RIGHT-OF-WAY
HORIZONTAL REPRESENTATION (2D)
TRACT NUMBER
OWNERSHIP/AGENCY

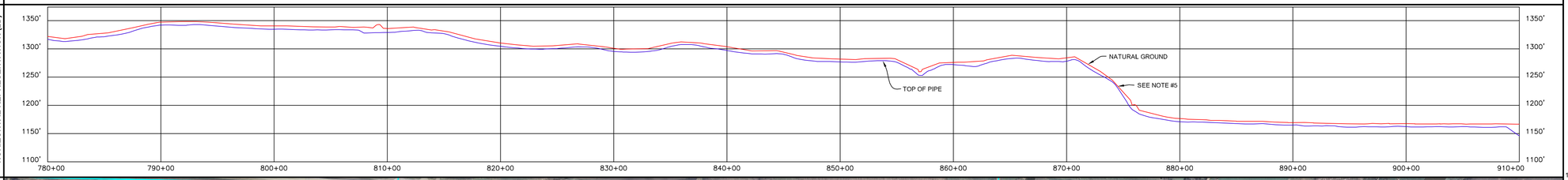
LENGTH
APPLICABLE DWG. NO.

780+00	ML-SD-YA-0967.0002	783+63	ML-SD-YA-0967.0003	808+18	RD-SD-YA-0967.0003 STATE HIGHWAY 46	810+18	ML-SD-YA-0967.0004	822+75	ML-SD-YA-0967.0005	862+69	ML-SD-YA-0968.0000	RD-SD-YA-0968.0000 JIM RIVER ROAD	ML-SD-YA-0968.0000	910+00
												876+01		

LAND USE

PIPELINE PROFILE

HORIZ. 1"=500' VER. 1"=100'
HORIZONTAL REPRESENTATION (2D)



LEGEND

- KEYSTONE PIPELINE
- STATE BOUNDARY
- COUNTY/TOWNSHIP
- SECTIONS
- NATIONAL OR STATE RESERVATION BOUNDARY
- PROPERTY LINE
- FENCE
- EXCLUSIONARY FENCE
- POWER LINE
- TELEPHONE LINE
- BURIED CABLE
- WATER LINE
- SANITARY SEWER LINE
- STORM SEWER / DRAIN
- FOREIGN PIPELINE
- RAILROAD
- HIGHWAY / ROAD
- STREAM / DITCH
- WETLAND
- INTERSTATE ROUTE
- U.S. ROUTE
- STATE ROUTE
- POINT OF INTERSECTION (PI)
- PIPELINE MILEPOST
- DIRECTION OF FLOW
- HOUSE
- BUILDING
- WATER WELL
- MAINLINE VALVE
- ML-XX-XX-0000.0000 TRACT NUMBER

PIPELINE PLAN (SCALE 1" = 500')HORIZONTAL REPRESENTATION (2D)

DISCLAIMER

UNIVERSALPEGASUS MAKES NO WARRANTY (EXPRESS, IMPLIED OR OTHERWISE) THAT THE INFORMATION CONTAINED HEREIN IS ACCURATE OR COMPLETE AS TO ANY AND ALL SUBSURFACE CONDITIONS AND CONFORMATION. ANY RELIANCE CONTRACTOR PLACES ON THE INFORMATION CONTAINED HEREIN AS TO SUCH CONDITIONS IS DONE SO AT ITS OWN RISK AND EXPENSE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE STATE "ONE CALL" SYSTEM PRIOR TO ANY EXCAVATION.

PIPELINE SCHEMATIC

- HEAVYWALL PIPE
- WELD FITTING
- TRANSITION PIECE
- CASING PIPE
- CONCRETE COATING
- (S) SET-ON WEIGHTS
- PIPELINE WARNING SIGN
- PIPELINE MARKER
- (1) MATERIAL ITEM
- (GM) GROUNDING MAT
- ZINC RIBBON
- (AM) AERIAL MARKER
- CATHODIC TEST STATION
- MAINLINE VALVE
- CHECK VALVE
- O.C. OPEN CUT
- BR. BORE
- D DRINKING WATER USA
- E ECOLOGICAL USA
- H HIGHLY POPULATED AREA
- K OPERATOR (KEYSTONE) DEFINED
- O OTHER POPULATED AREA
- S SOURCE WATER PROTECTION AREA
- W WELLHEAD PROTECTION AREA

HORIZONTAL STATIONS (2D)

MATCHLINE 780+00

783+64 FENCE (BARBED WIRE)

807+93, P.I. 01°10'56" RT.
808+18 FENCE (BARBED WIRE)
808+41 CL STATE HIGHWAY 46
809+18 EDGE OF ROAD
809+24 TELEPHONE LINE
809+48 TELEPHONE LINE
809+68 ROAD BAR DITCH
810+02 UNDERGROUND TELEPHONE
810+17 FENCE (BARBED WIRE)
814+18 FENCE (BARBED WIRE)

822+64 FENCE (BARBED WIRE)

830+60, P.I. 03°10'50" LT.
830+84, P.I. 03°12'59" LT.

