TUNDRA
ENERGY MARKETING LIMITED
3100 – 715 5th Ave SW, Calgary, AB T2P 2X6 TEL: 403-536-0800

Ms. Stacy McBride

Petroleum Branch
Ministry of Innovation, Energy and Mines
Box 1359, 227 King Street West
Virden, Manitoba
R0M 2C0

October 5, 2015

RE: Two Creeks Lateral and LACT

Dear Ms. McBride,

Tundra Energy Marketing Limited hereby makes application under section 149 (2) of the Oil and Gas Act for a Pipeline Construction Permit for a pipeline from 03-34-12-27 to 08-16-11-26 WPM.

Documentation requested by Manitoba Innovation, Energy and Mines department for such Pipeline Construction Permit Application is included in the enclosed package.

Sincerely,

Sam Stephenson
VP, Engineering & Construction
Tundra Energy Marketing Limited

cc. Petroleum Branch, Winnipeg, MB

TUNDRA
ENERGY MARKETING LIMITED

An Application to
Manitoba Innovation, Energy and Mines
Petroleum Branch

to
Construct a New Crude Oil Pipeline

In the
Virden Area

From a new TEML LACT Facility and Elcano Battery in 03-34-12-27
To a new pipeline riser at 08-16-11-26 WPM

Prepared by Asher Engineering Ltd.
October 1, 2015

Table of Contents

List of Appendices

1. Introduction

Tundra Energy Marketing Limited (hereafter referred to as “TEML”) proposes to build, own, and operate a new steel pipeline to:

1. Transport crude oil from a new TEML LACT facility at an Elcano Exploration Inc (“Elcano”) battery site (03-34-12-27 W1M) to TEML’s Virden Pipeline System.

   The tie-in to TEML’s Virden Pipeline System will occur at a new riser located in 08-16-11-26 W1M. This riser site will facilitate pigging of the Two Creeks Pipeline and the connection to the existing SC-03 pipeline.

In accordance with Section 149(2) of the Oil and Gas Act, TEML hereby makes application to Manitoba Innovation, Energy and Mines - Petroleum Branch, for approval of a pipeline construction permit.

2. Applicant Information

The pipeline (hereafter referred to as the “Two Creeks Pipeline”) will be owned and operated by TEML which is a wholly-owned subsidiary of Winnipeg-based James Richardson & Sons, Limited ("JRSL"). JRSL is a multi-disciplined enterprise with operations in agriculture, food processing, financial services, property management and energy exploration in Manitoba and the prairies.

TEML is experienced in the operation of similar oil pipelines. The proposed pipelines will be operated out of TEML’s Cromer field office.

The pipeline will be designed by Asher Engineering Ltd. Asher has been in the consulting engineering business since 1993, is licensed to practice engineering in Manitoba, and has specific experience with the design of these types of pipelines.

3. Overview of the Application

This application is for a new steel pipeline as detailed below:

1. A 168 mm OD (NPS6) steel pipeline, approximately 20 km in length, from a new TEML LACT facility (and Elcano Battery) at 03-34-12-27 W1M to a new TEML riser site in 08-16-11-26 W1M.

The new pipeline will be constructed in a 20 m Right of Way (RoW) and environmental disturbance will be minimized wherever practical.

The below have been included with this application; in accordance with the requirements of Manitoba Petroleum Guideline 1:

a) A System Map (provided in Appendix A) indicating the Elcano Battery, entire pipeline route, land topography, etc.

   A survey showing additional details along the route, such as crossings and nearby facilities, can be found in Appendix B.

   As the pipeline does not require any major water crossings, valves for isolating the line are only required at the endpoints. These valve locations are shown on the plot plans in Appendix C.

b) The location of all towns or cities, highways and water covered areas are shown in the maps and drawings included in Appendices A and B.

   There are no tanks associated with this project application.

c) Typical profile and cross section drawings for this project are included in Appendix D. These include road, waterway and pipeline or utility crossings.

d) Survey information of the site for the LACT facility and surrounding area are included in Appendices B and C.

e) A plot plan for the Elcano 03-34 Battery is included in Appendix C.

f) A Process Flow Diagram (PFD) indicating the proposed pipeline tie-ins at the 03-34 Elcano Battery and the new TEML 08-16 pipeline riser are included in Appendix E.

g) A shape or DXF file of the proposed pipeline route is enclosed.

4. Intended Use and Need

The new NPS 6 pipeline will eliminate the need for trucking oil volumes and will decrease risks associated with truck traffic on local roadways. Additional benefits include uninterrupted oil delivery due to road bans or poor road conditions, and reduced wear and tear on local roads. The Two Creeks Pipeline will deliver oil from Elcano's Battery in 03-34 to TEML's Virden Pipeline System, and ultimately CTT for storing, processing and transmission to refineries.

5. Pipeline and LACT Description

a) The pipeline will run from 03-34-12-27 to 08-16-11-26 W1M.

b) The pipeline will transport LVP crude oil.

c) The pipeline length is expected to be approximately 20km.

d) The new pipeline will be 168.3mm OD; the wall thickness of the pipe, pipe grade and additional information is tabled in Appendix F.

e) Corrosion Control: The steel pipeline will be externally coated with an extruded polyethylene coating. Pipeline girth welds will be protected by compatible shrink type sleeves. The pipelines will be cathodically protected using an impressed current system to provide additional external corrosion control. Test stations will be installed at end points and at foreign crossings where required by agreement with the foreign pipeline owner. Upon completion of construction and as part of a routine maintenance program the pipelines will be batch filmed with corrosion inhibitor. Corrosion inhibitor will also be continuously injected into the product stream and monitored as part of an integrity management plan. Corrosion monitoring spools ("fish bellies") will be installed as a part of the TEML piping (at the Elcano 03-34 battery) to allow routine ultrasonic inspection for corrosion monitoring. The pipelines will be routinely pigged to remove water and / or sediment that may collect in low areas. The design of the pipelines will include pigging facilities and long radius risers that will accommodate the use of smart pig technology to monitor the pipeline condition. The corrosion control system will comply with Clause 9.0 of CSA Z662-15.

Spill Risk Mitigation: Product will be gravity fed from Elcano storage tanks to the TEML LACT package. The LACT package will include a booster pump, basket strainer, water cut monitor, oil sampler, meters and a shipping pump. The LACT package will also be equipped with Motor Operated Valves ("MOVs") for shutdown purposes. These MOVs will be actuated by signals from the facility PLC and/or SCADA system. Coriolis meters will provide custody transfer measurement of oil from Elcano's storage tanks into the Two Creeks Pipeline.

Leak detection will be managed by TEML's existing computational leak detection system, and will be done on a system-wide basis. Alarms will be triggered in the event of a leak, and TEML operators will be responsible for closing the MOVs.

Operators will receive alarms to issue a shutdown should the pressure of the pipeline deviate above or below the set pressures.

Expected Daily Flow: The Two Creeks Pipeline is expected to carry flow rates of up to 2000 m^3/day. This rate may vary with future volumes and production rates.

Terminal Storage Capacity: No additional oil storage is proposed at the terminal in connection with this application.

f) The design pressure and the maximum operating pressure that the pipeline is expected to be qualified to by pressure testing is included in Appendix F.

g) Material specifications and standards for the pipe, valves, flanges and other fittings for the pipeline are included in Appendix F.

h) No process vessels are a part of this application.

i) This is a liquid pipeline and as such, in the unlikely event of a pipeline rupture, the spill would not result in significant vapor dispersion.

6. Proof of Consultation and Access

The following confidential information is contained in the Line List, included in this document as Appendix G:

a) The names and addresses of all landowners, occupants and residents, complete with land location, within the following areas:
i) 1.5 km radius of each endpoint of the pipeline and
ii) a radius of 0.5 km along the length of the proposed line.

b) A copy of the notice and proof of consultation with all parties listed in 6.a above.

c) A description of the applicant's consultations with all parties listed in 6.a above including a summary of any concerns raised during the consultation process and all actions taken or proposed to be taken by the applicant to address concerns, and

d) Proof of the right to access the proposed surface RoW.

