

# **ENGLISHMAN RIVER**

## **Block 602 Side Channel Extension**

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**Location:** The intake site of the side channel is located 500m upstream of the Community Fisheries Development Centre's hatchery on the Englishman River. To get to the hatchery follow Highway 19 North from Nanaimo, taking exit 51 (Alberni Highway) and then almost immediately turn left onto Bellevue Road followed quickly by another left onto Allsbrook Road. At the end of Allsbrook Road, is the hatchery access road guarded by a locked gate on the right. After entering the gate follow the gravel road for approximately 3.25 kms to the hatchery. The intakes themselves are another 500m upstream of the hatchery.

The Channel Extension starts approximately 1200m downstream of the intake at the outlet of an existing beaver pond wetted by the Fletcher Challenge Side Channel constructed in 1992.

**Watershed Code:** 920-462800  
**Map References:** [50K] 092F08  
**Co-ordinates:** Geographic 49°-17'-59"N 124°-17'-21W (NAD83)  
Zone 10. 5461560 mN, 406270 mE (UTM)  
**Construction Drawings:** 31-65-01, 31-64-07, 31-65-08, 31-65-13, 31-65-14, 31-65-15, 31-65-16, 31-65-17, 31-65-18, 31-65-19  
**Cost Summary:**

<b>Total – Channel Extension [2007]</b>	<b>\$237,394</b>
Pacific Salmon Commission	\$84,275
Living Rivers	\$44,444
Min. of Transportation and Highways	\$40,100
Habitat Conservation Trust Fund	\$21,575
T. Buck Suzuki Fund	\$5,000
Castaways Club	\$2,000
DFO In Kind	\$40,000
BCCF In Kind	\$8,281

### **Introduction:**

DFO has surveyed, designed, and constructed a 4.1 km side-channel on the Englishman River with a total wetted area of 6.35 Ha. It involved: constructing a 1.2 km long spawning and rearing channel in 1992; the

fabrication and installation of 2 steel intakes and pipelines in 2006 to replace the 1992 intake; and extending the existing 1.2 km long spawning /rearing channel by 2.9 km in 2007.

The property is jointly owned and managed by the Regional District of Nanaimo Parks and Nature Trust. Part of the channel also flows through Private Land [DL60] Owned by the Carpenter family. All parties support the project. The proposal is also supported by the Pacific Salmon Endowment Program, the associated Community Board Members and several local stewardship groups, including *The Englishman River Watershed Recovery Plan Steering Committee*. The *Community Fisheries Development Centre* was the proponent of record.

### **Project Description 2007:**

Construction Started under the supervision of DFO RRD Nanaimo on May 14<sup>th</sup>, 2007 and was completed July 5<sup>th</sup> 2007, totalling 8 weeks of construction. Work completed included:

- a rock groyne to protect the river intake site
- raising the elevation of dykes protecting the original 1992 channel
- a PVC by pass pipeline around the settling pond
- a secondary concrete intake structure separating the settling pond from the side channel and replacing an older existing wooden structure
- a rock weir backwatering a low lying area near the existing Community Fisheries Development Centre Hatchery and allowing the relocation of the hatchery plumbing to a point closer to the hatchery than previously
- a rock weir raising the water level so it could be diverted into the newly constructed channel extension. The weir also splits the flow during flood, diverting the high flows into an overflow channel
- construction of a dyke to contain the water raised by the overflow rock weir
- a 2.9km side-channel constructed downstream to continue the existing 1.2km long side channel supplied by the new intakes
- 3 road crossings using 2- mini-span bridges 12m long and 1 CSP culvert 10m long.
- crossing over a buried gas pipeline and under BC Hydro T\transmission lines

**Week one** saw the installation of a 300mm dia. PVC by pass pipeline 124m long. The pipeline is designed to take water from the existing 600mm dia. steel pipe and bypass the settling pond for the 2007 construction and any pond maintenance (dredging etc.) in following years. It was attached to a valved WYE in the steel intake line fabricated and constructed in 2006.

