Page 1 of 4

PHOTOS BRIDGE NAME KM DETAIL(s)

Bolts (Contractor to verify site)   232.8   Install missing diaphragm bolt				
3.3 & 3.4 Buckinghorse Bridge 277.6 Install two missing barrier bolts  6.2 Adsett Creek Bridge 366.0 Install two missing bofts at south deck joint  12.1 Kledo River Bridge 509.1 Replace missing barrier bolts  18.3 & 18.4 115 Creek Bridge 616.5 Install two missing barrier bolts  18.3 & 18.4 125 Creek Bridge 628.0 Install missing bearing anchor bolts (see Appendix A)  19.1 & 19.2 MacDonald Bridge 628.0 Install missing bolts in binwalls  28.3 Culvert No. 13 730.0 Install missing bolts in binwalls  32.5 Coal River Bridge 823.3 Replace broken bolt at SE cover plate on bridge barriers  Curb Expansion Joints  N/A Toad River Bridge 671.6 Tighten bolts on the curb expansion joints  18.2 115 Creek Bridge 616.5 Curb joint steel cover plates restricted; Install %" notch on both sides of curb plate.  Erosion  1.1 Beatton River Bridge 232.8 Repair embankment erosion at NW corner  3.2 Buckinghorse Bridge 277.6 Repair erosion and install drain at SW corner  6.1 Adsett Creek Bridge 366.0 Repair erosion and install drain at SW corner  1.0.2 Jackfish Creek Bridge 424.5 Fill gulleys in embankment under north abutment	Bolts (Contractor to	o verify size)		
Adsett Creek Bridge 366.0 Install two missing bolts at south deck joint  12.1 Kledo River Bridge 509.1 Replace missing barrier bolts  18.3 & 18.4 115 Creek Bridge 616.5 Install two missing barrier bolts  18.3 & 18.4 115 Creek Bridge 628.0 Install missing bearing anchor bolts (see Appendix A)  19.1 & 19.2 MacDonald Bridge 628.0 Install missing bearing anchor nuts  28.3 Culvert No. 18 730.0 Install missing bolts in binwalls  32.5 Coal River Bridge 823.3 Replace broken bolt at SE cover plate on bridge barriers  Curb Expansion Joints  N/A Toad River Bridge 671.6 Tighten bolts on the curb expansion joints  18.2 115 Creek Bridge 616.5 Curb joint steel cover plates restricted; Install %" notch on both sides of curb plate.  Erosion  1.1 Beatton River Bridge 232.8 Repair embankment erosion at NW corner  3.2 Buckinghorse Bridge 277.6 Repair erosion and install drain at SW corner  6.1 Adsett Creek Bridge 366.0 Repair erosion and install drain at SW corner  10.2 Jackfish Creek Bridge 424.5 Fill gulleys in embankment under north abutment  14.1 Gardner Creek Bridge Culvert 548.0 Repair the erosion around the inlet	1.2	Beatton River Bridge	232.8	Install missing diaphragm bolt
12.1 Kledo River Bridge 509.1 Replace missing barrier bolts  18.3 & 18.4 115 Creek Bridge 616.5 Install two missing bearing anchor bolts (see Appendix A)  19.1 & 19.2 MacDonald Bridge 628.0 Install missing bearing anchor nuts  28.3 Culvert No. 18 730.0 Install missing bolts in binwalls  32.5 Coal River Bridge 823.3 Replace broken bolt at SE cover plate on bridge barriers  Curb Expansion Joints  N/A Toad River Bridge 671.6 Tighten bolts on the curb expansion joints  18.2 115 Creek Bridge 616.5 Curb joint steel cover plates restricted; Install ½" notch on both sides of curb plate.  Erosion  1.1 Beatton River Bridge 232.8 Repair embankment erosion at NW corner  3.2 Buckinghorse Bridge 277.6 Repair erosion and install drain at SW corner  6.1 Adsett Creek Bridge 366.0 Repair erosion at top of embankment and at approach barrier drains  10.2 Jackfish Creek Bridge 424.5 Fill gulleys in embankment under north abutment  14.1 Gardner Creek Bridge Culvert 548.0 Repair the erosion around the inlet	3.3 & 3.4	Buckinghorse Bridge	277.6	Install two missing barrier bolts
18.3 & 18.4 115 Creek Bridge 616.5 Install two missing bearing anchor bolts (see Appendix A)  19.1 & 19.2 MacDonald Bridge 628.0 Install missing bearing anchor nuts  28.3 Culvert No. 18 730.0 Install missing bolts in binwalls  32.5 Coal River Bridge 823.3 Replace broken bolt at SE cover plate on bridge barriers  Curb Expansion Joints  N/A Toad River Bridge 671.6 Tighten bolts on the curb expansion joints  18.2 115 Creek Bridge 616.5 Curb joint steel cover plates restricted; Install ¼" notch on both sides of curb plate.  Erosion  1.1 Beatton River Bridge 232.8 Repair embankment erosion at NW corner  3.2 Buckinghorse Bridge 277.6 Repair erosion and install drain at SW corner  6.1 Adsett Creek Bridge 366.0 Repair erosion at top of embankment and at approach barrier drains  10.2 Jackfish Creek Bridge 424.5 Fill gulleys in embankment under north abutment  14.1 Gardner Creek Bridge Culvert 548.0 Repair the erosion around the inlet	6.2	Adsett Creek Bridge	366.0	Install two missing bolts at south deck joint
19.1 & 19.2 MacDonald Bridge 628.0 Install missing bearing anchor nuts  28.3 Culvert No. 18 730.0 Install missing bolts in binwalls  32.5 Coal River Bridge 823.3 Replace broken bolt at SE cover plate on bridge barriers  Curb Expansion Joints  N/A Toad River Bridge 671.6 Tighten bolts on the curb expansion joints  18.2 115 Creek Bridge 616.5 Curb joint steel cover plates restricted; Install ¼" notch on both sides of curb plate.  Erosion  1.1 Beatton River Bridge 232.8 Repair embankment erosion at NW corner  3.2 Buckinghorse Bridge 277.6 Repair erosion and install drain at SW corner  6.1 Adsett Creek Bridge 366.0 Repair erosion at top of embankment and at approach barrier drains  10.2 Jackfish Creek Bridge 424.5 Fill gulleys in embankment under north abutment  14.1 Gardner Creek Bridge Culvert 548.0 Repair the erosion around the inlet	12.1	Kledo River Bridge	509.1	Replace missing barrier bolts
