FISHWAY RECONSTRUCTION
Lomond River, Wiltondale
Newfoundland and Labrador

Environmental Registration Document

Submitted to the Government of Newfoundland and Labrador
Department of Environment, Climate Change and Municipalities
Environmental Assessment Division

Prepared For:	**Fisheries and Oceans Canada** **Real Property, Safety and Security Area**
Prepared By:	**Public Services and Procurement Canada**
Date:	**November 12, 2021**

TABLE OF CONTENTS

PAGE

LIST OF TABLES

LIST OF APPENDICES

1.0 NAME OF UNDERTAKING

Fishway Reconstruction, Lomond River, Wiltondale, Newfoundland and Labrador (NL).

2.0 PROPONENT

I. Department of Fisheries and Oceans Canada
Real Property, Safety and Security Branch (DFO-RPSS)

II. Northeast Atlantic Fisheries Center
80 East White Hills Road
St. John's, NL
A1C 5X1

III. Bruce Downer
Project Manager
DFO-RPSS
80 East White Hills Road
St. John's, NL
A1C 5X1
Phone: (709) 772-4959
E-mail: bruce.downer@dfo-mpo.gc.ca

IV. Cathy Martin
Senior Environmental Specialist
Public Services and Procurement Canada
John Cabot Building, 10 Barter's Hill
St. John's, NL
A1C 5T2
Phone: (709) 691-1567
E-mail: cathy.martin@pwgsc-tpsgc.gc.ca

3.0 THE UNDERTAKING

3.1 Nature of the Undertaking

The proposed undertaking represents the reconstruction of the pool and weir fishway in the Lomond River near Wiltondale, NL.

3.2 Purpose/Rationale/Need for Undertaking

The existing pool and weir fishway located in the Lomond River near Wiltondale, NL is in a state of disrepair and requires replacement. Replacement of the existing fishway will restore/enhance the safe and continued passage of fish.

4.0 DESCRIPTION OF THE UNDERTAKING

4.1 Geographical Location

The proposed project site is located at the RPSS site near Wiltondale, NL on the Lomond River. The project site can be accessed by taking an unnamed gravel road off the Bonne Bay Road (Route 431), approximately 10 km west of Wiltondale. From the gravel road a walking trail leads to the fishway. The approximate coordinates of the project site are 49.391260°N and 57.719803°W. DFO-RPSS are in the process of acquiring the property from Crown Lands.

4.2 Physical Features

Lomond River is a scheduled Atlantic Salmon river. The project site is located at a waterfall at the outlet of Bonne Bay Little Pond. The surrounding terrain is comprised primarily of exposed bedrock and large boulder which is surrounded by forest. A photo log of the fishway and surrounding area has been included in Appendix A.

The site is located approximately 2 km south of the Gros Morne National Park boundary. Site access is currently provided by wooden stairs along a walking path.

The existing pool and weir fishway is in a state of disrepair and requires replacement. The existing concrete structure will be dewatered, demolished and removed in its entirety. A new vertical slot fishway will be constructed in the same footprint as the existing structure.

The new fishway will consist of 25 pools and extend an overall travel distance of approximately 75 m with a slope of 9% with a 300 to 380 mm drop between pools. Pool sizes will measure between 2.7 and 3.55 m long by 2.44 m wide by 3.00 m high. Riprap will be placed along both sides of the new fishway to fill excavated areas between the existing topography and fishway. Additional work will include the construction new deflection walls, attraction flow pipe, concrete boardwalk to the fishway, new prefabricated pedestrian bridge over the Lomond River, and timber stairs to the pedestrian bridge. A temporary access road will be built on the existing trail to the fishway. Following completion of the project the temporary access road will be removed and the trail will be restored. Construction drawings (50% review) have been attached in Appendix B.

Clearing of uplands and demolition/removal of existing fishway structure will be accomplished with the use of heavy equipment such as excavators, loaders and dump trucks. The removal of rock from the project site will also be required to facilitate the installation of the new fishway. This will involve the use of heavy equipment and potentially explosives. Temporary dewatering devices and structures will be utilized during demolition and construction activities. Concrete for the new fishway and associated structures will be poured on-site. Construction is expected to span the 2022 and 2023 salmon migration period (approx June - Sept). The contractor will implement a fish relocation plan, in consultation with DFO Fisheries Protection Program, to move migrating salmon above the falls.

The proposed project is a reconstruction of an already existing structure; therefore alternative locations were not considered.

4.2.1 Physical and Biological Environment

The Lomond River watershed has an area of approximately 266 km^2 and includes Bonne Bay Big Pond and Bonne Bay Little Pond. Lomond River drains into Bonne Bay approximately 8 km downstream of the Project site. The Project site is located downstream of the Bonne Bay Little Pond outlet. Water quality sampling near the Route 431 bridge, approximately 1.5 km downstream, shows an average specific conductance of 163 µS/cm^2 and an average pH of 7.84 (NL Environment and Conservation, 2014).

Lomond River is a scheduled Atlantic Salmon river. The project site is located at a waterfall at the outlet of Bonne Bay Little Pond. The surrounding terrain is comprised primarily of exposed bedrock and large boulder which is surrounded by forest.

The project site is located within the Corner Brook sub region of the Western Newfoundland Forest ecoregion. The sub region is the largest in insular NL and has a high degree of climatic variation. The nearest Environment and Climate Change Canada (ECCC) weather station (Cormack) shows an average annual temperature of 3.2°C, with average July highs of 15.5 C and average February lows of -9.2 C (ECCC, 2021). Average annual precipitation is noted as 1263 mm of which approximately 75% comes as rain and 25% comes as snow. The terrain is characterized by forested, rolling hills and an underlying limestone geology. Forested land is dominated by balsam fir (*Abies balsamea*), generally with a floor covering of wood ferns (*Dryopteris* sp.). Black spruce (*Picea mariana*) occurs mainly on poorly drained locations or in area with exposed bedrock. The ecoregion is the northern limit for several species including yellow birch (*Betula alleghaniensis*), white pine (*Pinus strobus*), red maple (*Acer rubrum*), and trembling aspen (*Populus tremuloides*) (ParksNL, 2008).

NL Department of Natural Resources mapping indicates that bedrock geology at the project site is in the Humber Zone and consists of carbonate rocks from the Middle Cambrian to Early Ordovician (NLDNR, 2021). Surficial geology is noted as fluvial plane or glaciofluvial terrace around the project site (NLDNR, 2021).

Common wildlife found in the sub region includes moose (*Alces alces*), mink (*Neogale vison*), snowshoe hare (*Lepus americanus*), lynx (*Lynx canadensis*), black bear (*Ursus americanus*), red fox (*Vulpes vulpes*), beaver (*Castor canadensis*), and muskrat (*Ondatra zibethicus*). It also includes part of the range of the largest remaining population of threatened Newfoundland marten (*Martes americana*) (ParksNL, 2008).

Avian species in the subregion include song sparrow (*Melospiza melodia*), mourning warbler (*Geothlypis philadelphia*), green-winged teal (*Anas carolinensis*), black duck (*Anas rubripes*), red-breaster merganser (*Mergus serrator*), spotter sandpiper (*Actitis macularius*), common tern (*Sterna hirundo*), and belted kingfisher (*Megaceryle alcyon*) (ParksNL, 2008). The Atlantic Canada Conservation Data Centre (ACCDC) database returned a list of species noted in the area that included blue-headed vireo (*Vireo solitarius*), chipping sparrow (*Spizella passerina*), greater yellowlegs (*Tringa melanoleuca*), Nashville warbler (*Vermivora ruficapilla*), northern goshawk (*Accipiter gentilis*), northern harrier (*Circus cyaneus*), olive-sided flycatcher (*Contopus cooperi*), rusty blackbird (*Euphagus carolinus*), and winter wren (*Troglodytes troglodytes*) (ACCDC, 2021).

Benthic sampling conducted near the water quality station contained 1750 individuals from 16 taxa. The community was dominated by chironomids with a smaller population of Ephemeroptera, Plecoptera, and Tricoptera (EPT) (NL Environment and Conservation, 2014).

Fish in the subregion include Atlantic salmon, brook trout, brown trout, rainbow smelt, American eel, and three-spine, nine-spine, and black-spotted sticklebacks, mummichog, and banded killifish (ParksNL, 2008). Salmon, brook trout, smelt, and eels have been verified in the Bonne Bay / Lomond River area (Currie et al, 2009). Five amphibians; green frog, American toad, wood frog, striped chorus frog, and northern leopard frog have been noted in the subregion. All five species have been introduced and are present in low numbers. No reptiles have been recorded in the subecoregion (ParksNL, 2008).

A search of the Atlantic Canada Conservation Data Centre (ACCDC) database was conducted on September 3, 2021. The ACCDC provided a list of rare/unique species (i.e. plants and animals) within a 5 km buffer zone (standard ACCDC procedure) of the site. All species were cross-referenced with Schedule 1 of the Species at Risk Act (SARA) listed as extirpated, endangered, threatened, or special concern. Results of the search are summarized in Table 4.1.

Table 4.1 Species at Risk in Proximity to the Project Site

Common Name	Scientific Name	Provincial Ranking	COSEWIC Ranking	SARA Ranking
Olive-sided flycatcher	*Contopus cooperi*	Threatened	Special Concern	Threatened
Rusty blackbird	*Euphagus carolinus*	Vulnerable	Special Concern	Special Concern
Newfoundland marten	*Martes americana*	Threatened	Threatened	Endangered
Vreeland's striped coralroot	*Corallorhiza striata* var. vreelandii	Endangered	Not listed	Not listed

Note, the observation of Vreeland's striped coralroot was noted at the Lomond River Lodge campground, approximately 2 km from the site.

4.3 Construction

Commencement of this project is subject to DFO-RPSS operational priorities and funding. Replacement of the fishway is expected to require 22 months to complete. Site preparation may commence in April or May 2022 with in-water work commencing in the first two months of the project.

Construction activities will include:

- Demolition, removal and reconstruction of the existing fishway structure. This will be accomplished using hand-held equipment (e.g. pneumatic jackhammers, sledge hammers, etc) and possibly machine mounted equipment (e.g pneumatic hammer). Demolished materials will removed from the site using a combination of manual labour and heavy equipment and transported to an approved waste disposal location (e.g. regional landfill) for disposal. If necessary, temporary dewatering devices and structures such as cofferdams may be utilized to allow for safe demolition and removal of the structure. The new fishway is very similar in design to the existing fishway and will be

constructed in the same footprint. Again, temporary dewatering devices and structures such as cofferdams may utilized to allow for the placement of the new structure. Concrete for the new fishway and associated structures will be poured on-site. Where necessary, the fishway will be anchored to bedrock using drilling and bolts. Riprap will be placed along each side of the fishway likely using heavy equipment such as an excavator.

- Clearing and widening of existing uplands access to accommodate equipment access will be required. Trees will be cut down using chainsaws and associated equipment. Disturbances to surrounding vegetation is anticipated to be minimal. Only trees requiring removal to safely access the site will be removed. The existing embankment may require grading in order to provide safe access. The existing parking area will be utilized for a lay-down area. Post-construction, the widened access area will be landscaped and re-vegetated and a new wooden/gravel pedestrian access reinstated.
- Construction is expected to span the 2022 and 2023 salmon migration period (approx June - Sept). The contractor will implement a fish relocation plan, in consultation with DFO Fisheries Protection Program, to move migrating salmon above the falls.
- Equipment and tools will be transported to the project site using local roads and access.
- Waste material will be transported from the project site and disposed of at an approved waste disposal location

The most probable sources of potential pollutants are related to the use of equipment. Accidental spills of equipment fuel/oil, sedimentation from disturbances to riparian area and establishment of laydown area are also a possibility. The project will be assessed pursuant to Section 67 of the Canadian Environmental Assessment Act (2012) or Section 82 of the Impact Assessment Act. All mitigations prescribed as part of that process will be implemented during project activities. The following mitigation measures will also be utilized to minimize potential interactions with the environment:

Fish / Fish Habitat and Water

- A Request for Review for the project has been submitted to Fisheries and Oceans Canada, Fisheries Protection Program.
- All instream work should take place during the appropriate timing window (October 1 – April 30). If this is not possible, a fish relocation plan must be developed and implemented in consultation with DFO Fisheries Protection Program.
- As this is a scheduled salmon river, if at any time Atlantic salmon or sea-run trout are observed migrating upstream or downstream, all works must cease until the migration has ended to ensure there are no impacts to fish movement.
- Minimize duration of in-water work.
- Schedule work to avoid wet, windy and rainy periods that may increase erosion and sedimentation.
- Plan activities near water such that materials such as paint, primers, blasting abrasives, rust solvents, degreasers, grout, or other chemicals do not enter the watercourse.
- Develop a response plan that is to be implemented immediately in the event of a sediment release or spill of a deleterious substance and keep an emergency spill kit on site.

- Ensure that building material used in the watercourse has been handled and treated in a manner to prevent the release of leaching of substances into the water that may be deleterious to fish.
- Develop and implement an Erosion and Sediment Control Plan for the site that minimizes risk of sedimentation of the waterbody during all phases of the project.
- If there is any run-off of concrete or associated water, it should be directed to a drainage control device such as a settling pond and appropriately managed. No concrete run-off is allowed to enter the water.
- Retain a qualified environmental professional to ensure applicable permits for relocating fish are obtained and to capture any fish trapped within an isolated/enclosed area at the work site and safely relocate them to an appropriate location in the same waters. Fish may need to be relocated again, should flooding occur on the site.
- Time works such that it does not interfere with the sensitive life stages of the fish species present. Ideally, the work should be carried out during low-flow periods.
- Clearly identify in the field sensitive habitats near the work site that are to be protected.
- If explosives are used, ensure appropriate on-land set-back distance from the waterbody. Refer to Wright and Hopky (1998) Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters.
- Blasting should be undertaken at the time of least biological activity or biological sensitivity.
- Do not use ammonium nitrate based explosives in or near water due to the production of toxic by-products.
- Remove all blasting debris and other associated equipment/products from the blast area.
- Detonation of small scaring charges set off one minute prior to the main charge to scare fish away from the site.
- Use of noise generators to move fish out of the area.

Birds and Bird Habitat

- The contractor is responsible to ensure a spill kit is on site. Equipment within the spill kit should be adequate for the proposed project. In case of a spill, the contractor should contact Environment Canada at 1-800-563-9089.
- All construction equipment must be fitted with standard and well maintained noise suppression devices. Appropriate dust suppression methods are to be employed when required. Air filters should be used to minimize exhaust emissions.
- Vegetation removal should be kept to a minimum.
- All work to be conducted in accordance with the Migratory Birds Convention Act (MBCA), which outlines that no migratory bird nests or eggs will be moved or obstructed during the construction or operation phase of the project. It is recommended that vegetation clearing not take place during the breeding season until fledglings have left parental territories.
- Migratory birds, their eggs, nests and young are protected under the MBCA.

Soil (surface and subsurface)

- Work should be scheduled to avoid periods of heavy precipitation. Erosion control structures (temporary matting, geotextile filter fabric) are to be used, as appropriate, to prevent erosion runoff or sediment laden water during the construction phase.
- Any exposed soil must be minimized by limiting the area exposed at any one time and by limiting the time that any one area is exposed. All stockpiled soil must be covered and/or dyked to prevent erosion or runoff of sediment-laden water from leaving the site. Whenever possible, exposed soil should be replanted or sodded to ensure soil stabilization.
- All wastes must be recycled where possible or otherwise disposed of appropriately.
- Fill material is to be free of contaminants and from an approved quarry site.
- Machinery must be checked for leakage of lubricants or fuel and must be in good working order. Refueling must be done at least 100 m from any waterbody. Basic petroleum spill cleanup equipment should be on site. All spills or leaks should be promptly contained, cleaned up and reported to the 24 hour environmental emergencies reporting system (1-800-563-9089).
- Containers of petroleum products or chemicals that may be required on site will be tightly sealed against corrosion and rust, and surrounded by an impermeable barrier in a dry, water-tight building or shed with an impermeable floor.
- Waste oils and used lubricating oil will be retained in a tank or closed container and disposed of by a company licensed for handling and disposing of used oil products.
- Mechanical inspections will be conducted routinely on equipment to search for leaks. Leaks will be repaired immediately.

Vegetation

- Disturbed areas will be restored through manual re-seeding.
- Areas that may require extensive grubbing will be stabilized as soon as possible to reduce potential for erosion.
- A vegetated buffer will be maintained between disturbed areas and the river at all times.

Air Quality and Noise

- All construction equipment must be fitted with standard and well maintained noise suppression devices. Appropriate dust suppression methods are to be employed when required. Air filters should be sued to minimize exhaust emissions.

4.4 Operation

Routine maintenance and repair projects will be carried out on an as- required basis over the estimated thirty (30) year life of the structure.

Reasonably foreseeable pollutants occurring during the operational phase of the proposed project are limited to accidental discharges of fuel. The operation and maintenance of the site will be under the control of DFO-RPSS. Potential resource conflicts are not anticipated as a result of the operation of the proposed project.

4.5 Occupations

Reconstruction of the fishway is expected to require 22 months to complete. Commencement of the proposed project is scheduled for Spring 2022.

The following list outlines occupations which may be employed during the design and construction period. Please note that this list represents only an approximation of the number and type of occupations that may be produced as a result of the proposed project. Actual occupations created as a result of the proposed project will ultimately be determined by the successful contractor. Occupations are expected to be comparable to those created for similar construction projects throughout the Province.

1 - Project Manager – Contractor/Construction
1 - Office Administrator – Contractor/Construction
1 - Project Supervisor/Foreman – Contractor/Construction
1 - OHS Representative – Contractor/Construction
2 - Carpenters – Contractor/Construction
4 - Laborers – Contractor/Construction
1- Helicopter Pilot – Contractor/Construction
1 - Surveyor – Contractor/Construction
2 - Truck Drivers – Contractor/Construction
1 – Equipment Operator – Contractor/Construction
1 - Site Inspector - Construction
1 - Professional Engineer – Entire Project
1 - Engineering Technologist – Construction Design (Engineering)
1 - Office Administrator – Entire Project (Engineering)

5.0 APPROVAL OF THE UNDERTAKING

Table 5.1 is a list of the likely permits, licenses and approvals required for this project.

Table 5.1 Likely Permits and Regulatory Authority

Approvals/Certificates/Permits	Regulatory Authority
NL Environmental Assessment Registration (1)	NL Department of Environment, Climate Change and Municipalities, Environmental Assessment Division
DFO–Request for Review (Serious Harm Determination; Aquatic Species at Risk) (2)	DFO, Fisheries Protection Program
Permit to Alter a Body of Water (3)	NL Department of Municipal Affairs and Environment, Water Resources Division
Canadian Navigable Waters Protection Act (4)	Transport Canada, Navigation Protection Program

Notes: (1) This document; provincial permits are expected to be issued following release from further environmental assessment.
(2) An RFR will be submitted to DFO – Fisheries Protection Program.
(3) A permit application will be submitted to the Province
(4) As per the Canadian Navigable Waters Act (CNWA) for Works on non-scheduled waters, this project was posted to the CNWA Public Registry.

6.0 ABORIGINAL CONSULTATION

There are no known indigenous rights or interests at the Lomond River Fishway RPSS site that could be impacted by the project. As such, aboriginal consultation was not deemed necessary.