7. Environmental Protection Plan

TEML will follow an Environmental Protection Plan (EPP) for planning, designing, construction and post-construction purposes. This plan is being developed by Matrix Solutions Inc. and will be submitted for review as a supplement to this document.

TEML will use a corporate level Emergency Response Plan (ERP) which is intended to handle any emergency situations that may arise. Tundra's emergency

telephone number is 1-844-333-6789. This number is attended 24 hours a day, 7 days a week. The ERP will be amended to include the new pipelines.

8. Other Approvals

a) Municipalities
Notifications and discussions regarding crossing agreements and zoning requirements with the R.M. of Wallace are being undertaken simultaneous to this application.

b) Urban Municipality
The pipeline is not located within 1.5 km of an urban municipality.

c) Historic Resources Branch
Matrix Solutions has completed an environmental pre-development assessment of the proposed pipeline. Screening results by the Manitoba Historic Resources Branch indicate that no previously recorded heritage sites have been identified and the potential of the pipeline to impact significant heritage resources is considered low.

d) Manitoba Infrastructure and Transportation
Notifications and discussions regarding crossing agreements are being undertaken with Manitoba Infrastructure and Transportation simultaneous to this application.

e) Railway Crossings
There are no railway crossings associated with this project.

f) Waterway Crossings
There are no major water crossings associated with this project.

g) Utility or Foreign Pipeline Crossings
Utilities and foreign pipeline companies are being notified of the proposed pipelines and crossing agreements are being obtained simultaneous to this application.

h) Surface Landowners
All surface landowners have been notified of the proposed project and agreements are being obtained.

i) Indian Bands
There are no First Nations, Métis Communities or other Aboriginal communities in the area of the proposed pipeline.

j) SC-03 Pipeline Modification

The existing TEML SC-03 pipeline will need a modification approval for the tie-in of the Two Creeks Pipeline. This application will be drafted and submitted to the Manitoba Petroleum Branch under separate cover.

9. Environmental Licence

As the proposed NPS 6 pipeline is longer than 10km in length, an Environmental License will be required. In preparation for application to the Manitoba Environmental Approvals Branch (EAB), an Environmental Pre-Development Assessment (EPDA) is being prepared by Matrix Solutions Inc. A copy of this assessment will be submitted for review as a supplement to this document. The EAB has been notified of the project, and an Environment Act Proposal (EAP) will be submitted for review in the immediate future.

10. Initial Aboriginal Consultation Assessment

An Initial Aboriginal Consultation Assessment is being sent to Mr. Keith Lowdon, Director of the Petroleum Branch.

Appendix A

System Map

Appendix B

Survey Plans

MLS AFFIDAVIT

I certify that the survey represented by this plan is correct to the best of my knowledge.

Manitoba Land Surveyor — Witness

OPERATOR :
TUNDRA ENERGY MARKETING LTD.

CROSSING TABLE

Drawing No.	Description	Status	Location
X1	30.175 Government Road (157W) Allowance - Undeveloped	Issued Rev.0	Between SW 13 & SE 14-12-27WPM
X2	Low Run (Dry)	Not To Be Issued	NE 14-12-27WPM
X3	30.175 Government Road (69N) Allowance - Low Grade Gravel Road	Issued Rev.0	Between NW 14 & SW 23-12-27WPM
X4	25 m R/W - Operator: Tundra (Buried Power Cable)	Issued Rev.0	SW 23-12-27WPM
X5	20 m Tundra Access Road - Trail	Issued Rev.0	SW 23-12-27WPM
X6	Low Run (Wet)	Not To Be Issued	SW 23-12-27WPM
X7	25 m R/W - Operator: Tundra (Not Constructed)	Issued Rev.0	NW 23-12-27WPM
X8	20 m Easement "C" Plan 57498 BLTO. - Operator: Elcano (Buried Pipe)	Issued Rev.0	NW 23-12-27WPM
X9	4 Wire Overhead Power Line - Operator: MB Hydro	Issued Rev.0	Between NE 22 & NW 23-12-27WPM
X10	30.175 Government Road (158W) Allowance - Medium Grade Gravel Road	Issued Rev.0	Between NE 22 & NW 23-12-27WPM
X11	10 m Easement "B" Plan 56534 BLTO. - Operator: Elcano (Not Constructed)	Issued Rev.0	NE 22-12-27WPM
X12	10 m Easement "A" Plan 56534 BLTO. - Operator: Elcano (Not Constructed)	Issued Rev.0	NE 22-12-27WPM
X13	10 m Easement "B" Plan 56167 BLTO. - Operator: Elcano (Buried Pipe)	Issued Rev.0	NE 22-12-27WPM
X14	10 m Easement "A" Plan 56167 BLTO. - Operator: Elcano (Buried Power Cable)	Issued Rev.0	NE 22-12-27WPM
X15	30.175 Government Road (70N) Allowance - Medium Grade Gravel Road	Issued Rev.0	Between SE 27 & NE 22-12-27WPM
X16	4 Wire Overhead Power Line - Operator: MB Hydro	Issued Rev.0	Between SE 27 & NE 22-12-27WPM
X17	20 m Easement Plan 57569 BLTO. - Operator: Elcano (Buried Pipe)	Issued Rev.0	SW 27-12-27WPM
X18	Low Run (Dry)	Not To Be Issued	NW 27-12-27WPM
X19	20 m Easement Plan 57231 BLTO. - Operator: Elcano (Not Constructed)	Issued Rev.0	NW 27-12-27WPM
X20	30.175 Government Road (71N) Allowance - Medium Grade Gravel Road	Issued Rev.0	Between NW 27 & SW 34-12-27WPM
X21	4 Wire Overhead Power Line - Operator: MB Hydro	Issued Rev.0	Between NW 27 & SW 34-12-27WPM
X22	20 m R/W - Operator: Elcano (Buried Pipe)	Issued Rev.0	SW 34-12-27WPM
X23	Buried Pipe - Operator: Elcano	Issued Rev.0	SW 34-12-27WPM
X24	Buried Pipe - Operator: Elcano	Issued Rev.0	SW 34-12-27WPM
X25	Buried Pipe (x2) - Operator: Elcano	Issued Rev.0	SW 34-12-27WPM

* The revision stated in the Status column refers to the Construction Plan revision.

Total length of right-of-way along posted boundary : 5.95 km
Crossings associated with this drawing: 25
Crossing plans required : 22
(Crossing plans issued for foreign crossings only)

LEGEND

- Placed Wooden Hub / Deflection Point shown thus: △
- Found Survey Monuments shown thus: ■
- Right - of - Way boundary shown thus: (red line)

NOTES

- All Marker Posts placed are 0.3 metres inside the GRA unless shown otherwise
- Right-of-way to be filed is 20.00 metres in perpendicular width throughout unless shown otherwise.
- Azimuths are grid and are referred to UTM projection, NAD 83 (Zone 14) datum and are derived by G.N.S.S.

DISCLAIMER:

This plan represents the best information available at the time of survey. Altus Geomatics Manitoba and its employees take no responsibility for the location of any underground pipes, conduits, or facilities, whether shown on or omitted from this plan. Facilities shown on this plan are for informational purposes only. Prior to any construction on lease or access road, TUNDRA ENERGY MARKETING LTD., MTS Communications Inc., Manitoba Hydro, and Manitoba Hydro-Gas Operations **MUST** be contacted for location of any underground facilities that may exist.

NO.	REVISIONS	INITIALS	DATE
-			
-			
0	Issued	TH/DS/GA - AV - MB	Oct. 1, 2015

TUNDRA ENERGY MARKETING LTD.