28.3 Culvert No. 18 730.0 Install missing bolts in binwalls  32.5 Coal River Bridge 823.3 Replace broken bolt at SE cover plate on bridge barriers  Curb Expansion Joints  N/A Toad River Bridge 671.6 Tighten bolts on the curb expansion joints  18.2 115 Creek Bridge 616.5 Curb joint steel cover plates restricted; Install ¾" notch on both sides of curb plate.  Erosion  1.1 Beatton River Bridge 232.8 Repair embankment erosion at NW corner  3.2 Buckinghorse Bridge 277.6 Repair erosion and install drain at SW corner  6.1 Adsett Creek Bridge 366.0 Repair erosion at top of embankment and at approach barrier drains  10.2 Jackfish Creek Bridge 424.5 Fill gulleys in embankment under north abutment  14.1 Gardner Creek Bridge Culvert 548.0 Repair the erosion around the inlet	18.3 & 18.4	115 Creek Bridge	616.5	Install two missing bearing anchor bolts (see Appendix A)
23.5 Coal River Bridge 823.3 Replace broken bolt at SE cover plate on bridge barriers  N/A Toad River Bridge 671.6 Tighten bolts on the curb expansion joints  18.2 115 Creek Bridge 616.5 Curb joint steel cover plates restricted; Install ¼" notch on both sides of curb plate.  Erosion  1.1 Beatton River Bridge 232.8 Repair embankment erosion at NW corner  3.2 Buckinghorse Bridge 277.6 Repair erosion and install drain at SW corner  6.1 Adsett Creek Bridge 366.0 Repair erosion at top of embankment and at approach barrier drains  10.2 Jackfish Creek Bridge 424.5 Fill gulleys in embankment under north abutment  14.1 Gardner Creek Bridge Culvert 548.0 Repair the erosion around the inlet	19.1 & 19.2	MacDonald Bridge	628.0	Install missing bearing anchor nuts
Curb Expansion Joints  N/A Toad River Bridge 671.6 Tighten bolts on the curb expansion joints  18.2 115 Creek Bridge 616.5 Curb joint steel cover plates restricted; Install ¼" notch on both sides of curb plate.  Erosion  1.1 Beatton River Bridge 232.8 Repair embankment erosion at NW corner  3.2 Buckinghorse Bridge 277.6 Repair erosion and install drain at SW corner  6.1 Adsett Creek Bridge 366.0 Repair erosion at top of embankment and at approach barrier drains  10.2 Jackfish Creek Bridge 424.5 Fill gulleys in embankment under north abutment  14.1 Gardner Creek Bridge Culvert 548.0 Repair the erosion around the inlet	28.3	Culvert No. 18	730.0	Install missing bolts in binwalls
N/A Toad River Bridge 671.6 Tighten bolts on the curb expansion joints  18.2 115 Creek Bridge 616.5 Curb joint steel cover plates restricted; Install ¼" notch on both sides of curb plate.  Erosion  1.1 Beatton River Bridge 232.8 Repair embankment erosion at NW corner  3.2 Buckinghorse Bridge 277.6 Repair erosion and install drain at SW corner  6.1 Adsett Creek Bridge 366.0 Repair erosion at top of embankment and at approach barrier drains  10.2 Jackfish Creek Bridge 424.5 Fill gulleys in embankment under north abutment  14.1 Gardner Creek Bridge Culvert 548.0 Repair the erosion around the inlet	32.5	Coal River Bridge	823.3	Replace broken bolt at SE cover plate on bridge barriers
18.2 115 Creek Bridge 616.5 Curb joint steel cover plates restricted; Install ½" notch on both sides of curb plate.  Erosion  1.1 Beatton River Bridge 232.8 Repair embankment erosion at NW corner  3.2 Buckinghorse Bridge 277.6 Repair erosion and install drain at SW corner  6.1 Adsett Creek Bridge 366.0 Repair erosion at top of embankment and at approach barrier drains  10.2 Jackfish Creek Bridge 424.5 Fill gulleys in embankment under north abutment  14.1 Gardner Creek Bridge Culvert 548.0 Repair the erosion around the inlet	Curb Expansion Joi	nts		
Erosion  1.1 Beatton River Bridge 232.8 Repair embankment erosion at NW corner  3.2 Buckinghorse Bridge 277.6 Repair erosion and install drain at SW corner  6.1 Adsett Creek Bridge 366.0 Repair erosion at top of embankment and at approach barrier drains  10.2 Jackfish Creek Bridge 424.5 Fill gulleys in embankment under north abutment  14.1 Gardner Creek Bridge Culvert 548.0 Repair the erosion around the inlet	N/A	Toad River Bridge	671.6	Tighten bolts on the curb expansion joints
1.1 Beatton River Bridge 232.8 Repair embankment erosion at NW corner  3.2 Buckinghorse Bridge 277.6 Repair erosion and install drain at SW corner  6.1 Adsett Creek Bridge 366.0 Repair erosion at top of embankment and at approach barrier drains  10.2 Jackfish Creek Bridge 424.5 Fill gulleys in embankment under north abutment  14.1 Gardner Creek Bridge Culvert 548.0 Repair the erosion around the inlet	18.2	115 Creek Bridge	616.5	
3.2 Buckinghorse Bridge 277.6 Repair erosion and install drain at SW corner  6.1 Adsett Creek Bridge 366.0 Repair erosion at top of embankment and at approach barrier drains  10.2 Jackfish Creek Bridge 424.5 Fill gulleys in embankment under north abutment  14.1 Gardner Creek Bridge Culvert 548.0 Repair the erosion around the inlet	Erosion			
6.1 Adsett Creek Bridge 366.0 Repair erosion at top of embankment and at approach barrier drains  10.2 Jackfish Creek Bridge 424.5 Fill gulleys in embankment under north abutment  14.1 Gardner Creek Bridge Culvert 548.0 Repair the erosion around the inlet	1.1	Beatton River Bridge	232.8	Repair embankment erosion at NW corner
10.2 Jackfish Creek Bridge 424.5 Fill gulleys in embankment under north abutment  14.1 Gardner Creek Bridge Culvert 548.0 Repair the erosion around the inlet	3.2	Buckinghorse Bridge	277.6	Repair erosion and install drain at SW corner
14.1 Gardner Creek Bridge Culvert 548.0 Repair the erosion around the inlet	6.1	Adsett Creek Bridge	366.0	Repair erosion at top of embankment and at approach barrier drains
	10.2	Jackfish Creek Bridge	424,5	Fill gulleys in embankment under north abutment
25.1 & 25.2 Bridge Culvert No. 13 704.8 Repair embankment at the SE shoulder	14.1	Gardner Creek Bridge Culvert	548.0	Repair the erosion around the inlet
	25.1 & 25.2	Bridge Culvert No. 13	704.8	Repair embankment at the SE shoulder

