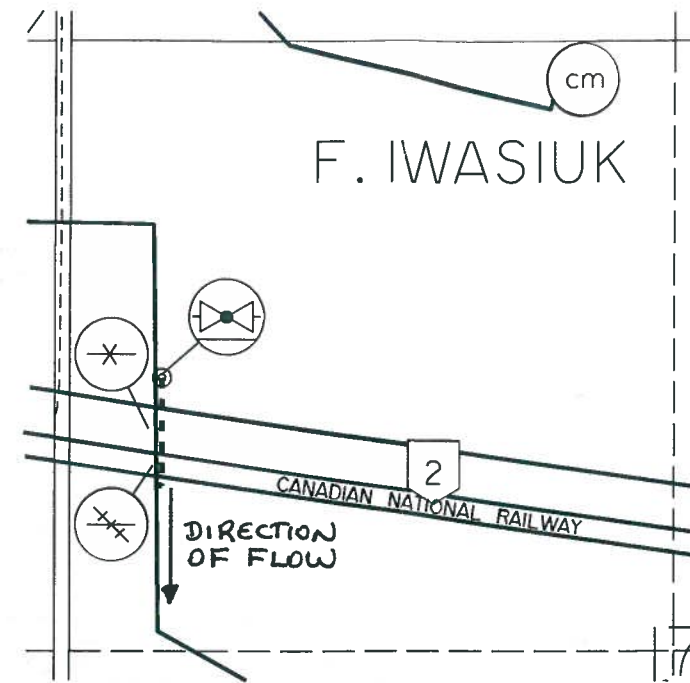


CROSS SECTION
SCALE Horizontal 1:1000
Vertical 1:100

CROSSING SPECIFICATIONS

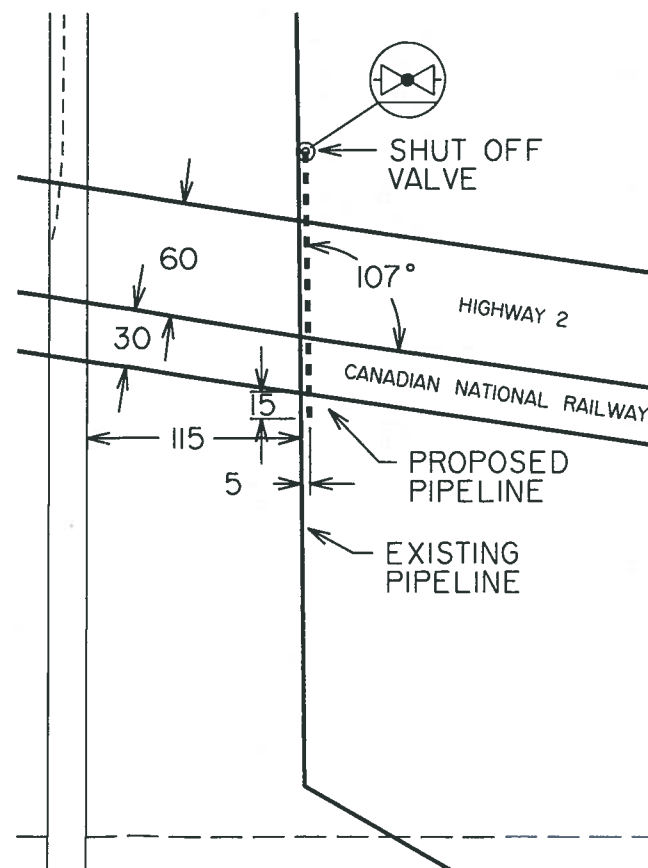
CARRIER PIPE: 75mm STEEL
 O.D. PIPE: 88.9 mm
 WALL THICKNESS: 4.80mm
 DESIGN PRESSURE: 4140 kPa
 MAXIMUM OPERATING PRESSURE: 4140 kPa
 MINIMUM YIELD STRENGTH: 38500 kPa
 HOOP STRESS: 11%
 FIELD TEST PRESSURE: 5175 kPa
 MEDIUM CARRIED: SWEET NATURAL GAS
 EXTERNAL CORROSION TREATMENT: YELLOW JACKET
 CATHODIC PROTECTION: SACRIFICIAL ANODE
 CONSTRUCTION: BORE
 CASING PIPE: NONE

SAMPLE
GAS/OIL CROSSING
NOT CASSED



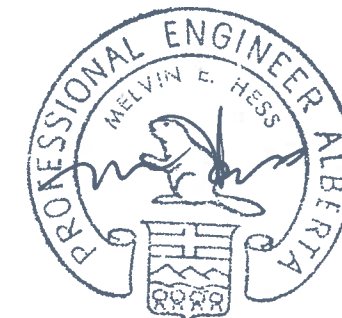
LOCATION PLAN
SCALE 1:10 000

DETAIL
SCALE 1:5000



NOTES:

1. SHUT OFF VALVE LOCATED NW 17-74-15-5.
2. INSTALLATION AND MAINTENANCE TO BE IN ACCORDANCE WITH GENERAL ORDER E-10 AND LATEST EDITION OF APPLICABLE CSA STANDARD.
3. PERMANENT PIPELINE CROSSING SIGNS INSTALLED ON BOTH SIDES OF R/W.