CONSTRUCTION PLAN

of

RIGHT-OF-WAY

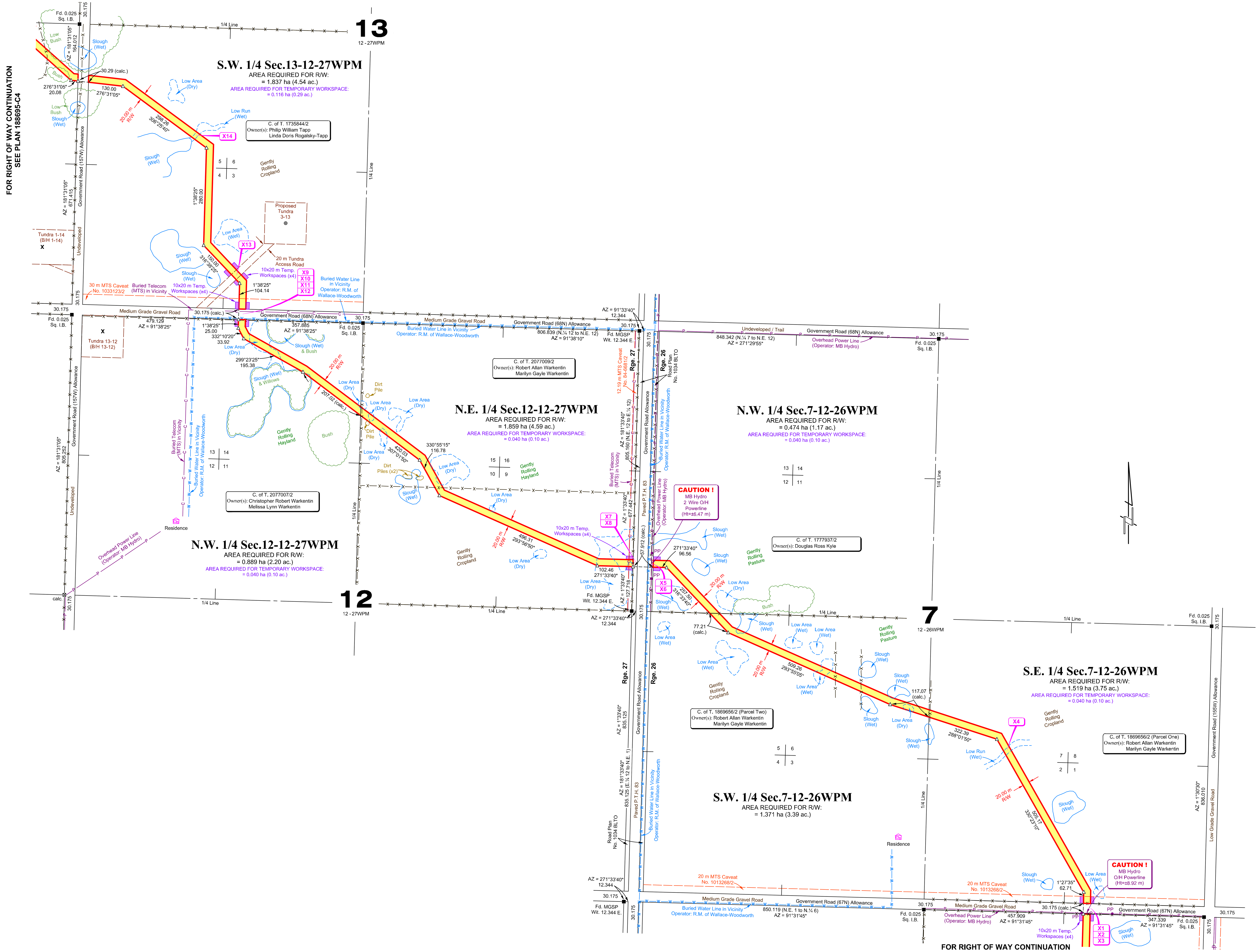
Within
E. 1/2 & N.W. 1/4 Sec. 14
W. 1/2 Sec. 23
N.E. 1/4 Sec. 22
S. 1/2 & N.W. 1/4 Sec. 27
&
S.W. 1/4 Sec. 34
Twp. 12 - Rge. 27WPM

North Hargrave Area
Rural Municipality of Wallace-Woodworth
2015

Scale - 1 : 5000

Altus Geomatics Manitoba — Toll Free: 1-800-465-6233 www.altusgeomaticsmb.com

AFE No.:	
Client File No.:	SEGMENT: C4
REV. 0 — File : 188695PL-C4	Job: 188695
Survey Date : August 28, 2015 To Sept. 10, 2015	



MLS AFFIDAVIT

I certify that the survey represented by this plan is correct to the best of my knowledge.

Manitoba Land Surveyor — Witness

OPERATOR :
TUNDRA ENERGY MARKETING LTD.

CROSSING TABLE

Drawing No.	Description	Status	Location
X1	Overhead Power Line - Operator: MB Hydro	Issued Rev.0	Between NE 6 & SE 7-12-26WPM
X2	30.175 Government Road (67N) Allowance - Medium Grade Gravel Road	Issued Rev.0	Between NE 6 & SE 7-12-26WPM
X3	20 m MTS Caveat No. 1013268/2	Issued Rev.0	SE 7-12-26WPM
X4	Low Run (Wet)	Not To Be Issued	SE 7-12-26WPM
X5	2-Wire Overhead Power Line - Operator: MB Hydro	Issued Rev.0	NW 7-12-26WPM
X6	Buried Water Line - Operator: R.M. of Wallace-Woodworth	Issued Rev.0	NW 7-12-26WPM
X7	P.T.H. No. 83 - Road Plan 1034 BLTO. - Paved Road	Issued Rev.0	Between NW 7-12-26WPM & NE 12-12-27WPM
X8	12.19m MTS Caveat No. 84-6681/2 (Buried Telecom Cable)	Issued Rev.0	NE 12-12-27WPM
X9	Buried Water Line - Operator: R.M. of Wallace-Woodworth	Issued Rev.0	Between NW 12 & SW 13-12-27WPM
X10	30.175 Government Road (68N) Allowance - Medium Grade Gravel Road	Issued Rev.0	Between NW 12 & SW 13-12-27WPM
X11	Buried Telecom Cable - Operator: MTS	Issued Rev.0	Between NW 12 & SW 13-12-27WPM
X12	30 m MTS Caveat No. 1033123/2	Issued Rev.0	SW 13-12-27WPM
X13	20 m Tundra Access Road (Proposed)	Issued Rev.0	SW 13-12-27WPM
X14	Low Run (Wet)	Not To Be Issued	SW 13-12-27WPM

* The revision stated in the Status column refers to the Construction Plan revision.

Total length of right-of-way along posted boundary : 4.11 km
Crossings associated with this drawing: 14
Crossing plans required : 12
(Crossing plans issued for foreign crossings only)

LEGEND

Placed Wooden Hub / Deflection Point shown thus: △
Found Survey Monuments shown thus: ■
Right - of - Way boundary shown thus: (red line)

NOTES

- All Marker Posts placed are 0.3 metres inside the GRA unless shown otherwise
- Right-of-way to be filed is 20.00 metres in perpendicular width throughout unless shown otherwise.
- Azimuths are grid and are referred to UTM projection, NAD 83 (Zone 14) datum and are derived by G.N.S.S.

DISCLAIMER:

CALL BEFORE YOU DIG

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NO.	REVISIONS	INITIALS	DATE
-			
-			
0	Issued	TH/DS/GA - AV - MB	Oct. 1, 2015

TUNDRA ENERGY MARKETING LTD.

