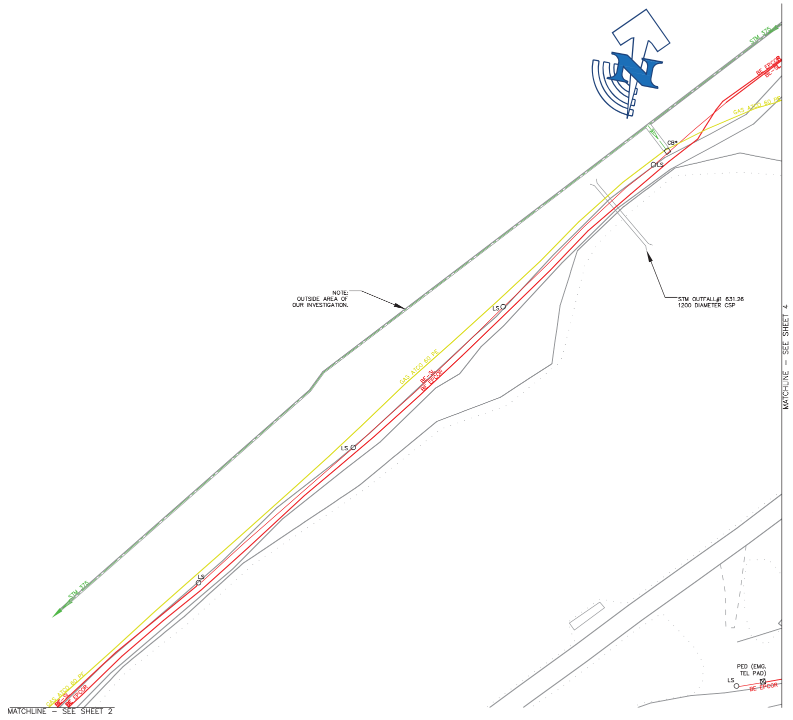
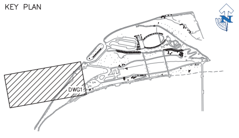
Appendix F: LMRP Subsurface Utilities (T2 Utility Engineers 2013)



KEY PLAN



NOT TO SCALE

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LEGEND

GAS	GAS
G.S.	GAS SERVICE
WM	WATER
W.S.	WATER SERVICE
SAN	SANITARY SEWER
SAN LAT.	SANITARY LATERAL
STM	STORM SEWER
STM LAT.	STORM LATERAL
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BE-SL	BURIED ELECTRIC STREET LIGHT
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TV	CABLE TV
BT	BURIED TELECOMMUNICATIONS
—— O/H ——	OVERHEAD WIRE
————	QUALITY LEVEL "B"
– – – – –	QUALITY LEVEL "C"
—— - —— - ——	QUALITY LEVEL "D"
⊕	TEST HOLE (QL–A)
►	CONTINUATION ARROW
⊳	FLOW ARROW
[	END CAP
*	NOT SURVEYED, LOCATION BASED ON FIELD OBSERVATION
#	NOT SURVEYED, LOCATION BASED ON RECORD INFORMATION

TEST HOLE INFORMATION

Utility Type

BE	Buried Electric	CATV	Cable Television
G	Gas	FM	Force Main
BT	Buried Telecom	RW	Reclaimed Water
FOC	Fibre Optic Cable	SL	Street Light
W	Water	TS	Traffic Signal
SAN	Sanitary	EXP	Exploratory
STM	Storm	UNK	Unknown

Utility Material

DBC	Direct Buried Cable	CNP	Concrete Pipe
UNK	Unknown	CMP	Corrugated Metal Pipe
MET	Metallic	CC	Concrete/Clay Cap
CP	Clay Pipe	PL	Plastic
AC	Asbestos Cement (Transite)	CD	Concrete Duct
CP	Copper Pipe	HDPE	Heavy Duty Polyethylene
PE	Poly Ethylene		

Surface Type

A Asphalt · C Concrete · [illegible] · NG Natural Ground

Test Hole	TH Date (MM/DD/YY)	Station	Utility Type	Utility Material	Utility Width (Diam) mm	Ref Point Elev m	Bottom of Utility Elev m	Top of Utility Elev m	Manual Depth From Grade: Bottom m	Manual Depth From Grade: Top m	Cross Sectional Type	N	[illegible]	Surface Type	Pavement Thickness mm
1	3/4/13	–	G	PE	40	638.84	–	637.89	–	0.95	○	↘	Rod & Cap	NG	–
2*	3/4/13	–	EXP	–	–	638.87	–	–	2.97	–	–	–	Rod & Cap	NG	–
3*	3/4/13	–	EXP	–	–	636.13	–	–	2.50	–	–	–	Rod & Cap	NG	–
4*	3/4/13	–	EXP	–	–	629.79	–	–	1.50	1.90	–	–	Rod & Cap	NG	–
5	3/4/13	–	G	PE	40	628.26	–	627.33	–	0.93	○	↘	Rod & Cap	NG	–
6*	3/4/13	–	EXP	–	–	628.46	–	–	1.58	–	–	–	Rod & Cap	NG	–
7*	3/4/13	–	EXP	–	–	628.56	–	–	–	1.85	–	–	Rod & Cap	NG	–
8*	3/4/13	–	EXP	–	–	628.42	–	–	3.60	–	–	–	Rod & Cap	NG	–
9*	3/4/13	–	W	PL	300	628.93	–	625.61	–	3.32	▭	–	Rod & Cap	NG	–
10*	3/4/13	–	EXP	–	–	641.61	–	–	2.45	–	–	–	Rod & Cap	NG	–
11	3/4/13	–	W	HDPE	150	646.81	–	637.85	–	1.98	○	↘	Rod & Cap	NG	–
12*	3/4/13	–	EXP	–	–	646.70	–	–	4.50	–	–	–	Rod & Cap	NG	–
13*	3/4/13	–	EXP	–	–	641.51	–	–	3.38	–	–	–	Rod & Cap	NG	–