**Figure 1 600mm Intake Valve and 300mm Bypass Valve**



**Week two** saw the concrete poured for the intake structure designed to release water from the settling pond through two 600mm dia. steel pipes into the channel pond complex downstream. This structure replaced an old existing wooden structure and two damaged 450mm diameter CSP culverts.

**Figure 2 – Trash Rack Formed**



**Figure 3 Trash Rack Complete**



**Week three** saw the 30 tonne excavator and two off road trucks begin bulk excavation of the channel. The excavated material was hauled to the containment dyke upstream of the extension channel intake and to the existing dykes protecting the original 1992 channel. There had been some flooding near the hatchery during the winter of 2006 and so it was decided to increase the dyke protection in that area. A D6 cat was used to spread the dyke material. The 20 tonne excavator was clearing the right of way and sorting rock and LWD.

**Figure 4 – Bulk Cut**



**Figure 5 Dyke Construction**



**Figure 6 Completed Dyke – Settling Pond**



**Figure 7 Completed Dyke - Beaver Pond**



**Week 4** saw the delivery of three 1.2m span x 0.6m rise x 12m long mini span bridges and one 3m x 1.2m dia. culvert. Two of the mini spans and the culverts were set on a bed of 50mm minus gravel, to double as a structural base and potential spawning area, and installed. The channel crossing over the Terasen Gas Pipeline was also completed. Terasen had personnel on site to monitor the work. The crossing was armoured with cobble to protect against any erosion near the pipeline. Some LWD installation and riffle construction was done, and the metal work for the concrete Intake structure was installed.

**Mini Span Bridge Located at Start of Side Channel Extension**

**Figure 8 Installed**



**Figure 9 Operating**



## Channel Crossing Over Gas Pipeline and Under BC Hydro Transmission Lines

**Figure 10 Installation**



**Figure 11 Operating**



**Week 5** saw our construction roads ballasted as per our agreement with Nanaimo Regional Parks. The settling pond was dredged, and LWD was hauled to the channel from its staging area in an abandoned quarry. Prior to construction, the project had 20 ‘demo’ truck loads of LWD delivered. During construction 5 more 30m<sup>3</sup> ‘bin’ truck loads were brought in. This wood was in addition to 100 plus trees gifted to the project by BC Hydro from their right of way danger tree clearing program. A Newbury weir near the hatchery was constructed. It backwaters a large area behind the hatchery and provides an intake pool closer to the hatchery than was previously available.

**Figure 12 Dredging the Settling Pond**



**Figure 13 LWD Staging Area**



**Figure 14 Newbury Weir Upstream**



**Figure 15 Newbury Weir Downstream**



**Week 6** saw the continuation of excavation and LWD placement in the channel; the installation of one mini span bridge crossing on DL 60; the construction of the overflow Newbury weir at the point of diversion to the channel extension; and the delivery of a steel bulkhead and sill structure, to be installed at the downstream end of the channel. The sill was brought down from Campbell River where it had been fabricated but not used for the Elk Falls channel complexes. The structure had to be modified to fit the channel and a working platform with guard rails was added. In addition stop log guides were attached to the sill.

**Figure 16 Overflow Weir**



**Figure 17 Downstream Fence Sill**



**Week 7** saw the installation of the sill; construction of a rock groyne in the river to protect the intake site and down stream banks; final LWD installation; and the start of clean up.

**Figure 18 Flood Protection Groyne**



**Week 8** saw final clean up of the work sites and all the wood waste that had been generated was burnt. The burn pile was in the old quarry on site. BC Forest Service supplied fire pumps and hoses for the operation and were on site for part of the process. Excavators were demobilized and a grader contracted to grade the roads used for our access. The actual grading took place the following week after all the heavy equipment on the project had been de mobilized.

