

B.C. MINISTRY OF TRANSPORTATION

Maintenance Specification Chapter 7-760

FLOOD CONTROL AND WASHOUT RESPONSE

1. OBJECTIVE

To safeguard Highway Users and adjacent properties; to prevent damage to Highways and Bridges; to restore traffic movement and to repair damage caused by flood and washout events.

2. GENERAL PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

All services for this Maintenance Specification are Routine.

2.2 Quantified Maintenance Services

Not applicable to this Maintenance Specification.

3. DETAILED PERFORMANCE SPECIFICATIONS

3.1 Routine Maintenance Services

The Contractor must:

- a) prepare for floods and washouts;
- b) take all actions required to control the flow of water on or adjacent to Highways;
- c) take all actions required to protect the Highway, including placing Rip-rap in accordance with the Maintenance Specification for *Shore, Bank and Watercourse Maintenance*, with no credit for such work under the Maintenance Specification for *Shore, Bank and Watercourse Maintenance*, unless mutually agreed to between the Province and the Contractor;
- d) repair any damage to Highway infrastructure resulting from floods and/or washout events in accordance with the relevant Maintenance Specifications, with no credit for such work under those Maintenance Specifications, unless mutually agreed to between the Province and the Contractor;

- e) provide traffic control in accordance with the Maintenance Specification for *Highway Traffic Control*;
- f) close sections of a Highway, as approved in writing by the Province, and provide detours of up to a maximum additional travel length of 3.5 kilometres, where necessary;
- g) patrol effected Highways in accordance with the Maintenance Specification for *Highway Patrol*.

Note: Refer to Section H of the Introduction to these Maintenance Specifications.

3.1.1 Performance Time Frames

The Contractor must:

- a) inspect immediately, from the time the deficiency was detected by or reported to the Contractor, any potential for damage caused by flooding or washout conditions, and implement traffic control as necessary;
- b) when an event of a flood or washout effects the Travelled Lanes, immediately establish at least one through lane for traffic, and commence work to restore the Highway;
- c) immediately inform the Province where floods or washouts result in Highway closures;
- d) within 2 days of the end of the storm or other event, identify any potential for flooding and/or washout and notify the Province, in writing, with a complete list of the locations;
- f) perform flood control and washout response in accordance with the Maximum Response Times indicated in the table below:

Washout Category	Summer Highway Classification				
	1&2	3	4	5	6&7
(i) washouts completely cutting a Highway and isolating a community	45 min	1 h	90 min	150 min	4 h
(ii) washouts completely cutting a numbered route or main Highway other than those covered by (i) above	90 min	2 h	3 h	n/a	n/a
(iii) washouts cutting one or more lanes of a Highway	4 h	6 h	9 h	15 h	24 h

Legend

h - hours

min – minutes

3.2 Quantified Maintenance Services

Not Applicable to this Maintenance Specification.

3.3 Materials

Refer to Section B of the Introduction to these Maintenance Specifications.

4. WARRANTY

Not applicable to this Maintenance Specification.

B.C. MINISTRY OF TRANSPORTATION

Maintenance Specification Chapter 7-770

MUD, EARTH AND ROCK SLIDE RESPONSE

1. OBJECTIVE

To safeguard Highway Users and adjacent properties; to restore traffic movement and to repair damage to Highways and Bridges caused by mud, earth and rock slides.

2. GENERAL PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

All services for this Maintenance Specification are Routine.

2.2 Quantified Maintenance Services

Not applicable to this Maintenance Specification.

3. DETAILED PERFORMANCE SPECIFICATIONS

3.1 Routine Maintenance Services

The Contractor must:

- a) provide traffic control in accordance with the Maintenance Standard for *Highway Traffic Control*, in response to a mud, earth or rock slide ;
- b) provide detours around the effected section of Highway of up to a maximum additional travel length of 3.5 kilometres, where necessary;
- c) remove mud, earth or rock deposits effecting the function of the Highway;
- d) monitor and patrol areas suspected of being unstable, as directed by the Province;

- e) control locations subject to slides exceeding 100 cubic metres of mud, earth or rock. The Province will arrange for a Geotechnical Engineer to investigate the site and the Contractor must perform work in accordance with the recommendations of the Geotechnical Engineer to prevent rockfall from reaching the Shoulder top and Travelled Lanes; and
- f) repair any damage to Highway infrastructure resulting from mud, earth and rock slide events in accordance with the appropriate Maintenance Specification, with no credit for such work under those Maintenance Specification, unless mutually agreed to between the Province and the Contractor.