Altime Engineering Ltd.

PRAIRIE RIVER GAS CO-OP LTD.
 PLAN SHOWING
 PIPE LINE CROSSING OF
 C.N. RAIL
 NW 17-74-15-5

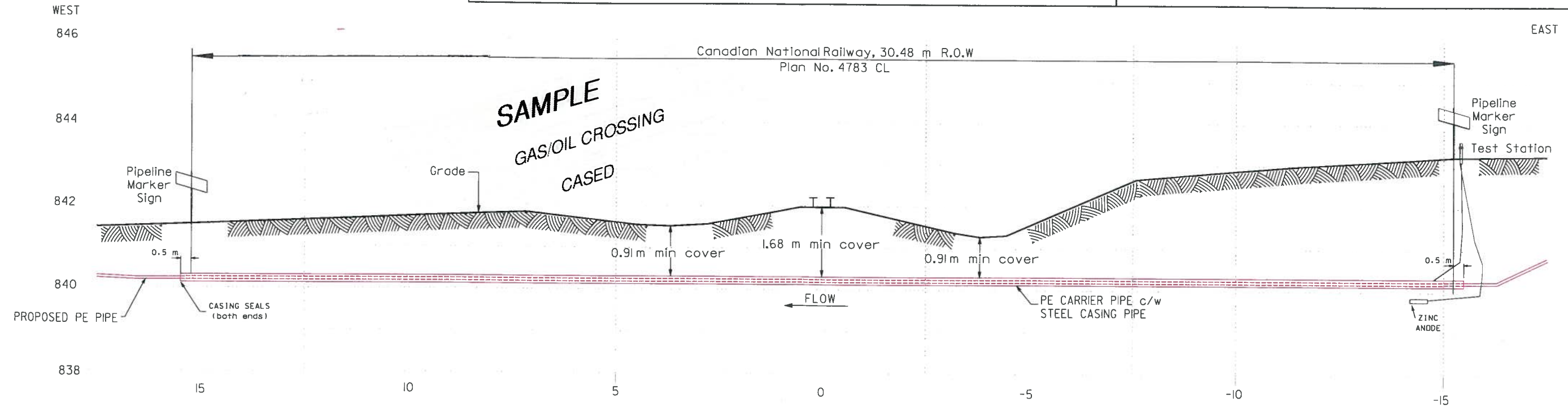
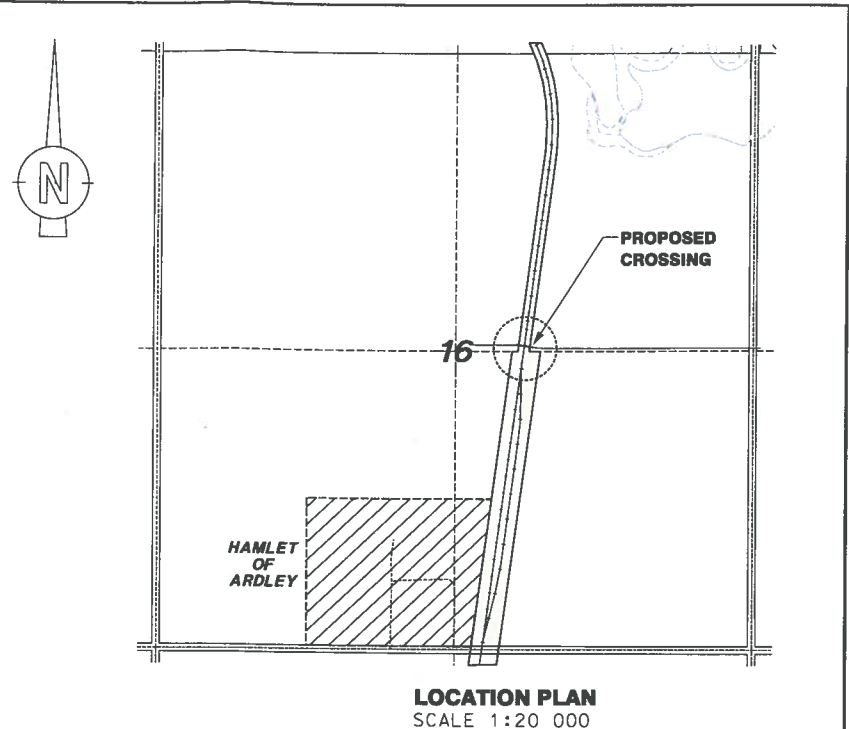
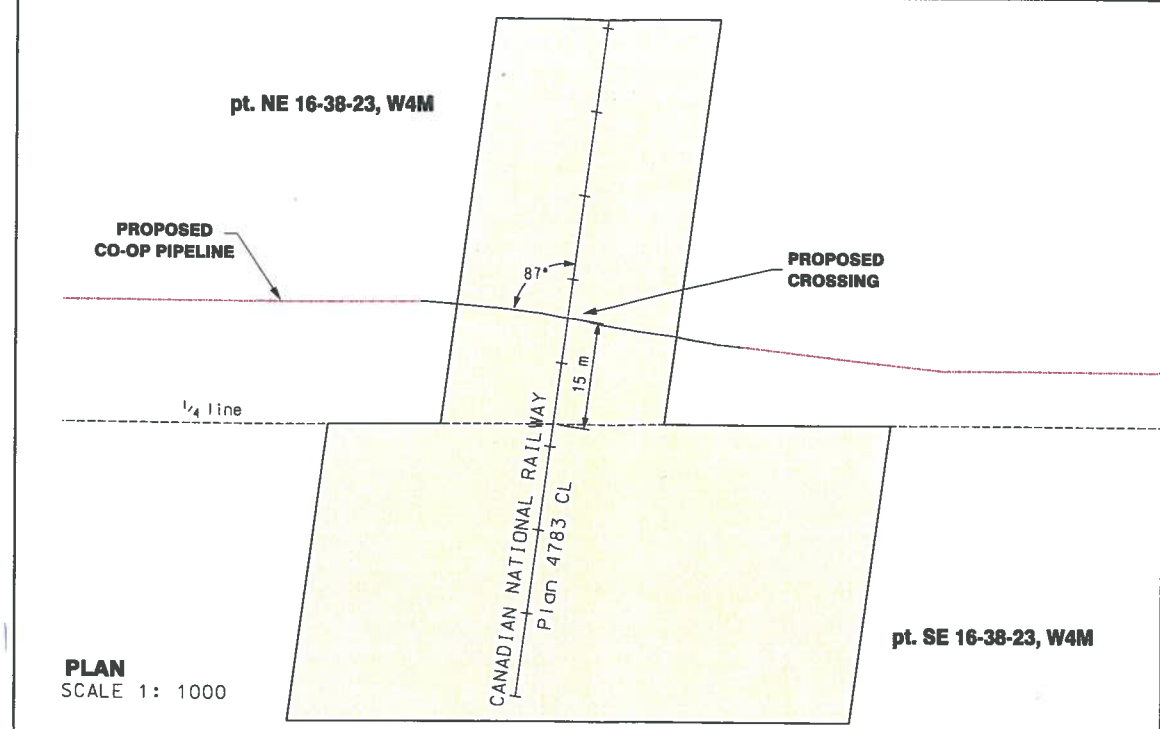
DRAWN BY: DMH DATE: MAR 3/09
 PROJECT:
 DRAWING No. 09PRV002.RRX