7.0 SCHEDULE

The proposed project is expected to commence in April 2022 and construction would occur over a 22-month period. A detailed schedule (50% review) has been attached in Appendix C.

8.0 FUNDING

The total cost estimate for all phases of the proposed project, as provided by the proponent, is approximately $3.75 million. Funds will be provided by Real Property, Safety and Security Branch, Fisheries and Oceans Canada.

9.0 REFERENCES

Currie, J.J, Wroblewski, J.S, Methven, D.A., and Hooper, R.G. 2009. Community-University Research for Recovery Alliance (CURRA) Report. The Nearshore Fish Fauna of Bonne Bay, A Fjord within Gros Morne National Park, Newfoundland. Memorial University of Newfoundland. 66 pages

Environment and Climate Change Canada. 2021. Canadian Climate Normals 1981-2010 Station Data – Cormack. Accessed at: https://climate.weather.gc.ca/climate_normals/results_1981_2010_e.html?searchType=stnProx&txtRadius=25&selCity=&selPark=&optProxType=custom&txtCentralLatDeg=49&txtCentralLatMin=23&txtCentralLatSec=30&txtCentralLongDeg=57&txtCentralLongMin=43&txtCentralLongSec=13&txtLatDecDeg=&txtLongDecDeg=&stnID=6609&dispBack=0

NL Department of Natural Resources. Geosciences On-line. Accessed at: https://gis.geosurv.gov.nl.ca/

NL Department of Environment and Conservation. 2014. Intensive Survey of Bonne Bay Big Pond and Bonne Bay Little Pond. Water Resources Management Division. 64 pages

Parks NL. 2008. Western Newfoundland Forest – Corner Brook subregion (1B). Accessed at: https://www.parksnl.ca/about-us/#publications

10.0 SIGNATURE

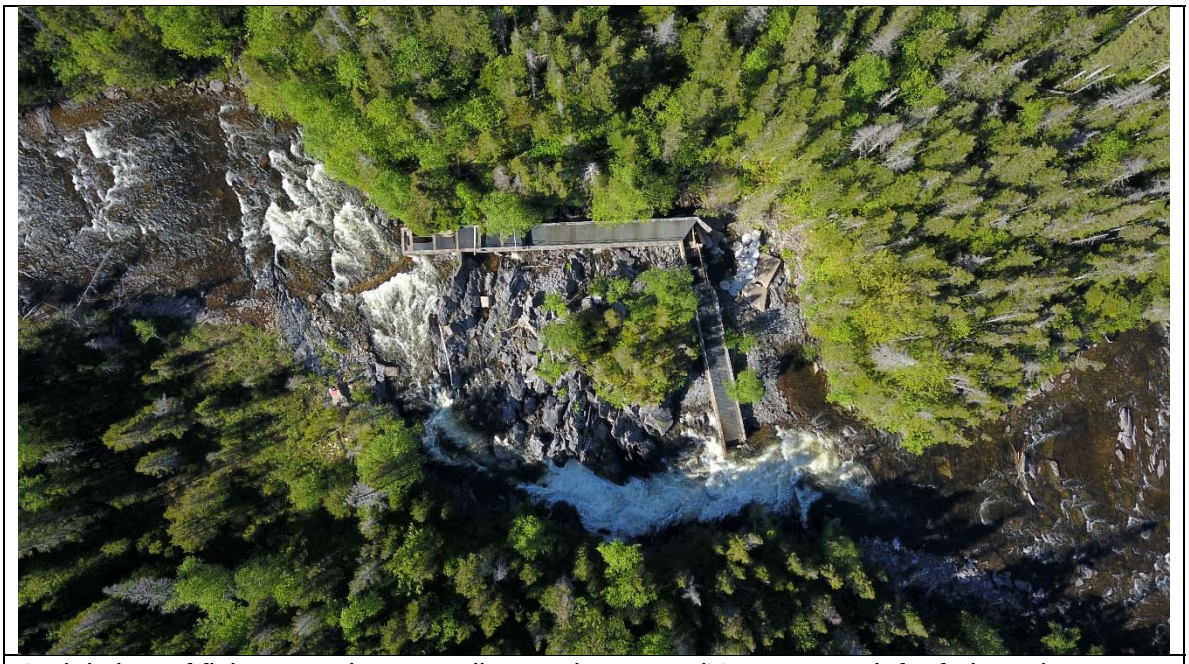
_____

Environmental Assessment Representative

_____

Date

APPENDIX A
Photo Log



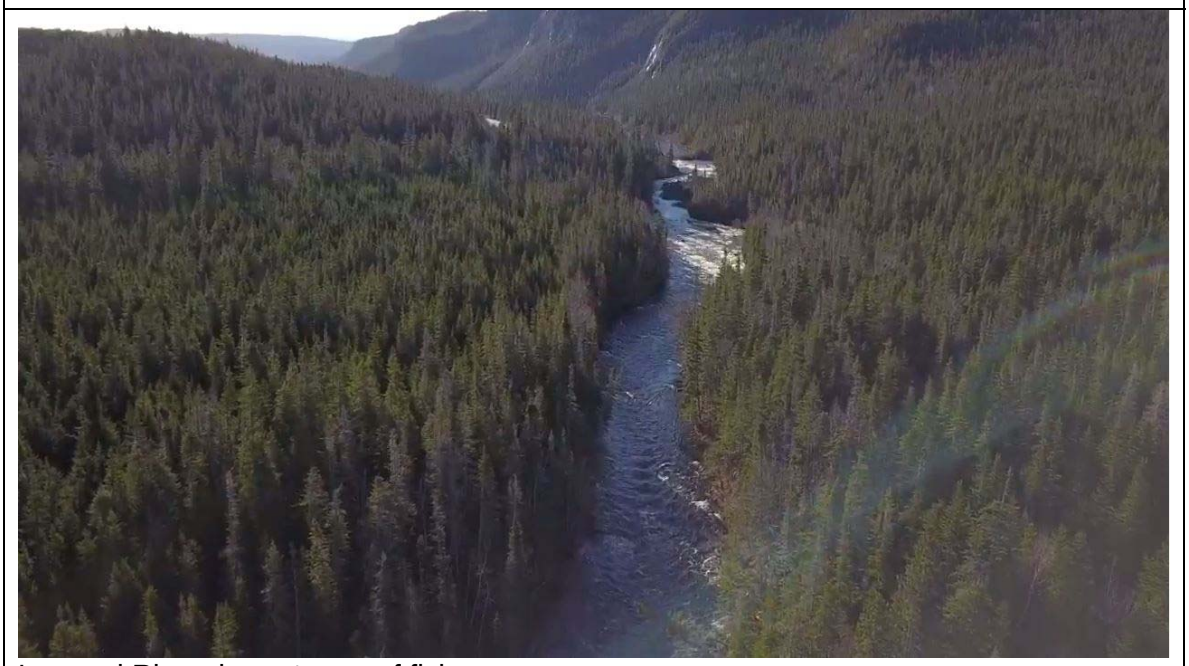
Aerial view of fishway and surrounding environment (Upstream to left of picture)

Upstream area of in-water construction

Downstream area of in-water construction

Rebar that will be removed

Lomond River upstream of fishway



Lomond River downstream of fishway

Existing trail that will be used as a temporary road

Typical watercourse crossing on access road

APPENDIX B
Construction Drawings

LOMOND RIVER FISHWAY REPLACEMENT
LOMOND RIVER, NEWFOUNDLAND
PROJECT No. R.114129.002
ISSUED FOR 50% REVIEW

LIST OF DRAWINGS:

PREPARED FOR

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

ON BEHALF OF

DEPARTMENT OF FISHERIES AND OCEANS

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA
10 BARTER'S HILL
P.O. BOX 4600
ST. JOHN'S
NEWFOUNDLAND
A1C 5T2

~ WOODED AREA ~

TO LOMOND

~ WOODED AREA ~

GRAVEL PIT

~ WOODED AREA ~

~ WOODED AREA ~

LOMOND RIVER

~ WOODED AREA ~

~ WOODED AREA ~

~ WOODED AREA ~

FISHWAY SITE

EASTERN SITE ACCESS ROUTE (FISHWAY INACCESSIBLE FROM EASTERN SHORE)

ROUTE 431

TOWER ROAD, SEE NOTE 4

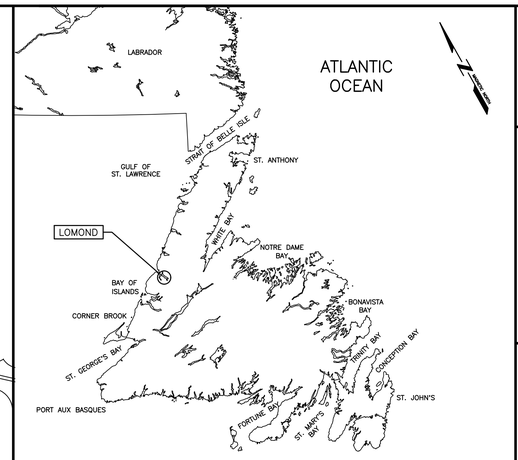
WESTERN SITE ACCESS ROUTE (FISHWAY ACCESS)

~ WOODED AREA ~

TO WILTONDALE

FLOW DIRECTION FROM LITTLE BONNE BAY POND

~ LITTLE BONNE BAY POND ~



MAP
N.T.S.

GENERAL LEGEND:

- DENOTES APPROXIMATE TREELINE
- DENOTES NEW SITE ACCESS ROAD
- DENOTES ROUTE 431
- DENOTES TOWER ROAD
- DENOTES LOMOND RIVER & FLOW DIRECTION

GENERAL NOTES:

1. ALL DIMENSIONS IN MILLIMETRES UNLESS SPECIFIED OTHERWISE.
2. ALL ELEVATIONS IN METRES.
3. DO NOT SCALE FROM DRAWINGS, USE DIMENSIONS AS SHOWN.
4. CONTRACTOR TO MAINTAIN TOWER ROAD AS REQUIRED DURING CONSTRUCTION AND TO REINSTATE THE ROAD TO PRE-CONSTRUCTION CONDITIONS (OR BETTER) ONCE CONSTRUCTION IS COMPLETE.

1/1 LOCATION PLAN

SCALE: 1:5000

0m 100m 200m 300m 400m 500m

Plot Scale: 1:1

PWGSC B1

0 10 20mm 40 60 80 100 120 140 160 180 200mm

Public Works and Government Services Canada / Travaux Publics et Services gouvernementaux Canada

revisions		date
A	ISSUED FOR 50% REVIEW	21/08/26

A detail no. / no. du detail
B location drawing no. / sur dessin no.
C drawing no. / dessin no.

project / projet

LOMOND RIVER FISHWAY REPLACEMENT

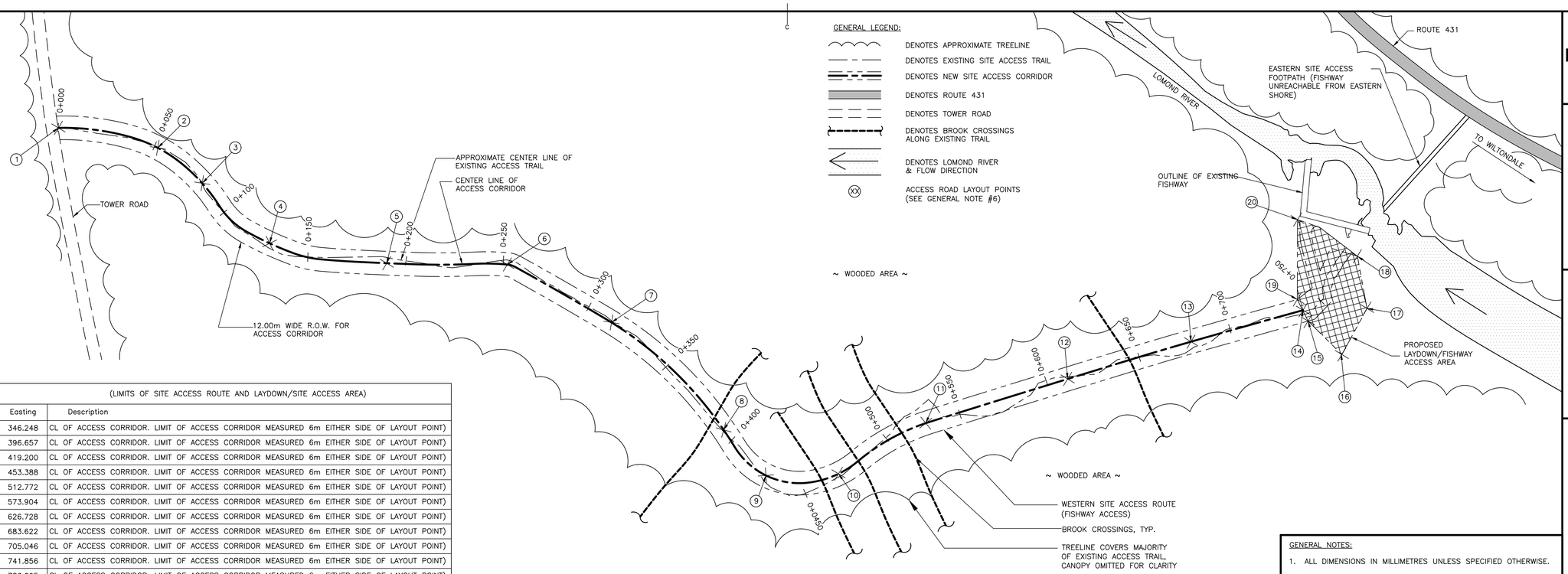
LOMOND RIVER, NL

drawing / dessin

LOCATION PLAN

designed K. FITZGERALD / concu
date JUNE 2021
drawn R. SNOW / dessine
date JUNE 2021
approved / approuve
date
Tender / Soumission
PWGSC Project Manager / Administrateur de projets TPSGC
project number / no. du projet
R-114129.002
drawing no. / no. du dessin
C1 of 12

TIDIS Document No. Not in System



LAYOUT POINTS (LIMITS OF SITE ACCESS ROUTE AND LAYDOWN/SITE ACCESS AREA)

Point #	Northing	Easting	Description
1	1048.728	346.248	CL OF ACCESS CORRIDOR. LIMIT OF ACCESS CORRIDOR MEASURED 6m EITHER SIDE OF LAYOUT POINT)
2	1038.606	396.657	CL OF ACCESS CORRIDOR. LIMIT OF ACCESS CORRIDOR MEASURED 6m EITHER SIDE OF LAYOUT POINT)
3	1020.650	419.200	CL OF ACCESS CORRIDOR. LIMIT OF ACCESS CORRIDOR MEASURED 6m EITHER SIDE OF LAYOUT POINT)
4	990.173	453.388	CL OF ACCESS CORRIDOR. LIMIT OF ACCESS CORRIDOR MEASURED 6m EITHER SIDE OF LAYOUT POINT)
5	980.087	512.772	CL OF ACCESS CORRIDOR. LIMIT OF ACCESS CORRIDOR MEASURED 6m EITHER SIDE OF LAYOUT POINT)
6	979.421	573.904	CL OF ACCESS CORRIDOR. LIMIT OF ACCESS CORRIDOR MEASURED 6m EITHER SIDE OF LAYOUT POINT)
7	950.046	626.728	CL OF ACCESS CORRIDOR. LIMIT OF ACCESS CORRIDOR MEASURED 6m EITHER SIDE OF LAYOUT POINT)
8	895.544	683.622	CL OF ACCESS CORRIDOR. LIMIT OF ACCESS CORRIDOR MEASURED 6m EITHER SIDE OF LAYOUT POINT)
9	872.435	705.046	CL OF ACCESS CORRIDOR. LIMIT OF ACCESS CORRIDOR MEASURED 6m EITHER SIDE OF LAYOUT POINT)
10	873.271	741.856	CL OF ACCESS CORRIDOR. LIMIT OF ACCESS CORRIDOR MEASURED 6m EITHER SIDE OF LAYOUT POINT)
11	898.963	786.095	CL OF ACCESS CORRIDOR. LIMIT OF ACCESS CORRIDOR MEASURED 6m EITHER SIDE OF LAYOUT POINT)
12	921.383	858.045	CL OF ACCESS CORRIDOR. LIMIT OF ACCESS CORRIDOR MEASURED 6m EITHER SIDE OF LAYOUT POINT)
13	940.285	920.602	CL OF ACCESS CORRIDOR. LIMIT OF ACCESS CORRIDOR MEASURED 6m EITHER SIDE OF LAYOUT POINT)
14	956.262	977.403	CL OF ACCESS CORRIDOR. LIMIT OF ACCESS CORRIDOR MEASURED 6m EITHER SIDE OF LAYOUT POINT)
15	950.744	979.965	EXTERIOR LIMIT OF NEW LAYDOWN/SITE ACCESS AREA
16	933.771	997.110	EXTERIOR LIMIT OF NEW LAYDOWN/SITE ACCESS AREA
17	957.134	1009.862	EXTERIOR LIMIT OF NEW LAYDOWN/SITE ACCESS AREA
18	983.640	1004.979	EXTERIOR LIMIT OF NEW LAYDOWN/SITE ACCESS AREA
19	961.695	974.517	EXTERIOR LIMIT OF NEW LAYDOWN/SITE ACCESS AREA
20	1002.207	974.646	EXTERIOR LIMIT OF NEW LAYDOWN/SITE ACCESS AREA

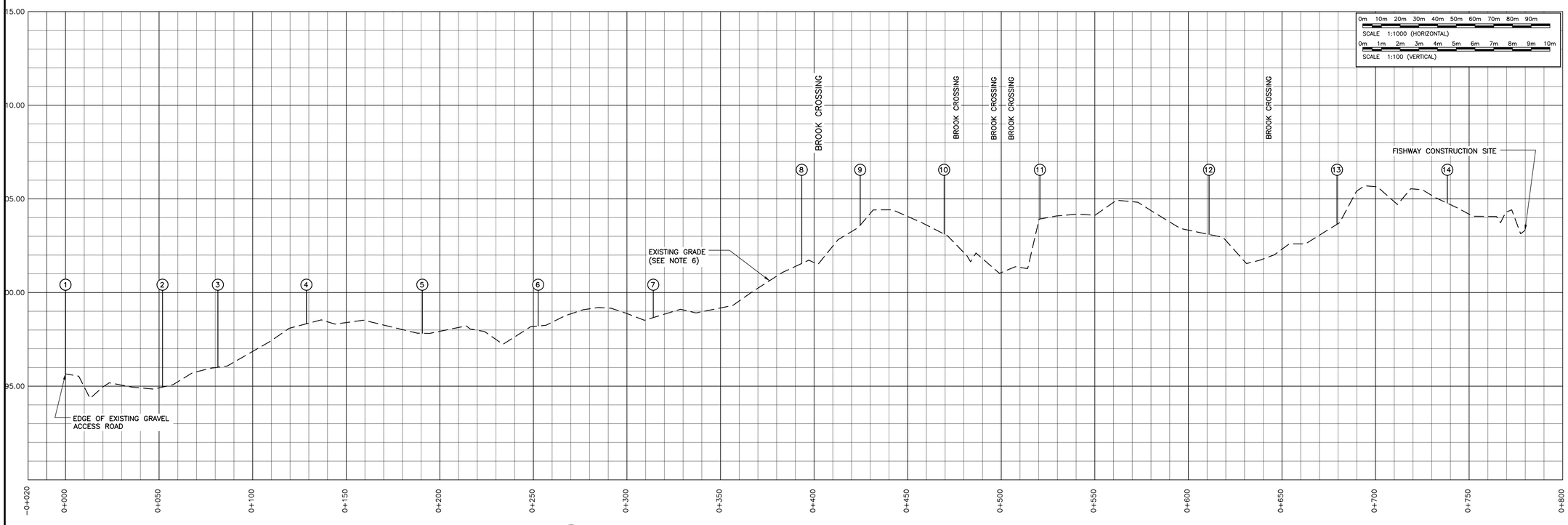
1/2/2 PLAN – ACCESS TRAIL TO FISHWAY

SCALE : 1:1000

0m 10m 20m 30m 40m 50m 60m 70m 80m 90m 100m

GENERAL NOTES:

1. ALL DIMENSIONS IN MILLIMETRES UNLESS SPECIFIED OTHERWISE.
2. ALL ELEVATIONS IN METRES.
3. DO NOT SCALE FROM DRAWINGS, USE DIMENSIONS AS SHOWN.
4. CONTRACTOR TO MAINTAIN TOWER ROAD AS REQUIRED DURING CONSTRUCTION AND TO REINSTATE THE ROAD TO PRE–CONSTRUCTION CONDITIONS, (OR BETTER), ONCE CONSTRUCTION IS COMPLETE.
5. CONTRACTOR TO DETERMINE REQUIREMENTS FOR TRAFFIC BYPASS AREAS ALONG PROPOSED SITE ACCESS ROUTE. ALL ACCESS ROUTE UPGRADES MUST BE CONSTRUCTED WITHIN PROPOSED FOORPRINT (6.0m EITHER SIDE OF CENTERLINE SHOWN). SEE LAYOUT POINTS FOR EXTENTS.
6. THE CENTER LINE PROFILE SHOWN IS BASED ON THE CENTER LINE OF THE EXISTING TRAIL.