CONSTRUCTION PLAN

of

RIGHT-OF-WAY

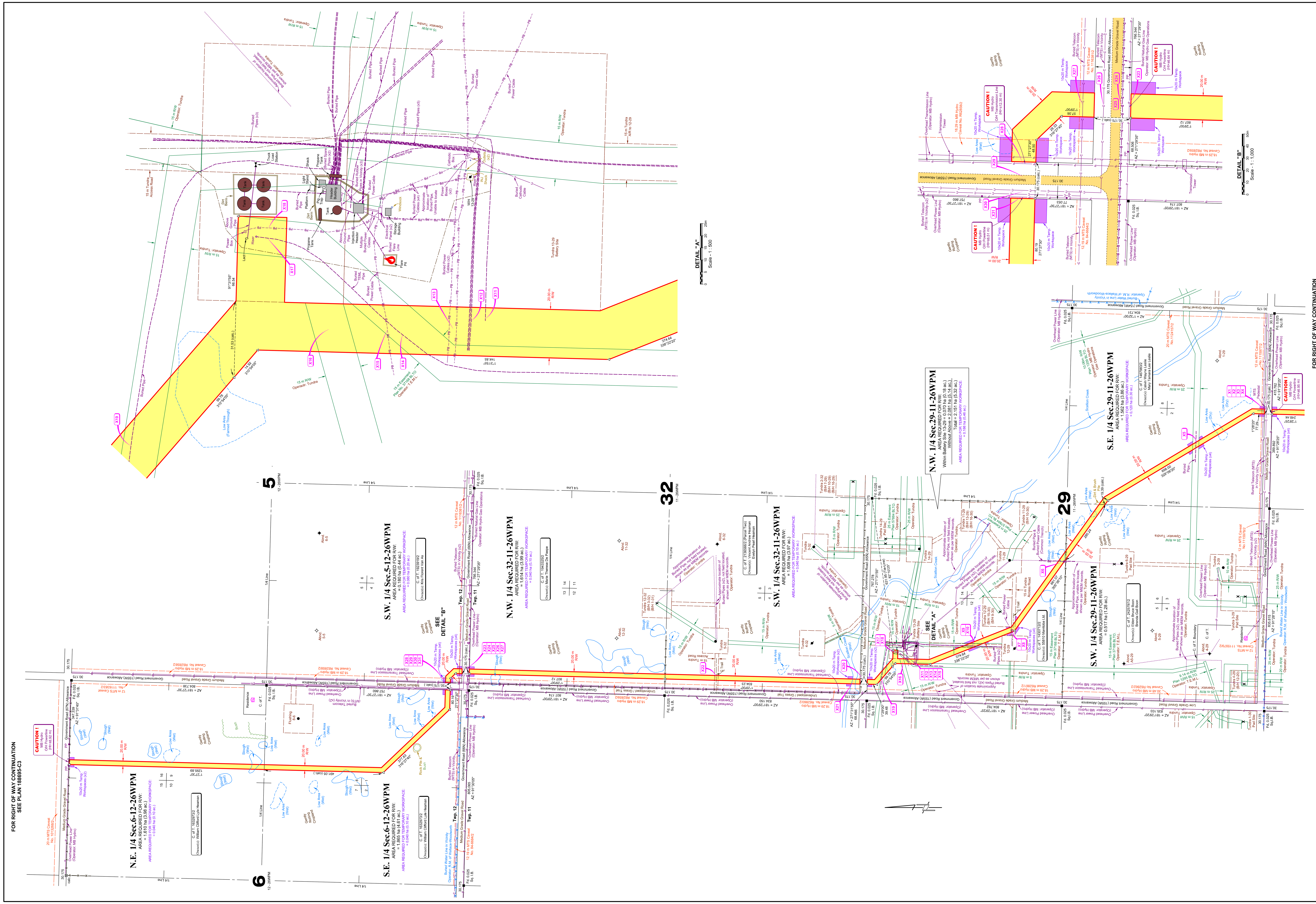
Within
S. 1/2 & N.W. 1/4 Sec. 7
Twp. 12 - Rge. 26WPM
&
N. 1/2 Sec. 12 &
S.W. 1/4 Sec. 13
Twp. 12 - Rge. 27WPM

Virden & North Hargrave Areas
Rural Municipality of Wallace-Woodworth
2015

0 50 100 200 300 400 500m
Scale - 1 : 5000

Altus Geomatics Manitoba — AMLS MEMBER
Toll Free: 1-800-465-6233
www.altusgeomaticsmb.com

AFE No.:	
Client File No.:	SEGMENT: C3
REV. 0 — File : 188695PL-C3	Job: 188695
Survey Date : August 28, 2015 To Sept. 28, 2015	



MLS AFFIDAVIT

I certify that the survey represented by this plan is correct to the best of my knowledge.

Manitoba Land Surveyor — Witness

OPERATOR : TUNDRA ENERGY MARKETING LTD.

CROSSING TABLE

Drawing No.	Description	Status	Location
X1	Overhead Power Line - Operator: MB Hydro	Issued Rev.0	Between NE 20 & SE 29-11-26WPM
X2	30.175 Government Road (64N) Allowance - Medium Grade Gravel Road	Issued Rev.0	Between NE 20 & SE 29-11-26WPM
X3	Buried Telecom Cable - Operator: MTS	Issued Rev.0	Between NE 20 & SE 29-11-26WPM
X4	12 m MTS Caveat No. 1115977/2 (Buried Telecom Cable)	Issued Rev.0	SE 29-11-26WPM
X5	25 m R/W - Operator: Tundra (Buried Pipe)	Issued Rev.0	SE 29-11-26WPM
X6	Buried Pipe & Buried Power Cable - Operator: Tundra	Issued Rev.0	NW 29-11-26WPM
X7	15 m Tundra Access Road - Trail	Issued Rev.0	NW 29-11-26WPM
X8	Buried Power Cable - Operator: Tundra	Issued Rev.0	NW 29-11-26WPM
X9	15 m R/W - Operator: Tundra (Buried Pipes x2)	Issued Rev.0	NW 29-11-26WPM
X10	15 m Tundra Access Road	Issued Rev.0	NW 29-11-26WPM
X11	Buried Pipe - Operator: Tundra	Issued Rev.0	NW 29-11-26WPM
X12	Buried Pipes (x3) - Operator: Tundra	Issued Rev.0	NW 29-11-26WPM
X13	Buried Power Cables (x2) - Operator: Tundra	Issued Rev.0	NW 29-11-26WPM
X14	15 m Easement Plan 37168 BLTO. - Operator: T.E.M.L. (Buried Pipe)	Not To Be Issued	NW 29-11-26WPM
X15	Buried Power Cable - Operator: Tundra	Issued Rev.0	NW 29-11-26WPM
X16	15 m R/W - Operator: Tundra	Issued Rev.0	NW 29-11-26WPM
X17	Buried Pipe - Operator: Tundra	Issued Rev.0	NW 29-11-26WPM
X18	Buried Power Cable - Operator: Tundra	Issued Rev.0	NW 29-11-26WPM
X19	15 m R/W - Operator: Tundra (Buried Pipe)	Issued Rev.0	NW 29-11-26WPM
X20	30.175 Government Road (65N) Allowance - Medium Grade Gravel Road	Issued Rev.0	Between NW 29 & SW 32-11-26WPM
X21	Scallion Creek (Wet)	Issued Rev.0	SW 32-11-26WPM
X22	15 m Tundra Access Road - Trail	Issued Rev.0	SW 32-11-26WPM
X23	Overhead Power Line - Operator: MB Hydro	Issued Rev.0	Between NW 32-11-26WPM & SW 5-12-26WPM
X24	Buried Natural Gas Line - Operator: MB Hydro Gas Operations	Issued Rev.0	Between NW 32-11-26WPM & SW 5-12-26WPM
X25	30.175 Government Road (66N) Allowance - Medium Grade Gravel Road	Issued Rev.0	Between NW 32-11-26WPM & SW 5-12-26WPM
X26	Buried Telecom Cable - Operator: MTS	Issued Rev.0	Between NW 32-11-26WPM & SW 5-12-26WPM
X27	12 m MTS Caveat No. 1116381/2 (Buried Telecom Cable)	Issued Rev.0	SW 5-12-26WPM
X28	18.29 m MB Hydro Caveat No. R62858/2 (Overhead Transmission Line)	Issued Rev.0	SW 5-12-26WPM
X29	30.175 Government Road (155W) Allowance - Medium Grade Gravel Road	Issued Rev.0	Between SW 5 & SE 6-12-26WPM
X30	Buried Telecom Cable (x2) - Operator: MTS	Issued Rev.0	Between SW 5 & SE 6-12-26WPM
X31	Overhead Power Line - Operator: MB Hydro	Issued Rev.0	Between SW 5 & SE 6-12-26WPM

* The revision stated in the Status column refers to the Construction Plan revision.