NOTES:

TH2 - Went down 1.30m looking for gas until a hard layer was hit. Then went over 1.0m in each direction from ref. pin in center of hole. Poor signal, previous pipe may have been removed. Went down 2.97m total to make sure it was not there. No sign of anything.

TH3 - Vacced down looking for unknown and found hard U/R type ground at approximately 1.0m down. Able to break through on south end but unable to find anything. 2.5m depth, trench was 2.10m long.

TH4 - Looking for unknown. Made a hole 0.80m long, went down 1.50m, and was unable to find anything.

TH6 - Found concrete at 1.58m in hole. Began trenching SE to 1.20m.

TH7 - Got down to 1.85m and then hit asphalt. Went over 0.40m NE and still hit asphalt.

TH8 - Went down 3.60m with a 0.80m long trench. Unable to feel or see WM.

TH9 - Test hole was completed at the point where the service line to the public washrooms ties into the water main. It was measured at approximately 300mm, which is likely due to the tee fitting.

TH10 - EXP hole based on possible alignment of main. 2.45m down and 0.80m long trench.

TH12 - Searched for WM based on alignment of valves and proper entry into park area. Went down 4.50m across front of valve. Unable to find main, must be on a strange angle.

TH13 - Vacced out a 0.75m by 3.38m deep trench. Looking for watermain location based off probable position of main going from WV's in road, WV's at washroom building and survey. Unable to locate WM.

REVISIONS

△

△

△

DISCLAIMER.

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PREPARED BY.