2/2/2 PROFILE – ACCESS TRAIL TO FISHWAY

0 10 20mm 40 60 80 100 120 140 160 180 200mm

Plot Scale: 1:1

PWGSC B1

Public Works and Government Services Canada / Travaux Publics et Services gouvernementaux Canada

revisions		date
B	ISSUED FOR 50% REVIEW	21/08/26
A	ISSUED FOR 33% REVIEW	21/07/09

A detail no. no. du detail
B location drawing no. sur dessin no.
C drawing no. dessin no.

project / projet

LOMOND RIVER FISHWAY REPLACEMENT

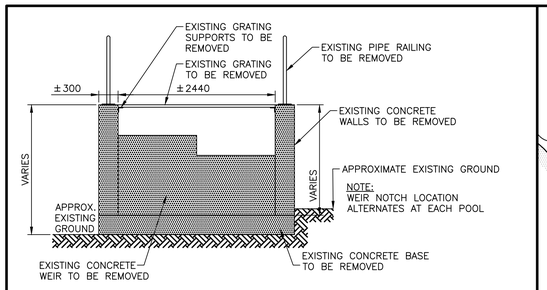
LOMOND RIVER, NL

drawing / dessin

EXISTING ACCESS TRAIL PLAN & PROFILE

designed K. FITZGERALD / concu
date JUNE 2021
drawn R. SNOW / dessine
date JUNE 2021
approved / approuve
date
Tender / Soumission
PWGSC Project Manager / Administrateur de projets TPSGC
project number / no. du projet
R–114129.002
drawing no. / no. du dessin
C2 of 12

TIDIS Document No. Not in System



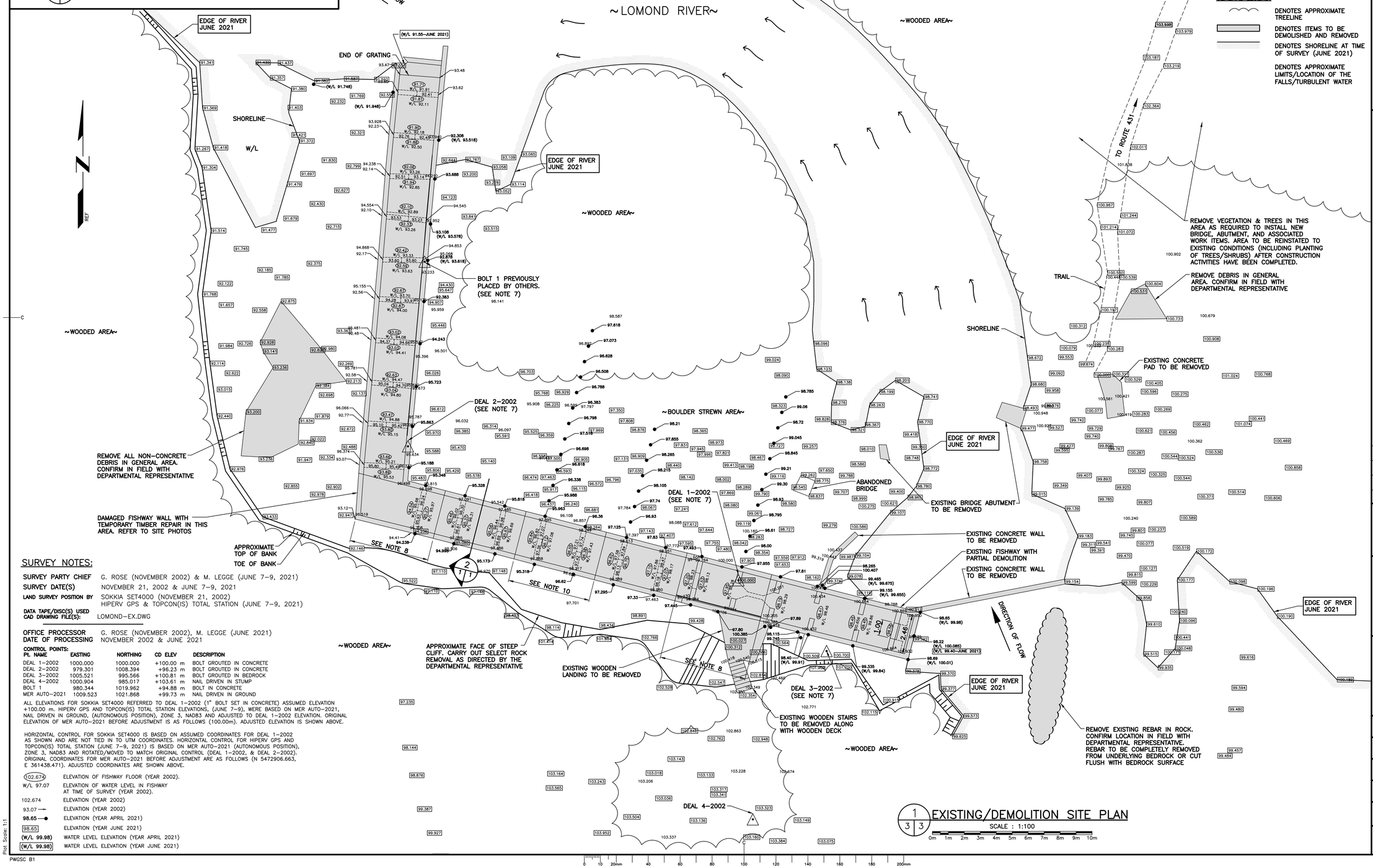
2 / 3 EXISTING SECTION (TYPICAL)

GENERAL NOTES:

1. ALL DIMENSIONS IN MILLIMETRES UNLESS SPECIFIED OTHERWISE.
2. ALL ELEVATIONS IN METRES.
3. DO NOT SCALE FROM DRAWINGS, USE DIMENSIONS AS SHOWN.
4. SURVEY INFORMATION COLLECTED BY G. ROSE IN 2002, AS CONTAINED ON THIS DRAWING, HAS BEEN SUPPLEMENTED WITH ADDITIONAL SURVEY INFORMATION COLLECTED BY MERIDIAN ENGINEERING IN APRIL & JUNE 2021.
5. IT SHOULD BE NOTED THAT RIVER WATER LEVEL DOES SIGNIFICANTLY CHANGE AND CAN LARGELY EXCEED THE RECORDED LEVEL INDICATED DURING THE TIME OF THE SURVEY. THE CONTRACTOR SHALL ASSUME WORST CASE CONDITIONS AND BEAR ALL COSTS NECESSARY TO COMPLETE THE WORK UNDER THE VARYING FLUCTUATIONS.

GENERAL NOTES CONT'D:

6. SOME DIMENSIONS AND ELEVATIONS SHOWN FOR EXISTING COMPONENTS ARE FROM PREVIOUS SURVEYS BY OTHERS AND HAVE NOT BEEN CONFIRMED FOR ACCURACY WITH CURRENT AS-BUILT CONDITIONS. INFORMATION SHOWN SHALL BE CONSIDERED APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING ALL CRITICAL DIMENSIONS PRIOR TO THE START OF WORK AND SHALL BEAR ALL COSTS RELATED TO THESE UNKNOWNS AND ASSOCIATED RISKS ACCORDINGLY. CONTRACTOR TO VERIFY ALL CRITICAL DIMENSIONS IN THE FIELD PRIOR TO START OF WORK AND NOTIFY DEPARTMENTAL REPRESENTATIVE ON ANY DISCREPANCIES.
7. PRIOR TO DEMOLITION, TRANSFER ANY EXISTING CONTROL POINTS THAT WILL BE DESTROYED DURING DEMOLITION. CONTRACTOR TO ENSURE CONTROL IS MAINTAINED THROUGHOUT THE COURSE OF THE PROJECT AND REINSTATED UPON PROJECT COMPLETION.
8. EXISTING FISHWAY MAY BE LEFT INTACT AND BACKFILLED IN THESE AREAS. CONTRACTOR TO DETERMINE DEMOLITION EXTENTS IN FIELD. COORDINATE WITH DEPARTMENTAL REPRESENTATIVE.



GENERAL LEGEND:

- DENOTES APPROXIMATE TREELINE
- DENOTES ITEMS TO BE DEMOLISHED AND REMOVED
- DENOTES SHORELINE AT TIME OF SURVEY (JUNE 2021)
- DENOTES APPROXIMATE LIMITS/LOCATION OF THE FALLS/TURBULENT WATER

SURVEY NOTES:

SURVEY PARTY CHIEF	G. ROSE (NOVEMBER 2002) & M. LEGGE (JUNE 7–9, 2021)
SURVEY DATE(S)	NOVEMBER 21, 2002 & JUNE 7–9, 2021
LAND SURVEY POSITION BY	SOKKIA SET4000 (NOVEMBER 21, 2002) HIPERV GPS & TOPCON(IS) TOTAL STATION (JUNE 7–9, 2021)
DATA TAPE/DISC(S) USED CAD DRAWING FILE(S):	LOMOND–EX.DWG
OFFICE PROCESSOR	G. ROSE (NOVEMBER 2002), M. LEGGE (JUNE 2021)
DATE OF PROCESSING	NOVEMBER 2002 & JUNE 2021

CONTROL POINTS:

Pt. NAME	EASTING	NORTHING	CD ELEV	DESCRIPTION
DEAL 1–2002	1000.000	1000.000	+100.00 m	BOLT GROUTED IN CONCRETE
DEAL 2–2002	979.301	1008.394	+96.23 m	BOLT GROUTED IN CONCRETE
DEAL 3–2002	1005.521	995.566	+100.81 m	BOLT GROUTED IN BEDROCK
DEAL 4–2002	1000.904	985.017	+103.61 m	NAIL DRIVEN IN STUMP
BOLT 1	980.344	1019.962	+94.88 m	BOLT IN CONCRETE
MER AUTO–2021	1009.523	1021.868	+99.73 m	NAIL DRIVEN IN GROUND

ALL ELEVATIONS FOR SOKKIA SET4000 REFERRED TO DEAL 1–2002 (1" BOLT SET IN CONCRETE) ASSUMED ELEVATION +100.00 m. HIPERV GPS AND TOPCON(IS) TOTAL STATION ELEVATIONS, (JUNE 7–9), WERE BASED ON MER AUTO–2021, NAIL DRIVEN IN GROUND, (AUTONOMOUS POSITION), ZONE 3, NAD83 AND ADJUSTED TO DEAL 1–2002 ELEVATION. ORIGINAL ELEVATION OF MER AUTO–2021 BEFORE ADJUSTMENT IS AS FOLLOWS (100.00m). ADJUSTED ELEVATION IS SHOWN ABOVE.

HORIZONTAL CONTROL FOR SOKKIA SET4000 IS BASED ON ASSUMED COORDINATES FOR DEAL 1–2002 AS SHOWN AND ARE NOT TIED IN TO UTM COORDINATES. HORIZONTAL CONTROL FOR HIPERV GPS AND TOPCON(IS) TOTAL STATION (JUNE 7–9, 2021) IS BASED ON MER AUTO–2021 (AUTONOMOUS POSITION), ZONE 3, NAD83 AND ROTATED/MOVED TO MATCH ORIGINAL CONTROL (DEAL 1–2002, & DEAL 2–2002). ORIGINAL COORDINATES FOR MER AUTO–2021 BEFORE ADJUSTMENT ARE AS FOLLOWS (N 5472906.663, E 361438.471). ADJUSTED COORDINATES ARE SHOWN ABOVE.

(102.674)	ELEVATION OF FISHWAY FLOOR (YEAR 2002).
W/L 97.07	ELEVATION OF WATER LEVEL IN FISHWAY AT TIME OF SURVEY (YEAR 2002).
102.674	ELEVATION (YEAR 2002)
93.07 —	ELEVATION (YEAR 2002)
98.65 —●	ELEVATION (YEAR APRIL 2021)
[98.65]	ELEVATION (YEAR JUNE 2021)
(W/L 99.98)	WATER LEVEL ELEVATION (YEAR APRIL 2021)
[W/L 99.98]	WATER LEVEL ELEVATION (YEAR JUNE 2021)

1 / 3 EXISTING/DEMOLITION SITE PLAN
SCALE : 1:100
0m 1m 2m 3m 4m 5m 6m 7m 8m 9m 10m

Public Works and Government Services Canada / Travaux Publics et Services gouvernementaux Canada

revisions		date
C	ISSUED FOR 50% REVIEW	21/08/26
B	ISSUED FOR 33% REVIEW	21/07/09
A	ISSUED FOR CONCEPT	21/05/07

A detail no. no. du detail
B location drawing no. sur dessin no.
C drawing no. dessin no.

project / projet

LOMOND RIVER FISHWAY REPLACEMENT

LOMOND RIVER, NL

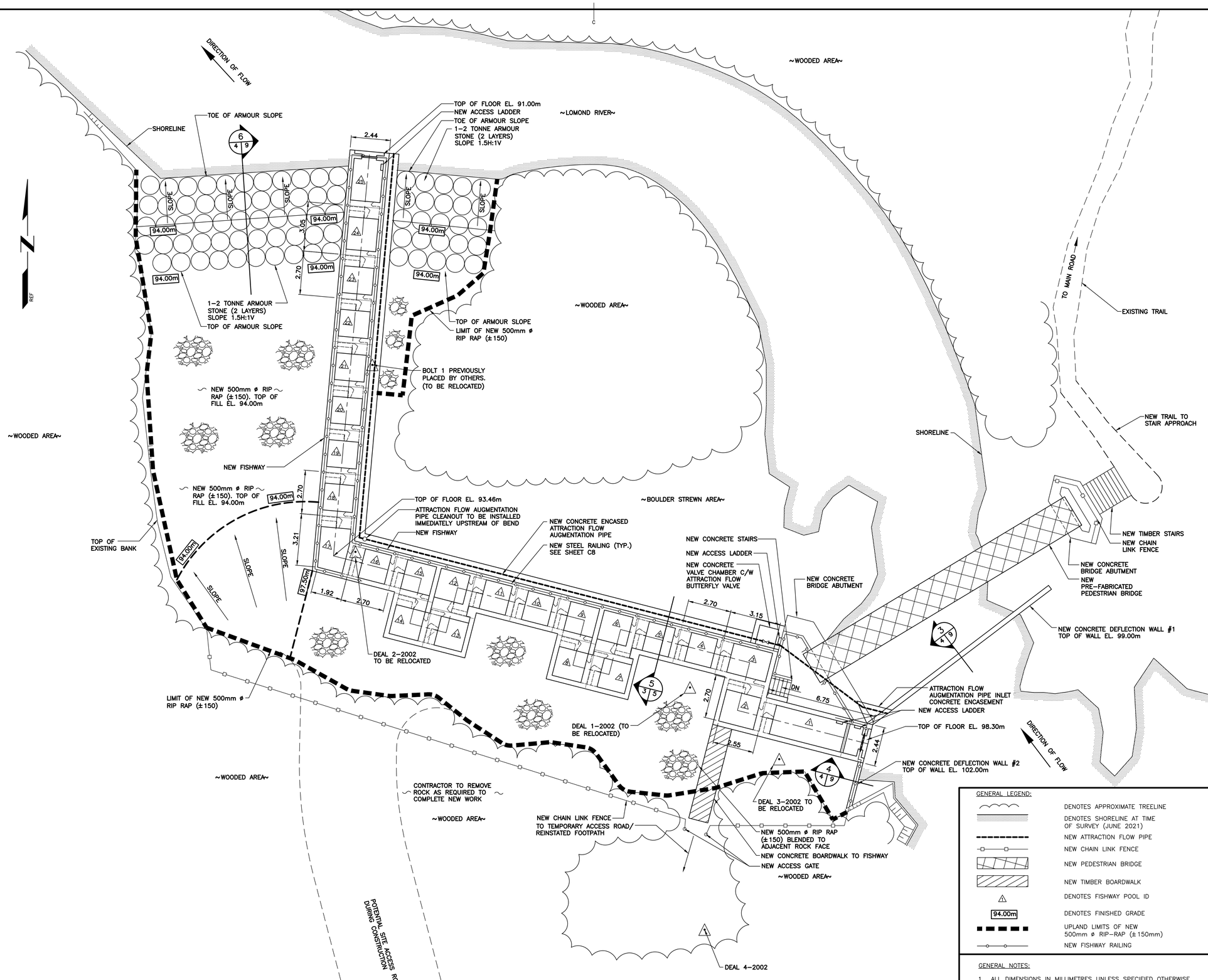
drawing / dessin

EXISTING/DEMOLITION SITE PLAN

designed K. FITZGERALD / concu
date MAY 2021
drawn M. LEGGE / dessine
date MAY 2021
approved / approuve
date
Tender / Soumission
PWGSC Project Manager / Administrateur de projets TPSGC
project number / no. du projet
R.114129.002
drawing no. / no. du dessin
C3 of 12

TIDIS Document No. Not in System

Plot Scale: 1:1
PWGSC B1
0 10 20mm 40 60 80 100 120 140 160 180 200mm



Public Works and Government Services Canada | Travaux Publics et Services gouvernementaux Canada

D	ISSUED FOR 50% REVIEW	21/08/26
C	ISSUED FOR 33% REVIEW	21/07/09
B	REVISED CONCEPT	21/06/11
A	ISSUED FOR CONCEPT	21/05/07
revisions		date

A detail no. / no. du detail
B location drawing no. / sur dessin no.
C drawing no. / dessin no.