Total length of right-of-way along posted boundary : 5.71 km
Crossings associated with this drawing: 31
Crossing plans required : 30
(Crossing plans issued for foreign crossings only)

LEGEND

- Placed Wooden Hub / Deflection Point shown thus: △
- Found Survey Monuments shown thus: ■
- Right - of - Way boundary shown thus:

NOTES

- All Marker Posts placed are 0.3 metres inside the GRA unless shown otherwise
- Right-of-way to be filed is 20.00 metres in perpendicular width throughout unless shown otherwise.
- Azimuths are grid and are referred to UTM projection, NAD 83 (Zone 14) datum and are derived by G.N.S.S.

DISCLAIMER:

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NO.	REVISIONS	INITIALS	DATE
-			
-			
0	Issued	TH/DS/GA - AV/MT - MB	Sept. 30, 2015

TUNDRA ENERGY MARKETING LTD.

CONSTRUCTION PLAN

of

RIGHT-OF-WAY

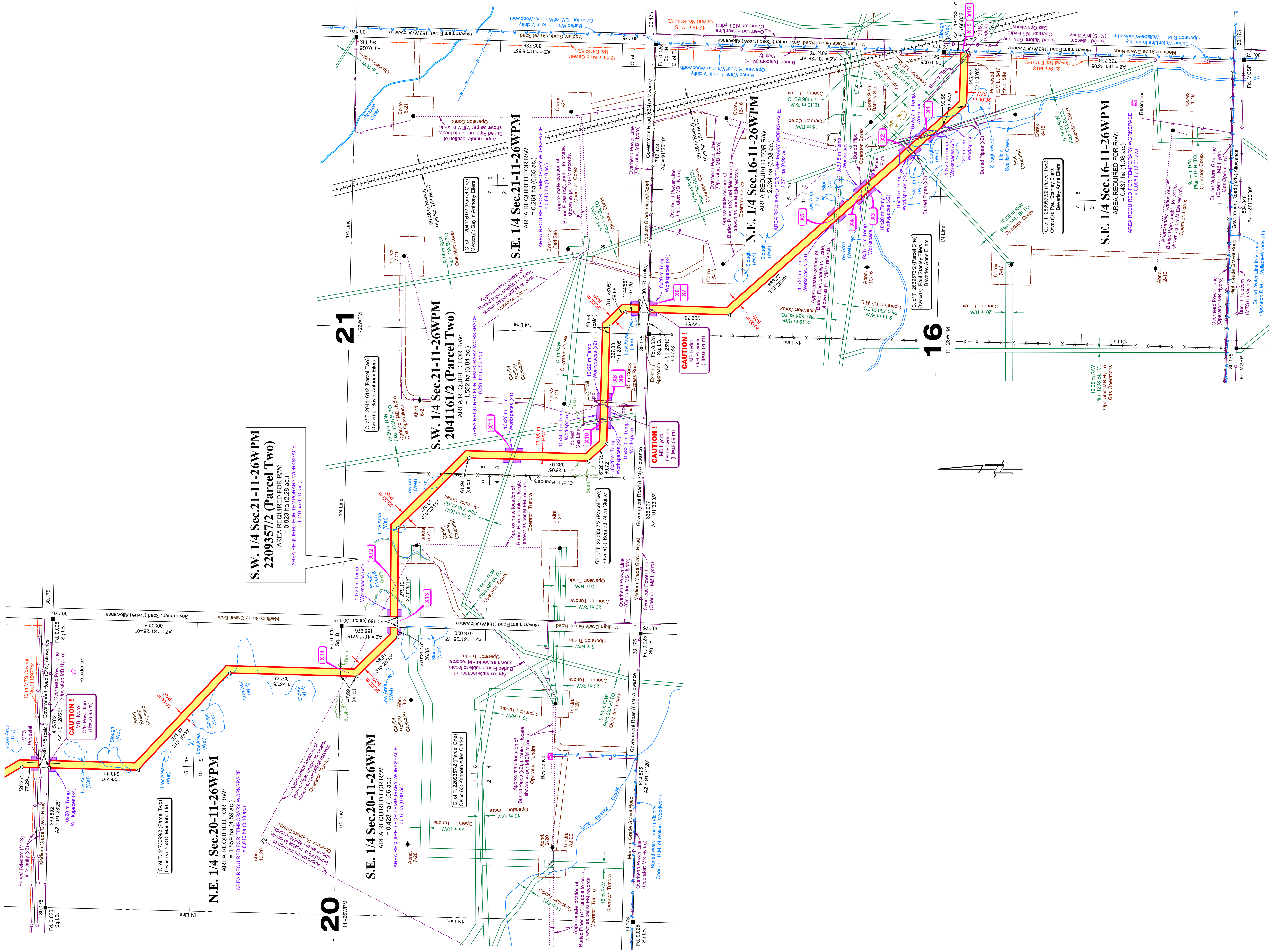
Within
S. 1/2 & N.W. 1/4 Sec. 29
W. 1/2 Sec. 32
Twp. 11 - Rge. 26WPM
&
S.W. 1/4 Sec. 5 &
E. 1/2 Sec. 6
Twp. 12 - Rge. 26WPM

Virden Area
Rural Municipality of Wallace-Woodworth
2015

Scale - 1 : 5000

Altus Geomatics Manitoba
Toll Free: 1-800-465-6233 www.altusgeomaticsmb.com

AFE No.:
Client File No.: — SEGMENT: C2
REV. 0 — File : 188695PL-C2 — Job: 188695
Survey Date : August 28, 2015 To Sept. 18, 2015



MLS AFFIDAVIT

I certify that the survey represented by this plan is correct to the best of my knowledge.

K. TODD BALEY

Manitoba Land Surveyor

Witness

OPERATOR :
TUNDRA ENERGY MARKETING LTD.

CROSSING TABLE

Drawing No.	Description	Status	Location
X1	9.14 m R/W Plan 722 BLTO. - Operator: Corex (Buried Pipes x2)	Issued Rev.0	N.E. 16-11-26WPM
X2	10.06 m R/W Plan 1447 BLTO. - Operator: Corex (Buried Pipes x2)	Issued Rev.0	N.E. 16-11-26WPM
X3	9.14 m R/W Plan 730 BLTO. - Operator: T.E.M.L. (Buried Pipe)	Not To Be Issued	N.E. 16-11-26WPM
X4	Buried Pipe. - Operator: Corex	Issued Rev.0	N.E. 16-11-26WPM
X5	12.19 m R/W Plan 864 BLTO. - Operator: Corex (Approximate Buried Pipe, Unable To Locate)	Issued Rev.0	N.E. 16-11-26WPM
X6	Overhead Power Line - Operator: MB Hydro	Issued Rev.0	Between N.E. 16 & S.E. 21-11-26WPM
X7	30.175 Government Road (63N) Allowance - Medium Grade Gravel Road	Issued Rev.0	Between N.E. 16 & S.E. 21-11-26WPM
X8	15 m Corex Access Road - Trail	Issued Rev.0	S.W. 21-11-26WPM
X9	Overhead Power Line - Operator: MB Hydro	Issued Rev.0	S.W. 21-11-26WPM
X10	10.06 m R/W Plan 1185 BLTO. - Operator: MB Hydro Gas Operations (Buried Gas Line)	Issued Rev.0	S.W. 21-11-26WPM
X11	9.14 m R/W Plan 748 BLTO. - Operator: Corex	Issued Rev.0	S.W. 21-11-26WPM
X12	Approximate Buried Pipe - Operator: Tundra	Issued Rev.0	S.W. 21-11-26WPM
X13	30.175 Government Road (154W) Allowance - Medium Grade Gravel Road	Issued Rev.0	Between S.E. 20 & S.W. 21-11-26WPM
X14	Approximate Buried Pipe - Operator: Tundra	Issued Rev.0	S.E. 20-11-26WPM
X15	12.19 m MTS Caveat No. R4479/2 (Buried Telecom Cable)	Issued Rev.0	S.E. 16-11-26WPM
X16	9.14 m R/W Plan 722 BLTO. - Operator: T.E.M.L. (Buried Pipe)	Not To Be Issued	S.E. 16-11-26WPM

* The revision stated in the Status column refers to the Construction Plan revision.