CARRIER PIPE SPECIFICATIONS

1. Pipe Size: 60.3 mm O.D. x 5.5 mm W.T.
2. Nominal Pipe Size: 50 PE
3. Test Pressure: 980 kPa
4. Operating Pressure: 550 kPa
5. Hydrostatic Design Basis: 8.6 MPa
6. Pipe Specifications: CAN3-B137.4, PE 2406
7. Hoop Stress: 2.8 MPa (Stress Level: 32%)

CASING PIPE SPECIFICATIONS

1. Pipe Size: 114.3 mm O.D. x 4.8 mm W.T.
2. Nominal Pipe Size: 100 St.
3. Minimum Yield Strength: 359 MPa
4. Pipe Specifications: CAN/CSA Z245.1 Grade 359 Cat. II, ERW
5. Protective Coating: Yellow Jacket, or equal
6. Cathodic Protection: Sacrificial Zinc Anode



CROSS SECTION OF RAILWAY AT CROSSING
SCALE: HORZ. 1:100
VERT. 1:100

Rev. 1 - Revised casing pipe specifications

GENERAL NOTES

1. Conveying Natural Gas
2. Nearest Shut-off Valve: SW 18-38-22, W4M
3. Method of Installation: Bore or punch from bar ditch to bar ditch in a manner that the railway grade is not disturbed.
4. This crossing will be built and maintained in accordance with TC E-10, Standards Respecting Pipeline Crossings under Railways.
5. All work, methods and materials shall meet or exceed the requirements of CAN/CSA Standard Z662, latest edition.
6. Casing ends shall be suitably sealed to the outside of the carrier pipe with link seals, Densyl mastic and Denso tape. Spacers shall be installed at minimum 3.0 m intervals.
7. Excavations greater than 1.5 m in depth shall be back sloped at a sufficient angle appropriate for the soil type.
8. Adequate compaction shall be provided where the PE carrier pipe exits the casing to minimize earth loads and potential differential settlement.
9. Cross section based on GPS survey by Crossroads Gas Co-op Ltd.



Rev. 1
Sept. 17, 2009

CAMPBELL RYDER ENGINEERING LTD
CONSULTING ENGINEERS
EDMONTON ALBERTA

CROSSROADS GAS CO-OP LTD.

Gasline Crossing CANADIAN NATIONAL RAILWAY in NE 16-38-23, W4M

DATE: Sept. 17, 2009	SCALE: As Shown	DRAWING NO:
DWN BY: S. Vollema	REV:	214-106