GENERAL LEGEND:

- DENOTES APPROXIMATE TREELINE
- DENOTES SHORELINE AT TIME OF SURVEY (JUNE 2021)
- NEW ATTRACTION FLOW PIPE
- NEW CHAIN LINK FENCE
- NEW PEDESTRIAN BRIDGE
- NEW TIMBER BOARDWALK
- DENOTES FISHWAY POOL ID
- 94.00m — DENOTES FINISHED GRADE
- UPLAND LIMITS OF NEW 500mm ø RIP–RAP (±150mm)
- NEW FISHWAY RAILING

GENERAL NOTES:

1. ALL DIMENSIONS IN MILLIMETRES UNLESS SPECIFIED OTHERWISE.
2. ALL ELEVATIONS IN METRES.
3. DO NOT SCALE FROM DRAWINGS, USE DIMENSIONS AS SHOWN.
4. GRATING AND HANDRAIL OMITTED FROM PLAN VIEW FOR CLARITY.
5. IT SHOULD BE NOTED THAT RIVER WATER LEVEL DOES SIGNIFICANTLY CHANGE AND CAN LARGELY EXCEED THE RECORDED LEVEL INDICATED DURING THE TIME OF THE SURVEY. THE CONTRACTOR SHALL ASSUME WORST CASE CONDITIONS AND BEAR ALL COSTS NECESSARY TO COMPLETE THE WORK UNDER THE VARYING FLUCTUATIONS.
6. CONTRACTOR TO VERIFY ALL CRITICAL DIMENSIONS IN THE FIELD PRIOR TO START OF WORK AND NOTIFY DEPARTMENTAL REPRESENTATIVE ON ANY DISCREPANCIES.

project / projet

LOMOND RIVER FISHWAY REPLACEMENT

LOMOND RIVER, NL

drawing / dessin

NEW SITE PLAN & SECTION

designed K. FITZGERALD / concu
date JUNE 2021
drawn M. LEGGE / dessine
date JUNE 2021
approved / approuve
date
Tender / Soumission
PWGSC Project Manager / Administrateur de projets TPSGC
project number / no. du projet
R.114129.002
drawing no. / no. du dessin
C4 of 12

TIDIS Document No. Not in System

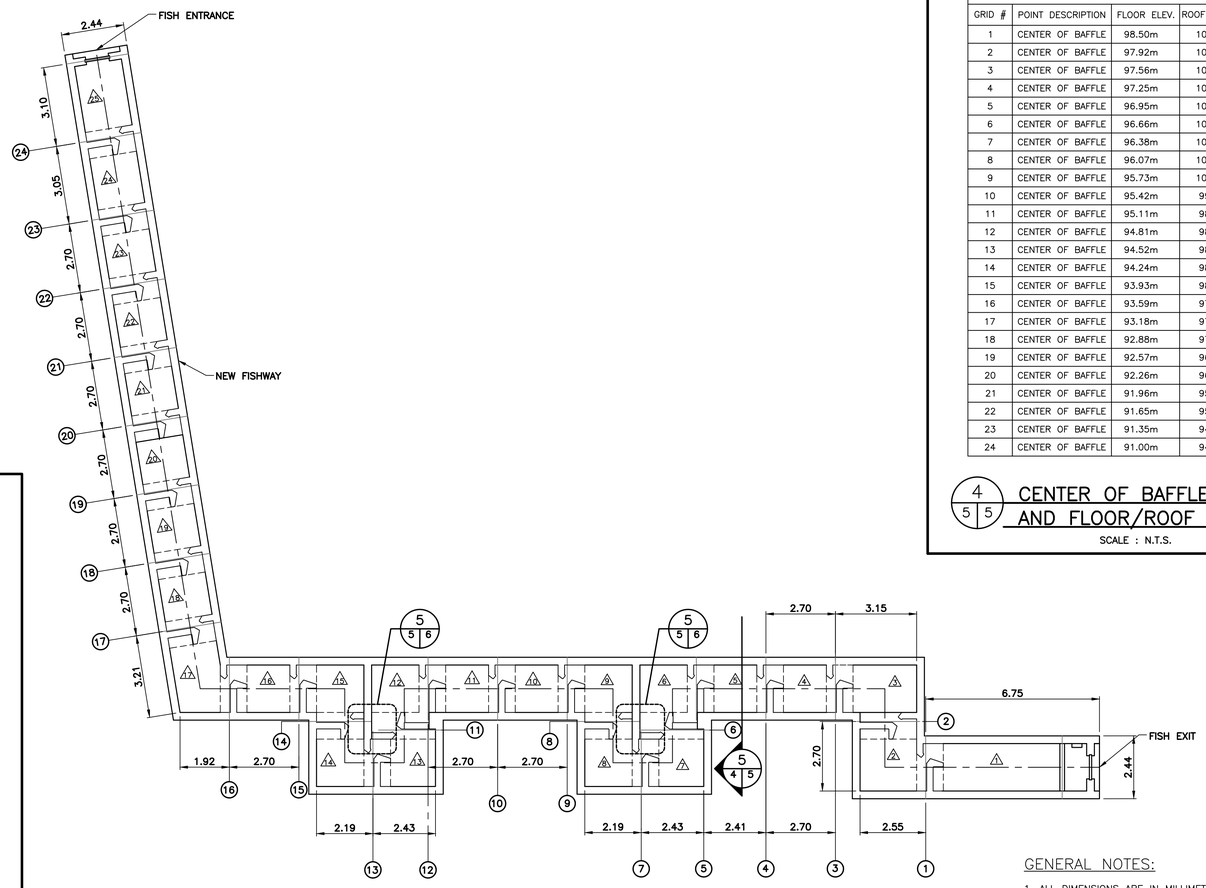
Plot Scale: 1:1
PWGSC B1
0 10 20mm 40 60 80 100 120 140 160 180 200mm

Estimated Water Elevation Summary

Pool ID	Floor Elevation @ Baffle (m)	Avg. Floor Elev. in Pool (m)	Simulated Water Levels (Preliminary)					
			10th Percentile		50th Percentile		90th Percentile	
			Avg. Water Elevation in Pool (m) (From KGS)	Avg. Water Depth in Pool (m)	Avg. Water Elevation in Pool (m) (From KGS)	Avg. Water Depth in Pool (m)	Avg. Water Elevation in Pool (m) (From KGS)	Avg. Water Depth in Pool (m)
Exit (River)	98.30	98.30	99.30	1.000	99.60	1.300	100.4	2.100
1	98.30	98.30	99.30	1.000	99.60	1.300	100.37	2.070
2	97.92	98.11	99.02	0.910	99.31	1.200	100.07	1.960
3	97.56	97.74	98.72	0.980	99.01	1.270	99.77	2.030
4	97.25	97.41	98.42	1.015	98.71	1.305	99.47	2.065
5	96.95	97.10	98.12	1.020	98.41	1.310	99.17	2.070
6	96.66	96.81	97.82	1.015	98.11	1.305	98.87	2.065
7	96.38	96.52	97.52	1.000	97.81	1.290	98.57	2.050
8	96.07	96.23	97.22	0.995	97.51	1.285	98.27	2.045
9	95.73	95.90	96.92	1.020	97.21	1.310	97.97	2.070
10	95.42	95.58	96.62	1.045	96.91	1.335	97.67	2.095
11	95.11	95.27	96.32	1.055	96.61	1.345	97.37	2.105
12	94.81	94.96	96.02	1.060	96.31	1.350	97.07	2.110
13	94.52	94.67	95.72	1.055	96.01	1.345	96.77	2.105
14	94.24	94.38	95.42	1.040	95.71	1.330	96.47	2.090
15	93.93	94.09	95.12	1.035	95.41	1.325	96.17	2.085
16	93.59	93.76	94.82	1.060	95.11	1.350	95.87	2.110
17	93.18	93.39	94.52	1.135	94.81	1.425	95.57	2.185
18	92.88	93.03	94.22	1.190	94.51	1.480	95.27	2.240
19	92.57	92.73	93.92	1.195	94.21	1.485	94.97	2.245
20	92.26	92.42	93.62	1.205	93.91	1.495	94.67	2.255
21	91.96	92.11	93.32	1.210	93.61	1.500	94.37	2.260
22	91.65	91.81	93.02	1.215	93.31	1.505	94.07	2.265
23	91.35	91.50	92.62	1.120	92.91	1.410	93.67	2.170
24	91.00	91.18	*92.32*	1.145	*92.61*	1.435	*93.38*	2.205
25 Entrance	91.00	91.00	*91.94*	0.940	*92.1*	1.100	*92.5*	1.500

Table Notes:
1) The water levels indicated are preliminary and subject to change one the 3-dimensional flow analysis is complete. The Water levels indicated are based on a 1-dimensional flow analysis.
2) The 1:100 year upstream water level at the fishway inlet is approximately at elevation 102.00m. There is greater level of uncertainty at these high flows but the estimated 100 year flow is judged to be conservative.
3) The water levels indicated at the downstream entrance pool shall be confirmed. Levels provided are based on an assumed TWL, which may require downstream stop logs.

3 / 5 5 ESTIMATED WATER ELEVATION SUMMARY
SCALE : N.T.S.



1 / 5 5 NEW FISHWAY PLAN
SCALE : 1:100
0m 1m 2m 3m 4m 5m 6m 7m 8m 9m 10m

CENTER OF BAFFLE COORDINATES AND FLOOR/ROOF SLAB ELEVATIONS					
GRID #	POINT DESCRIPTION	FLOOR ELEV.	ROOF SLAB ELEV.	NORTHING	EASTING
1	CENTER OF BAFFLE	98.50m	102.00m	998.1931	1004.4708
2	CENTER OF BAFFLE	97.92m	102.00m	1000.3106	1003.3758
3	CENTER OF BAFFLE	97.56m	102.00m	1002.0191	1001.8333
4	CENTER OF BAFFLE	97.25m	101.17m	1002.6901	999.2180
5	CENTER OF BAFFLE	96.95m	100.33m	1003.3610	996.6027
6	CENTER OF BAFFLE	96.66m	100.33m	1002.0379	995.3071
7	CENTER OF BAFFLE	96.38m	100.33m	1001.1078	993.8153
8	CENTER OF BAFFLE	96.07m	100.33m	1002.9334	993.1524
9	CENTER OF BAFFLE	95.73m	100.33m	1004.6073	991.7448
10	CENTER OF BAFFLE	95.42m	99.50m	1005.2783	989.1295
11	CENTER OF BAFFLE	95.11m	98.67m	1005.9492	986.5142
12	CENTER OF BAFFLE	94.81m	98.67m	1004.6261	985.2186
13	CENTER OF BAFFLE	94.52m	98.67m	1003.6961	983.7269
14	CENTER OF BAFFLE	94.24m	98.67m	1005.5216	983.0639
15	CENTER OF BAFFLE	93.93m	98.67m	1007.1955	981.6564
16	CENTER OF BAFFLE	93.59m	97.73m	1007.8665	979.0411
17	CENTER OF BAFFLE	93.18m	97.73m	1010.5633	978.1593
18	CENTER OF BAFFLE	92.88m	97.20m	1013.2526	978.4000
19	CENTER OF BAFFLE	92.57m	96.68m	1015.9418	978.6408
20	CENTER OF BAFFLE	92.26m	96.16m	1018.6311	978.8815
21	CENTER OF BAFFLE	91.96m	95.64m	1021.3203	979.1223
22	CENTER OF BAFFLE	91.65m	95.11m	1024.0095	979.3630
23	CENTER OF BAFFLE	91.35m	94.59m	1026.6988	979.6038
24	CENTER OF BAFFLE	91.00m	94.00m	1029.7382	979.8759

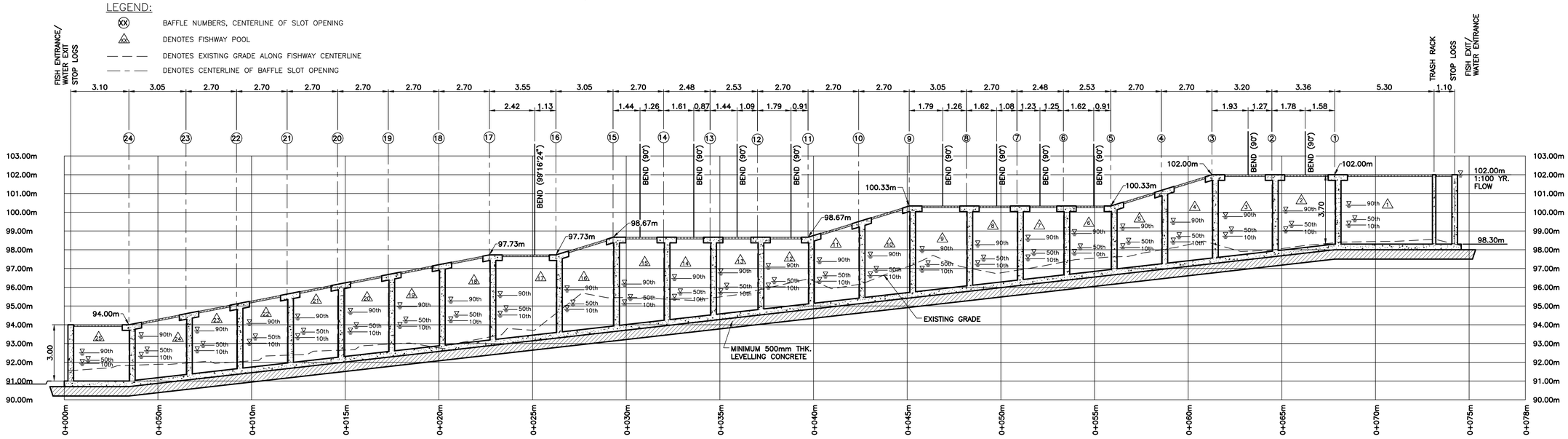
4 / 5 5 CENTER OF BAFFLE COORDINATES AND FLOOR/ROOF SLAB ELEVATIONS
SCALE : N.T.S.

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
2. ALL ELEVATIONS ARE IN METRES.
3. DO NOT SCALE FROM DRAWINGS, USE DIMENSIONS AS SHOWN.
4. GRATING HANDRAIL, EXTENTS OF SITE OMITTED FOR CLARITY.
5. REINFORCEMENT, ROOF SLAB, GRATING, HANDRAIL, AND OTHER SITE FEATURES OMITTED FOR CLARITY.

LEGEND:

(XX) BAFFLE NUMBERS, CENTERLINE OF SLOT OPENING
DENOTES FISHWAY POOL
DENOTES EXISTING GRADE ALONG FISHWAY CENTERLINE
DENOTES CENTERLINE OF BAFFLE SLOT OPENING



2 / 5 5 NEW FISHWAY PROFILE
SCALE : 1:100
0m 1m 2m 3m 4m 5m 6m 7m 8m 9m 10m

revisions		date
B	ISSUED FOR 50% REVIEW	21/08/26
A	ISSUED FOR 33% REVIEW	21/07/09

A detail no. no. du detail
B location drawing no. sur dessin no.
C drawing no. dessin no.

Public Works and Government Services Canada / Travaux Publics et Services gouvernementaux Canada

project / projet
LOMOND RIVER FISHWAY REPLACEMENT

LOMOND RIVER, NL

drawing / dessin
NEW FISHWAY PLAN & PROFILE

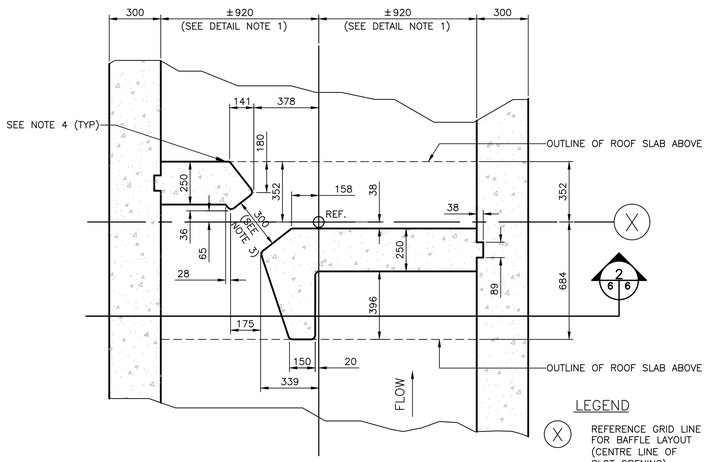
designed K. FITZGERALD / concu
date JUNE 2021
drawn M. LEGGE / dessine
date JUNE 2021
approved / approuve
date
Tender / Soumission
PWGSC Project Manager / Administrateur de projets TPSGC
project number / no. du projet
R.114129.002
drawing no. / no. du dessin
C5 of 12

TIDIS Document No. Not in System

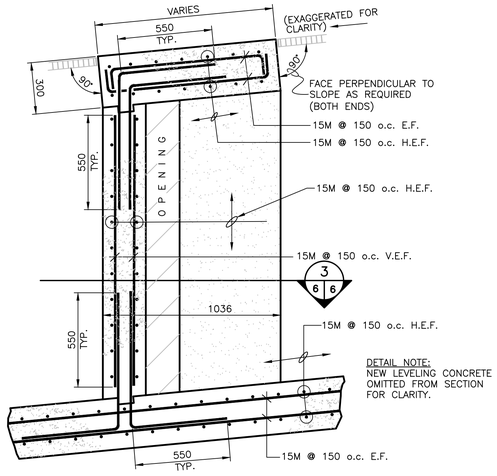
Plot Scale: 1:1
PWGSC B1
0 10 20mm 40 60 80 100 120 140 160 180 200mm

DETAIL NOTES:
1. THIS ARRANGEMENT IS TYPICAL FOR MOST BAFFLES, HOWEVER, SOME BAFFLE WALL LENGTHS MAY REQUIRE ADJUSTMENTS IN NON-TYPICAL POOLS. CONFIRM AND COORDINATE ALL ADJUSTMENTS WITH THE DEPARTMENTAL REPRESENTATIVE.

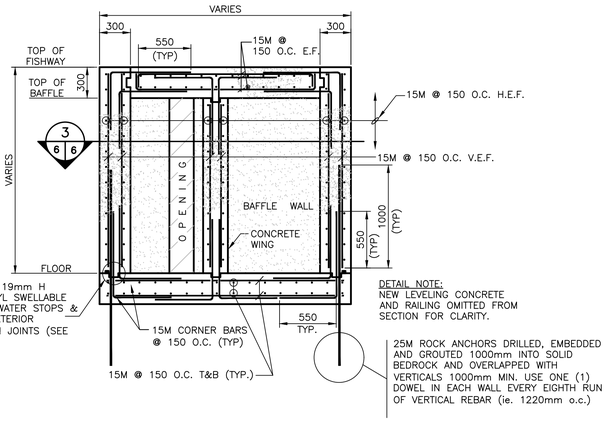
2. REINFORCING NOT SHOWN FOR CLARITY.