Total length of right-of-way along posted boundary : 3.83 km
Crossings associated with this drawing: 16
Crossing plans required : 14
(Crossing plans issued for foreign crossings only)

LEGEND

Placed Wooden Hub / Deflection Point shown thus: △
Found Survey Monuments shown thus: ■
Right - of - Way boundary shown thus:

NOTES

- All Marker Posts placed are 0.3 metres inside the GRA unless shown otherwise
- Right-of-way to be filed is 20.00 metres in perpendicular width throughout unless shown otherwise.
- Azimuths are grid and are referred to UTM projection, NAD 83 (Zone 14) datum and are derived by G.N.S.S.

DISCLAIMER:

CALL BEFORE YOU DIG

This plan represents the best information available at the time of survey. Altus Geomatics Manitoba and its employees take no responsibility for the location of any underground pipes, conduits, or facilities, whether shown on or omitted from this plan. Facilities shown on this plan are for informational purposes only. Prior to any construction on lease or access road, TUNDRA ENERGY MARKETING LTD., MTS Communications Inc., Manitoba Hydro, and Manitoba Hydro-Gas Operations **MUST** be contacted for location of any underground facilities that may exist.

NO.	REVISIONS	INITIALS	DATE
-			
-			
0	Issued	TH/DS/GA - AV - MB	Oct. 2, 2015

TUNDRA ENERGY MARKETING LTD.

CONSTRUCTION PLAN

of

RIGHT-OF-WAY

Within
E. 1/2 Sec. 16
E. 1/2 Sec. 20
&
S. 1/2 Sec. 21
Twp. 11 - Rge. 26WPM

Virden Area
Rural Municipality of Wallace-Woodworth
2015

0 50 100 200 300 400 500m
Scale - 1 : 5000

Altus Geomatics Manitoba
AMLS MEMBER
Toll Free: 1-800-465-6233
www.altusgeomaticsmb.com

AFE No.:	
Client File No.:	SEGMENT: C1
REV. 0 File : 188695PL-C1	Job: 188695
Survey Date : August 28, 2015 To Sept. 21, 2015	

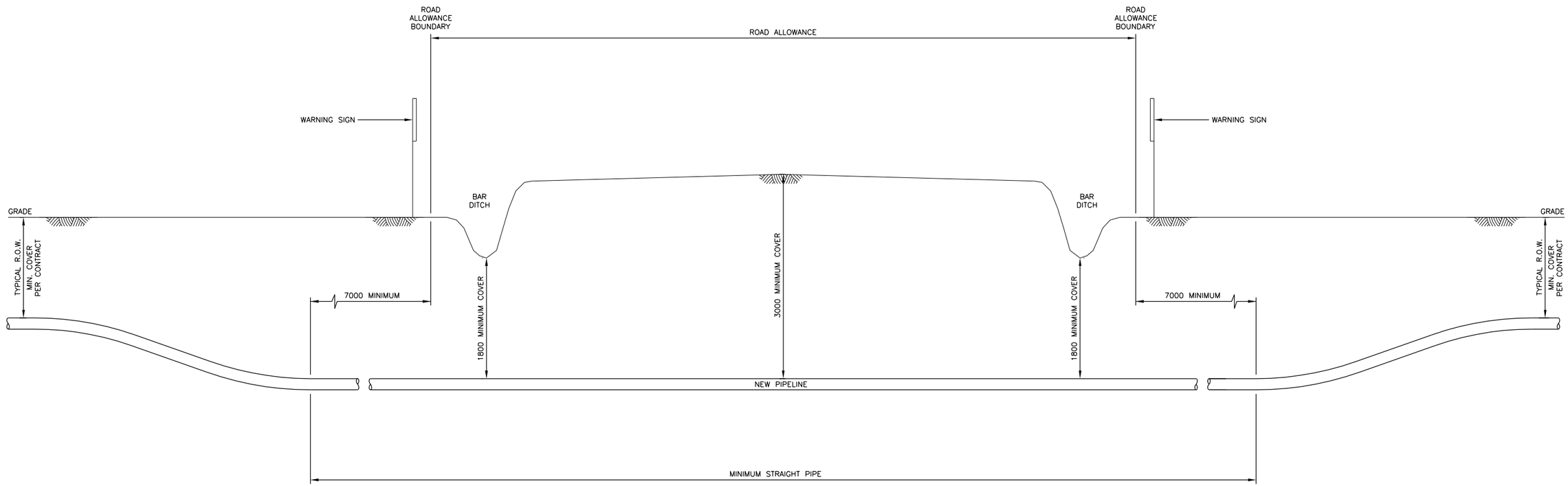
Appendix C

Plot Plan

To be provided subsequent to original submission

Appendix D

Crossing Typicals



PIPE O.D. (OUTSIDE DIAMETER) (mm)	LEAST NOMINAL W.T. (WALL THICKNESS) (mm)	
	ROADS	RAILWAYS
89	4.0	4.0
102	4.0	4.0
114	4.0	4.0
141	4.0	4.0
168	4.8	4.8
219	4.8	4.8
273	4.8	4.8
324	4.8	4.8

CONSULT AND CONFIRM WITH ENGINEER PRIOR TO CONSTRUCTION.

CARRIER PIPE:

DESIGN PRESSURE: 9930kPa
MAXIMUM OPERATING PRESSURE: 9930kPa
FIELD TEST PRESSURE HYDROSTATIC: MINIMUM 12,412kPa
PIPE SPECIFICATIONS: 168.3mm O.D. X 4.8mm W.T. GR. 359 CSA Z245.1
MEDIUM CARRIED: OIL
CORROSION TREATMENT: YJ2K OR EQUIVALENT
CATHODIC PROTECTION: IMPRESSED CURRENT
CONSTRUCTION METHOD: OPEN CUT OR TRENCHLESS; AS PER THE CROSSING AGREEMENT.

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
2. INSTALLATION SHALL MEET REQUIREMENTS OF CSA Z662, LATEST EDITION.
3. ALL TERMS AND CONDITIONS OF THE CROSSING AGREEMENT SHALL BE STRICTLY ADHERED TO.
4. DESIGN REQUIREMENTS SHALL APPLY TO THE PIPELINE FOR A MINIMUM DISTANCE OF 7000mm BEYOND THE TRAVELLED SURFACE OF THE ROAD, MEASURED AT RIGHT ANGLES TO THE CENTERLINE OF THE TRAVELLED SURFACE.
5. LEAST NOMINAL WALL THICKNESS AS FOLLOWS (APPLIED TO NOTE 4):

REFERENCE DRAWINGS

NUMBER	TITLE

REVISIONS

NO.	ISSUE	DATE	BY	CHK'D	ENG	APP'D

PERMIT AND ENGINEER STAMP

– YYYY.MMM.DD CHECKED DATE

– YYYY.MMM.DD APPROVED DATE

ASHER ENGINEERING LTD.

TUNDRA ENERGY MARKETING LIMITED

LSD: 03-34-012-27 W1M

TWO CREEKS PIPELINE

UNCASED STEEL ROAD CROSSING DETAIL

CADFILE	03-34-012-27W1M_T-9301
PROJ. NO.	2010
SCALE	NTS
DRAWING NO.	03-34-012-27WIM_T-9301
REV.	

