

**As-Built Report for the East River,
Highway 103, HADD Compensation Project
(DFO HADD Authorization 04-G8-050):
Fish Ladder and Culvert Baffles**



Dr. Bob Pett, Environmental Services

October 2006

East River HADD Compensation Project



Downstream end of the box culvert at the Highway 103 crossing, April 2004. During lower flow periods, fish passage is severely compromised or not possible to the upper 845 ha of the East River Watershed.

- Twinning of Highway 103 involved the extension of the upper end of the box culvert with a 30.5 m-long, three-sided, cast-in-place concrete structure that spanned the stream and preserved the stream bed (new box is 9.1 m-wide and 3.0 m high).
- 7 baffles were retrofit inside the old 3.64 m-wide, 3.04 m high, 60 m-long, box culvert in August-September 2005 (ensures ~25 cm water depth for fish passage through the old culvert).
- Fish ladder with 4 boxes and a new plunge pool were completed at the downstream end of the culvert in October 2005.

East River HADD Compensation Project

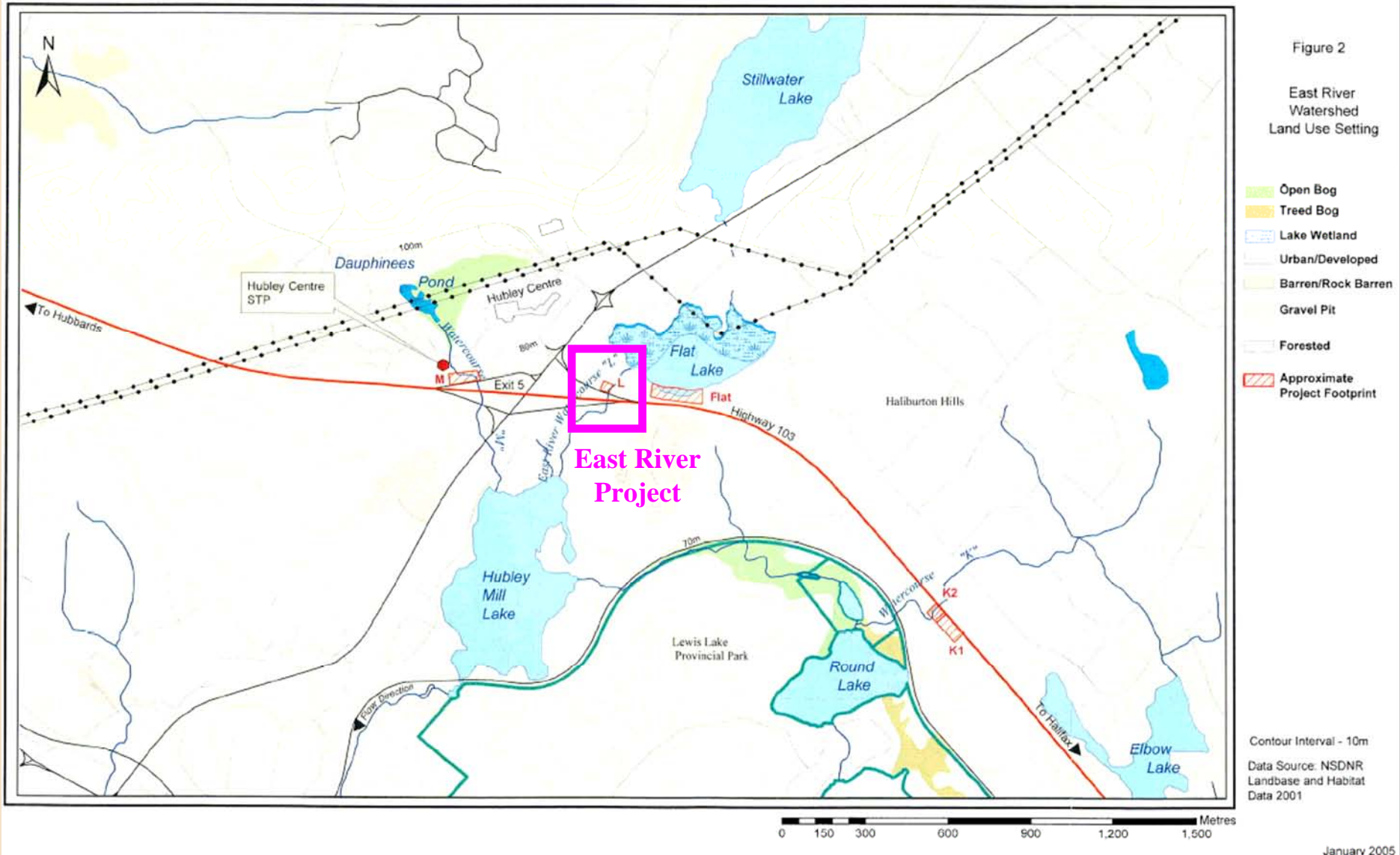
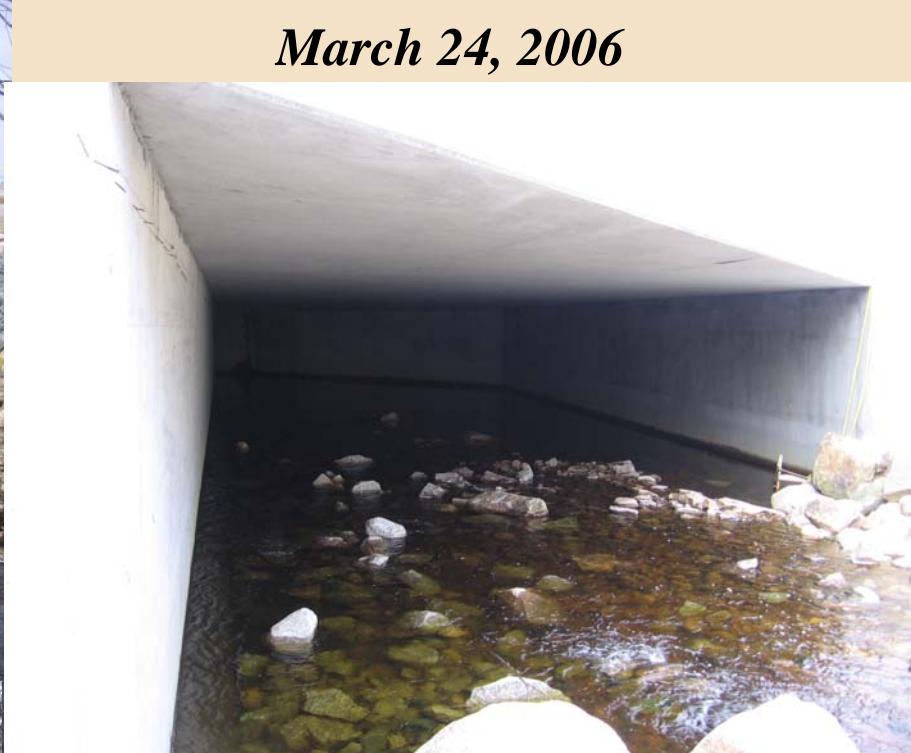