Page 2 of 4

#### Appendix 1 – Table 1.1 – List of Defects to be Repaired Bridge Maintenance Various Sites, km 232.8 to km 955.7 Alaska Highway, BC

PWGSC - Pacific Region

*			
27.1 & 27.2	Culvert No. 20	725.5	Fill scour hole at the outlet with concrete
28.1 & 28.2	Culvert No. 18	730.0	Repair the erosion on the shoulder
36.1	Irons Creek Bridge	918.2	Repair NW erosion and embankment drain
37.1	Mayfield Creek Bridge	955.7	Repair erosion above gabion walls
Backfill binwalls			
2.1 & 2.2	Mason Creek Bridge Culvert	270.8	Backfill the outlet binwalls
4.1 & 4.2	Beaver Creek Bridge Culvert	328.1	Backfill void behind the inlet binwalls
8.3 & 8.4	Parker Creek Bridge Culvert	388.3	Backfill behind the binwalls of the inlet and the outlet
RipRap			
17.1 & 17.2	Bridge Culvert No. 5	597.2	Place fill and riprap around the outlet of the pipe
18.1	115 Creek Bridge	616.5	Place riprap in front of the south abutment
26.1 & 26.2	Culvert No. 17	722.1	1) Fill the scour hole at the outlet with heavy riprap and arrest the undermining (see Appendix A) 2) Fill in with concrete or riprap at apron at the outlet to smooth the waterflow (see Appendix A)
30.1	Mould Creek Bridge Culvert	768.4	Install riprap at SE of the inlet to protect the inlet
32.3	Coal River Bridge	823.3	Install riprap at SW embankment drain area
Stream Alignment			
22.1 & 22.2	150 Creek Bridge Culvert No. 8	664.6	Align stream with culvert inlet
Debris			
10.1	Jackfish Creek Bridge	424.5	Make 6" - 12" soil clearance from bottom trusses
16.1 & 16.2	Tetsa Bridge Culvert No. 4	595.3	Remove large boulders from the interior of both barrels. Do not remove boulders from inlet or outlet.

Page 3 of 4

	1		
20.1 & 20.1	Wood Creek Bridge Culvert	650.1	Clean tree debris and branches inside of the barrel, at the outlet and in the creek
21.1 & 21.2	141 Creek Bridge Culvert	651.0	Clear larger branches and debris in the inlet and on embankment
23.1 & 23.2	151 Creek Bridge Culvert	667.0	Remove large rock from culvert and remove bushes in front of inlet
24.1 & 24.2	Peterson Creek Bridge	678.6	Clear BST from deck joints
30.2	Mould Creek Bridge Culvert	768.4	Remove tree debris from inside the barrel
32.1 & 32.2 32.4	Coal River Bridge	823.3	1) Clear debris and branches from the blocks and bracing. 2) Clear sand drift from both arch legs
35.1	Contact Creek Bridge Culvert	908.5	Remove shrubs in wall
Beaver Dam(s)			
7.1 & 7.2	Bridge Culvert No. 3	384.7	Remove beaver dam upstream of inlet
8.1 & 8.2	Parker Creek Bridge Culvert	388.3	Remove beaver dam
Electrical coverings			
11.1 & 11.2	Muskwa Bridge	451.8	Repair electrical conduit and pedestrian switch
Bearing covers			
11.3 & 11.4	Muskwa Bridge	451.8	Replace bearing covers, to match existing
Caulk vent holes at	ends of girders		
N/A	Kledo River Bridge	509.1	Caulk bottom vent holes at the ends of both box girders
N/A	Toad River Bridge	671.6	Caulk bottom vent holes at both ends of girders
Spalling repair			
15.1 & 15.2	Tetsa River Bridge No. 1	584.6	Repair spalling on south abutment (see Appendix B)

Project # R.017174.011

PWGSC - Pacific Region

#### Appendix I – Table 1.1 – List of Defects to be Repaired Bridge Maintenance Various Sites, km 232.8 to km 955.7 Alaska Highway, BC

Appendix 1

Page 4 of 4

Hinge repair						
N/A	Toad River Bridge	671.6	Repair broken access hatch hinge			
Hand rail repair	Hand rail repair					
N/A	Smith River Bridge	792.3	Secure hand rail at NE corner of bridge on MSE wall			
Joint seal repair						
Joint seal repair						