T2 utility engineers
1-855-222-T2UE | WWW.T2UE.COM

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LAWRENCE E. ARCAND

		DATE (MM/DD/YY)
DRAWN	A. JACKSON–WYATT	03/28/13
CHECKED	R. GRINTON	03/28/13
APPROVED	L. ARCAND	03/28/13

SCALE 1:500
0 5 10 15 20m

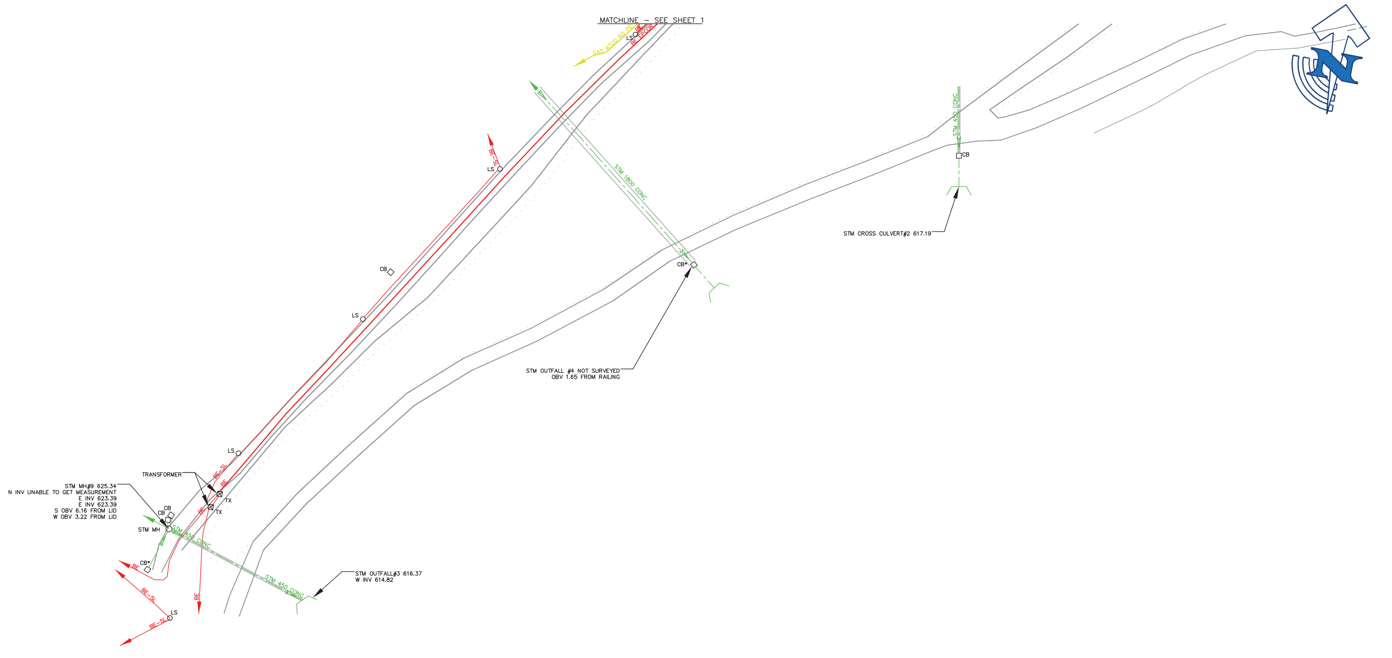
PROJECT.
LOUISE McKINNEY RIVERFRONT PARK
EDMONTON, AB

DRAWING.
SUBSURFACE UTITLITY ENGINEERING
MAPPING SERVICES

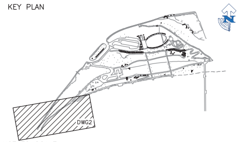
CLIENT.
AECOM

PROJECT NO.
61000100

SHEET NO.
01 OF 06



KEY PLAN



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————	QUALITY LEVEL "B"
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⌖	TEST HOLE (QL–A)
►	CONTINUATION ARROW
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Surface Type

A Asphalt | C Concrete | [illegible] | NG Natural Ground

TH #	TH Date (MM/DD/YY)	Station	Utility Type	Utility Material	Utility Size (mm)	Ref Point Elev (m)	Bottom of Utility Elev (m)	Top of Utility Elev (m)	Manual Depth From Grade Bottom (m)	Manual Depth From Grade Top (m)	Cross Sectional Shape	N	[illegible]	Surface Type	Pavement Thickness (mm)
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8*	3/4/13	–	EXP	–	–	628.42	–	–	3.68	–	–	–	Rod & Cap	NG	–
9*	3/4/13	–	W	PL	300	628.93	–	625.61	–	3.32	⊂⊃	–	Rod & Cap	NG	–
10*	3/4/13	–	EXP	–	–	641.61	–	–	2.45	–	–	–	Rod & Cap	NG	–
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13*	3/4/13	–	EXP	–	–	641.01	–	–	3.38	–	–	–	Rod & Cap	NG	–

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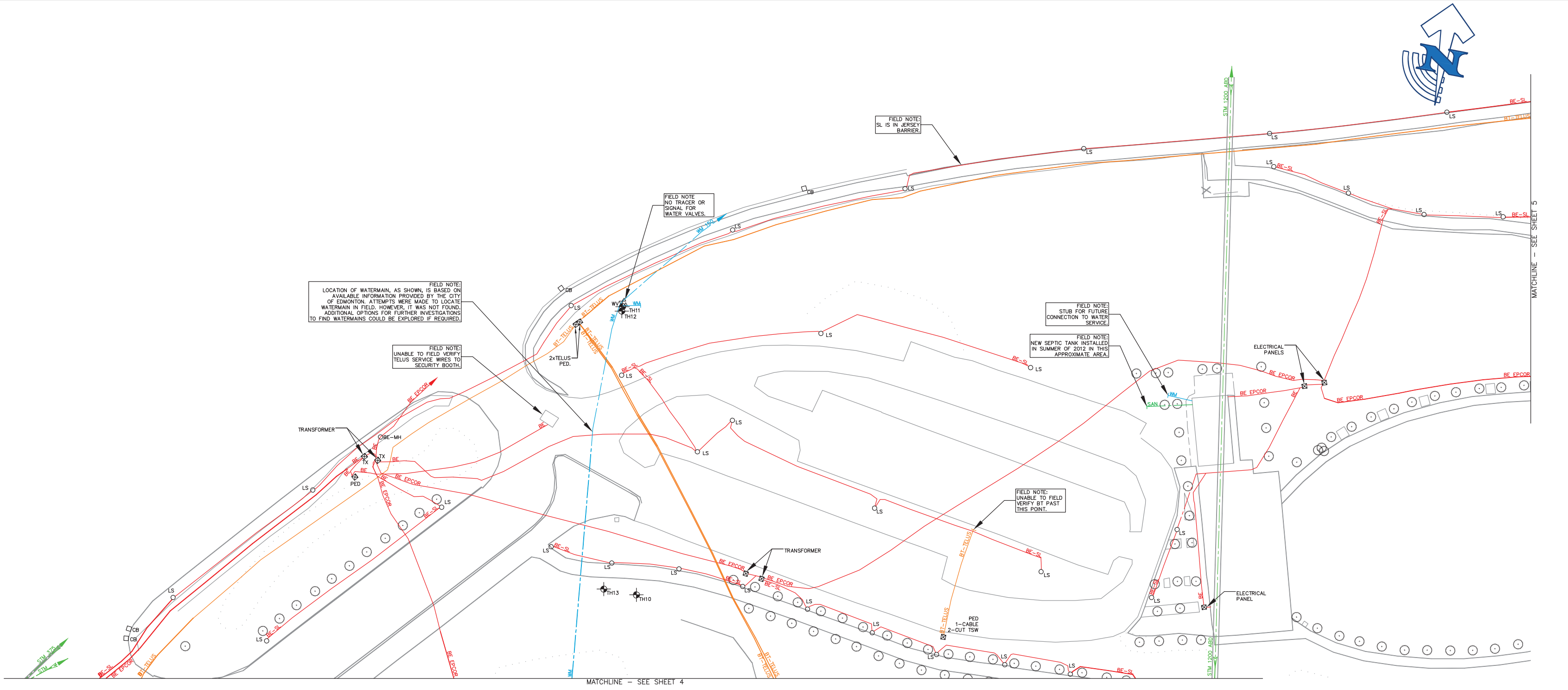
MAPPING SERVICES