SCHEDULE									
CROSSING NUMBER	LOCATION	TYPE OF CROSSING	CARRIER PIPE			CARRIER PIPE UNDER CREEK			MEDIUM CARRIED
			O.D.	W.T.	SPECIFICATION	O.D.	W.T.	SPECIFICATION	
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
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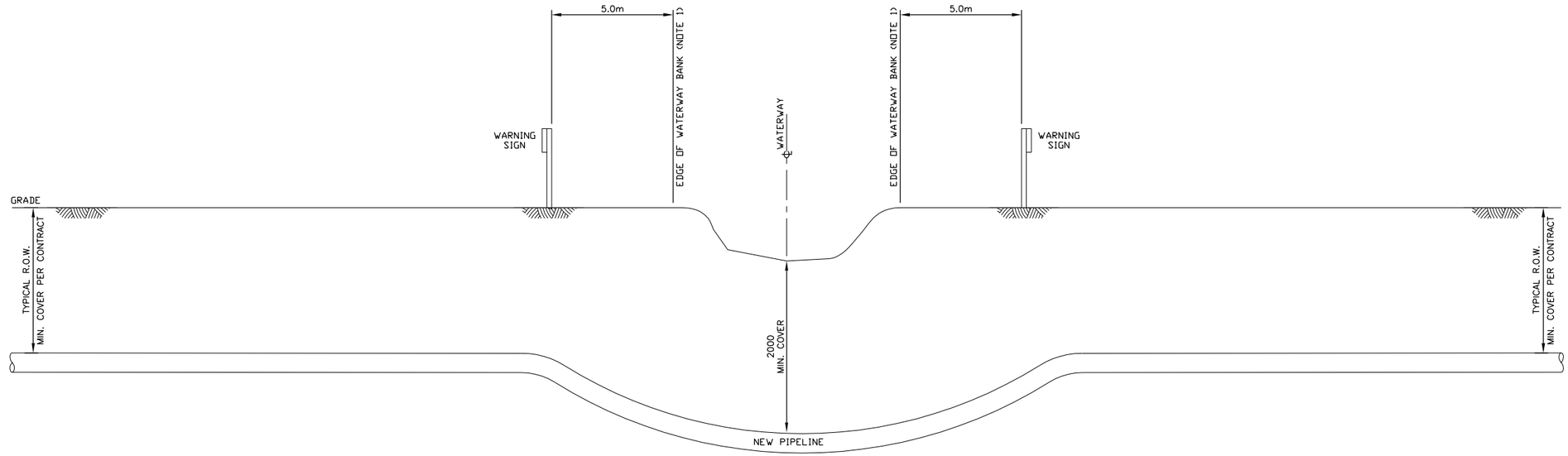

NOTES

1. EDGE IS DETERMINED BY ENVIRONMENTAL MONITOR, OR COMPANY REPRESENTATIVE.

REFERENCE DRAWINGS

NUMBER	TITLE

REVISIONS

NO.	ISSUE	DATE	BY	CHK'D	ENG	APP'D

PERMIT AND ENGINEER STAMP

-	YYYY.MMM.DD	-	YYYY.MMM.DD
CHECKED	DATE	APPROVED	DATE

ASHER ENGINEERING LTD.

TUNDRA ENERGY MARKETING LIMITED

LSD: 03-34-012-27 W1M

TWO CREEKS PIPELINE

TYPICAL WATERWAY CROSSING DETAIL - OPEN CUT

CADFILE	03-34-012-27W1M_T-9311
PROJ. NO.	2010
SCALE	NTS
DRAWING NO.	03-34-012-27WIM_T-9311
REV.	

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LAST SAVED: Monday, 2015-Oct-05, 11:02 AM BY: S.GUO

SCHEDULE									
CROSSING NUMBER	LOCATION	TYPE OF CROSSING	CARRIER PIPE			CARRIER PIPE UNDER CREEK			MEDIUM CARRIED
			O.D.	W.T.	SPECIFICATION	O.D.	W.T.	SPECIFICATION	
-	-	-	-	-	-	-	-	-	-
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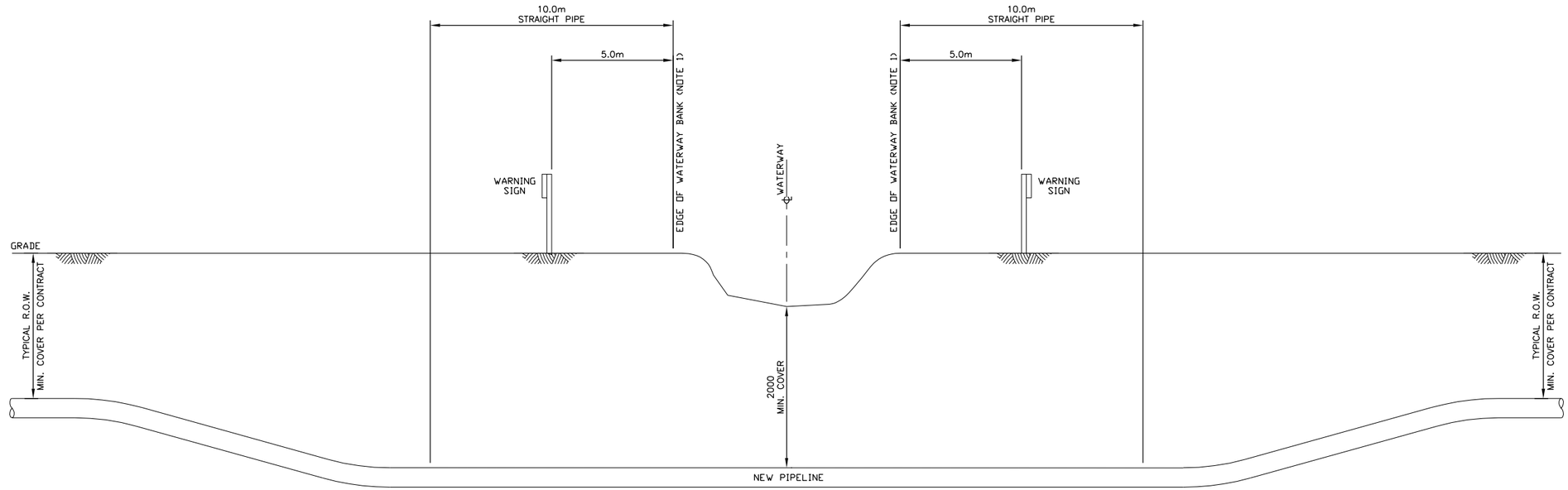


NOTES	REFERENCE DRAWINGS		REVISIONS							PERMIT AND ENGINEER STAMP
1. EDGE IS DETERMINED BY ENVIRONMENTAL MONITOR, OR COMPANY REPRESENTATIVE.	NUMBER	TITLE	NO.	ISSUE	DATE	BY	CHK'D	ENG	APP'D	

– YYYY.MMM.DD CHECKED DATE

– YYYY.MMM.DD APPROVED DATE

ASHER ENGINEERING LTD.

TUNDRA ENERGY MARKETING LIMITED

LSD: 03-34-012-27 W1M

TWO CREEKS PIPELINE

TYPICAL WATERWAY CROSSING DETAIL – TRENCHLESS

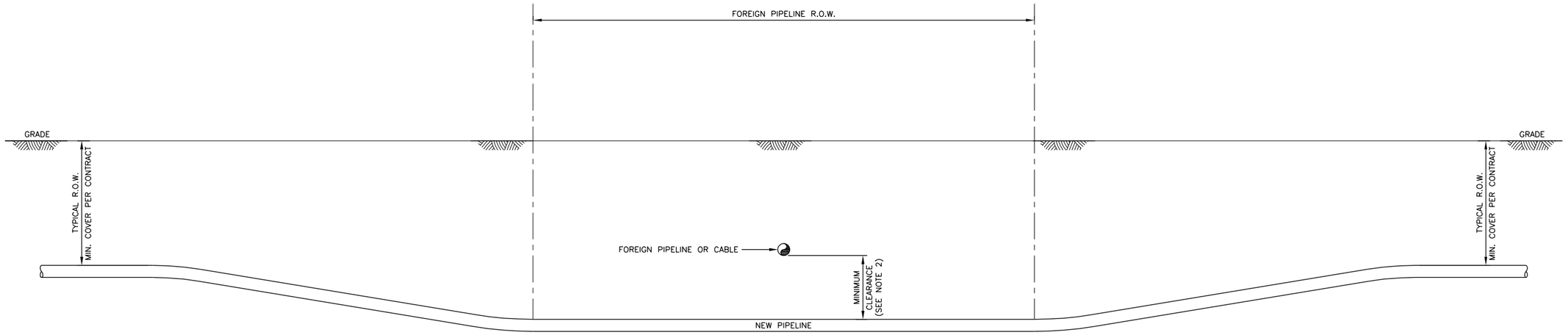
CADFILE 03-34-012-27W1M_T-9321

PROJ. NO. 2010

SCALE NTS

DRAWING NO. 03-34-012-27WIM_T-9321

REV.