# Beatton River Bridge (km 232.8)



1.1 - Repair Embankment Erosion at NW Corner



1.2 - Install Missing Diaphragm Bolt

# Mason Creek Bridge Culvert (km 270.8)



2.1 - Backfill the Outlet Binwalls



2.2 - Backfill the Outlet Binwalls

# **Buckinghorse River Bridge (km 277.6)**



3.2 - Repair Erosion and Install Drain at SW Corner



3.3 - Install Missing Barrier Bolts

Page 4 of 37

# **Buckinghorse River Bridge (km 277.6)**



3.4 - Install Missing Barrier Bolts

# Beaver Creek (km 328.1)



4.1 – Backfill Void Behind the Inlet Binwalls



4.2 - Backfill Void Behind the Inlet Binwalls

#### Adsett Creek (km 366.0)



6.1 – Repair Erosion at Top of Embankment and at Approach Barrier Drains



6.2 - Install Two Missing Barrier Bolts at South Deck Joint, Northbound Section

# Bridge Culvert No. 3 (km 384.7)



7.1 – Remove Beaver Dam Upstream of Inlet



7.2 – Remove Beaver Dam Upstream of Inlet

# Parker Creek Bridge Culvert (km 388.3)



8.1 – Remove Beaver Dam



8.2 – Remove Beaver Dam

# Parker Creek Bridge Culvert (km 388.3)



8.3 – Backfill Behind the Binwalls of the Inlet and Outlet



8.4 – Backfill Behind the Binwalls of the Inlet and Outlet

# Jackfish Creek Bridge (km 424.5)



10.1 - Make 6" - 12" Soil Clearance from Bottom Trusses



10.2 - Fill Gulleys in Embankment under North Abutment

# Muskwa River Bridge (km 451.8)



11.1 - Repair Pedestrian Switch

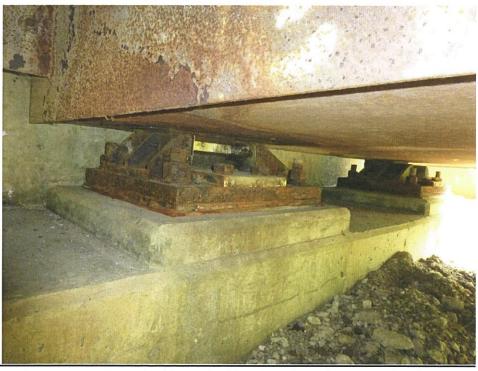


11.2 - Repair Electrical Conduit

# Muskwa River Bridge (km 451.8)



11.3 - Replace Bearing Covers, to match existing



11.4 - Replace Bearing Covers, to match existing

# Kledo River Bridge (km 509.1)



12.1 - Replace Missing Barrier Bolt (SW Barrier Transistion)

# **Gardner Creek Bridge Culvert (km 548.0)**



14.1 - Repair the Erosion Around the Inlet

#### Tetsa River Bridge No. 1 (km 584.6)



15.1 - Repair Spalling on South Abutment (Details located in Appendix B)



15.2 - Repair Spalling on South Abutment (Details located in Appendix B)

#### Tetsa Creek Bridge Culvert No. 4 (km 595.3)



16.1 - Remove Large Boulders from the Interior of Both Barrels. Do Not Remove Boulders from Inlet or Outlet



16.2 - Remove Large Boulders from the Interior of Both Barrels. Do Not Remove Boulders from Inlet or Outlet

# Bridge Culvert No. 5 (km 597.2)



17.1 – Place Fill and RipRap Around the Outlet of the Pipe



17.2 – Place Fill and RipRap Around the Outlet of the Pipe

# 115 Creek Bridge (km 616.5)



18.1 – Place RipRap in Front of South Abutment



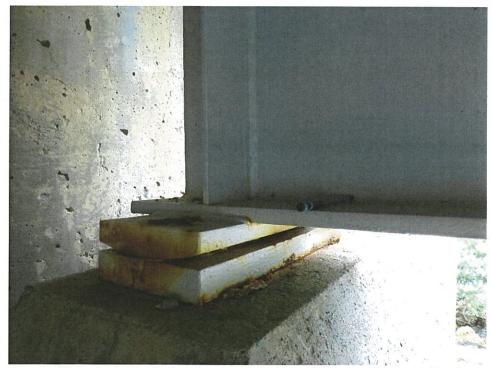
18.2 - Curb Joint Steel Cover Plates Restricted. Install ½" Notch on Both Sides of Curb Plate

Appendix 2

#### 115 Creek Bridge (km 616.5)

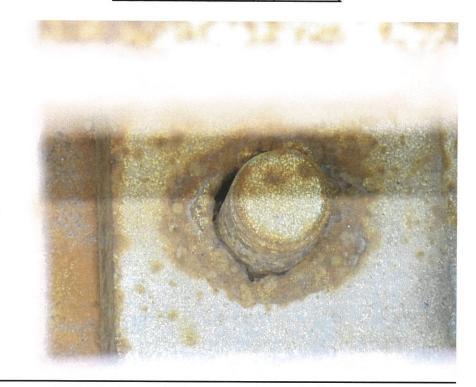


18.3 - Install 2 Missing Bearing Bolts (Details Located in Appendix A)



18.4 - Install 2 Missing Bearing Bolts (Details Located in Appendix A)

#### McDonald Creek Bridge (km 628.0)



19.1 – Replace Missing Bearing Anchor Nuts



19.2 - Replace Missing Bearing Anchor Nuts

#### Wood Creek Bridge Culvert (km 650.1)



20.1 – Clean the Tree Debris and Branches Inside of Barrel, at Outlet and in the Creek



20.2 – Clean the Tree Debris and Branches Inside of Barrel, at Outlet and in the Creek

# 141 Creek Bridge Culvert (km 651.0)



21.1 - Clear Larger Branches and Debris in the Inlet and on Embankment

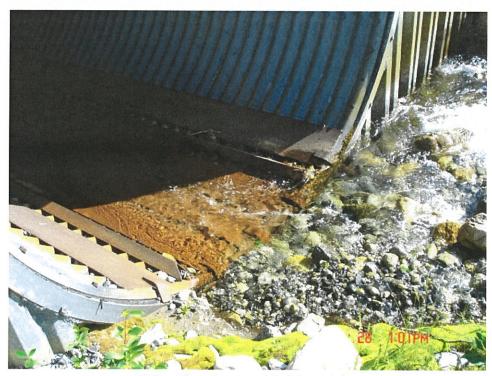


21.2 - Clear Larger Branches and Debris in the Inlet and on Embankment

# 150 Creek Bridge Culvert No. 8(km 664.6)



22.1 - Align Stream with Culvert Inlet



22.2 – Align Stream with Culvert Inlet

# 151 Creek Bridge Culvert (km 667.0)



23.1 – Remove Large Rock from Culvert



23.2 – Remove Bushes in Front of Inlet

# Peterson Creek Bridge (km 678.6)



24.1 - Clear BST from Joints



24.2 - Clear BST from Joints

# Bridge Culvert No. 13 (km 704.8)



25.1 - Repair Embankment at the SE Shoulder



25.2 – Repair Embankment at the SE Shoulder

#### **Culvert No. 17 (km 722.1)**



26.1 – Fill Outlet Scour Hole and Apron with RipRap (Details for Handplaced RipRap in Appendix A)



26.2 – Fill Outlet Scour Hole and Apron with RipRap (Details for Handplaced RipRap in Appendix A)