CLIENT.
AECOM

PROJECT NO. 61000100

SHEET NO. 02 OF 06



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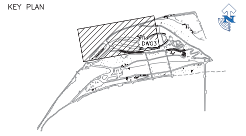

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8*	3/4/13	–	EXP	–	–	628.42	–	–	3.00	–	–	–	Rod & Cap	NG	–
9*	3/4/13	–	W	PL	300	628.93	–	625.61	–	3.32	⊂⊃	–	Rod & Cap	NG	–
10*	3/4/13	–	EXP	–	–	641.61	–	–	2.45	–	–	–	Rod & Cap	NG	–
11	3/4/13	–	W	HDPE	150	639.81	–	637.83	–	1.98	○	↘	Rod & Cap	NG	–
12*	3/4/13	–	EXP	–	–	646.70	–	–	4.50	–	–	–	Rod & Cap	NG	–
13*	3/4/13	–	EXP	–	–	641.01	–	–	3.38	–	–	–	Rod & Cap	NG	–

NOTES:

TH2 - Went down 1.30m looking for gas until a hard layer was hit. Then went over 1.0m in each direction from ref. pin in center of hole. Poor signal, previous pipe may have been removed. Went down 2.97m total to make sure it was not there. No sign of anything.

TH3 - Vacced down looking for unknown and found hard [illegible] type ground at approximately 1.0m down. Able to break through on south end but unable to find anything. 2.0m depth; trench was 2.15m long.

TH4 - Looking for unknown. Made a hole 0.80m long, went down 1.30m, and was unable to find anything.

TH6 - Found concrete at 1.50m in hole. Began trenching SE to 1.20m.

TH7 - Got down to 1.63m and then hit asphalt. Went over 0.40m NE and still hit asphalt.

TH8 - Went down 3.00m with a 0.80m long trench. Unable to feel or see WM.

TH9 - Test hole was completed at the point where the service line to the public washrooms ties into the water main. It was measured at approximately 300mm, which is likely due to the tee fitting.

TH10 - EXP hole based on possible alignment of main. 2.45m down and 0.90m long trench.

TH12 - Searched for WM based on alignment of valves and proper entry into park area. Went down 4.50m across front of valve. Unable to find main, must be on a strange angle.

TH13 - Vacced out a 0.75m by 3.38m deep trench. Looking for watermain location based off probable position of main going from WV's in road, WV's at washroom building and survey. Unable to locate WM.

REVISIONS

△

△

△

DISCLAIMER.

PREPARED BY.