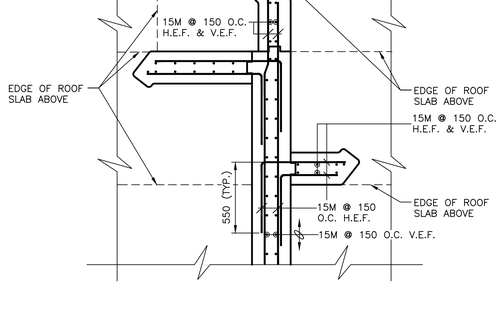
1 / 6 6 BAFFLE GENERAL ARRANGEMENT (TYP.)
SCALE : 1:15
0mm 500mm 1000mm 1500mm



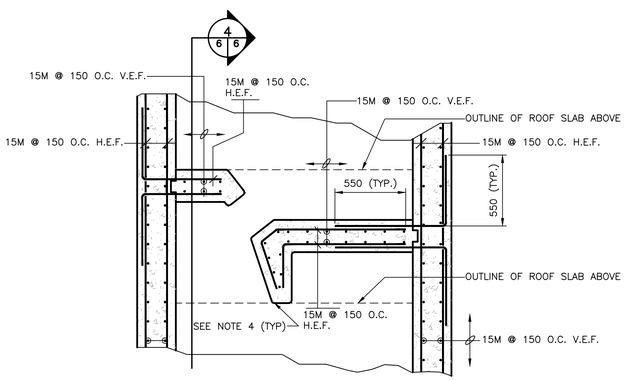
4 / 6 6 BAFFLE DETAIL – SECTION VIEW (TYP.)
SCALE : 1:15
0mm 500mm 1000mm 1500mm



2 / 6 6 BAFFLE DETAIL – SECTION VIEW (TYP.)
SCALE: 1:25
0mm 500mm 1000mm 1500mm 2000mm 2500mm



5 / 5 6 BAFFLE – REINFORCEMENT DETAILS
SCALE : 1:20
0mm 500mm 1000mm 1500mm 2000mm 2500mm



3 / 6 6 BAFFLE – REINFORCEMENT DETAILS (TYP.)
SCALE : 1:20
0mm 500mm 1000mm 1500mm 2000mm 2500mm

GENERAL NOTES:

1. ALL CONCRETE CONSTRUCTION JOINTS TO BE FORMED WITH A KEYWAY, AND THE BONDING SURFACES INTENTIONALLY ROUGHENED TO A FULL AMPLITUDE OF AT LEASE 5 mm. CONSTRUCTION JOINTS IN EXTERIOR WALLS SHALL ALSO INCLUDE WATERSTOPS.
2. THE 300mm BAFFLE WALL SLOT OPENING IS CRITICAL AND THEREFORE ALL EFFORTS SHALL BE MADE TO CONSTRUCT THIS OPENING TO THE EXACT DIMENSION. ANY SLOT OPENING CONSTRUCTED BEYOND THE RANGE OF 288mm TO 312mm WIDE WILL NEED TO BE RECONSTRUCTED TO APPROVAL OF THE DEPARTMENTAL REPRESENTATIVE AT THE CONTRACTORS EXPENSE.
3. THE EXTERIOR VERTICAL CORNERS OF ALL CONCRETE INSIDE FISHWAY TO BE PROVIDED WITH A ROUNDED CHAMFER TO ELIMINATE ALL SHARP EDGES TO APPROVAL OF THE DEPARTMENTAL REPRESENTATIVE.
4. REMOVE LOOSE AND FRAGMENTED ROCK TO EXPOSE A SOUND COMPETENT BEDROCK LAYER (WITH ROUGHENED SURFACE) TO ACCEPTANCE OF THE DEPARTMENTAL REPRESENTATIVE PRIOR TO THE PLACEMENT OF CONCRETE ON ROCK. APPLY BONDING AGENT "WELDCRETE" OR APPROVED EQUAL TO ALL CONCRETE/ROCK INTERFACES.
5. APPLY BONDING AGENT "WELDCRETE" OR APPROVED EQUAL TO ALL CONCRETE TO CONCRETE INTERFACES INCLUDING ALL SURFACES OF HARDENED CONCRETE BETWEEN SUCCESSIVE POURS. THE CONCRETE INTERFACE SHALL BE ROUGHENED TO A FULL AMPLITUDE OF AT LEAST 5mm.
6. ATTRACTION FLOW OUTLET SCREEN GRATING, BORDEN TYPE E, (18-R-3.5), RIVETED GRATING, NON-SERRATED EDGE, SIZE NO. 9, BEARING BAR SIZE 44.5X5, GALVANIZED OR APPROVED EQUAL. GRATING TO BE FULLY BANDED.
7. NEW PVC ATTRACTION FLOW PIPE SYSTEM TO INCLUDE ALL NECESSARY FITTINGS, CONNECTIONS, VALVES, BENDS, SCREEN CAPS, AND ALL OTHER MATERIALS REQUIRED TO INSTALL THE PIPE AS SHOWN AND AS DIRECTED IN THE FIELD BY THE DEPARTMENTAL REPRESENTATIVE.
8. ALL PVC PIPE ENCASED IN CONCRETE TO BE JOINED BY BELL ENDS, AS PER MANUFACTURER'S RECOMMENDED METHOD. ENCASE PVC PIPE IN CONCRETE AS PER MANUFACTURER'S RECOMMENDATIONS. SUPPLY AND INSTALL ANY ADDITIONAL FITTINGS, JOINTS AND/OR COMPRESSIBLE WRAP AS REQUIRED.
9. ALL DOWELS TO BE ANCHORED INTO CONCRETE WITH SIMPSON STRONGTIE ET-HP (METRIC) ADHESIVE, OR APPROVED EQUAL.
10. THE INTERFACE SURFACE OF THE EXISTING CONCRETE SHALL BE INTENTIONALLY ROUGHENED TO FULL AMPLITUDE OF AT LEAST 5mm ALONG WITH THE APPLICATION OF AN APPROVED BONDING AGENT OVER THE FULL INTERFACE SURFACES, TYPICAL.
11. ALL DIMENSIONS IN MILLIMETERS UNLESS SPECIFIED OTHERWISE.
12. ALL ELEVATIONS IN METERS.
13. DO NOT SCALE FROM DRAWINGS, USE DIMENSIONS AS SHOWN.

REINFORCING TERMS:

H.E.F. = HORIZONTAL EACH FACE
V.E.F. = VERTICAL EACH FACE
T&B = TOP AND BOTTOM
o.c. = ON CENTER

Public Works and Government Services Canada / Travaux Publics et Services gouvernementaux Canada

B	ISSUED FOR 50% REVIEW	21/08/26
A	ISSUED FOR 33% REVIEW	21/07/09
revisions		date

project / projet
LOMOND RIVER FISHWAY REPLACEMENT

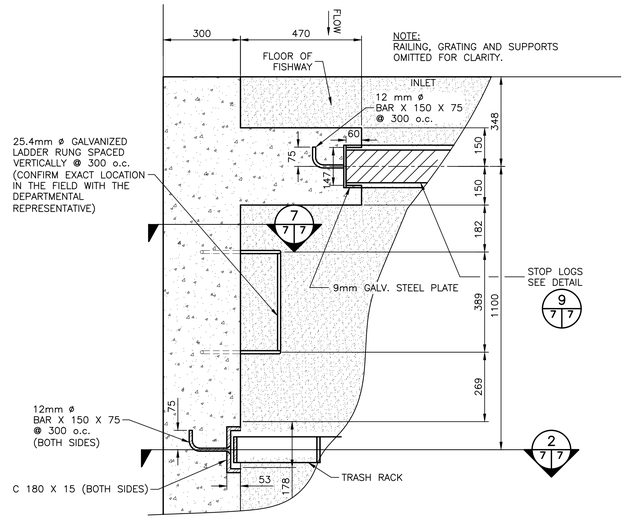
LOMOND RIVER, NL

drawing / dessin
BAFFLE DETAILS

designed K. FITZGERALD (conçu)
date JUNE 2021
drawn M. LEGGE (dessiné)
date JUNE 2021
approved (approuvé)
date
Tender (Soumission)
PWGSC Project Manager (Administrateur de projets TPSGC)
project number / no. du projet
R.114129.002
drawing no. / no. du dessin
C6 of 12

PWGSC B1 (2004)

E-DRM/GDD-E:

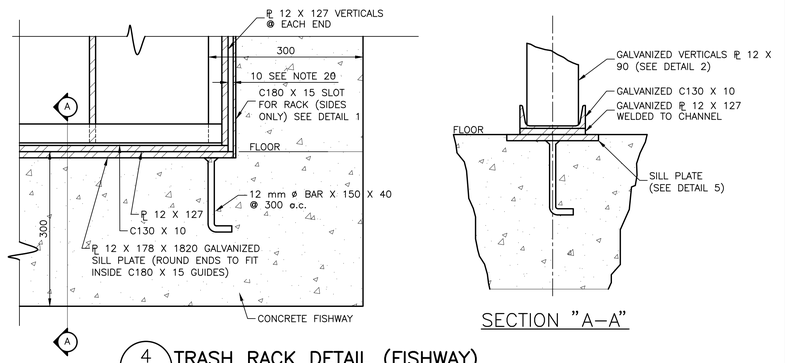


NOTE:
RAILING, GRATING AND SUPPORTS OMITTED FOR CLARITY.

1/7|7 STOP LOG/TRASH RACK GUIDE DETAIL POOL # 1

SCALE : 1:10 (SIMILAR STOP LOG DETAILS AT POOL #25)

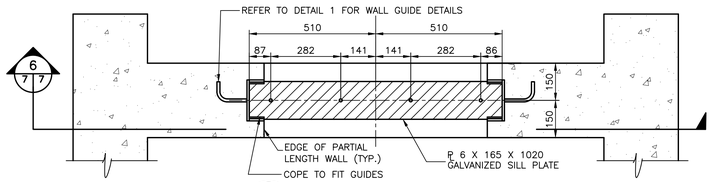
0mm 100 200 300 400 500 600 700 800 900 1000mm



4/7|7 TRASH RACK DETAIL (FISHWAY)

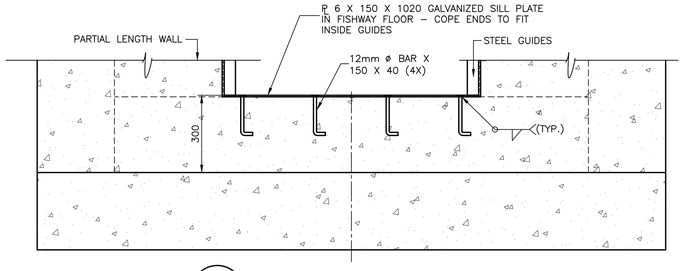
SCALE N.T.S.

SECTION "A–A"



5/7|7 STOP LOG SILL DETAIL

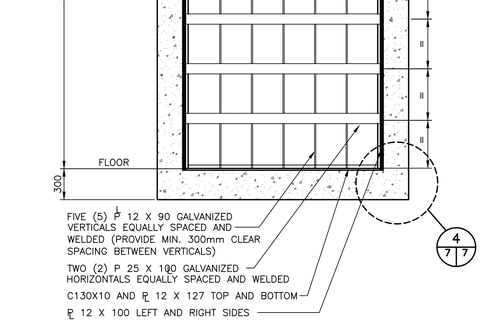
SCALE N.T.S.



6/7|7 STOP LOG SILL SECTION

SCALE: 1:5

0mm 100mm 200mm 300mm 400mm 500mm

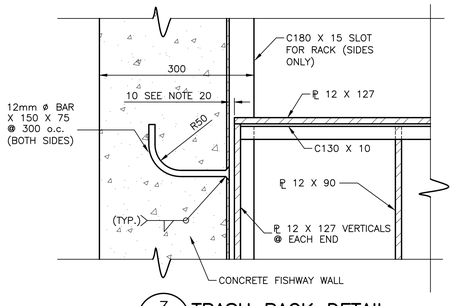


NOTE:
NEW LEVELING CONCRETE AND RAILING OMITTED FROM SECTION FOR CLARITY.

2/7|7 TRASH RACK DETAIL

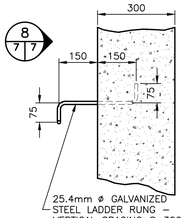
SCALE: 1:25

0mm 500mm 1000mm 1500mm 2000mm 2500mm



3/7|7 TRASH RACK DETAIL

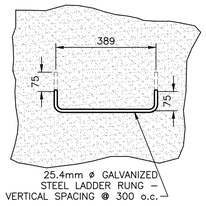
SCALE N.T.S.



7/7|7 LADDER DETAIL

SCALE : 1:10

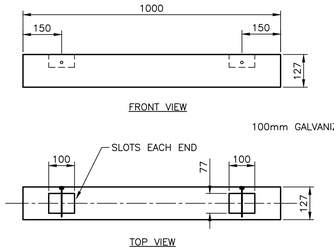
0mm 100 200 300 400 500 600 700 800 900 1000mm



8/7|7 LADDER ELEVATION

SCALE : 1:10

0mm 100 200 300 400 500 600 700 800 900 1000mm



9/7|7 STOP LOG DETAIL

SCALE : 1:10

0mm 100 200 300 400 500 600 700 800 900 1000mm

0 10 20mm 40 60 80 100 120 140 160 180 200mm

GENERAL NOTES:

1. DO NOT SCALE FROM DRAWINGS.
2. ALL ELEVATIONS ARE IN METERS.
3. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETERS.
4. REMOVE LOOSE AND FRAGMENTED ROCK TO EXPOSE A SOUND COMPETENT SURFACE TO ACCEPTANCE OF THE DEPARTMENTAL REPRESENTATIVE PRIOR TO PLACEMENT OF CONCRETE ON ROCK. APPLY BONDING AGENT "WELDCRETE" OR APPROVED EQUAL TO ALL CONCRETE/ROCK INTERFACES.
5. WHERE CONCRETE IS REQUIRED BENEATH SPECIFIED WALL ELEVATION, DOWELS TO BE INCREASED IN LENGTH AS REQUIRED TO EXTEND UP INTO ORIGINAL WALL AS SHOWN.
6. ALL EXTERIOR VERTICAL CORNERS OF CONCRETE INSIDE FISHWAY TO BE PROVIDED WITH A ROUNDED CHAMFER TO ELIMINATE ALL SHARP EDGES.
7. PROVIDE REINFORCEMENT AT ALL CORNERS AND INTERSECTIONS TO BE SAME BAR SIZE AND SPACING AS MAIN REINFORCEMENT.
8. MINIMUM SPLICE LENGTHS IN ACCORDANCE WITH CSA STANDARD A23.3–04
9. CONCRETE COVER TO BE 75mm ALL AREAS, ALL CONDITIONS,
10. MINIMUM 28 DAY CONCRETE STRENGTH LEVELING CONCRETE = 30 MPa, ALL OTHER = 35 MPa.
11. REINFORCING STEEL YIELD STRENGTH = 400 MPa.
12. REINFORCEMENT IS OMITTED IN SOME DETAILS FOR CLARITY. REFER TO APPROPRIATE DETAILS ACCORDINGLY.
13. ALL CONCRETE CONSTRUCTION JOINTS TO BE FORMED WITH A KEYWAY, THE BONDING SURFACES INTENTIONALLY ROUGHENED TO A FULL AMPLITUDE OF 5mm. CONSTRUCTION JOINTS IN THE EXTERIOR WALLS ARE TO INCLUDE CONTINUOUS WATER STOPS.
14. THE TOP SURFACE OF LEVELING CONCRETE IS TO BE INTENTIONALLY ROUGENED TO A FULL AMPLITUDE OF AT LEAST 5mm.
15. BONDING AGENT TO BE "WELDCRETE" OR APPROVED EQUAL. BONDING AGENT TO BE APPLIED TO ALL CONCRETE/ROCK INTERFACES.
16. MINIMUM STRENGTH OF GROUT TO BE 40 MPa.
17. CONTACTOR TO CONFIRM ALL DIMENSIONS PRIOR TO START OF CONSTRUCTION AND NOTIFY DEPARTMENTAL REPRESENTATIVE OF ANY DISCREPANCIES.
18. DEPARTMENTAL REPRESENTATIVE TO INSPECT ALL ROCK ANCHOR LOCATIONS PRIOR TO DRILLING.
19. ALLOW FOR 10mm CLEARANCE BETWEEN TRASH RACK AND VERTICAL CHANNEL TO ALLEVIATE BINDING DURING INSERTION AND REMOVAL OF TRASH RACK.
20. STEEL REINFORCING OMITTED FROM THESE DETAILS FOR CLARITY.
21. REMOVE LOOSE AND FRAGMENTED ROCK TO EXPOSE A SOUND COMPETENT BEDROCK LAYER (WITH ROUGHENED SURFACE) TO ACCEPTANCE OF THE DEPARTMENTAL REPRESENTATIVE PRIOR TO THE PLACEMENT OF CONCRETE ON ROCK. APPLY BONDING AGENT "WELDCRETE" OR APPROVED EQUAL TO ALL CONCRETE/ROCK INTERFACES.
22. APPLY BONDING AGENT "WELDCRETE" OR APPROVED EQUAL TO ALL CONCRETE TO CONCRETE INTERFACES INCLUDING ALL SURFACES OF HARDEN CONCRETE BETWEEN SUCCESSIVE POURS. THE CONCRETE INTERFACE SHALL BE ROUGHENED TO A FULL AMPLITUDE OF AT LEAST 5mm.
23. ALL FABRICATED SECTIONS INCLUDING ALL STEEL SECTIONS AND PLATE SHALL BE WELDED ALL AROUND (FULL PERIMETER) WITH FILLET WELD, (WHERE POSSIBLE). IN AREAS OF IRREGULAR ADJOINING SURFACES USE A COMPLETE JOINT PENETRATION, ALL AROUND (FULL PERIMETER) GROOVE WELD TO CSA S16–09 STANDARDS FOR DESIGN OF STEEL STRUCTURES. ALL WELDING TO BE EQUAL TO OR STRONGER THAN THE STEEL SECTIONS BEING ATTACHED. WELDING AND FABRICATION SHOP DRAWINGS SHALL BE DESIGNED AND STAMPED BY A PROFESSIONAL ENGINEER LICIENCED TO PRACTICE IN THE PROVINCE OF NL.
24. WELDING TO BE IN ACCORDANCE WITH CSA W59.
25. SUBMIT FABRICATION DRAWINGS UNDER SEAL OF PROFESSIONAL ENGINEER LICIENCED TO PRACTICE IN THE PROVINCE OF NL. ANY ALTERATIONS TO THE FABRICATED SECTIONS FROM WHAT IS SHOWN ON THE DRAWINGS SHALL BE INCLUDED ON THE STAMPED FABRICATION DRAWINGS.
26. ALL DIMENSIONS SHOWN FOR FABRICATED STEEL SECTIONS ARE CONSIDERED APPROXIMATE. FABRICATOR SHALL CONFIRM ALL DIMENSIONS AND NOTIFY DEPARTMENTAL REPRESENTATIVE OF ANY DISCREPANCIES PRIOR TO FABRICATION.