835+85, P.I. 00°26'36" RT.

839+60, P.I. 02°22'24" RT.
840+08 CL DITCH

846+97, P.I. 03°13'10" LT.
847+86, P.I. 06°57'26" LT.

849+33 FENCE (BARBED WIRE)

852+18 FENCE (BARBED WIRE)

856+92, P.I. 02°03'09" LT.
857+71 TOP BANK
857+95 CL DITCH
858+12, P.I. 03°32'02" RT.
858+77, P.I. 01°49'25" LT.

862+69 FENCE (BARBED WIRE)

870+73, P.I. 00°36'42" LT.
871+33, P.I. 00°36'42" LT.
874+66 BEGIN ROCK SHIELD
875+34 END ROCK SHIELD
875+49 OVERHEAD
875+93 OVERHEAD
876+46 FENCE (BARBED WIRE)
876+91 CL STATE HIGHWAY 46
877+02 EDGE OF ROAD
877+13 EDGE OF ROAD
877+45 CL RIVER

884+92, P.I. 01°48'00" RT.

894+00, P.I. 00°45'53" RT.
894+74, P.I. 00°39'54" LT.

899+74, P.I. 00°39'54" LT.

905+36, P.I. 00°22'54" RT.

909+93 HDD EXIT WELD TIE-IN

MATCHLINE 910+00

SLOPE STATIONS (3D)

MATCHLINE 780+68

784+25 FENCE (BARBED WIRE)
784+64 M.P. 422

792+39 4.9' OVR.

808+66, P.I. 01°10'56" RT.
808+91 FENCE (BARBED WIRE)
809+18 EDGE OF ROAD
809+41 CL STATE HIGHWAY 46
809+68 ROAD BAR DITCH
810+36 TELEPHONE LINE
810+41 TELEPHONE LINE
810+57 ROAD BAR DITCH
810+75 UNDERGROUND TELEPHONE
811+34 FENCE (BARBED WIRE)
814+91 FENCE (BARBED WIRE)

823+64 FENCE (BARBED WIRE)

831+35, P.I. 03°10'50" LT.
831+59, P.I. 03°12'59" LT.

836+70, P.I. 00°26'36" RT.

837+64, M.P. 423

839+91, 5.2' OVR.

840+60, P.I. 02°22'24" RT.
840+78, P.I. 02°14'05" RT.

846+97, P.I. 03°13'10" LT.
847+44, P.I. 03°10'54" LT.
847+86, P.I. 06°57'26" LT.
848+32 FENCE (BARBED WIRE)
849+14 4.9' OVR. (ABOVE)
849+34 FENCE (BARBED WIRE)
850+09 FENCE (BARBED WIRE)

852+95 FENCE (BARBED WIRE)

857+70, P.I. 02°03'09" LT.
857+71 TOP BANK
857+84 CL DITCH
858+12, P.I. 03°32'02" RT.
858+12, P.I. 01°49'25" LT.

863+49 FENCE (BARBED WIRE)

869+29 5.1' OVR.

871+33, P.I. 00°36'42" LT.

874+66 BEGIN ROCK SHIELD
875+34 END ROCK SHIELD
875+49 OVERHEAD
875+93 OVERHEAD
876+46 FENCE (BARBED WIRE)
876+91 CL STATE HIGHWAY 46
877+02 EDGE OF ROAD
877+13 EDGE OF ROAD
877+45 CL RIVER

885+84, P.I. 01°48'00" RT.

894+92, P.I. 00°45'53" RT.

897+57 5.3' OVR.

905+36, P.I. 00°39'54" LT.

906+29, P.I. 00°22'54" RT.

909+93 HDD EXIT WELD TIE-IN

MATCHLINE 910+93

PIPE SLOPE REPRESENTATION (3D)

780+68

② 2,819' FBE

808+82 — 811+25

③ 238' FBE & ARO BR.

853+13

③ 80' FBE & ARO

863+93

② 243' FBE

866+36

⑥ 992' FBE

876+28

③ 120' FBE & ARO O.C.

877+48

⑥ 3,201' FBE

900+45

③ 36' FBE & ARO

④ 108' FBE & ARO

910+93

CPS (3D)

TEST SECTIONS (3D)

TEST SECTION 4B-1
ILTO-028-2010

878+98

TEST SECTION 4B-1A
ILTO-028-2010

ENVIRONMENTAL MITIGATION/RECLAMATION STATIONS (2D)

- TOPSOIL SALVAGE METHOD
- STREAMS
- WETLANDS
- TIMING CONSTRAINTS
- **STATIONS**
- MONITORING
- RECLAMATION
- SPECIAL CONSIDERATIONS

GENERAL NOTES

1) ALL CHAINAGES ARE IN FEET UNLESS OTHERWISE SPECIFIED.