Notes:

1. Slope stability treatment involving rock bolting, wire mesh or geofabric installation is not required by this Maintenance Specification.
2. Refer to Section H of the Introduction to these Maintenance Specifications.

3.1.1 Performance Time Frames

The Contractor must:

- a) inspect immediately, from the time the deficiency was detected by or reported to the Contractor, any potential for damage caused by mud, earth or rock slides, and implement traffic control as necessary;
- b) when an event of a mud, earth or rock slide effects the Travelled Lanes, immediately establish at least one through lane for traffic, and commence work to restore the Highway;
- c) immediately inform the Province where slides result in Highway closures;
- d) within 2 days of the end of the storm or other event, identify any potential for flooding and/or washout and notify the Province, in writing, with a complete list of the locations;
- e) control, at times directed by the Province, all known locations that are subject to annual slides of less than 100 cubic metres of mud, earth or rock;

- f) control locations subject to slides exceeding 100 cubic metres of mud, earth or rock in accordance with the recommendation of the Geotechnical Engineer;
- g) immediately advise the Province in the event of a slide exceeding 100 cubic metres effecting the Highway, or if there are indications of a potential slide of this size or greater; and
- h) start repairs in accordance with the maximum response times established in the table below:

		S H Cla ication				
		1 & 2	3	4	5	6 & 7
(i)	slides completely blocking a Highway and isolating a community	45 min	1 h	90 min	150 min	4 h
(ii)	slides completely blocking a numbered route or main Highway not included in (i) above	90 min	2 h	3 h	n/a	n/a
(iii)	slides blocking only one or more lanes and restricting traffic	4 h	6 h	9 h	15 h	24 h

Legend
h – hours
min - minutes

3.2 Quantified Maintenance Services

Not applicable to this Maintenance Specification.

3.2.1 Performance Time Frames

Not applicable to this Maintenance Specification.

3.3 Materials

Refer to Section B of the Introduction.

4. WARRANTY

Not applicable to this Maintenance Specification.

B.C. MINISTRY OF TRANSPORTATION

Maintenance Specification 7-780

HIGHWAY INCIDENT AND VANDALISM RESPONSE

1. OBJECTIVE

To protect Highway Users from conditions that are unsafe or have the potential to become unsafe; and to restore the movement of traffic.

2. GENERAL PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

All services for this Maintenance Specification are Routine.

2.2 Quantified Maintenance Services

Not applicable to this Maintenance Specification.

3. DETAILED PERFORMANCE SPECIFICATIONS

3.1 Routine Maintenance Services

The Contractor must:

- a) provide initial traffic control in accordance with the Maintenance Specification for *Highway Traffic Control*, in response to incidents on the Highway e.g., motor vehicle accidents, spills) until police and/or other authorities arrive at the scene; if no other authorities are required to attend the scene, the Contractor will remain at the scene until normal traffic flow is restored;
- b) prepare for and respond to incidents and vandalism on Highways by:
 - i) securing the area as required to ensure the safety of Highway Users;
 - ii) communicating incidents involving Highway closures to the Province in accordance with the Maintenance Specification for *Highway Condition Reporting*;