Public Works and Government Services Canada | Travaux Publics et Services gouvernementaux Canada

B	ISSUED FOR 50% REVIEW	21/08/26
A	ISSUED FOR 33% REVIEW	21/07/09
revisions		date

project / projet

LOMOND RIVER FISHWAY REPLACEMENT

LOMOND RIVER, NL

drawing / dessin

NEW TRASH RACK & STOP LOG DETAILS

designed K. FITZGERALD / conçu
date JUNE 2021
drawn M. LEGGE / dessiné
date JUNE 2021
approved / approuvé
date
Tender / Soumission
PWGSC Project Manager / Administrateur de projets TPSGC
project number / no. du projet

R.114129.002

drawing no. / no. du dessin

C7 of 12

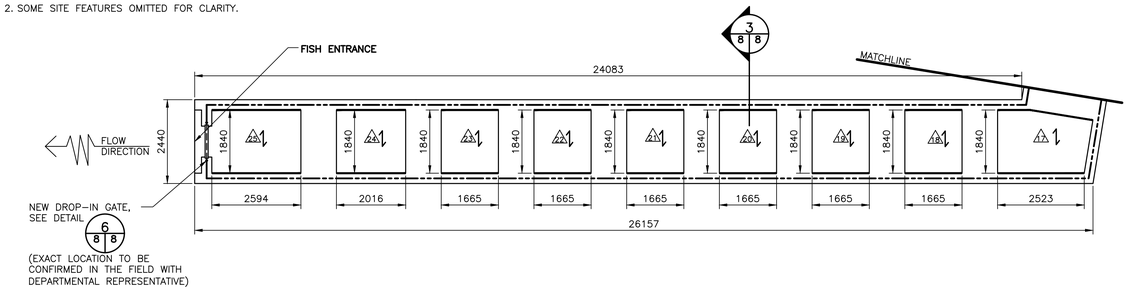
E-DRM/GDD-E:

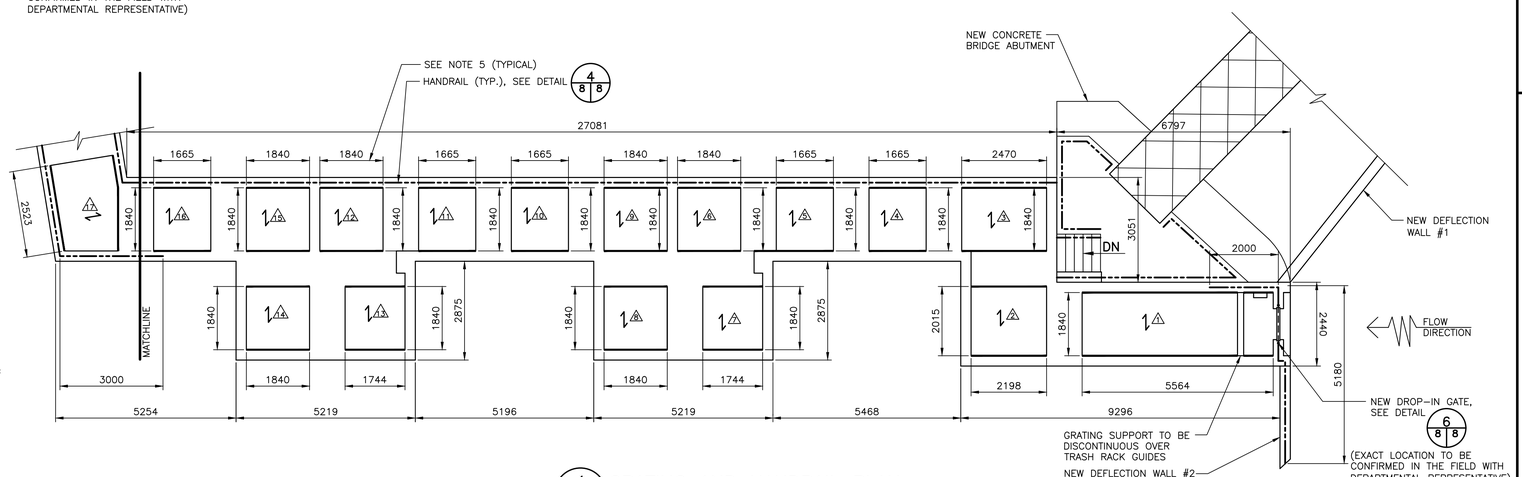
GENERAL LEGEND:

- X — POOL NUMBER
- GRATING (DENOTING DIRECTION OF BEARING BARS)
- DELINEATES RUNS OF GRATING SUPPORT (ANGLE)
- DELINEATES RUNS OF NEW GALVANIZED HANDRAIL, SEE DETAIL 5/8/8
- DELINEATES RUNS OF NEW GALVANIZED SECTIONS OF DROP IN GATE AND HINGED GATE, SEE DETAIL 5/8/8 6/9/9

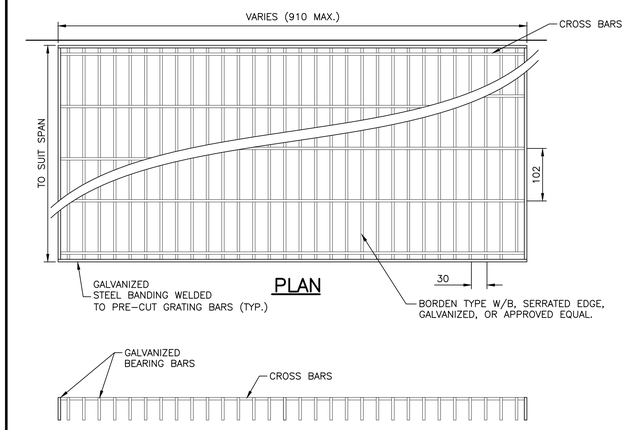
NOTES:
1. PLAN VIEW SHOWN FOR THE PURPOSES OF GRATING AND HANDRAIL LOCATIONS ONLY. MOST ALL OTHER DETAILS OF THE FISHWAY AND SURROUNDING SITE ARE OMITTED FOR CLARITY. REFER TO OTHER SHEETS FOR COMPLETE DETAILS.
2. SOME SITE FEATURES OMITTED FOR CLARITY.

GRATING SCHEDULE		
POOL #	DESCRIPTION	DETAILS
1 TO 25	BORDEN TYPE W/B, SERRATED EDGE, SIZE NO.11, 30mm CTRS, BEARING BAR SIZE 57x5, GALVANIZED, OR APPROVED EQUAL.	

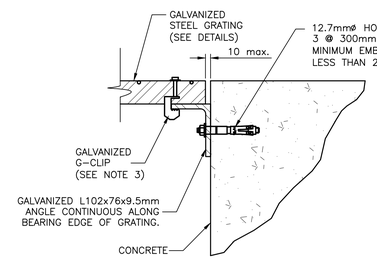




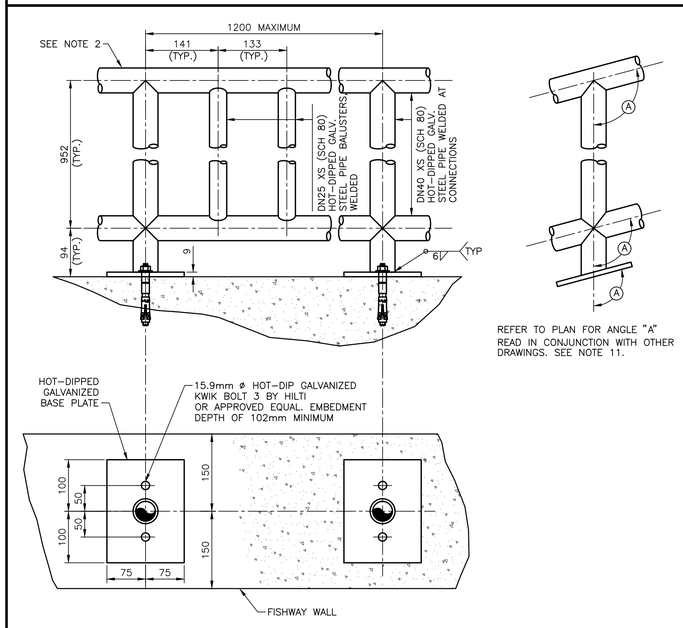
1/8/8 GRATING AND HANDRAIL PLAN
SCALE : 1:75
0m 1m 2m 3m 4m 5m 6m 7m 8m 9m 10m



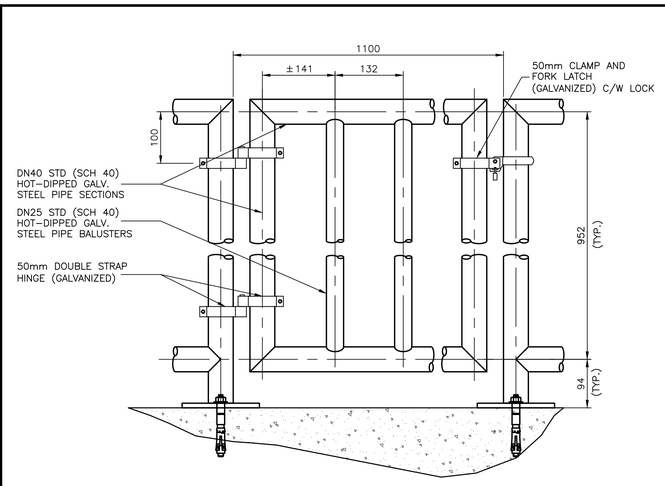
2/8/8 FISHWAY GRATING DETAILS
SCALE: 1:5
0mm 100mm 200mm 300mm 400mm 500mm



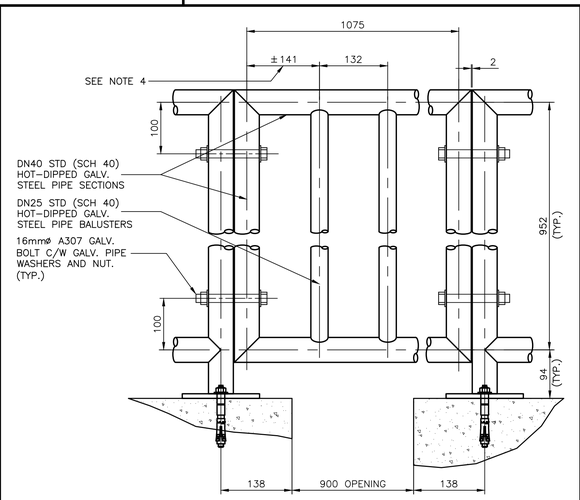
3/8/8 GRATING SUPPORT DETAIL
SCALE: 1:5
0mm 100mm 200mm 300mm 400mm 500mm



4/8/8 FISHWAY RAILING/BASE PLATE DETAIL
SCALE: 1:5
0mm 100mm 200mm 300mm 400mm 500mm



5/8/8 FISHWAY HINGE AND LATCHED GATE
SCALE: 1:5
0mm 100mm 200mm 300mm 400mm 500mm



6/8/8 FISHWAY DROP-IN GATE
SCALE: 1:5
0mm 100mm 200mm 300mm 400mm 500mm

NOTES:

1. FOR GENERAL NOTES SEE DRAWING CX.
2. FABRICATED RAILING SHALL BE HOT-DIPPED GALVANIZED AS PER SPECIFICATIONS.
3. G-CLIP FASTENINGS TO BE INSTALLED AT START AND END OF EACH GRATING PANEL AND INSTALLED AT 450mm O.C. AT INTERMEDIATE LOCATIONS. ALL FIELD WORK TO BE RE-GALVANIZED ON SITE.
4. PROVIDE SUFFICIENT SPACE BETWEEN BALUSTER AND VERTICAL POST TO REMOVE GALVANIZED BOLTS.
5. DISTANCES AND DIMENSIONS SHOWN FOR GRATING AND HANDRAILING ALONG THE FISHWAY AS PER DETAIL 1/7/7 SHALL BE CONSIDERED APPROXIMATE AND SHALL BE CONFIRMED PRIOR TO ORDERING AND FABRICATION OF GRATING AND RAILING TO ENSURE A TIGHT FIT.
6. DO NOT SCALE FROM DRAWINGS.
7. ALL DIMENSIONS SHOWN ON DRAWINGS ARE IN MILLIMETERS. ALL ELEVATIONS AND STATIONS ARE IN METERS UNLESS NOTED OTHERWISE.
8. ALL STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH CAN/CSA S16-09. SHOP AND FIELD FABRICATION TOLERANCE TO CAN/CSA S16-09 AND G40.20-04.
9. ALL WELDING SHALL BE CARRIED OUT IN ACCORDANCE WITH CAN/CSA W59-03 BY A FABRICATOR FULLY APPROVED UNDER CAN/CSA W47.103 (R2008) DIVISION NO.1 OR NO.2. (SEE GENERAL NOTES SHEET CX)
10. ALL WELDING SHALL BE MIN. 6mm ALL AROUND UNLESS NOTED. (SEE GENERAL NOTES SHEET CX)
11. ANGLE BASE PLATE OF RAILING AS REQUIRED TO SUIT PROFILE OF CONCRETE WALL. BASE PLATES SHALL SIT FLUSH AND FULLY BEAR ON CONCRETE SURFACE.
12. PROVIDE ISOLATION BETWEEN DISSIMILAR METALS AS APPROVED BY THE DEPARTMENTAL REPRESENTATIVE.

Public Works and Government Services Canada / Travaux Publics et Services gouvernementaux Canada

revisions		date
A	ISSUED FOR 50% REVIEW	21/08/26

A detail no. / no. du detail
B location drawing no. / sur dessin no.
C drawing no. / dessin no.

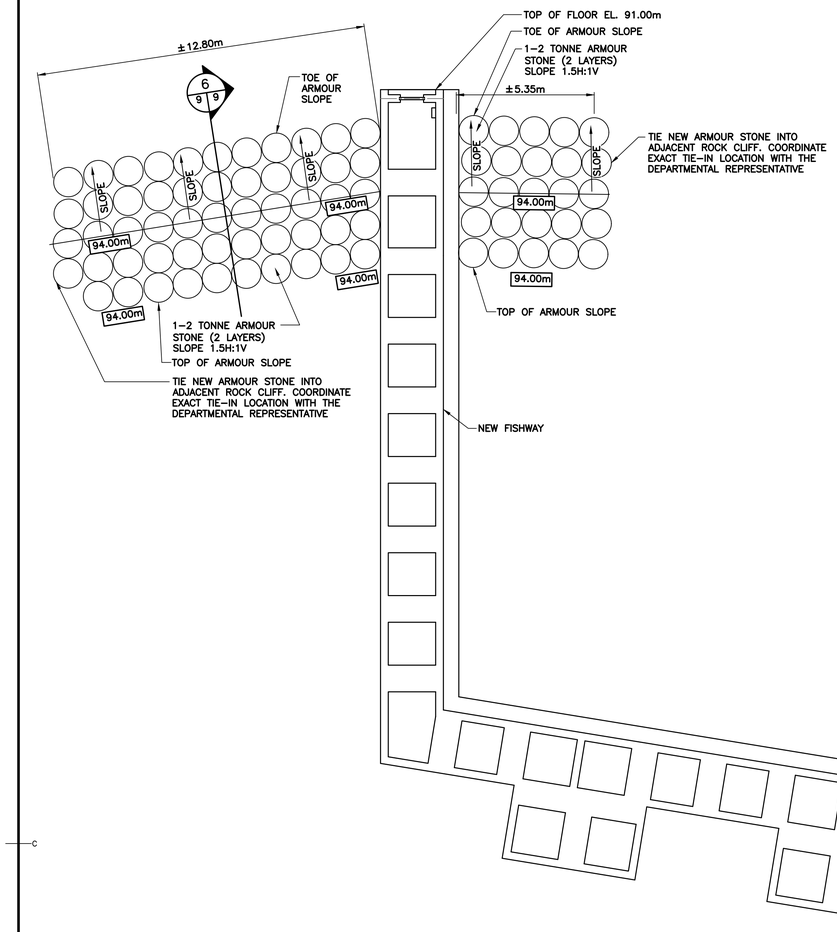
project / projet
LOMOND RIVER FISHWAY REPLACEMENT

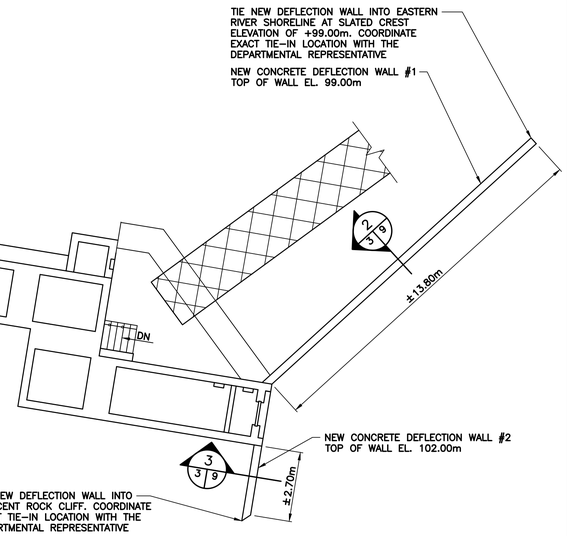
LOMOND RIVER, NL

drawing / dessin
GRATING & HANDRAIL DETAILS

designed K. FITZGERALD — concu
date JUNE 2021
drawn M. LEGGE — dessine
date JUNE 2021
approved — approuve
date
Tender — Soumission
PWGSC Project Manager — Administrateur de projets TPSGC
project number / no. du projet
R.114129.002
drawing no. / no. du dessin
C8 of 12

Plot Scale: 1:1
PWGSC B1
0 10 20mm 40 60 80 100 120 140 160 180 200mm
TIDIS Document No. Not in System





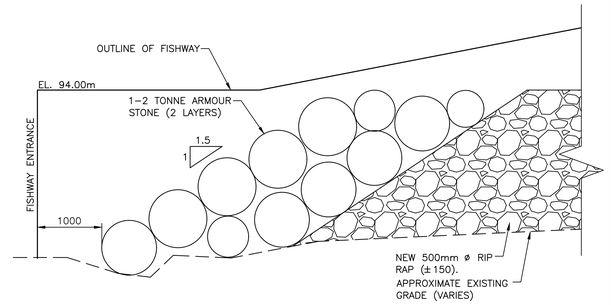
1 / 9 9 LAYOUT – DEFLECTION WALLS
SCALE : 1:100
0m 1m 2m 3m 4m 5m 6m 7m 8m 9m 10m

NOTES:

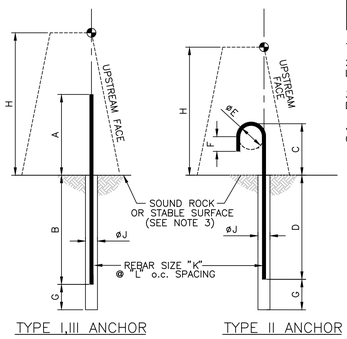
1. SIDE SLOPES SHALL BE CONSTRUCTED TO A STABLE SLOPE SUITABLE FOR THE MATERIAL.
2. SIDE SLOPES FOR ROCK REMOVAL TO BE MEASURED FOR PAYMENT PURPOSES AS 4V TO 1H AND ALL OTHER MATERIAL TO BE MEASURED 1V TO 1.5H. SIDE SLOPES SHOWN ON ALL DRAWING DETAILS ARE INDICATED AS 4V TO 1H, UNLESS OTHERWISE NOTED. THIS ASSUMES THAT ALL MATERIAL ENCOUNTERED IS ROCK. IF OTHER MATERIAL IS ENCOUNTERED IT WILL BE MEASURED FOR PAYMENT AS 1V TO 1.5H DESPITE THE SLOPE SHOWN ON THE DRAWINGS.
3. REMOVE LOOSE AND FRAGMENTED ROCK TO EXPOSE A SOUND COMPETENT BEDROCK LAYER (WITH ROUGHENED SURFACE) TO ACCEPTANCE OF THE DEPARTMENTAL REPRESENTATIVE PRIOR TO THE PLACEMENT OF CONCRETE ON ROCK. APPLY BONDING AGENT "WELDCRETE" OR APPROVED EQUAL TO ALL CONCRETE/ROCK INTERFACES.
4. APPLY BONDING AGENT "WELDCRETE" OR APPROVED EQUAL TO ALL CONCRETE TO CONCRETE INTERFACES INCLUDING ALL SURFACES OF HARDEN CONCRETE BETWEEN SUCCESSIVE POURS. THE CONCRETE INTERFACE SHALL BE ROUGHENED TO A FULL AMPLITUDE OF AT LEAST 5mm.
5. ICE AND DEBRIS LOADING FOR DEFLECTION WALL AND CONTROL STRUCTURE DESIGN IS 65 kN/m (FACTORED).