T2 utility engineers
1-855-222-T2UE | WWW.T2UE.COM

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LAWRENCE E. ARCAND

		DATE (MM/DD/YY)
DRAWN	A. JACKSON–WYATT	03/28/13
CHECKED	R. GRINTON	03/28/13
APPROVED	L. ARCAND	03/28/13

SCALE 1:500 0 5 10 15 20m

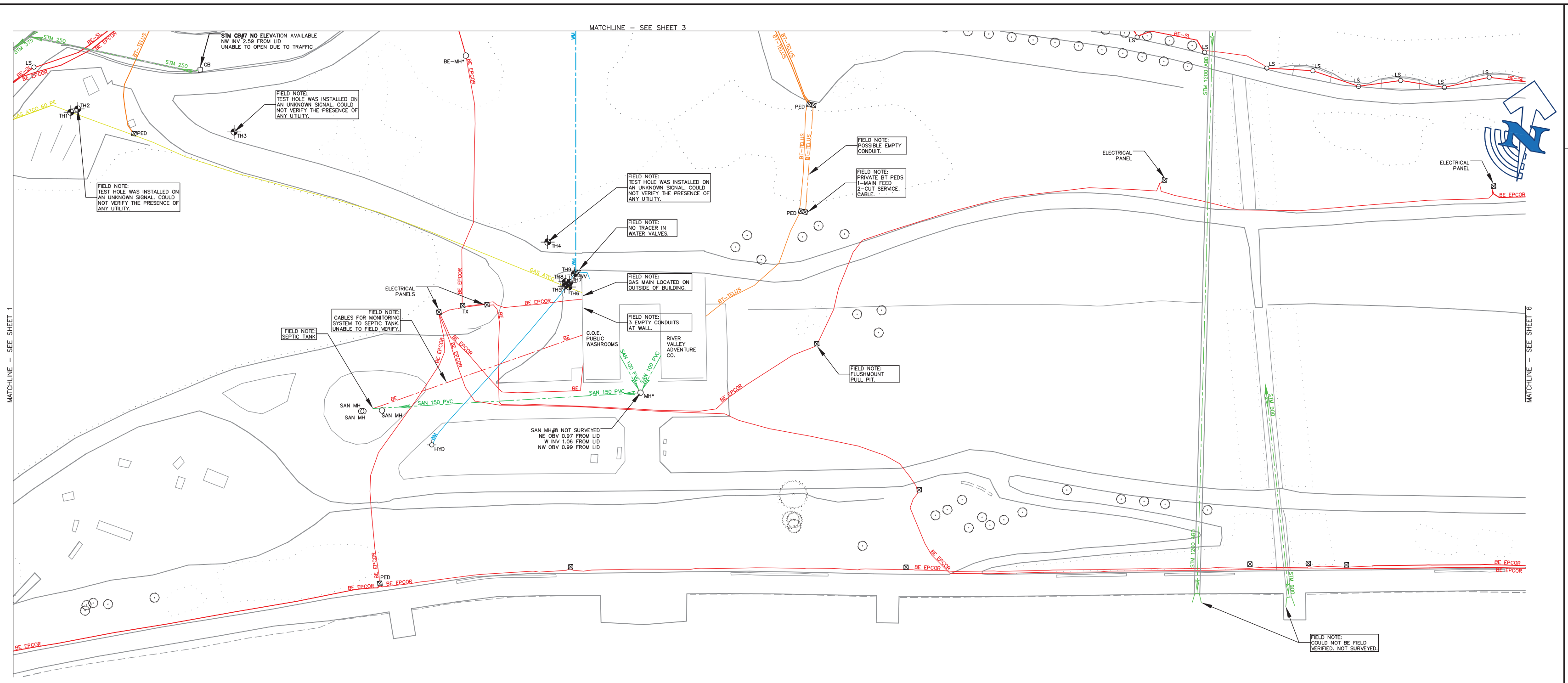
PROJECT.
LOUISE McKINNEY RIVERFRONT PARK
EDMONTON, AB

DRAWING.
SUBSURFACE UTITLITY ENGINEERING
MAPPING SERVICES

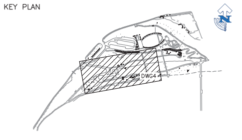
CLIENT.
AECOM

PROJECT NO. 61000100

SHEET NO. 03 OF 06



KEY PLAN



NOT TO SCALE

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PROPERTY LIMITS OF LOUISE McKINNEY RIVERFRONT PARK.

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10. SEE PROJECT REPORT FOR ADDITIONAL INFORMATION.

ASCE QUALITY LEVELS

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QUALITY LEVEL "A" – PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITES OBTAINED BY THE ACTUAL EXPOSURE AND SUBSEQUENT MEASUREMENT OF SUBSURFACE UTILITIES.

LEGEND

GAS	GAS
G.S.	GAS SERVICE
WM	WATER
W.S.	WATER SERVICE
SAN	SANITARY SEWER
SAN LAT.	SANITARY LATERAL
STM	STORM SEWER
STM LAT.	STORM LATERAL
BE	BURIED ELECTRIC
BE–SL	BURIED ELECTRIC STREET LIGHT
BE–TL	BURIED ELECTRIC TRAFFIC LIGHT
UNK	UNKNOWN
FOC	FIBRE OPTIC CABLE
TV	CABLE TV
BT	BURIED TELECOMMUNICATIONS
—— O/H ——	OVERHEAD WIRE
————	QUALITY LEVEL "B"
– – – – –	QUALITY LEVEL "C"
—— - —— -	QUALITY LEVEL "D"
⊕	TEST HOLE (QL–A)
►	CONTINUATION ARROW
▷	FLOW ARROW
[	END CAP
*	NOT SURVEYED, LOCATION BASED ON FIELD OBSERVATION
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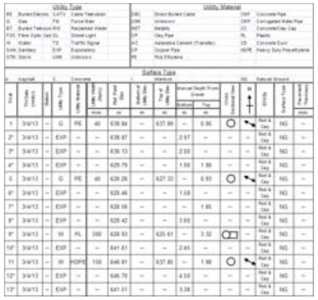
TEST HOLE INFORMATION



REVISIONS

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PREPARED BY.