#### **Culvert No. 20 (km 725.5)**



27.1 – Fill Scour Hole at Outlet with Concrete



27.2 - Fill Scour Hole at Outlet with Concrete

# Culvert No. 18 (km 730.0)



28.1 - Repair Shoulder Erosion



28.2 - Repair Shoulder Erosion

# Culvert No. 18 (km 730.0)



28.3 - Replace Missing Binwall Bolts

# Mould Creek Bridge Culvert (km 768.4)



30.1 - Install RipRap at SE of Inlet to Protect the Inlet



30.2 - Remove the Tree Debris Inside the Barrel

#### Coal River Bridge (km 823.3)



32.1 – Clear Debris and Branches from the Blocks and Bracing



32.2 - Clear Debris and Branches from the Blocks and Bracing

# Coal River Bridge (km 823.3)



32.3 – Install RipRap at SW Embankment Drain Area



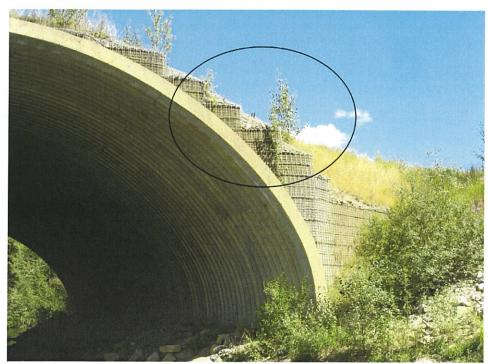
32.4 – Clear Sand Drift from Both Arch Legs

# Coal River Bridge (km 823.3)



33.1 – Replace Broken Bolt in Barrier Cover Plate

# **Contact Creek Bridge Culvert (km 908.5)**



35.1 – Remove Shrubs in Wall

# Irons Creek Bridge (km 918.2)



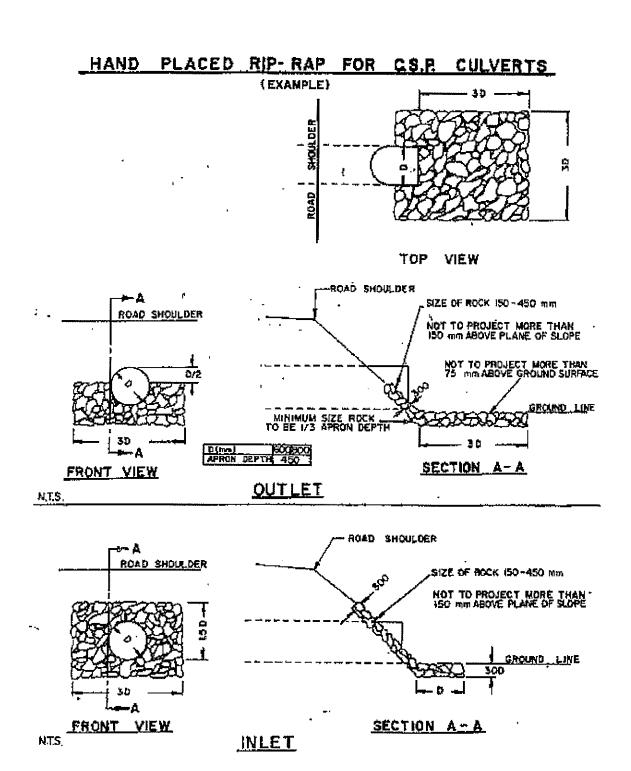
36.1 – Repair NW Erosion and Embankment Drain

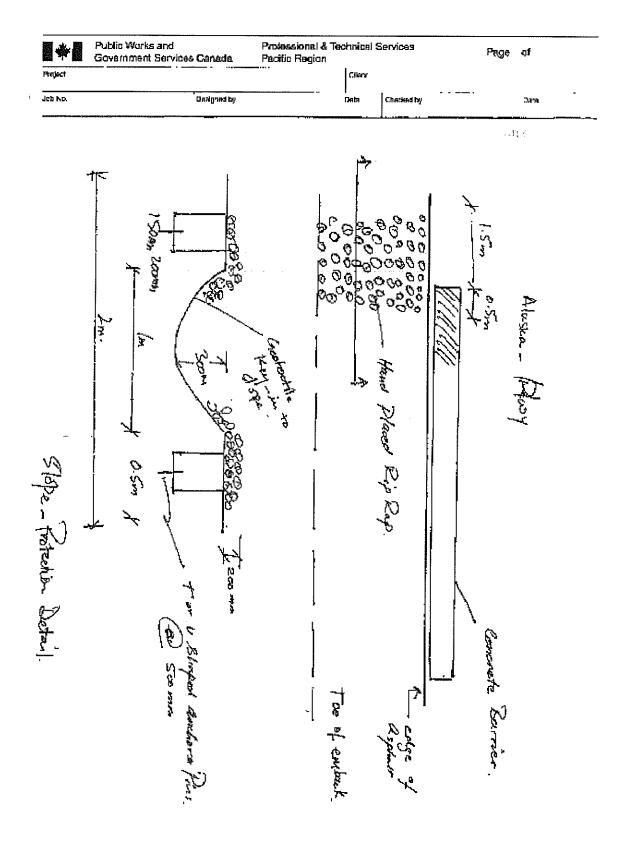
# Mayfield Creek Bridge Culvert (km 955.7)



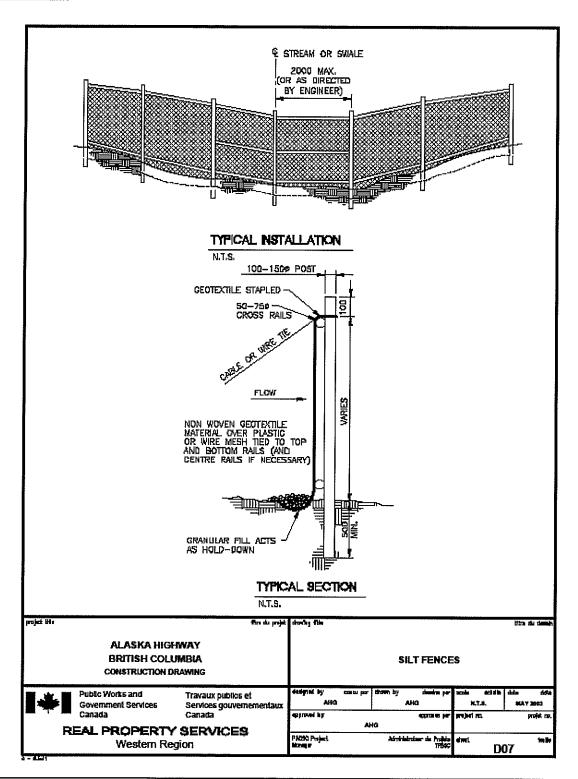
37.1 – Repair Erosion Above Gabion Walls

#### **HANDPLACED RIP RAP**





#### **SILT FENCES**



Project # R.017174.011

PWGSC - Pacific Region

# Appendix A – Specific Site Instructions Bridge Maintenance Various Sites, km 232.8 to km 955.7 Alaska Highway, BC

Appendix A

Page 4 of 4

# 115 CREEK BRIDGE - BEARING ANCHOR BOLTS

#### **Bolt specifications:**

- Please install 1" diametre threaded rod or swedge bolt using HILTI HY150 with a minimum 210mm embedment depth. The threaded rod should come with a hex nut and a washer.
- ii) Use the ASTM A193 Grade B7 steel.
- iii) The embedment depth 315mm is recommended if it can be achieved.