- iii) containing spills on Highways in conjunction with and cooperation with regulatory agencies, police authorities and the Province;
 - iv) removing vehicles from the Travelled Lanes and Shoulders, as necessary (where this service is not provided by others);
 - v) removing and disposing of cargo and Debris from the Travelled Lanes and Shoulders, to restore traffic flow;
 - vi) documenting all associated costs of removing vehicles, cargo and Debris from the Highway;
 - vii) completing a Chargeable Maintenance Costs report and forwarding that report to the Province; and
 - viii) repairing any damage to Highways caused by incidents or vandalism in accordance with the applicable Maintenance Specification, with credit for such work under the applicable Maintenance Specification if the cost of such work is not recovered under Chargeable Maintenance Costs.
- c) ensure the safety of Highway Users in the event of a spill within Rights-of-way involving Dangerous Goods as defined in the Transportation of Dangerous Goods Act and Regulations (TDG) in accordance with the Canutec Emergency Response Guidebook (ERG) by:
- i) alerting the Province, police authorities, and Provincial Emergency Program personnel, as required to identify the material and respond to the emergency, and respond as appropriate and in accordance with all applicable laws and regulations;
 - ii) training field personnel and field supervisors in accordance with all applicable laws and regulations for Dangerous Goods material identification and risk assessment; and
 - iii) closing and keeping the Highway closed using, at minimum, Guide 111 of the ERG until the hazard and/or material is identified and appropriate actions have been determined and performed in accordance with all applicable guides, laws and regulations;

Note: Transport Canada's Response and Operations Division operates CANUTEC to provide a 24-hour Dangerous Goods reference, data bank and expert assistance service.

- d) **d)** _____evacuating the area if an explosion is possible;
- e) establishing and recording information as per TDG Regulation Part 8; 8.1- 8.3; and the WCB Act Division 10 – 172; and
- f) documenting traffic incidents attended by the Contractor, i.e. taking photographs, diary notes, recording Highway conditions and locations relating to; and delivering such documents to the Province, when requested.

Note: Parties responsible for the incident, their insurers, or agencies which have jurisdiction over the incident are expected to bear all of the costs of vehicle recovery, cleanup, accident investigation and traffic control. Notwithstanding the above, should the Contractor determine that actions undertaken by others, or failed to be undertaken by others, have the potential to present a hazard to Highway Users, the Contractor will take all necessary actions to protect Highway Users and may submit a claim to the Province for cost recovery.

3.1.1 Performance Time Frames

The Contractor must:

- a) immediately, from the time the incident was detected by or reported to the Contractor, implement traffic control;
- b) within 3 days of the date of request by the Province, forward all photographs, documentation and records;
- c) repair damage to Highways in accordance with the appropriate Maintenance Specification and their Performance Time Frames; and
- d) within one week of the incident or act of vandalism, complete a Chargeable Maintenance Cost report and send photographs of the damage .

3.2 Quantified Maintenance Services

Not applicable to this Maintenance Specification.

3.2.1 Performance Time Frames

Not applicable to this Maintenance Specification.

3.3 Materials

Refer to Section B of the Introduction.

4. WARRANTY

Not applicable to this Maintenance Specification.

B.C. MINISTRY OF TRANSPORTATION

Maintenance Specification Chapter 7-790

SNOW AVALANCHE RESPONSE

1. OBJECTIVE

To safeguard Highway Users against avalanches and to minimize road closures.

2. GENERAL PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) respond to snow avalanches in accordance with the following Ministry of Transportation Snow Avalanche Manuals:
 - i) Snow Avalanche Safety Measures for Highways Manual;
- b) consider the following while planning and carrying out work:
 - i) the safety of Highway Users who travel through or within designated avalanche hazard areas; and
 - ii) the minimization of avalanche related road closures;
- c) ensure that operational personnel working within a designated avalanche area have complete and current training in and awareness of snow avalanche response procedures including the following:
 - i) One Day Avalanche Safety Training;
 - ii) Search and Rescue Procedures;
 - iii) Explosive Spill Plan;
 - iv) Avalanche Personnel Check-in Procedures;
 - v) Mock Rescue Practice; and
 - vi) Familiarity of Avalanche Terrain within Service Area.

2.2 Quantified Maintenance Services

Not applicable to this Maintenance Specification.

