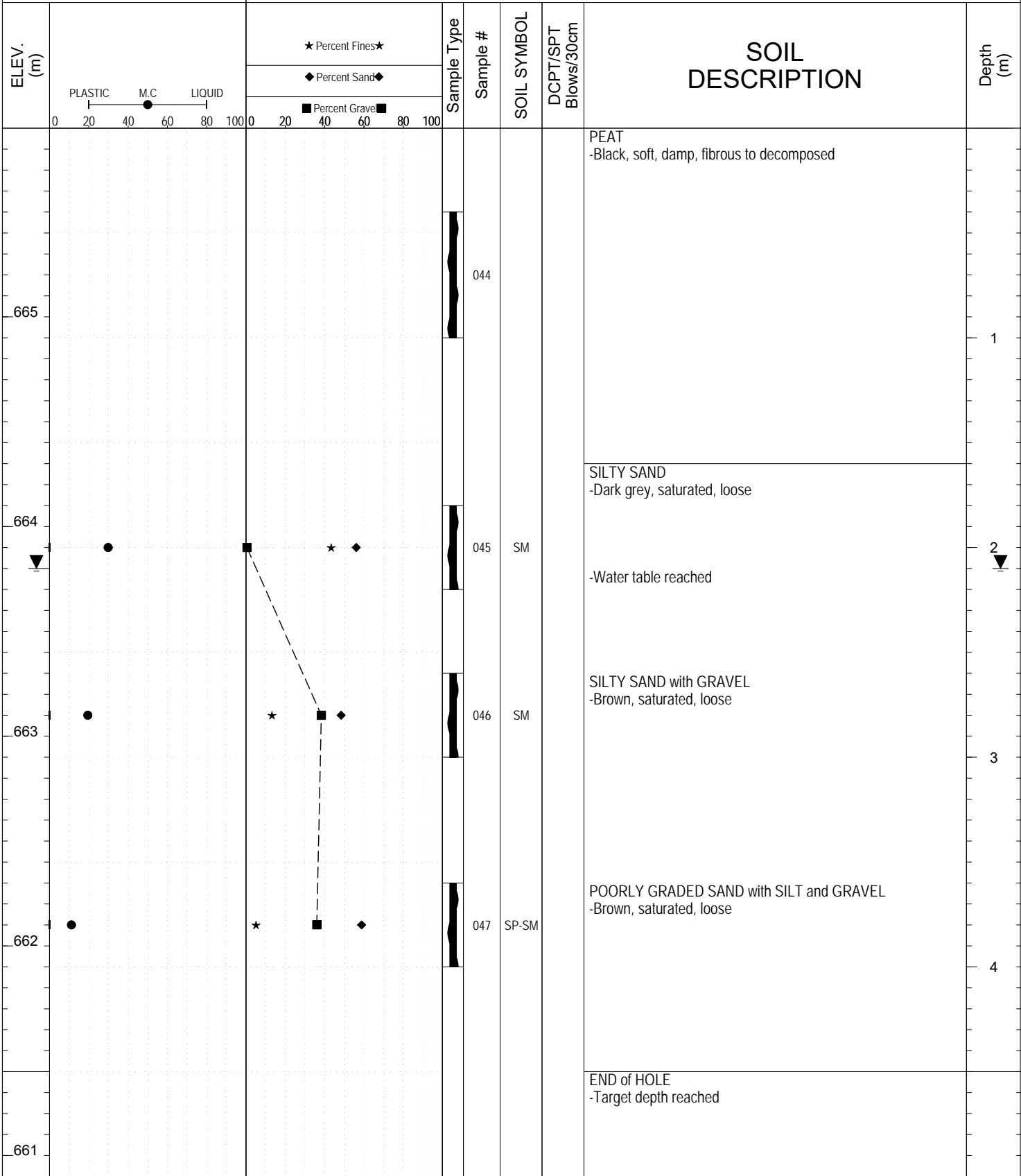


SUBSURFACE EXPLORATION AND TEST REPORT		Campbell Highway	SOURCE/TP#: 896-5695
Gateway Drilling		Campbell Highway Corridor, km 75-77	PROJECT NO: 552-202104-2035-0661-5
B61 150mm Solid Stem		Coordinates: Z09V N6721717m E489783m	ELEVATION: 665.9m