Page 1 of 1

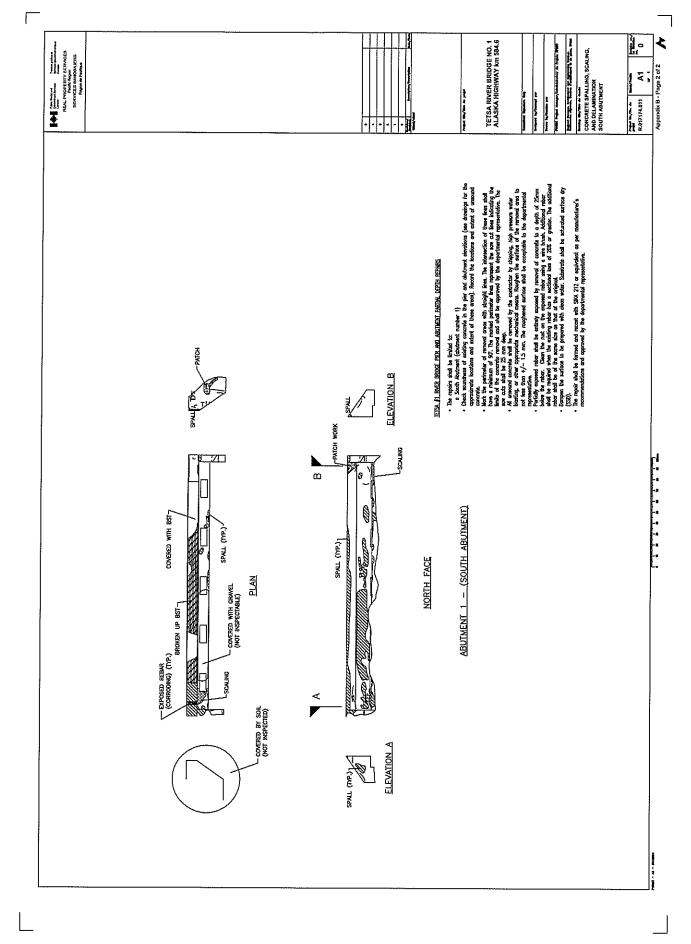
## PWGSC – Pacific Region

#### TETSA BRIDGE NO. 1 – ABUTMENT CONCRETE REPAIR

#### i) ABUTMENT PARTIAL DEPTH REPAIRS

- The repairs shall be limited to:
  - South Abutment
- Check soundness of existing concrete in the pier and abutment elevations (see drawings for the
  approximate locations and extent of these areas). Record the locations and extent of unsound
  concrete.
- Mark the perimeter of removal areas with straight lines. The intersection of these lines shall
  have a minimum of 90°. The marked perimeter lines represent the saw cut lines indicating the
  limits of the concrete removal and shall be approved by the departmental representative. The
  saw cuts shall be 25 mm deep.
- All unsound concrete shall be removed by the contractor by chipping, high pressure water blasting, or other appropriate mechanical means. Roughen the surface of the removal area to not less than +/- 1.5 mm. The roughened surface shall be acceptable to the departmental representative.
- Partially exposed rebar shall be entirely exposed by removal of concrete to a depth of 25mm below the rebar. Clean the rust on the exposed rebar using a wire brush. Additional rebar shall be required when the existing rebar has a sectional loss of 20% or greater. The additional rebar shall be of the same size as that of the original.
- Dampen the surface to be prepared with clean water. Substrate shall be saturated surface dry (SSD).
- The repair shall be formed and recast with SIKA 212 or equivalent as per manufacturer's recommendations and approved by the departmental representative.

#### ii) DRAWING/DESIGN





# **BRIDGE MAINTENANCE**

Fisheries and Oceans Canada Pacific Region Operational Statement

Version 3.0

Bridge maintenance is undertaken to extend the life of the structure and to ensure that it functions as designed, thus ensuring public safety. This Operational Statement applies only to: deck sweeping and washing to remove traction material (e.g., sand and salt residue), cleaning of all bridge components (substructure, superstructure and deck), the removal and application of protective coatings, deck wearing surface replacement, the removal of debris to protect piers and abutments, and structural repairs involving no instream work. Note any instream work involving rock armouring of the bridge structure or channel should be referred to the local DFO office for advice on appropriate mitigations to avoid potential negative impacts to fish and fish habitat.

Bridge maintenance activities have the potential to negatively impact fish and fish habitat by introducing sand, sediments, deck surface materials such as concrete and asphalt, and other deleterious substances (e.g., salt, paint, solvents, oil and grease) into watercourses. Removal of woody debris and riparian vegetation may alter natural habitat features and flows that exist in the watercourse. Operation of machinery may impact habitat on the banks and bed, and result in erosion and sedimentation. Placement of rock to stabilize structures may alter natural habitat and flows, and block fish passage.

Fisheries and Oceans Canada (DFO) is responsible for protecting fish and fish habitat across Canada. Under the *Fisheries Act* no one may carry out a work or undertaking that will cause the harmful alteration, disruption or destruction (HADD) of fish habitat unless it has been authorized by DFO. By following the conditions and measures set out below you will be in compliance with subsection 35(1) of the *Fisheries Act*.

The purpose of this Operational Statement is to describe the conditions under which it is applicable to your project and the measures to incorporate into your project in order to avoid negative impacts to fish habitat. You may proceed with your bridge maintenance project without a DFO review when you meet the following conditions:

- the work does not include realigning the watercourse or replacing the existing bridge,
- the work does not involve instream works, dredging, placing fill (e.g., filling scour pools) or excavating the bed or bank of the watercourse,
- explosives are not used to remove debris,
- the withdrawal of any water will not result in reduction in the wetted width of a stream, and will not exceed 10% of the instantaneous flow, in order to maintain existing fish habitat, and
- you incorporate the Measures to Protect Fish and Fish Habitat when Maintaining a Bridge listed below in this Operational Statement.