REINFORCING TERMS:

H.E.F. = HORIZONTAL EACH FACE
V.E.F. = VERTICAL EACH FACE
T&B = TOP AND BOTTOM
o.c. = ON CENTER



6 / 4 9 | 6 / 9 9 SECTION THROUGH ARMOUR STONE
SCALE: 1:40
0m 1m 2m 3m 4m 5m

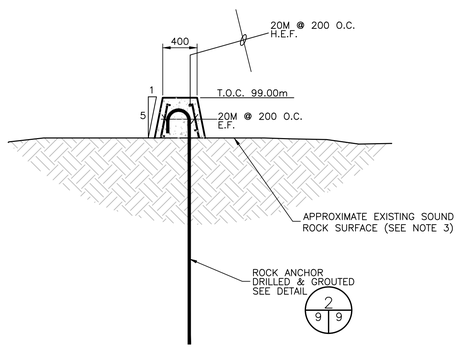


TYPE I,III ANCHOR TYPE II ANCHOR

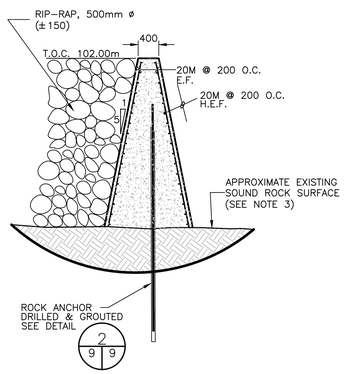
TYPE	DIMENSIONS									REBAR	
	A	B	C	D	E	F	G	H	J	K	L
I	1450	(2200)	–	–	–	–	200	1750≤H≤2600	70	35M	800
II	–	–	(413)	(2200)	250	(143)	200	H < 1750	70	35M	800
III	1800	(3300)	–	–	–	–	200	2600<H<3800	90	45M	600

1. (•) DENOTES MINIMUM DIMENSION
2. IF THE HEIGHT OF THE DEFLECTION WALL VARIES FROM FRONT TO BACK, THE LARGEST HEIGHT SHALL GOVERN.
3. THE CONTRACTOR SHALL CONFIRM LOCATIONS OF ROCK ANCHORS WITH DEPARTMENTAL REPRESENTATIVE PRIOR TO ANY DRILLING.
4. IN NO CASE SHALL THERE BE ANY LESS THAN TWO (2) ROCK ANCHORS FOR ONE COMPLETE SECTION OF WALL.

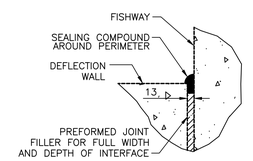
2 / 9 9 ROCK ANCHOR DETAILS
SCALE: 1:25
0mm 500mm 1000mm 1500mm 2000mm 2500mm



3 / 5 9 | 3 / 4 9 | 3 / 9 9 CROSS SECTION DEFLECTION WALL #1
SCALE : 1:30
0m 1000mm 2000mm 3000mm



4 / 5 9 | 4 / 4 9 | 4 / 9 9 CROSS SECTION DEFLECTION WALL #2
SCALE: 1:50
0m 1m 2m 3m 4m 5m



5 / 9 9 FISHWAY/DEFLECTION WALL ISOLATION JOINT
SCALE: 1:5
0mm 100mm 200mm 300mm 400mm 500mm

revisions		date
B	ISSUED FOR 50% REVIEW	21/08/26
A	ISSUED FOR 33% REVIEW	21/07/09

Public Works and Government Services Canada / Travaux Publics et Services gouvernementaux Canada

project / projet
LOMOND RIVER FISHWAY REPLACEMENT

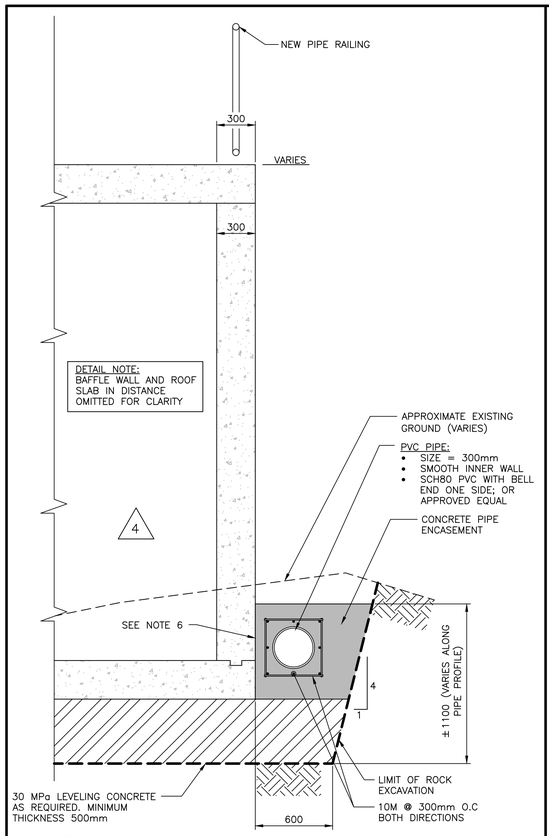
LOMOND RIVER, NL

drawing / dessin
NEW CONTROL STRUCTURES – PLAN, SECTIONS AND DETAILS

designed K. FITZGERALD / conçu
date JUNE 2021
drawn M. LEGGE / dessiné
date JUNE 2021
approved / approuvé
date
Tender / Soumission
PWGSC Project Manager / Administrateur de projets TPSGC
project number / no. du projet
R.114129.002
drawing no. / no. du dessin
C9 of 12

PWGSC B1 (2004)

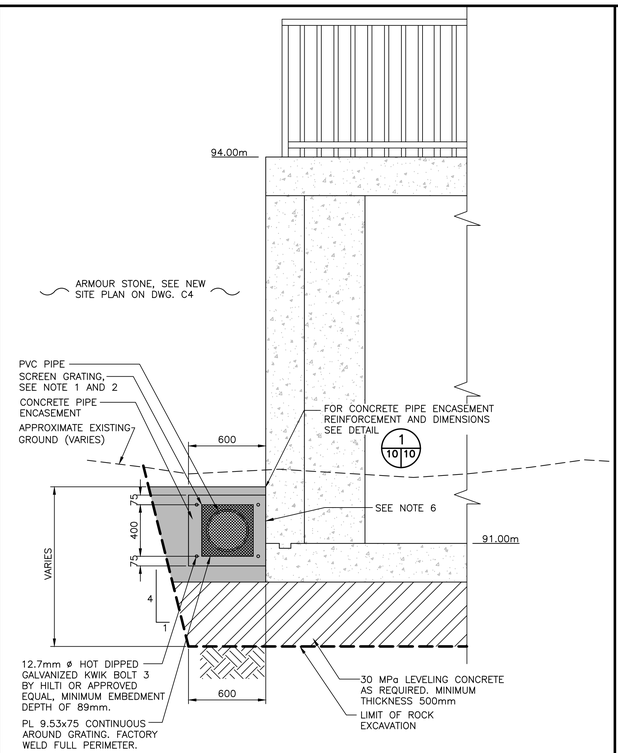
E–DRM/GDD–E:



1/10|10 ATTRACTION FLOW PIPE – TYPICAL SECTION

SCALE : 1:20

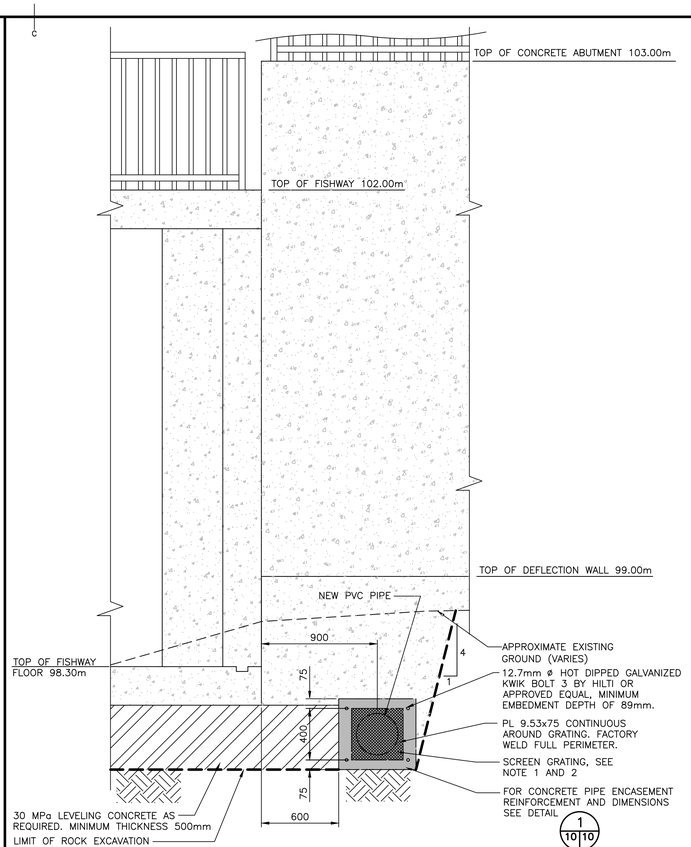
0mm 500mm 1000mm 1500mm 2000mm 2500mm



2/10|10 ATTRACTION FLOW PIPE – OUTLET SCREEN ELEVATION

SCALE : 1:20

0mm 500mm 1000mm 1500mm 2000mm 2500mm



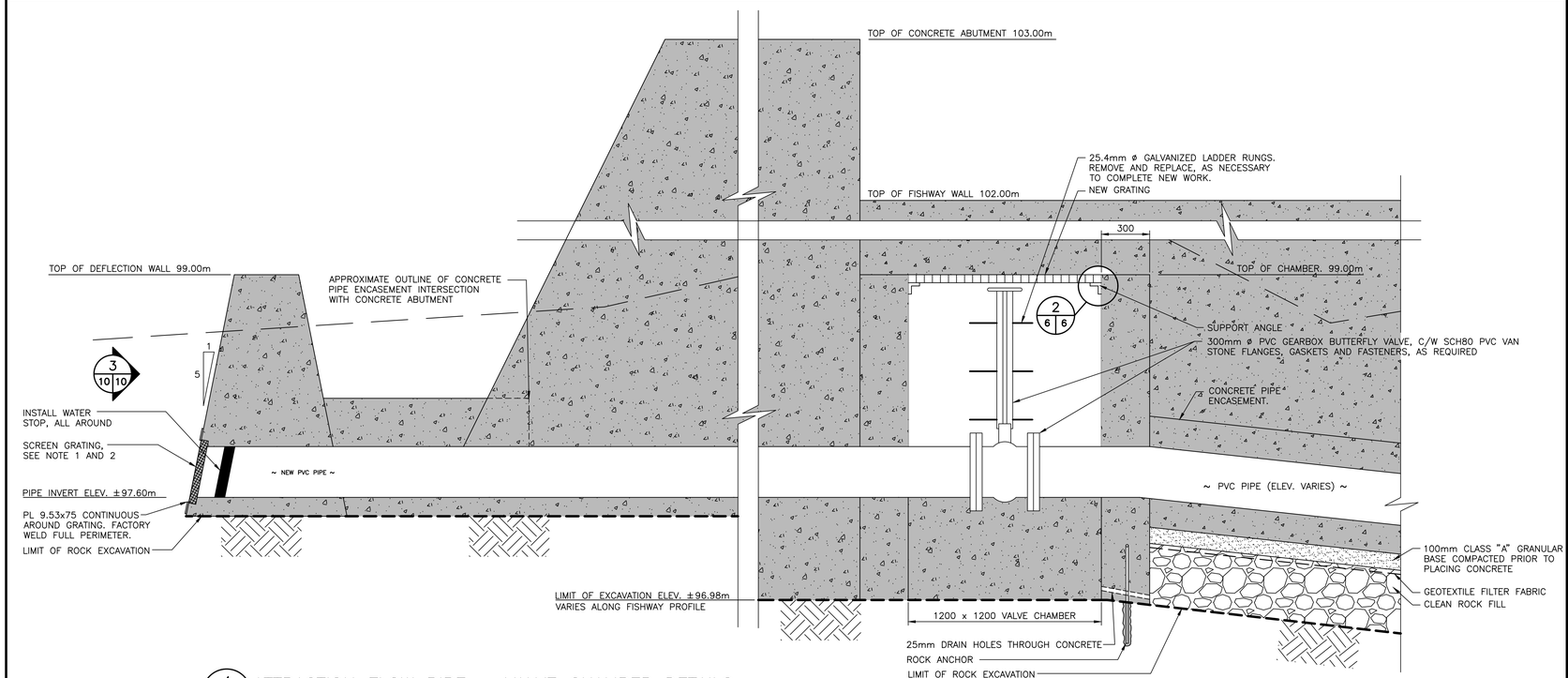
3/10|10 ATTRACTION FLOW PIPE – INLET SCREEN ELEVATION

SCALE : 1:20

0mm 500mm 1000mm 1500mm 2000mm 2500mm

NOTES:

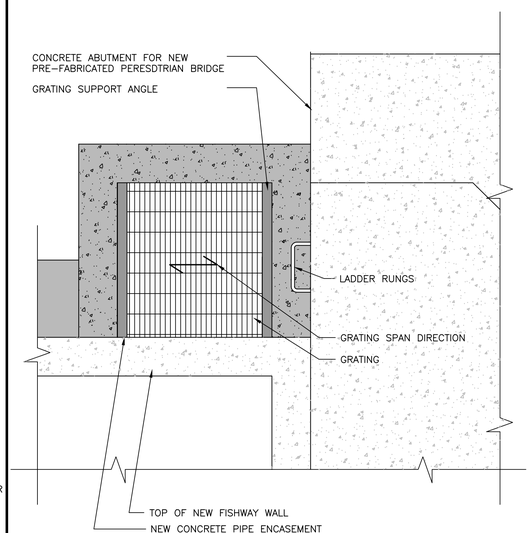
1. ATTRACTION FLOW SCREEN GRATING, BORDEN TYPE E, (18–R–3.5), RIVETED GRATING, NON–SERRATED EDGE, SIZE NO. 9, BEARING BAR SIZE 44.5X5, GALVANIZED OR APPROVED EQUAL. GRATING TO BE FULLY BANDED.
2. INLET SCREEN GRATING TO BE FLUSH WITH FACE OF DIVERSION WALL AND BE COMPLETELY REMOVABLE. CONTRACTOR SHALL PROVIDE A 9.53mm THICK GALVANIZED STEEL PLATE TO MATCH THE DIMENSIONS OF SCREEN FRAME C/W BOLT HOLES TO ALLOW INSTALLATION OVER THE INLET IN PLACE OF THE SCREEN GRATING DURING OFF SEASON. PROVIDE 6mm THICK x 50mm WIDE CONTINUOUS NEOPREEN GASKET AROUND PERIMETER OF NEW STEEL PLATE BETWEEN PLATE AND CONCRETE INTERFACE.
3. NEW PVC ATTRACTION FLOW PIPE SYSTEM TO INCLUDE ALL NECESSARY FITTINGS, CONNECTIONS, VALVES, BENDS, SCREEN CAPS, AND ALL OTHER MATERIALS REQUIRED TO INSTALL THE PIPE AS SHOWN AND AS DIRECTED IN THE FIELD BY THE DEPARTMENTAL REPRESENTATIVE.
4. ALL PVC PIPE ENCASED IN CONCRETE TO BE JOINED BY BELL ENDS, AS PER MANUFACTURER'S RECOMMENDED METHOD. ENCASE PVC PIPE IN CONCRETE AS PER MANUFACTURER'S RECOMMENDATIONS. SUPPLY AND INSTALL ANY ADDITIONAL FITTINGS, JOINTS AND/OR COMPRESSIBLE WRAP AS REQUIRED.
5. THE INTERFACE SURFACE OF THE EXISTING CONCRETE SHALL BE INTENTIONALLY ROUGHENED TO FULL AMPLITUDE OF AT LEAST 5mm ALONG WITH THE APPLICATION OF AN APPROVED BONDING AGENT OVER THE FULL INTERFACE SURFACES, TYPICAL.
6. ALL DIMENSIONS IN MILLIMETERS UNLESS SPECIFIED OTHERWISE.
7. ALL ELEVATIONS IN METERS.
8. DO NOT SCALE FROM DRAWINGS, USE DIMENSIONS AS SHOWN.



