Intervention Level** | **Compulsory Intervention Level** | **Performance Requirement** |
| **Routine Maintenance:**  Nil.  **Specific Maintenance:**  Scour or siltation of: batters, drains, embankments, levee banks, shoulders, or against structures draining the road. | **Defects within the road shoulder:** exceeding 1m in length and average depth exceeding 150 mm.  **Defects not in the road shoulder**: greater than 1m in length and mean depth of ≥ 300 mm.  **MDR Recording:**  Specific Maintenance shall be recorded on the MDR as SS. | Not applicable. | **Profile:** to "match in" with the adjacent profile.  **Hydraulic efficiency:** match the upstream condition.  **Stability:** Embankments stabilised.  **Backfill:** in shoulders shall conform to SG / SR. |

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