T2 utility engineers
1-855-222-T2UE | WWW.T2UE.COM

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LAWRENCE E. ARCAND

		DATE (MM/DD/YY)
DRAWN	A. JACKSON–WYATT	03/28/13
CHECKED	R. GRINTON	03/28/13
APPROVED	L. ARCAND	03/28/13

SCALE 1:500 — 0 5 10 15 20m

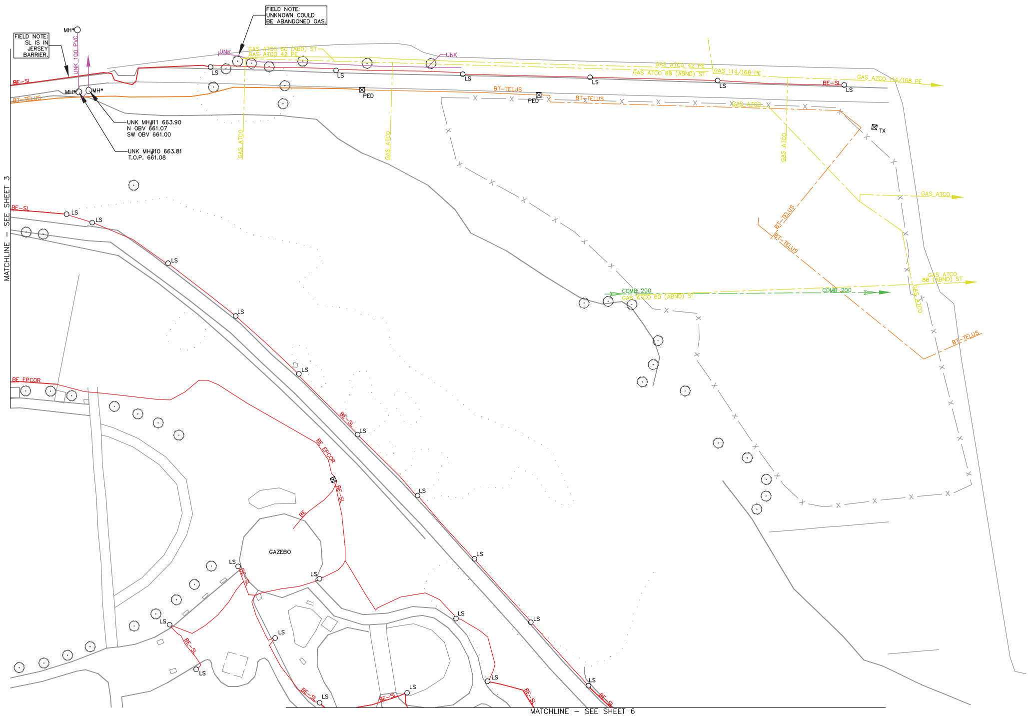
PROJECT.
LOUISE McKINNEY RIVERFRONT PARK
EDMONTON, AB

DRAWING.
SUBSURFACE UTITLITY ENGINEERING
MAPPING SERVICES

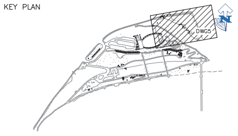
CLIENT.
AECOM

PROJECT NO. 61000100

SHEET NO. 04 OF 06



KEY PLAN



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LEGEND

GAS	GAS
G.S.	GAS SERVICE
WM	WATER
W.S.	WATER SERVICE
SAN	SANITARY SEWER
SAN LAT.	SANITARY LATERAL
STM	STORM SEWER
STM LAT.	STORM LATERAL
BE	BURIED ELECTRIC
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–·–·–	QUALITY LEVEL "D"
⌖	TEST HOLE (QL–A)
▶	CONTINUATION ARROW
▷	FLOW ARROW
[	END CAP
*	NOT SURVEYED, LOCATION BASED ON FIELD OBSERVATION
#	NOT SURVEYED, LOCATION BASED ON RECORD INFORMATION

TEST HOLE INFORMATION

Utility Type				Utility Material			
BE	Buried Electric	CATV	Cable Television	DBC	Direct Buried Cable	CNP	Concrete Pipe
G	Gas	FM	Force Main	UNK	Unknown	CMP	Corrugated Metal Pipe
BT	Buried Telecom	RW	Reclaimed Water	MET	Metallic	CC	Concrete/Clay Cap
FOC	Fibre Optic Cable	SL	Street Light	CP	Clay Pipe	PL	Plastic
W	Water	TS	Traffic Signal	AC	Asbestos Cement (Transite)	CD	Concrete Duct
SAN	Sanitary	EXP	Exploratory	CP	Copper Pipe	HDPE	Heavy Duty Polyethylene
STM	Storm	UNK	Unknown	PE	Poly Ethylene		

Surface Type: A Asphalt; C Concrete; G Gravel; NG Natural Ground

TH #	TH Date (mm/dd/yy)	Station	Utility Type	Utility Material	Utility Size (Nom.) mm	Ref Point Elev. m	Bottom of Utility Elev. m	Top of Utility Elev. m	Manual Depth From Grade Bottom m	Manual Depth From Grade Top m	Cross Sectional View	N	ID/Ref	Surface Type	Pavement Thickness mm
1	3/4/13	–	G	PE	40	638.84	–	637.89	–	0.96	○	↘	Rod & Cap	NG	–
2*	3/4/13	–	EXP	–	–	638.87	–	–	2.97	–	–	–	Rod & Cap	NG	–
3*	3/4/13	–	EXP	–	–	638.73	–	–	2.00	–	–	–	Rod & Cap	NG	–
4*	3/4/13	–	EXP	–	–	629.79	–	–	1.90	1.90	–	–	Rod & Cap	NG	–
5	3/4/13	–	G	PE	40	628.26	–	627.33	–	0.93	○	↘	Rod & Cap	NG	–
6*	3/4/13	–	EXP	–	–	628.46	–	–	1.58	–	–	–	Rod & Cap	NG	–
7*	3/4/13	–	EXP	–	–	628.58	–	–	–	1.83	–	–	Rod & Cap	NG	–
8*	3/4/13	–	EXP	–	–	628.42	–	–	3.00	–	–	–	Rod & Cap	NG	–
9*	3/4/13	–	W	PL	200	628.93	–	625.61	–	3.32	▭	–	Rod & Cap	NG	–
10*	3/4/13	–	EXP	–	–	641.61	–	–	2.45	–	–	–	Rod & Cap	NG	–
11	3/4/13	–	W	HDPE	150	646.81	–	637.80	–	1.98	○	↘	Rod & Cap	NG	–
12*	3/4/13	–	EXP	–	–	646.70	–	–	4.50	–	–	–	Rod & Cap	NG	–
13*	3/4/13	–	EXP	–	–	641.51	–	–	3.38	–	–	–	Rod & Cap	NG	–

NOTES:

TH2 - Went down 1.30m looking for gas until a hard layer was hit. Then went over 1.0m in each direction from ref. pin in center of hole. Poor signal, previous pipe may have been removed. Went down 2.97m total to make sure it was not there. No sign of anything.