2) DATUM ELEVATION AND PROJECTION ARE BASED ON MEAN SEA LEVEL AND NAD 83.

3) FIELD PIPE LOCATING REQUIRED TO DETERMINE PLACEMENT OF PIPELINE WITHIN PERMANENT EASEMENT.

4) UNLESS OTHERWISE NOTED, 48 INCHES MINIMUM COVER EXCEPT 36 INCHES IN AREAS OF CONSOLIDATED ROCK.

5) NO ACTUAL AS-BUILT GROUND SHOTS WERE TAKEN AT THIS LOCATION. THE PROFILE REPRESENTS A PROJECTION FROM SHOTS TAKEN AT 150' TO 250' INTERVALS.

6) TWO TYPES OF COATING WERE APPLIED TO THE FIELD WELDS DURING THE ORIGINAL CONSTRUCTION. ONE TYPE WAS TWO COMPONENT LIQUID EPOXY, THE PRODUCTS USED WERE DENSO 7200 OR SPC SP-2888. THE OTHER TYPE THAT WAS APPLIED TO THE FIELD WELDS WAS FBE, THE PRODUCT NAME WAS 3M 6223 11G.

7) THE SUBSTANTIAL CONSTRUCTION COMPLETION DATE, BASED ON CALIPER PIG RUN, WAS AUGUST 17, 2009 FOR M.P. 403.90 TO 422.96 AND OCTOBER 28, 2009 FOR M.P. 422.96 TO 463.18.

8) ORIGINAL IN-SERVICE DATE OF THE KEYSTONE PIPELINE (PHASE 1): JUNE 30, 2010.

9) CPS CALCULATION DATE: MAY 2010.

10) ORION STATION SERIES NUMBER: 1182700.

11) TO DETERMINE THE MILE POST AT A GIVEN LOCATION, ADD THE 3D STATION NUMBER FROM THIS SEGMENT TO STATION NUMBER 21496+76 AND DIVIDE BY 5280.

OPERATING AND TEST PRESSURE

1. THE MAXIMUM OPERATING PRESSURE (MOP) IS 1440 PSIG.
2. THE MINIMUM TEST PRESSURE WAS 1801 PSIG.

BILL OF MATERIALS (3D)

ITEM NO.	DESCRIPTION	QUANTITY
2	30" O.D. X 0.386" W.T., API-5LX-70 W/FBE COATING	8,250'
3	30" O.D. X 0.516" W.T., API-5LX-70 W/FBE COATING & ABRASION RESISTANT OVERCOAT	474'
4	30" O.D. X 0.622" W.T., API-5LX-70 W/FBE COATING & ABRASION RESISTANT OVERCOAT	108'
6	30" O.D. X 0.429" W.T., API-5LX-70 W/FBE COATING	4,193'
	PIPELINE MARKERS	0 EA
	PIPELINE WARNING SIGNS	4 EA
	CATHODIC TEST STATION	2 EA
	AERIAL MARKER	0 EA

REFERENCE DRAWINGS

REF. NO.	DRAWING NO.	REV. NO.	DRAWING TITLE

REVISIONS

NO.	DATE	REV. BY	CHCK BY	APPRD BY	ENV. APPRD.	DESCRIPTION
1	5/12/08	UEI	RDG	LAG	SEC	ISSUED FOR CONSTRUCTION
2	10/12/16	UEI				ISSUED FOR AS-BUILT
						1836-03-ML-02-007
						REPLACES COVERAGE OF IFC DRAWINGS
						1836-03-ML-02-010,
						1836-03-ML-02-011,
						1836-03-ML-02-012

ENGINEERING RECORDS

	INITIAL	DATE		INITIAL	DATE
DRAWN BY	UEI	10/03/01	ENV. APPRD.		
CHECKED BY			APPRD. BY		
			COMPANY APPROVED		

PROFESSIONAL ENGINEER

NAME	STATE	LIC#	REV#	DATE
LOYS ALVIN GRAY, III	SD	CE9004		

SCALE: 0 125 250 500 Feet

TransCanada
In business to deliver

UNIVERSAL ENVIRONMENTAL SERVICES, INC.

KEYSTONE MAINLINE (NPS 30 2009) FREEMAN SECTION

PIA#	SPREAD	DISCIPLINE
1836	SPREAD 4B	DISCIPLINE 03

AS-BUILT ALIGNMENT

M.P. 421.92 TO M.P. 424.39

SHEET 7 OF 13 SHEETS

STA. 780+68 TO STA. 910+93 (3D)

DRAWING NO.	REV.
1836-03-ML-02-007	2