### **Channel Post Construction Photos**



### **Equipment 2007:**

- 270 Hitachi Excavator
- 200 Hitachi Excavator
- 220 Hitachi Excavator and Hoe Pak
- 25 tonne Off road articulated Haul Trucks (2)
- D6 Cat Bull Dozer
- Tandem and Pup gravel Trucks (as required)
- Mobile Arc Welder (Key Mill Construction)
- Flatbed Mounted Crane Trucks (2)
- Grader



### **Monitoring and Assessment:**

Seven years of coho smolt production has already been collected which provides a good base-line for the current production in the watershed. Future annual smolt assessments will provide valuable information on the overall contribution from this major man-made channel to coho production in the watershed.

### **Estimated Habitat/Resource Production:**

The completed project has an overall wetted area of 6.35 Ha with an overall linear length of 4.1 kms. The project could increase the capacity of the Englishman watershed for coho by as much as 50-100%. It is expected this habitat improvement will increase the average productivity of the population. As a significant coho population in the Georgia Basin West Management Unit, the increase in productivity will benefit the status of the Unit, which is now low, and this will translate into larger long term average harvest rates in fisheries in both the U.S.A. and Canada. This is a high profile watershed recovery project, and its success is expected to stimulate similar efforts in the Canadian Southern Panel area.