4/10|10 ATTRACTION FLOW PIPE – VALVE CHAMBER DETAILS

SCALE : 1:15

0mm 500mm 1000mm 1500mm



5/10|10 PLAN VIEW – VALVE CHAMBER

SCALE : 1:15

0mm 500mm 1000mm 1500mm

Public Works and Government Services Canada / Travaux Publics et Services gouvernementaux Canada

revisions		date
A	ISSUED FOR 50% REVIEW	21/08/19

project / projet

LOMOND RIVER FISHWAY REPLACEMENT

LOMOND RIVER, NL

drawing / dessin

NEW ATTRACTION FLOW PIPE SECTIONS & DETAILS

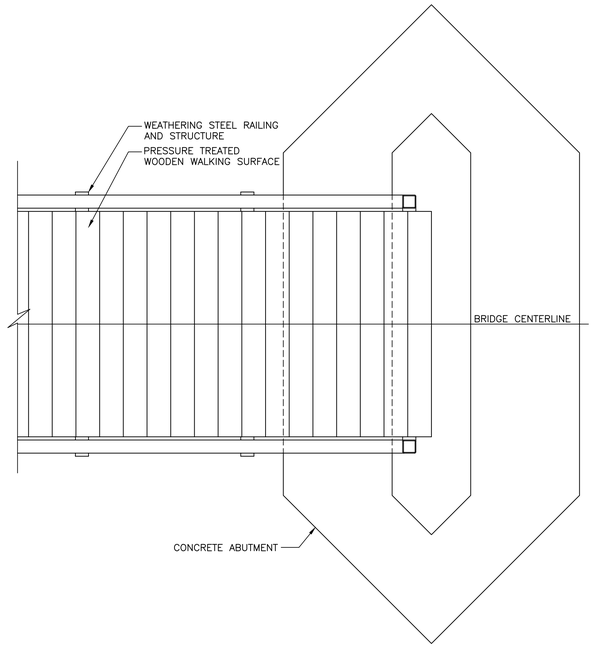
designed / conçu	K. FITZGERALD	
date	JUNE 2021	
drawn / dessiné	M. LEGGE	
date	JUNE 2021	
approved / approuvé		
date		
Tender		Soumission
PWGSC Project Manager		Administrateur de projets TPSGC

project number / no. du projet: R.114129.002

drawing no. / no. du dessin: C10 of 12

PWGSC B1 (2004)

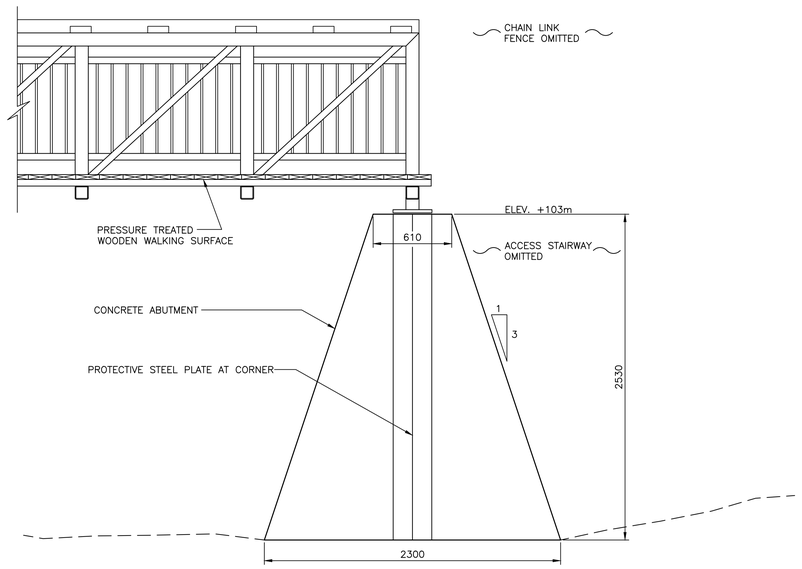
E–DRM/GDD–E:



1 / 11 | 11 PARTIAL PEDESTRIAN BRIDGE/ABUTMENT PLAN

SCALE : 1:20

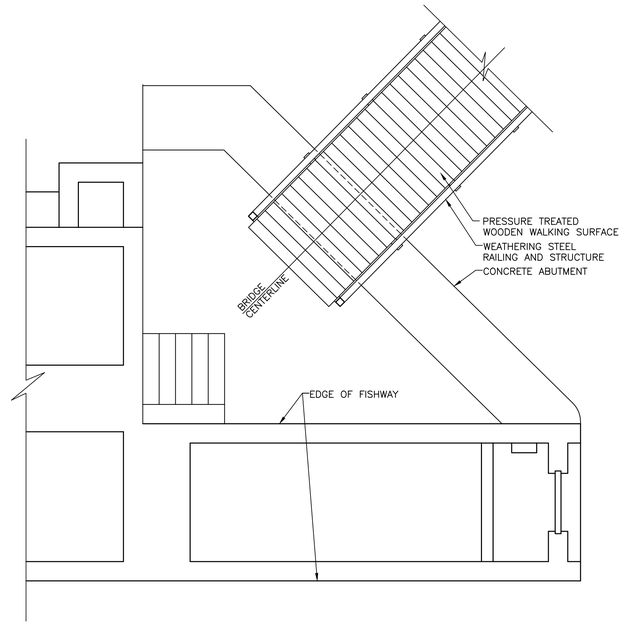
0mm 500mm 1000mm 1500mm 2000mm 2500mm



6 / 11 | 11 PARTIAL PEDESTRIAN BRIDGE/ABUTMENT SECTION

SCALE : 1:20

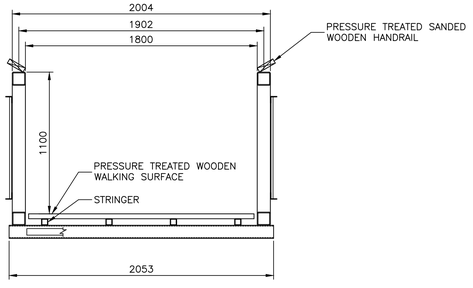
0mm 500mm 1000mm 1500mm 2000mm 2500mm



3 / 11 | 11 PARTIAL PEDESTRIAN BRIDGE/ABUTMENT PLAN

SCALE: 1:40

0m 1m 2m 3m 4m 5m



4 / 11 | 11 TYPICAL PEDESTRIAN BRIDGE SECTION

SCALE : 1:20

0mm 500mm 1000mm 1500mm 2000mm 2500mm

NOTES:

1. ALL DIMENSIONS SHOWN ON DRAWINGS ARE IN MILLIMETERS.
2. ALL ELEVATIONS AND STATIONS ARE IN METERS UNLESS NOTED OTHERWISE.
3. DO NOT SCALE FROM DRAWINGS.

Public Works and Government Services Canada / Travaux Publics et Services gouvernementaux Canada

revisions		date
B	ISSUED FOR 50% REVIEW	21/08/26
A	ISSUED FOR 33% REVIEW	21/07/09

project / projet

LOMOND RIVER FISHWAY REPLACEMENT

LOMOND RIVER, NL

drawing / dessin

NEW PRE-ENGINEERED PEDESTRIAN BRIDGE PLAN AND DETAILS

designed / conçu: K. FITZGERALD — date: JUNE 2021

drawn / dessiné: M. LEGGE — date: JUNE 2021

approved / approuvé — date

Tender / Soumission

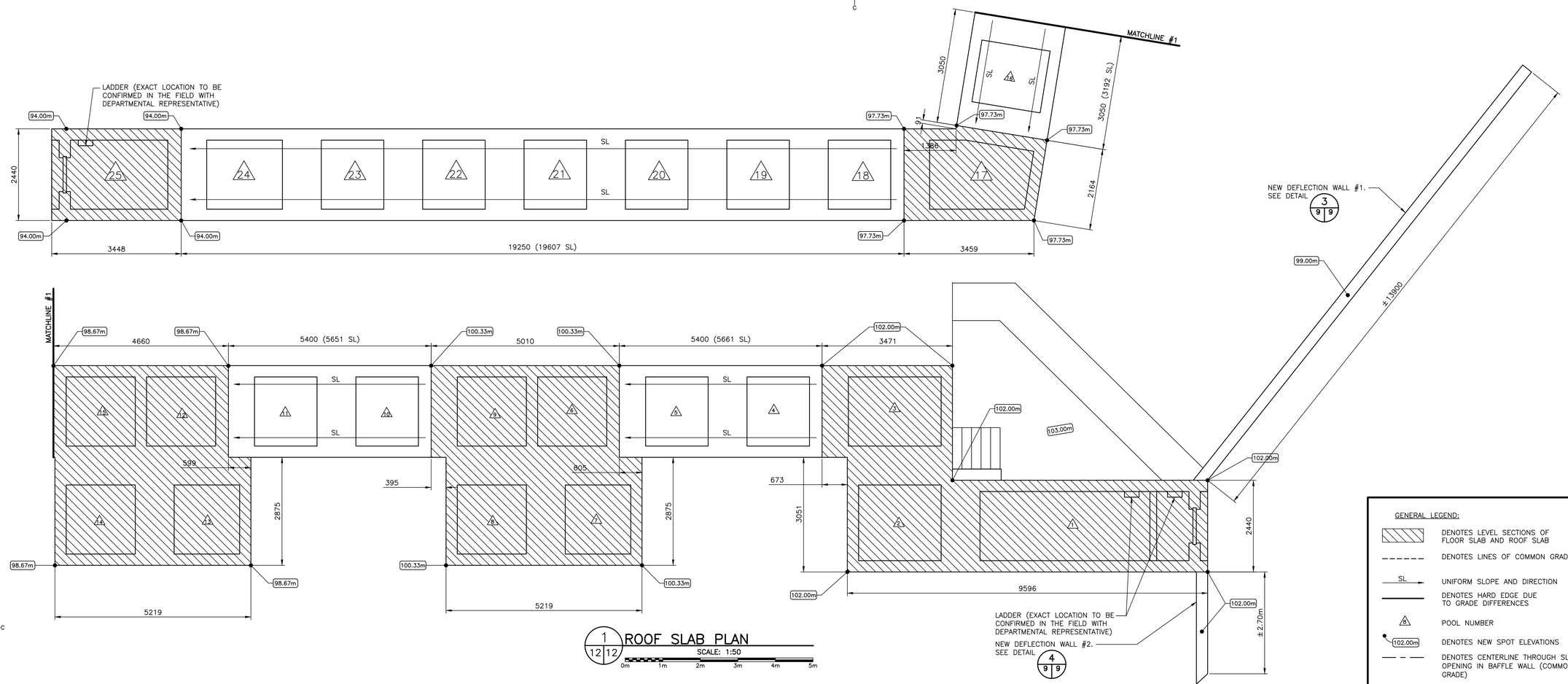
PWGSC Project Manager / Administrateur de projets TPSGC

project number / no. du projet: R.114129.002

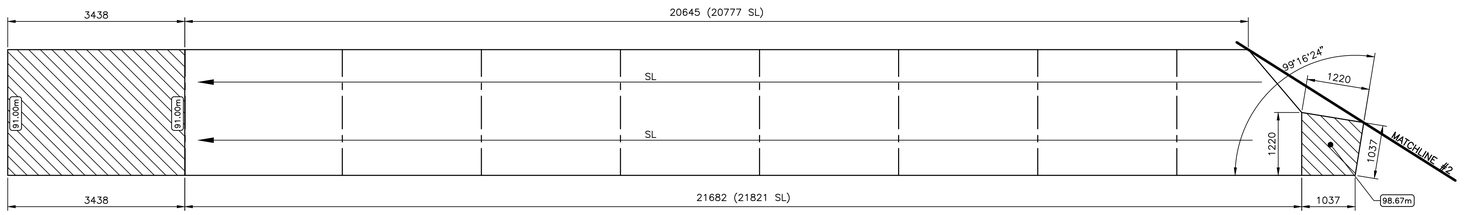
drawing no. / no. du dessin: C11 of 12

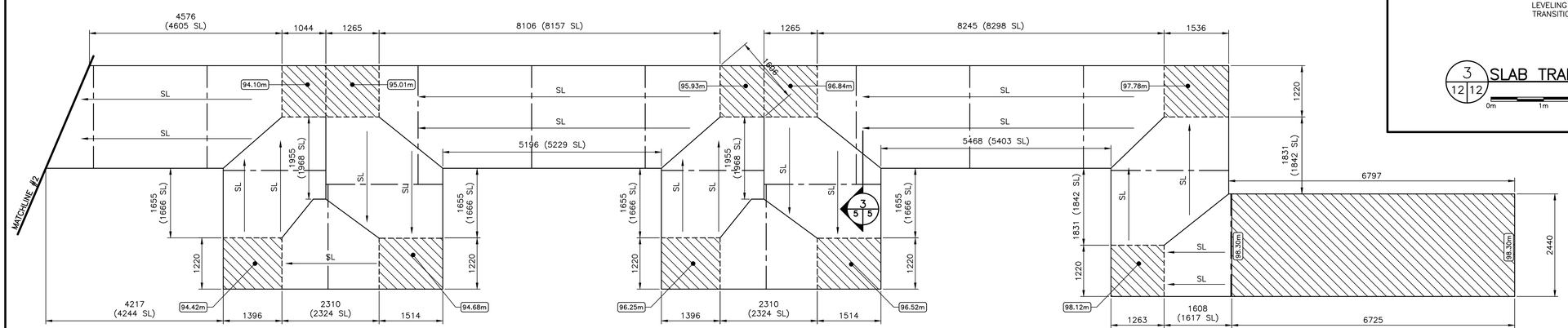
PWGSC B1 (2004)

E-DRM/GDD-E:

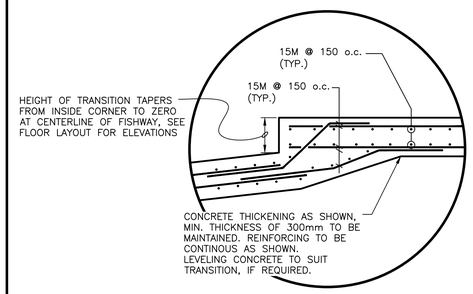


1 12 12 ROOF SLAB PLAN
SCALE: 1:50
0m 1m 2m 3m 4m 5m





2 12 12 FLOOR SLAB PLAN
SCALE: 1:50
0m 1m 2m 3m 4m 5m



3 12 12 SLAB TRANSITION DETAIL (TYP.)
SCALE: 1:40
0m 1m 2m 3m 4m 5m

revisions		date
A	ISSUED FOR 50% REVIEW	21/08/26

Public Works and Government Services Canada / Travaux Publics et Services gouvernementaux Canada

project / projet
LOMOND RIVER FISHWAY REPLACEMENT

LOMOND RIVER, NL

drawing / dessin
NEW ROOF SLAB PLAN, FLOOR SLAB PLAN AND DETAIL

designed K. FITZGERALD / conçu
date JUNE 2021
drawn M. LEGGE / dessiné
date JUNE 2021
approved / approuvé
date
Tender / Soumission
PWGSC Project Manager / Administrateur de projets TPSGC
project number / no. du projet
R.114129.002
drawing no. / no. du dessin
C12 of 12

PWGSC B1 (2004)
E-DRM/GDD-E:

APPENDIX C
Construction Schedule

Meridian Engineering Inc.

10 Thompson Street
Clarenville NL Canada
A5A 1Y9

Telephone: (709)466-2700
Facsimile: (709)466-3090

PROPOSED CONSTRUCTION SEQUENCING SCHEUDLE
Lomond River Fishway Replacement

RS4 Design Stage (50%)

PSPC Project Number: R.114129.002
MEI Project Number: CC21025PWS
Date: 12 Aug 2021

Phases of Work	Dates	Work Scope	Major Milestones
PHASE 1	YEAR: 2022 DURATION: 2M (April to May)	• Mobilization to site. • Complete any necessary upgrades to Tower Road. • Construct new temporary access road to fishway site with new laydown and turnaround. • Secure construction site. • Complete shoreline preparatory work and enhancements, adjacent to existing fishway, for equipment access. Work Includes, clearing and removal of unstable cliff rock and backfilling. • Install berms and dewatering devices. • Provide temporary access to downstream portion of fishway for fish transfer purposes. • Start demolition and removal existing diversion walls and existing bridge abutments. • Start demolition of existing upstream fishway pools, starting at pool #1 and working towards the downstream	1. *New access road construction.*

		pools. The two (2) existing downstream pools shall remain until fall of 2022. Demolition work to coincide with rock removal for the new fishway.	
PHASE 2	YEAR: 2022 DURATION: 4M (June to September) *(Manual Fish Transfer, Season #1)*	• Coordinate and implement fish transfer plan. Use existing downstream pools to capture salmon. The two (2) existing downstream pools shall until fall of 2022. • Complete demolition of existing diversion walls and bridge abutments. • Continue with demolition of existing fishway pools (working from upstream to downstream). Demolition to coincide with rock removal for the new fishway. *{If required by governing authorities, deploy a bubble curtain (or similarly approved device), within the river near the busting location to reduce the propagation of underwater noise effects on the fish species.}* • Start and complete construction of new upstream diversion walls and westside bridge abutment • Start construction of new fishway pools, working from upstream to downstream. • Demobilize fish transfer program (September 30th)	*1. Season 1 for fish transfer plan.* *2. Complete demolition of diversion walls and bridge abutments.* *3. Complete construction of upstream diversion walls and westside bridge abutment.* *4. Start construction of upstream fishway pools.*
PHASE 3	YEAR: 2022 DURATION: 2.5M (October to December)	• Concentrated effort on demolition and reconstruction of downstream pools for the construction of new fishway pools No. 23 to 25. These pools will be utilized for the 2023 fish transfer program. • Start rock backfilling the downstream portion of the uplands area with rip-rap and armour stone protection.	*1. Complete new fishway pools 23 to 25 for 2023 fish transfer program.*

		This work shall coincide with the construction of pools No. 23 to 25. • As water and weather conditions remain appropriate, continue with demolition of existing fishway pools (working from upstream to downstream) Demolition to coincide with rock removal for the new fishway. • If pools No. 23 and 25 are complete and conditions are appropriate, continue with construction of new fishway pools, working from and upstream to downstream direction. • Temporary secure site and berms for winter shut down • Demobilize for winter shut down.	
PHASE 4	YEAR: 2023 DURATION: 2M (April to May)	• Mobilize to site. • Reestablish berm and dewatering devices. • Concentrated effort to complete any remaining work on new fishway pools No. 23 to 25 for the 2023 fish transfer program. • Continue with rock backfilling the downstream portion of the uplands area with rip- rap and armour stone protection. • continue with demolition of existing fishway pools (working from upstream to downstream) Demolition to coincide with rock removal for the new fishway.	
PHASE 5	YEAR: 2023 DURATION: 4M (June to September) *(Manual Fish Transfer, Season #2)*	• Coordinate and implement fish transfer plan. Use new downstream pools 23 to 25 to capture salmon. • Complete construction of new fishway pools. • Install new trash rack and stop logs.	*1.Complete new fishway pools.* *2. Complete new attraction flow system.*

		• Complete construction of new flow augmentation piping system with concrete encasement. • Continue rock backfilling the uplands area with rip- rap.	
PHASE 6	YEAR: 2023 DURATION: 2M (October to December)	• Complete rock backfilling of uplands area with rip- rap. • Complete site work on eastside riverbank for bridge launch and abutment construction. • Construct eastside bridge abutment. • Remove berms and dewatering devices. • Demobilize for winter shut down.	*1. Complete rock backfilling of site.* *2. Complete site work on eastside riverbank.* *3.Complete eastside bridge abutment.*
PHASE 7	YEAR: 2024 DURATION: 5M (April to September)	• Mobilize to site • Installation of new pedestrian bridge. • Remove all other site debris noted on the drawings. • Install fishway grating and railing. • Install new chain link fence and security gate on eastside bridge abutment. • Install new fish trap for counting during the 2024 season. • Install new chain link fencing and security gates along uplands side of the new fishway. • Restore designated portions of the site to pre-construction conditions. • Remove site security. • Site cleanup.	*1. New pedestrian bridge.* *2. Complete railing & grating on fishway.* *3. Install chain link fence and grates.* *4. Site cleanup.*
PHASE 8	YEAR: 2025 DURATION: 2M (April to May) **Post 1 year warranty review**	• Remove access road and reinstate with footpath.	*1. Reinstate footpath.*

Sequencing Notes:

It is assumed for the purpose of this schedule that the engineering design and tendering is completed in the fall 2021. Based on this assumption, construction is estimated to start in the spring of 2022 and completed by late summer in 2024. This represents approximately 22 months of construction, with no construction activity during January, February, or March of each year, and includes two (2) interrupted salmon migration periods, one in 2022 and one in 2023. This schedule is largely dependent on weather conditions and river flow conditions. It is important to identify these risks now, so they can be appropriately managed in any long-term fiscal planning for the project.