If you cannot meet all of the conditions listed above and cannot incorporate all of the measures listed below then your project may result in a violation of subsection 35(1) of the *Fisheries Act* and you could be subject to enforcement action. In this case,

you should contact the DFO office in your area if you wish to obtain DFO's opinion on the possible options you should consider to avoid contravention of the *Fisheries Act*.

You are required to comply with all municipal, provincial, territorial and/or federal legislation that applies to the work being carried out in relation to this Operational Statement. In British Columbia, please contact the Water Stewardship Division, Ministry of Environment (http://www.env.gov.bc.ca/wsd/water\_rights/licence\_application/section9/index.html)for information on the Provincial Water Regulation notification requirements when planning to conduct bridge maintenance in or around BC waters.

The activities undertaken in this Operational Statement must also comply with the Species at Risk Act (http://www.speciesatrisk.gc.ca). For general information on aquatic SARA species visit the following web site: http://www.dfo-mpo.gc.ca/species-especes/actMeans/actMeans\_criticalHabit\_factsheet\_e.asp and/or contact DFO by email at: SARA@pac.df-o-mpo.gc.ca.

If you have questions regarding this Operational Statement, please refer to the list of Frequently Asked Questions (http://www-heb.pac.dfo-mpo.gc.ca/decisionsupport/os/osfaq\_e.htm) or contact DFO Regional Headquarters at 1-866-845-6776.

Please notify DFO 10 working days before starting your work by filling out and sending the Pacific Region Operational Statement **notification form** directly to DFO Regional Headquarters. This information is requested in order to evaluate the effectiveness of the work carried out in relation to this Operational Statement. It is recommended that you keep a copy of the Operational Statement at the work site to demonstrate to Habitat and Fishery Officer staff that the conditions and measures, as outlined in the OS, are being followed.

#### Area of Application

This Operational Statement applies to the province of British Columbia and Yukon Territory freshwater systems only.

#### Measures to Protect Fish and Fish Habitat when Maintaining a Bridge

- 1. Deck Sweeping
  - 1.1. Adequately seal drains and open joints before sweeping to prevent material from falling into the watercourse.
  - 1.2. Clean and remove debris and sediment from drainage devices and dispose of the material in a way that will prevent it from entering the watercourse.



#### 2. Deck Washing

- 2.1. Sweep decks, including curbs, sidewalks, medians and drainage devices to remove as much material as practical before washing.
- 2.2. Adequately seal drains and open joints before washing to prevent sediment-laden wash-water from entering the watercourse.
- 2.3. Direct wash-water past the ends of the bridge deck to a vegetated area to remove suspended solids, dissipate velocity and prevent sediment and other deleterious substances from entering the watercourse. If this cannot be achieved, use silt fences or other sediment and erosion control measures to prevent wash-water from entering the watercourse.
- 2.4. When extracting water from a watercourse, ensure the intakes of pumping hoses are equipped with an appropriate device to avoid entraining and impinging fish. Guidelines to determine the appropriate mesh size for intake screens may be obtained from DFO (Freshwater Intake End-of-Pipe Fish Screen Guidelines (1995), available at www.dfo-mpo.gc.ca/Library/223669.pdf).
- Where possible, avoid using small streams as a source for water.

#### 3. Removal and Application of Protective Coatings

- 3.1. Remove paint or protective coatings in a manner that prevents any paints, paint flakes, primers, blasting abrasives, rust, solvents, degreasers or other waste material from entering the watercourse.
- 3.2. Use measures such as barges or shrouding to trap and prevent blasting abrasives, protective coatings, rust and grease from entering the watercourse.
- Contain paint flakes, abrasives, and other waste materials for safe disposal.
- 3.4. Store, mix and transfer paints and solvents on land and not on the bridge to prevent these materials from entering the watercourse in the event of a spill.
- **3.5.** Do not clean equipment in the watercourse or where the wash-water can enter the watercourse.
- 4. Removal of Debris (e.g., including woody debris, garbage, etc.)
  - 4.1. Unless the debris accumulation is an immediate threat to the integrity of the piers and abutments, time debris removal to avoid disruption to sensitive fish life stages by adhering to appropriate fisheries timing windows (http://www-heb.pac.dfo-mpo.gc.ca/decisionsupport/os/timing\_e.htm).
  - 4.2. Limit the removal of material to that which is necessary to protect piers and abutments.
  - 4.3. Remove debris by hand or with machinery operating from shore or a floating barge.

#### 5. Structural Repairs and Reinforcements

- 5.1. Use barges or shrouding to trap and prevent concrete and other bridge materials from entering the watercourse.
- 5.2. If minor replacement rock reinforcement/armouring is required to stabilize eroding areas around the immediate area of existing bridge structures (e.g., abutments and/or wing walls), the following measures should be incorporated:
  - Place appropriately-sized, clean rocks into the eroding area.
  - 5.2.2. Do not obtain rocks from below the high water mark (HWM) (http://www-heb.pac.dfompo.gc.ca/decisionsupport/os/definitions\_e.htm) of any water body.

- 5.2.3. Avoid the use of rock that is acid-generating. Also avoid the use of rock that fractures and breaks down quickly when exposed to the elements.
- **5.2.4.** Install rock at a similar slope to maintain a uniform stream bank and natural stream alignment.
- 5.2.5. Ensure rock does not interfere with fish passage or constrict the channel width.
- 6. If working from land, install effective sediment and erosion control measures before starting work to prevent the entry of sediment into the watercourse. Inspect them regularly during the course of construction and make all necessary repairs if any damage occurs.
- 7. While this Operational Statement does not cover the clearing of riparian vegetation, the removal of select plants may be required. This removal should be kept to a minimum and limited to the right-of-way of the bridge.
- Operate machinery on land (above the HWM) or on the water (i.e., from a barge or vessel) in a manner that minimizes disturbance to the banks or bed of the watercourse.
  - 8.1. Machinery is to arrive on site in a clean condition and is to be maintained free of fluid leaks, invasive species and noxious weeds.
  - 8.2. Wash, refuel and service machinery and store fuel and other materials for the machinery away from the water to prevent any deleterious substance from entering the water.
  - 8.3. Keep an emergency spill kit on site in case of fluid leaks or spills from machinery.
  - **8.4.** Restore banks to original condition if any disturbance occurs.
- Stabilize any waste materials removed from the work site to prevent them from entering the watercourse. This could include covering spoil piles with biodegradable mats or tarps or planting them with grass or shrubs.
- 10. Vegetate any disturbed areas by planting and seeding with native trees, shrubs or grasses and cover such areas with mulch to prevent erosion and to help seeds germinate. All seeding and/or planting trees should follow the DFO guidance on Riparian Revegetation (http://www-heb.pac.dfo-mpo.gc.ca/decisionsupport/os/riparian-reveg\_e.htm). If there is insufficient time remaining in the growing season, the site should be stabilized (e.g., cover exposed areas with erosion control blankets to keep the soil in place and prevent erosion) and vegetated the following spring.
  - 10.1. Maintain effective sediment and erosion control measures until re-vegetation of disturbed areas is achieved.