3. DETAILED PERFORMANCE SPECIFICATIONS

3.1 Routine Maintenance Services

The Contractor must:

- a) provide effective and efficient response and services in the event of a snow avalanche directly or indirectly effecting Highways, by supplying an adequate quantity and quality of equipment, and trained individuals;
- b) maintain and replace lost or stolen avalanche safety equipment supplied by the Ministry, unless otherwise specified in writing by the Province and as defined in the following:
 - i) Snow Avalanche Safety Measures for Highways Manual;
 - ii) Instructions on Weather Observations Manual; and
 - iii) Sign Manuals.
- c) comply with Highway maintenance restrictions as per the Five Level Avalanche forecasts and specific operational procedures, as provided by the local avalanche technicians;
- d) notify local Ministry avalanche personnel of any significant avalanche occurrences either above or on the Highway and report any changes in weather conditions associated with rising avalanche hazard conditions;
- e) ensure vehicle access to snow avalanche facilities, including but not limited to Gun Platforms, Rescue Caches and Explosive Magazines;
- f) ensure access to and relocate avalanche gates as required;
- g) remove avalanche Debris and snow from the Highway including Debris from any adjacent avalanche catchment areas and static avalanche defence structures;

- h) initiate as required and participate in snow avalanche search and rescue efforts to recover vehicles and/or Highway Users buried in a snow avalanche; and
- i) in the event of an avalanche, provide traffic control in accordance with the Maintenance Specification for *Highway Traffic Control*; and notify the Province and establish Highway closures as required to ensure the safety of Highway Users.

3.1.1 Performance Time Frames

The Contractor must:

- a) immediately, from the time an avalanche is detected by or reported to the Contractor, inform the Province and provide traffic control when required;
- b) respond to snow avalanche conditions within the maximum response times shown on the table below:

Condition	Maximum Response Time
(i) initiate Avalanche Search and Rescue Plan (as necessary), and prepare for and participate in search and rescue effort	immediately
(ii) provide access to avalanche gates and vehicle access to snow avalanche facilities	30 minutes, from the time notified by Ministry Snow Avalanche Technician
(iii) start clearing snow avalanche deposits from the Highway	immediately, on approval from the Ministry Snow Avalanche Technician
(iv) start with intent to completely remove clearing adjacent catchment areas and snow avalanche safety structures	within 24 hours, from time approval is obtained from the Ministry Snow Avalanche Technician

3.2 Quantified Maintenance Services

Not applicable to this Maintenance Specification.

3.3 Materials

The Contractor must supply materials and equipment necessary to support avalanche safety measures.

4. WARRANTY

Not applicable to this Maintenance Specification.

B.C. MINISTRY OF TRANSPORTATION

Maintenance Specification Chapter 7-800

STRUCTURE DAMAGE RESPONSE

1. OBJECTIVE

To ensure the safety of Highway Users, to restore all effected structures to their original condition, and to maximize their functional life.

2. GENERAL PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

All services for this Maintenance Specification are Routine.

2.2 Quantified Maintenance Services

Not applicable to this Maintenance Specification.

3. DETAILED PERFORMANCE SPECIFICATIONS

3.1 Routine Maintenance Services

The Contractor must:

- a) repair Highway structures to a safe and stable condition in accordance with the specifications referred to in Section B of the Introduction;
- b) notify the Province where the safety of Highway Users is effected, so that the Bridge Structural Engineer may make an inspection;
- c) mobilize to brace and support the structure;
- d) respond immediately if the Bridge Structural Engineer determines that there is risk of structural failure under loading, by doing one of the following, as approved in writing by the Province:
 - i) restrict allowable loading on the Bridge;
 - ii) close the Bridge to all vehicular traffic; or

- iii) close the Bridge to all use;
- iv) construct a detour route of a maximum length of 3.5 km;
- e) reinforce all Fracture Critical members with temporary bracing or cables if the Bridge Structural Engineer determines that the structure is sufficiently safe to work on;
- f) close any structure with damaged Fracture Critical members to all traffic until repairs have been completed in accordance with the recommendations of the Bridge Structural Engineer;
- g) place temporary barrier or railing in accordance with the Maintenance Specification for *Bridge Railing Maintenance*, with no credit for such work under the Maintenance Specification for *Bridge Railing Maintenance*;
- h) complete and file a Chargeable Maintenance Costs report as applicable;
- i) take and forward photographs of the damage to the Province with the Chargeable Maintenance Costs report; and
- j) repair any damage to the structure in accordance with the applicable Maintenance Specifications, with no credit for such work under those Maintenance Specifications, unless mutually agreed to between the Province and the Contractor.