TH3 - Vacced down looking for unknown and found hard U/G type ground at approximately 1.0m down. Able to break through on south end but unable to find anything. 2.0m depth, trench was 2.10m long.

TH4 - Looking for unknown. Made a hole 0.80m long, went down 1.90m, and was unable to find anything.

TH6 - Found concrete at 1.58m in hole. Began trenching SE to 1.20m.

TH7 - Got down to 1.83m and then hit asphalt. Went over 0.40m NE and still hit asphalt.

TH8 - Went down 3.00m with a 0.80m long trench. Unable to feel or see WM.

TH9 - Test hole was completed at the point where the service line to the public washrooms ties into the water main. It was measured at approximately 300mm, which is likely due to the tee fitting.

TH10 - EXP hole based on possible alignment of main. 2.45m down and 0.30m long trench.

TH12 - Searched for WM based on alignment of valves and proper entry into park area. Went down 4.50m across front of valve. Unable to find main, must be on a strange angle.

TH13 - Vacced out a 0.75m by 3.38m deep trench. Looking for watermain location based off probable position of main going from WV's in road. WV's at washroom building and survey. Unable to locate WM.

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LAWRENCE E. ARCAND

		DATE (MM/DD/YY)
DRAWN	A. JACKSON–WYATT	03/28/13
CHECKED	R. GRINTON	03/28/13
APPROVED	L. ARCAND	03/28/13

SCALE 1:500 0 5 10 15 20m

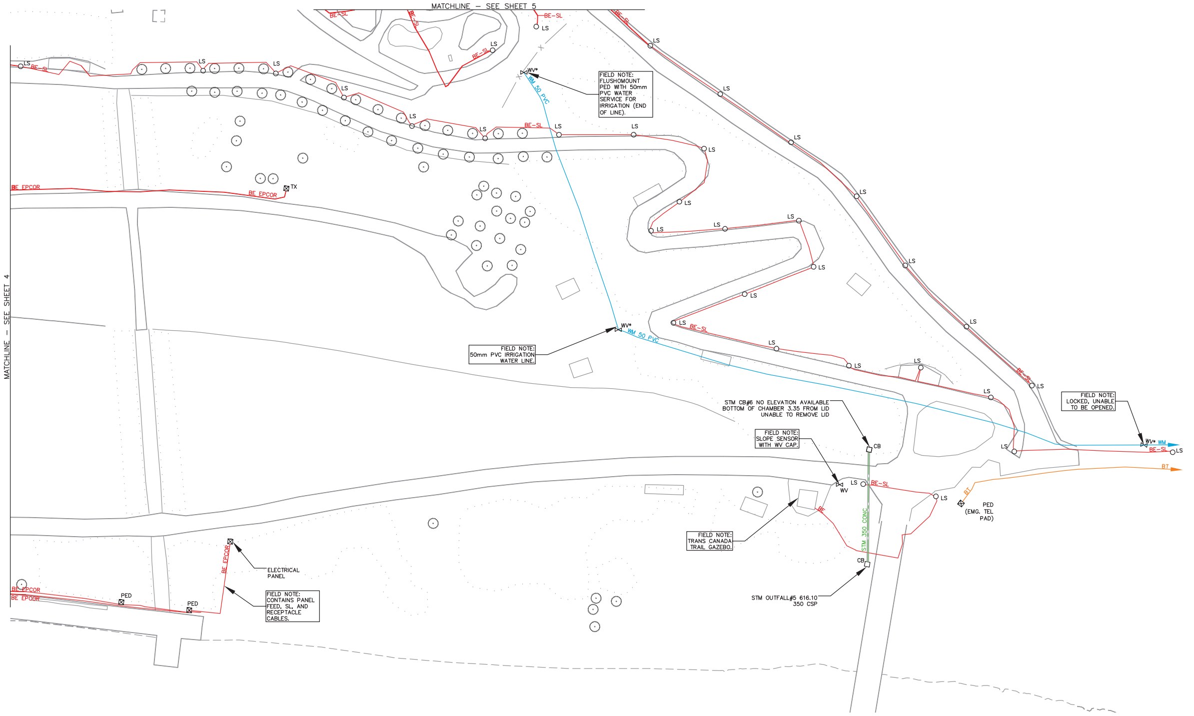
PROJECT.
LOUISE McKINNEY RIVERFRONT PARK
EDMONTON, AB

DRAWING.
SUBSURFACE UTITLITY ENGINEERING
MAPPING SERVICES

CLIENT.
AECOM

PROJECT NO. 61000100

SHEET NO. 05 OF 06



FIELD NOTE: FLUSHOMOUNT PED WITH 50mm PVC WATER SERVICE FOR IRRIGATION (END OF LINE).

FIELD NOTE: 50mm PVC IRRIGATION WATER LINE.

STM CB#6 NO ELEVATION AVAILABLE BOTTOM OF CHAMBER 3.35 FROM LID UNABLE TO REMOVE LID

FIELD NOTE: SLOPE SENSOR WITH WV CAP.

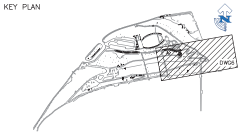
FIELD NOTE: LOCKED, UNABLE TO BE OPENED.

FIELD NOTE: TRANS CANADA TRAIL GAZEBO.