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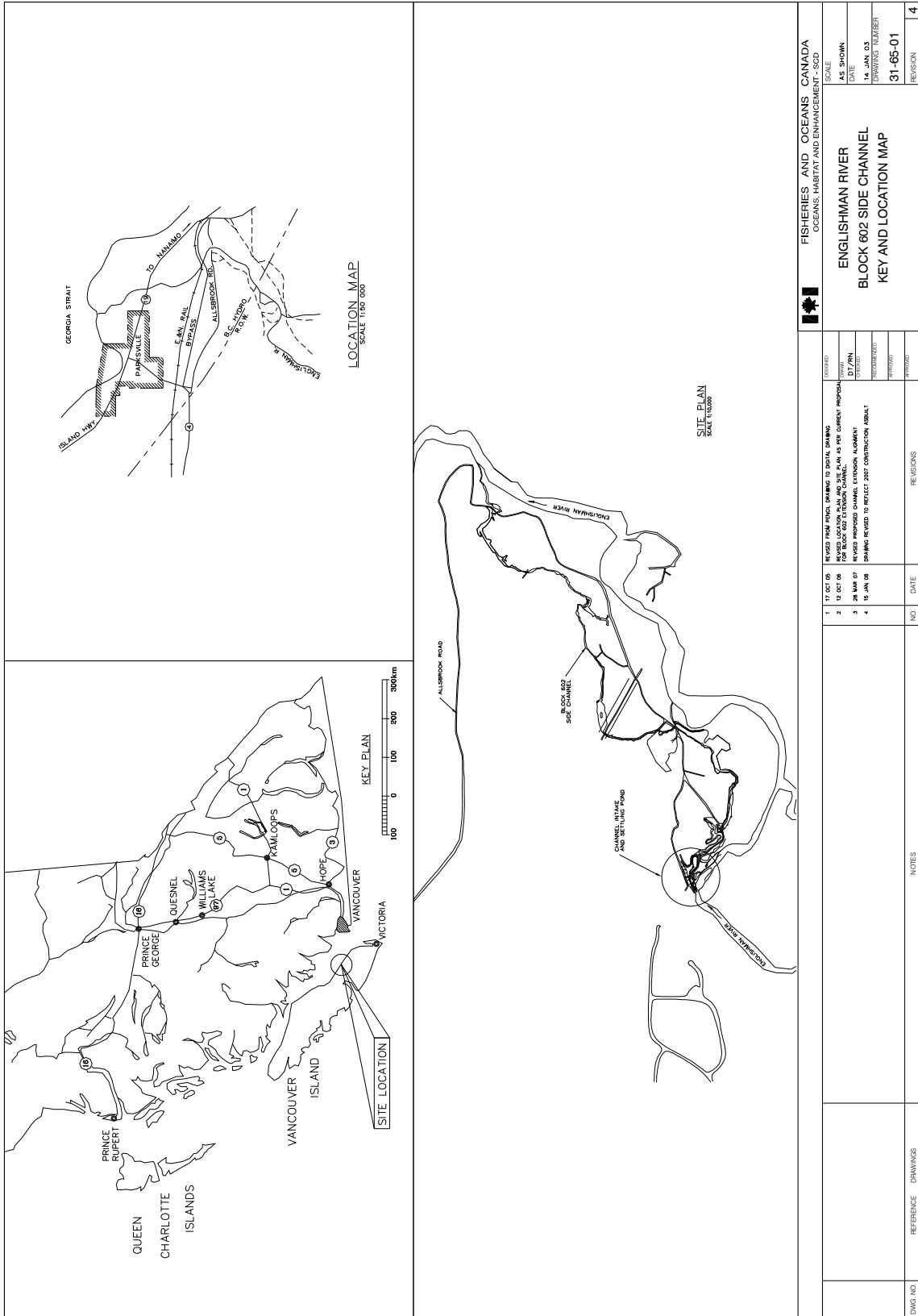
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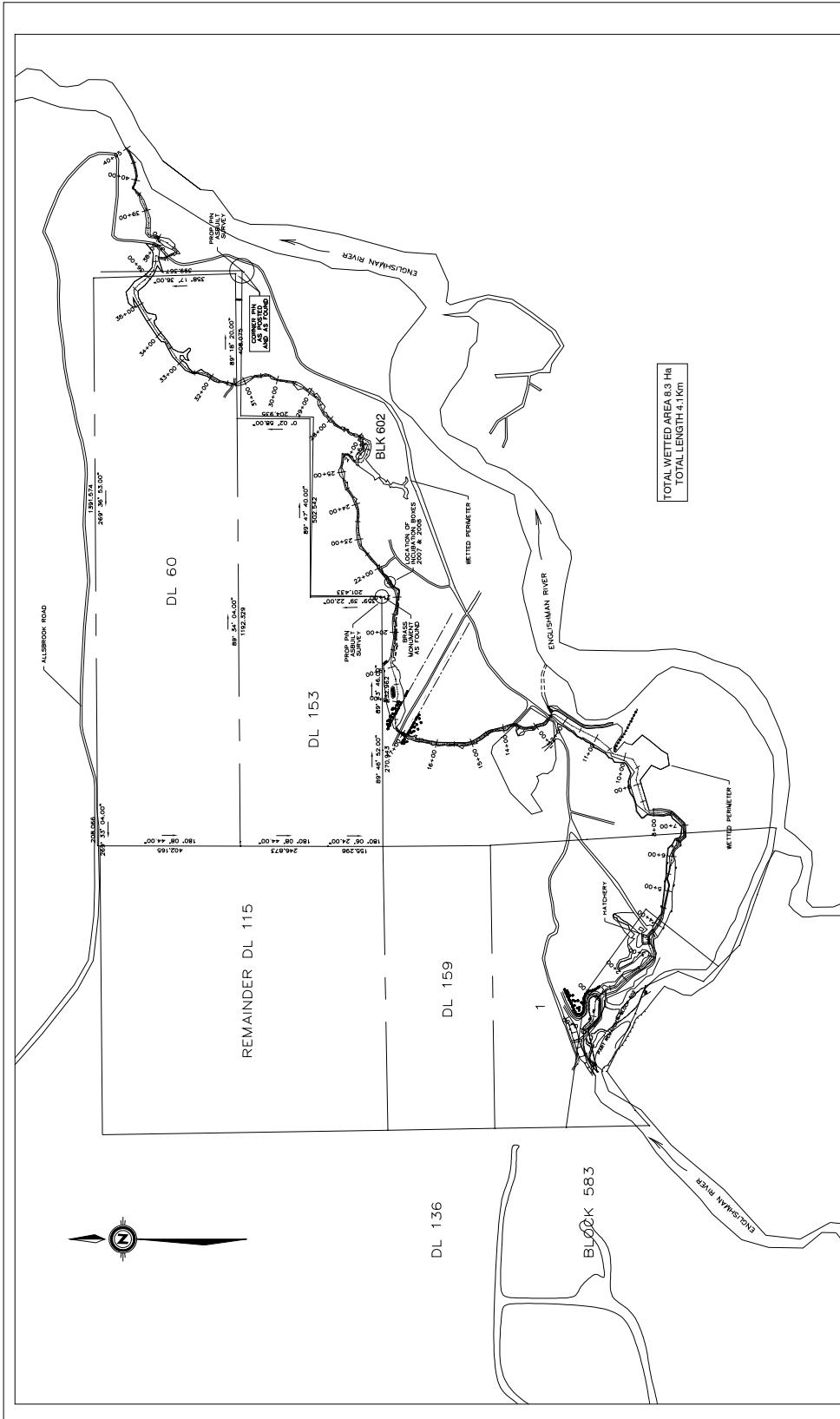
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Drawings: (reduced to 8 1/2" x 11")