Diagram from Dillon Consulting Limited, 2005, Environmental Screening of Watercourse Crossings for the Highway 103 Twinning Project – East River Watershed, Halifax Regional Municipality.

Construction of the box culvert extension, August-September 2005



March 24, 2006



October 28, 2006



Construction of fish baffles in the East River culvert



- 7 baffles constructed inside the existing culvert (one at the downstream end and six more at +6 m, +12 m, +24 m, +36 m, +48 m, and the upper end of the culvert at +60 m; followed the recommendations of Bob Rutherford, TPW consultant, and Henry Caracristi, DFO).
- Baffles are 500 mm high with notches 500 mm wide and 250 mm deep.

September 2, 2005

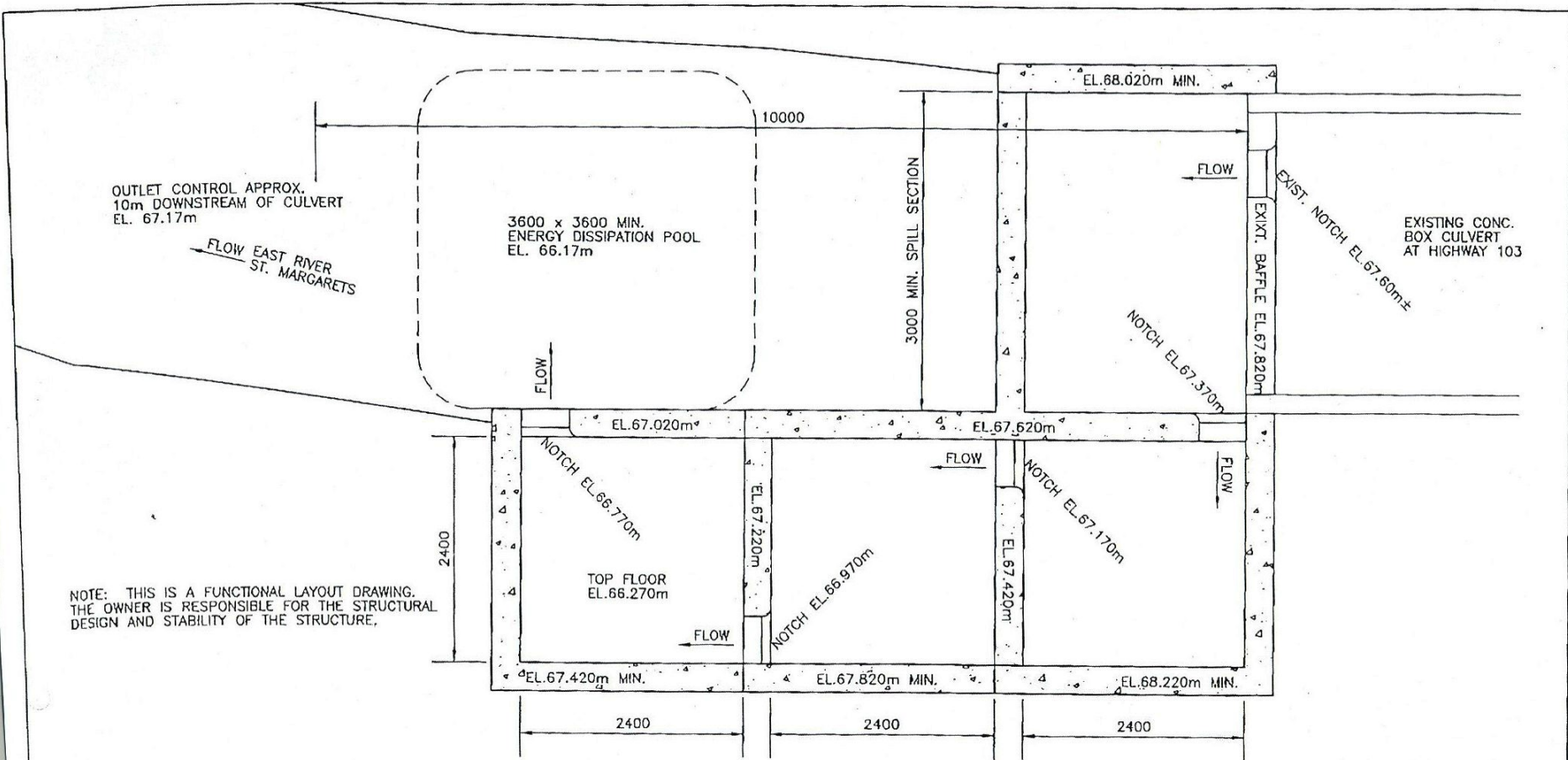



← *Baffle formwork; September 2, 2005*
(hoses were used to convey the East River flow through the construction site; flow dammed upstream and water pumped as required to maintain water control)



Baffles complete, September 29, 2005 →

Fish Ladder Design for the East River HADD Compensation Project



 Fisheries and Oceans
 Canada
 Science

REQUIRED MODIFICATION TO DOWNSTREAM END
 OF EAST RIVER ST. MARGARETS CULVERT AT ROUTE 103

Approved by HC	Dwg. No. C-133-01
Date 06 SEPT 2005	
Scale 1:50	



Fish ladder complete, September 29, 2005

*Fishway boxes were cleaned
and a new plunge pool built
prior to returning water flow
to the stream channel*





East River construction activities completed and water flow returned to the stream channel at the end of September 2005

(photos taken on October 4, 2005)





*Storm flow conditions at the fishway
on October 13, 2005*



*One year later – functioning well;
high flow periods over the year had
re-distributed the surge rock that
buttressed the upper fishway box
and formed the upper margin of the
plunge pool (October 28, 2006)*