STM OUTFALL#5 616.10 350 CSP

FIELD NOTE: CONTAINS PANEL FEED, SL, AND RECEPTACLE CABLES.

KEY PLAN



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W.S.	WATER SERVICE
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SAN LAT.	SANITARY LATERAL
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BE–SL	BURIED ELECTRIC STREET LIGHT
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———	QUALITY LEVEL "B"
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—— - ——	QUALITY LEVEL "D"
⊕	TEST HOLE (QL–A)
▶	CONTINUATION ARROW
▷	FLOW ARROW
[	END CAP
*	NOT SURVEYED, LOCATION BASED ON FIELD OBSERVATION
#	NOT SURVEYED, LOCATION BASED ON RECORD INFORMATION

TEST HOLE INFORMATION

Utility Type
BE Buried Electric, CATV Cable Television
G Gas, FM Force Main
BT Buried Telecom, RW Reclaimed Water
FOC Fibre Optic Cable, SL Street Light
W Water, TS Traffic Signal
SAN Sanitary, EXP Exploratory
STM Storm, UNK Unknown

Utility Material
DBC Direct Buried Cable, CNP Concrete Pipe
UNK Unknown, CMP Corrugated Metal Pipe
MET Metallic, CC Concrete/Clay Cap
CP Clay Pipe, PL Plastic
AC Asbestos Cement (Transite), CD Concrete Duct
CP Copper Pipe, HDPE Heavy Duty Polyethylene
PE Poly Ethylene

Surface Type
A Asphalt, C Concrete, I Interlock, NG Natural Ground

TH #	Test Date (mm/dd/yy)	Station	Utility Type	Utility Material	Utility Size (mm)	Ref Point Elev (m)	Bottom of Utility Elev (m)	Top of Utility Elev (m)	Manual Depth From Grade Bottom (m)	Manual Depth From Grade Top (m)	Cross Sectional View	N	[illegible]	Surface Type	Pavement Thickness (mm)
1	3/4/13	–	G	PE	40	638.84	–	637.89	–	0.95	○	↘	Rod & Cap	NG	–
2*	3/4/13	–	EXP	–	–	638.87	–	–	2.97	–	–	–	Rod & Cap	NG	–
3*	3/4/13	–	EXP	–	–	636.13	–	–	2.90	–	–	–	Rod & Cap	NG	–
4*	3/4/13	–	EXP	–	–	629.79	–	–	1.50	1.30	–	–	Rod & Cap	NG	–
5	3/4/13	–	G	PE	40	628.26	–	627.33	–	0.93	○	↘	Rod & Cap	NG	–
6*	3/4/13	–	EXP	–	–	628.46	–	–	1.50	–	–	–	Rod & Cap	NG	–
7*	3/4/13	–	EXP	–	–	628.58	–	–	–	1.63	–	–	Rod & Cap	NG	–
8*	3/4/13	–	EXP	–	–	628.42	–	–	3.03	–	–	–	Rod & Cap	NG	–
9*	3/4/13	–	W	PL	300	628.93	–	625.61	–	3.32	⊂⊃	–	Rod & Cap	NG	–
10*	3/4/13	–	EXP	–	–	641.61	–	–	2.45	–	–	–	Rod & Cap	NG	–
11	3/4/13	–	W	HDPE	150	646.61	–	637.81	–	1.98	○	↘	Rod & Cap	NG	–
12*	3/4/13	–	EXP	–	–	646.70	–	–	4.50	–	–	–	Rod & Cap	NG	–
13*	3/4/13	–	EXP	–	–	641.51	–	–	3.38	–	–	–	Rod & Cap	NG	–

NOTES:

TH2 - Went down 1.30m looking for gas until a hard layer was hit. Then went over 1.0m in each direction from ref. pin in center of hole. Poor signal, previous pipe may have been removed. Went down 2.97m total to make sure it was not there. No sign of anything.

TH3 - Vaccad down looking for unknown and found hard U/R type ground at approximately 1.0m down. Able to break through on south end but unable to find anything. 2.9m depth, trench was 2.10m long.

TH4 - Looking for unknown. Made a hole 0.80m long, went down 1.30m, and was unable to find anything.

TH6 - Found concrete at 1.50m in hole. Began trenching SE to 1.20m.

TH7 - Got down to 1.63m and then hit asphalt. Went over 0.40m NE and still hit asphalt.

TH8 - Went down 3.03m with a 0.80m long trench. Unable to feel or see WM.

TH9 - Test hole was completed at the point where the service line to the public washrooms ties into the water main. It was measured at approximately 300mm, which is likely due to the tee fitting.

TH10 - EXP hole based on possible alignment of main. 2.45m down and 0.80m long trench.

TH12 - Searched for WM based on alignment of valves and proper entry into park area. Went down 4.50m across front of valve. Unable to find main, must be on a strange angle.

TH13 - Vaccad out a 0.75m by 3.38m deep trench. Looking for watermain location based off probable position of main going from WV's in road. WV's at washroom building and survey. Unable to locate WM.

REVISIONS

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LAWRENCE E. ARCAND

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APPROVED	L. ARCAND	03/28/13

SCALE 1:500 0 5 10 15 20m

PROJECT.
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EDMONTON, AB

DRAWING.
SUBSURFACE UTITLITY ENGINEERING
MAPPING SERVICES

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PROJECT NO. 61000100

SHEET NO. 06 OF 06