<b>FISHERIES AND OCEANS CANADA</b> Océans, Habitat et Aménagement - SCD		SCALE 2000
<b>ENGLISHMAN RIVER</b> <b>BLOCK 602 SIDE CHANNEL</b> <b>OVERALL SITE PLAN</b>		DATE 07 JAN 2008
		DRAWING NUMBER 31-65-07
		REVISION
REVISION NO. DATE REVISIONS	NO. DATE REVISIONS	PERIOD
1. ALL DISTANCES, STATIONING AND ELEVATIONS ARE IN METERS 2. HORIZONTAL DATA IS BASED ON THE CANADIAN DATUM 1983 AND 1984, SUPPLIED BY SPEC. FIELD P. DOL. FROM PARALLEL GEO SERVICES INC. 3. ELEVATION DATA IS BASED ON THE CANADIAN DATUM 1983 AND 1984, SUPPLIED BY SPEC. FIELD P. DOL. FROM PARALLEL GEO SERVICES INC. 4. ELEVATION DATA IS BASED ON THE CANADIAN DATUM 1983 AND 1984, SUPPLIED BY SPEC. FIELD P. DOL. FROM PARALLEL GEO SERVICES INC. 5. TO BE USED IN CONJUNCTION WITH THE OVERALL SITE PLAN, DRAWING 31-65-01	NOTES	DRAWINGS
31-65-07 31-65-08 31-65-09 31-65-10 31-65-11 31-65-12 31-65-13 31-65-14 31-65-15 31-65-16 31-65-17 31-65-18 31-65-19 31-65-20 31-65-21 31-65-22 31-65-23 31-65-24 31-65-25 31-65-26 31-65-27 31-65-28 31-65-29 31-65-30 31-65-31 31-65-32 31-65-33 31-65-34 31-65-35 31-65-36 31-65-37 31-65-38 31-65-39 31-65-40 31-65-41 31-65-42 31-65-43 31-65-44 31-65-45 31-65-46 31-65-47 31-65-48 31-65-49 31-65-50 31-65-51 31-65-52 31-65-53 31-65-54 31-65-55 31-65-56 31-65-57 31-65-58 31-65-59 31-65-60 31-65-61 31-65-62 31-65-63 31-65-64 31-65-65 31-65-66 31-65-67 31-65-68 31-65-69 31-65-70 31-65-71 31-65-72 31-65-73 31-65-74 31-65-75 31-65-76 31-65-77 31-65-78 31-65-79 31-65-80 31-65-81 31-65-82 31-65-83 31-65-84 31-65-85 31-65-86 31-65-87 31-65-88 31-65-89 31-65-90 31-65-91 31-65-92 31-65-93 31-65-94 31-65-95 31-65-96 31-65-97 31-65-98 31-65-99 31-65-100	REFERENCE	DRAWINGS
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