### **DFO REGIONAL HEADQUARTERS**

Fisheries & Oceans Canada Regional Habitat Manager 200-401 Burrard Street Vancouver, BC V6C 3S4. Toll Free: 1-866-845-6776

Fax: (604) 666-7907

Email: dfo\_epmp@pac.dfo-mpo.gc.ca

Aussi disponible en français

http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/ modernizing-moderniser/epmp-pmpe/index\_f.asp

DFO/2007-1283

©Her Majesty the Queen in Right of Canada 2007



Fisheries and Oceans Canada

# **NOTIFICATION FORM**

Fisheries and Oceans Canada Pacific Region Operational Statement

Version 3.1

IBHOBONEDE NEWSONA	MeM			
NAME:	STREET ADDRES	SS:		
CITY/TOWN:	PROVINCE/TERF	RITORY:	POSTAL CODE:	
TEL. NO. (RESIDENCE):	TEL. NO. (WORK	():		
FAX NO:	EMAIL ADDRESS	S:		
(e/e)/hd2/a/e/ke)Eul/lee)E4//	ATTO DESCRIPTION OF A STREET	egitte)esti	a Contractor is working on bahali of the Proponent)	
NAME:	STREET ADDRES	SS:		
CITY/TOWN:	PROVINCE/TERRITORY:		POSTAL CODE:	
TEL. NO. (RESIDENCE):	TEL. NO. (WORK	():		
FAX NO:	EMAIL ADDRESS:			
SECTION (SECTION OF SECTION (SECTION)				
Select Operational Statements that are	e being used (check all applicat	ble boxes	s):	
☐ Aquatic Vegetation Removal in Lakes	Ice and Snow Fill Bridges		☐ Routine Maintenance Dredging for Navigation	
☐ Bridge Maintenance	Isolated Pond Construction		☐ Small Moorings	
Culvert Maintenance	☐ Maintenance of Riparian Veg	getation	☐ Small Clear-Span Bridges	
Directional Drilling	in Existing Rights-of-Way		☐ Temporary Ford Crossings	
☐ Dock and Boathouse Construction in Fresh Water Systems	<ul><li>Overhead Line Construction</li><li>Public Beach Maintenance</li></ul>		☐ Underwater Cables in Fresh Water Systems	
Dry Open-Cut Crossings	Punch and Bore Crossings			
			entre experience and the contract of the contr	
Select the type of water body or water			C Dond or watered (sond in least them C heateres)	
River, Stream, Creek Lake (8 hectares or greater)	<ul><li>☐ Marine (Ocean or Sea)</li><li>☐ Estuary</li></ul>		☐ Pond or wetland (pond is less than 8 hectares)	
Table 200 Trans procedural procedural processes (Anna Paris Contraction Contra				
PROJECT LOCATION (S) multiple project locations on an ad	) (ill out this section if the o ditional sheet if processary)	mineralie	ocation is different from Proponent Information; append	
Name of water body or watercourse			nates of the Project (UTM co-ordinate or Degrees, Minutes,	
Nearest Town to site		Second: Easting:	ls), if available	
ivearest fown to site		Latitude	· · · · · · · · · · · · · · · · · · ·	
Legal Description		· ·	ons to Access the Project Site	
(Plan, Block, Lot, Concession, Township, Section, Range)		(i.e., Route or highway number, etc.)		
	•	1	<u> </u>	
Proposed Start Date	***	Propose	ed Completion Date	
(YYYY/MM/DD):		(YYYY/MM/DD):		
Please notify DFO, preferably 10 working days Headquarters. This information is requested in	before starting your work, by filling o order to evaluate the effectiveness of	ut and sen the work c	nding in, by mail, email or by fax, this notification form to the DFO Region carried out in relation to the Operational Statement.	
1	(print name)	certify the	hat the information given on this form is, to the best of my	
knowledge, correct and complete.			giron on the form of to the boot of my	
Signature Date				
Note: If you cannot meet all of the conditions and cannot	ot incorporate all of the measures in the Op-	erational Stat	atement then your project may result in a violation of Subsection 35(1) of the Fisheries A if you wish to obtain DFO's opinion on the possible options you should consider to avo	
and you could be subject to enforcement action. In this contravention of the Fisheries Act.	s case, you should contact the DFO office in	n your area it	if you wish to obtain DFO's opinion on the possible options you should consider to avo	

Information about the above-noted proposed work or undertaking is collected by DFO under the authority of the Fisheries Act for the purpose of administering the fish habitat protection provisions of the Fisheries Act. Personal information will be protected under the provisions of the Privacy Act and will be stored in the Personal Information Bank DFO-SCI-605. Under the Privacy Act, Individuals have a right to, and on request shall be given access to, any personal information about them contained in a personal information bank. Instructions for obtaining personal information are contained in the Government of Canada's Info Source publications available at www.Infosource.gc.ca or in Government of Canada offices. Information other than "personal" information may be accessible or protected as required by the provisions of the Access to Information Act.

This Notification Form (Version 3.1) may be updated as required by Fisheries and Oceans Canada. It is your responsibility to use the most recent version. Please refer to the Operational Statements web site at http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/modernizing-moderniser/epmp-pmpe/index\_e.asp to ensure that a more recent version has not been released.



#### **DFO REGIONAL HEADQUARTERS**

Fisheries and Oceans Canada Regional Habitat Manager 200 – 401 Burrard Street Vancouver, BC V6C 3S4 Toll Free: 1-866-845-6776

Fax: (604) 666-7907

Email: dfo\_epmp@pac.dfo-mpo.gc.ca

Aussi disponible en français

http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/modernizing-moderniser/epmp-pmpe/index\_f.asp

DFO/2007-1283