NOTES: (CONT'D)

7. FOREIGN PIPELINE, CABLE, UTILITY SHALL BE SUPPORTED AT CROSSING LOCATION, IF REQUIRED.

NOTES

1. INSTALLATION SHALL MEET REQUIREMENTS OF CSA Z662, LATEST EDITION.
2. MINIMUM CLEARANCE SHALL BE 300mm OR AS SPECIFIED IN THE CROSSING AGREEMENT, WHICHEVER IS GREATER.
3. IF THE FOREIGN PIPELINE CONTAINS SOUR GAS, APPROPRIATE SAFETY EQUIPMENT SHALL BE AVAILABLE AT THE WORKSITE.
4. ALL THE TERMS AND CONDITIONS OF THE CROSSING AGREEMENT SHALL BE STRICTLY ADHERED TO.
5. FOREIGN PIPELINE, CABLE, UTILITY SHALL BE HAND OR HYDROVAC DAYLIGHTED PRIOR TO EXCAVATION.
6. NO MACHINE EXCAVATION SHALL TAKE PLACE WITHIN 2000mm OF A FOREIGN PIPELINE, CABLE, UTILITY, CROSSING, OR WITHIN SUCH DISTANCE AS IS SPECIFIED IN THE CROSING AGREEMENT.

REFERENCE DRAWINGS

NUMBER	TITLE

REVISIONS

NO.	ISSUE	DATE	BY	CHK'D	ENG	APP'D

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– YYYY.MMM.DD
CHECKED DATE

– YYYY.MMM.DD
APPROVED DATE

ASHER ENGINEERING LTD.

TUNDRA ENERGY MARKETING LIMITED

LSD: 03-34-012-27 W1M

TWO CREEKS PIPELINE

FOREIGN CROSSING DETAIL

CADFILE	03-34-012-27W1M_T-9341
PROJ. NO.	2010
SCALE	NTS
DRAWING NO.	03-34-012-27WIM_T-9341
REV.	

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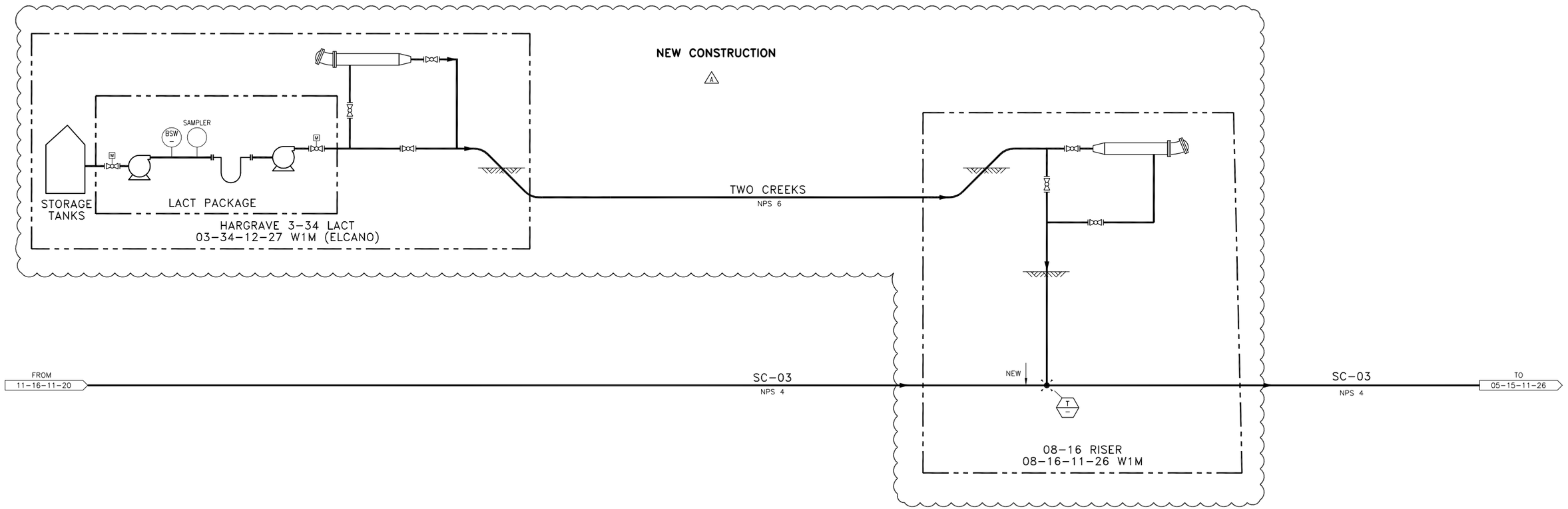
LAST SAVED: Thursday, 2015-Oct-01, 2:00 PM BY: S.GUO

Appendix E

Process Flow Diagram



SOUR SERVICE

NOTES

REFERENCE DRAWINGS	
NUMBER	TITLE

REVISIONS							
NO.	ISSUE	DATE	BY	CHK'D	ENG	APP'D
A	ISSUED FOR APPROVAL	2015.SEPT.11	BK			

PERMIT AND ENGINEER STAMP

PRELIMINARY

– YYYY.MMM.DD
CHECKED DATE

– YYYY.MMM.DD
APPROVED DATE

ASHER ENGINEERING LTD.

TUNDRA ENERGY MARKETING LIMITED

03-34-012-27 TO 08-16-11-26 W1M

TWO CREEKS NPS 6 PIPELINE SYSTEM
PROCESS FLOW DIAGRAM
SOUR OIL SALES PIPELINE

CADFILE	03-34-012-27W1M_f-2013_revA
PROJ. NO.	2010
SCALE	NTS
DRAWING NO.	03-34-012-27W1M F-2013 RevA
REV.	A

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LAST SAVED: Wednesday, 2015-Sep-30, 9:40 AM BY: S.GUO

Appendix F

Pipeline Technical Data

Tundra Energy Marketing Limited
Proposed Pipeline Details

		NPS 6
Starting LSD &		03-34-12-27 WPM
Facility		Elcano Battery 03-34
Ending LSD &		08-16-11-26 WPM
Facility		Riser Site
Fluid being transported		crude oil & LVP products
Length (Apprx.)	**m**	20,000
Outside Diameter	**mm**	168.3
Wall Thickness	**mm**	4.8
Grade		Grade 359 Cat II Sour
External Coating		YJ or YJ2K as required
Expected (Max) Flow Rate	**m^3/day**	2000
Design Pressure	**kPag**	9930
Maximum Operating Pressure	**kPag**	9930
Line Pipe Standard		CSA Z245.1-14
Valves Standard		CSA Z245.15-13 or Note below
Flanges Standard		CSA Z245.12-13 or Note below
Fittings Standard		CSA Z245.11-13 or Note below

Notes:
1. Pipe, valves, and fittings that will be used are in accordance with the requirements of CSA Z662-15.
2. The CSA Z662 requirements include the above listed CSA Z245.XX-YY standards as well as others.

Appendix G

Line List

SENT BY SEPARATE SUBMISSION

Appendix H

Environmental Protection Plan

SENT BY SEPARATE SUBMISSION

Appendix I

Environmental Pre-Development Assessment

SENT BY SEPARATE SUBMISSION