Note: Refer to Section H of the Introduction to these Maintenance Specifications.

3.1.1 Performance Time Frames

The Contractor must:

- a) immediately, from the time the damage was detected by or reported to the Contractor, notify the Province of any damage to any structure, so that the Bridge Structural Engineer may make an inspection;
- b) start installation of temporary barriers or railing placements within 24 hours, from the time the damage was detected by or reported to the Contractor; and

- c) perform all other required repairs in accordance with the applicable Maintenance Specification and their respective Performance Time Frames.

3.2 Quantified Maintenance Services

Not applicable to this Maintenance Specification.

3.2.1 Performance Time Frames

Not applicable to this Maintenance Specification.

3.3 Materials

Refer to Section B of the Introduction to these Maintenance Specifications.

4. WARRANTY

Not applicable to this Maintenance Specification.

B.C. MINISTRY OF TRANSPORTATION

Maintenance Specification Chapter 7-810

BAILEY AND ACROW EMERGENCY INSTALLATION

1. OBJECTIVE

To replace any Bridge that has collapsed or has the potential to collapse.

2. GENERAL PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

Not Applicable to this Maintenance Specification.

2.2 Quantified Maintenance Services

The Contractor must:

- a) maintain Ministry Bailey or Acrow emergency Bridge stockpiles;
and
- b) when an immediate traffic crossing is required on a Highway,
replace a Bridge which has collapsed or has the potential to
collapse.

3. DETAILED PERFORMANCE SPECIFICATIONS

3.1 Routine Maintenance Services

Not applicable to this Maintenance Specification.

3.1.1 Performance Time Frames

Not applicable to this Maintenance Specification.

3.2 Quantified Maintenance Services

The Contractor:

- a) must install and dismantle each Bailey or Acrow structure, as
directed by the Province or in accordance with the manufacturer's
specifications;

- b) must store components of Bailey or Acrow emergency materials to ensure quick access and inspection;
- c) must ensure that incompatible components, such as those components supplied by Mabey & Johnson Ltd. (Compact Bailey), are not mixed in with other Bailey or Acrow materials;
- d) must identify any damaged components during the dismantling procedure by marking such components with fluorescent paint at the damaged section and setting these components aside for repair or disposal;
- e) must haul, load and unload material at the emergency site and return material to the stockpile site when the emergency replacement is required within the Service Area;
- f) must load and unload material at the stockpile site within the Service Area, for emergencies inside or outside the Service Area;
- g) must install timber decking in accordance with the Maintenance Specification for *Bridge Deck Maintenance*;
- h) must install steel decking, where it is supplied by the Province, in accordance with the Maintenance Specification for *Bridge Deck Maintenance*;
- i) will be entitled to a separate payment for each installation and dismantling of reinforced and non-reinforced Bailey or Acrow Bridge panel and all other associated components, including Launching Nose and metal Decking, loading and unloading at the Bridge site, or the stockpile site, for the particular structure indicated, in accordance with Part 2 of the Fee Schedule; and
- j) will be entitled to payment for supply of timber Deck materials required for emergency Bailey or Acrow Bridge maintenance in accordance with Part 2 of the Fee Schedule.

3.2.1 Performance Time Frames

The Contractor must:

- a) immediately, from the time the deficiency was detected by or reported to the Contractor, report to the Province any collapse or loss of any Bridge or structure, or any damage to a Bridge or structure which may require the installation of a Bailey or Acrow Bridge;
- b) immediately, upon approval by the Province, start installation of an emergency Bailey or Acrow Bridge and complete the work as soon as is reasonably possible; and
- c) schedule dismantling, as directed by the Province, and complete all dismantling and return emergency material to the stockpile site within a 1 month of receipt of such direction.

3.3 Materials

The Contractor must supply sufficient emergency timber Deck material to complete deck requirements, in accordance with the Maintenance Specification for *Bridge Deck Maintenance*, where emergency Bailey or Acrow stockpile resides within the Service Area.

4. WARRANTY

Not applicable to this Maintenance Specification.