SAMPLE TYPE UNDISTURBED DCPT AUGER BULK SPT CORE

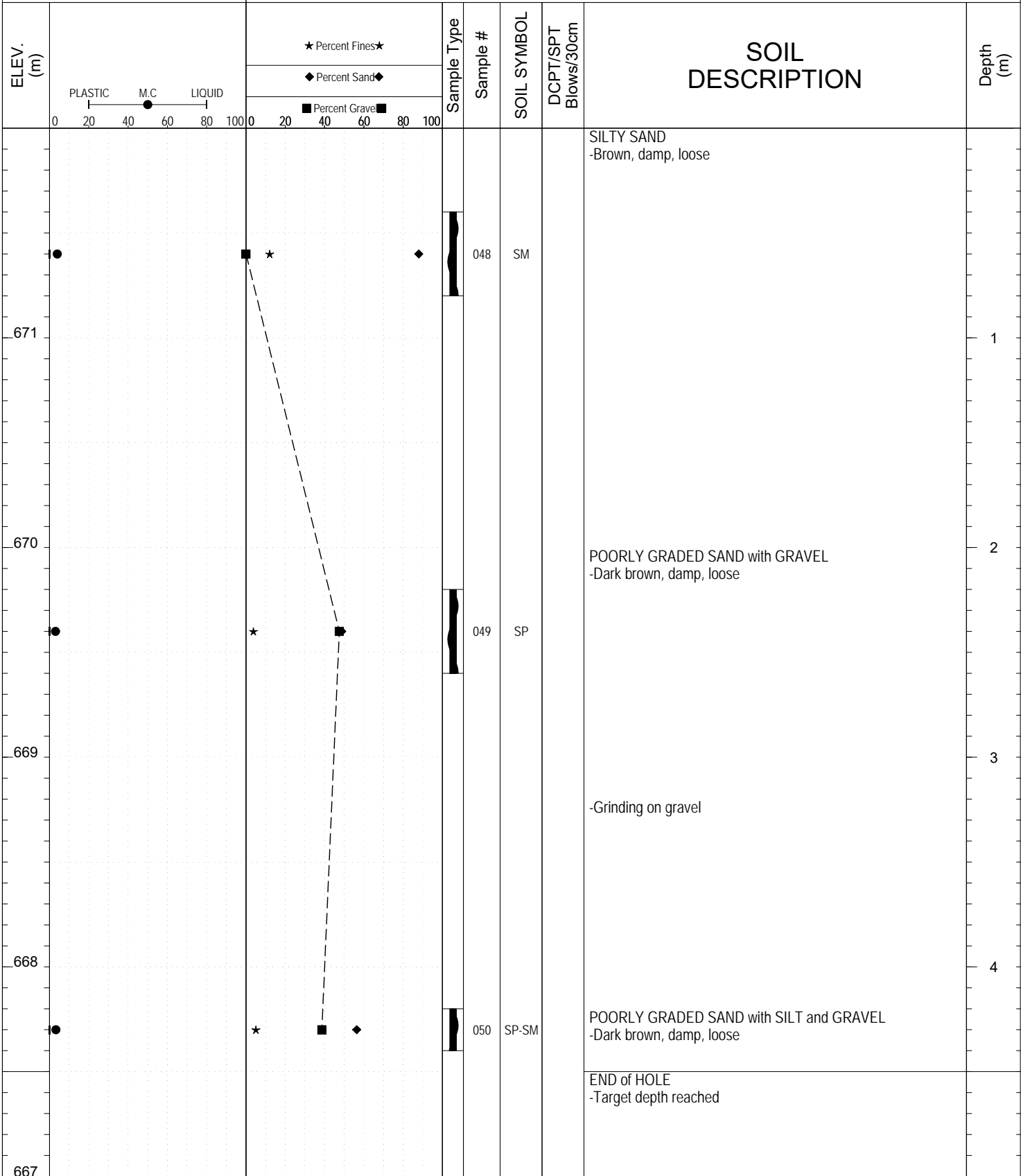


Highways and Public Works
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LOGGED BY: R.Stilwell	Termination Depth: 4.5m
COMPILED BY: R.Stilwell	Complete: 9/2/2016 10:35:00 AM
REVIEWED BY: Dave Lorenzi	Pit #: Page 1 of 1

SUBSURFACE EXPLORATION AND TEST REPORT		Campbell Highway	SOURCE/TP#: 896-5696
Gateway Drilling		Campbell Highway Corridor, km 75-77	PROJECT NO: 552-202104-2035-0661-5
B61 150mm Solid Stem		Coordinates: Z09V N6721803m E489744m	ELEVATION: 672m

SAMPLE TYPE UNDISTURBED DCPT AUGER BULK SPT CORE



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Transportation Engineering Branch

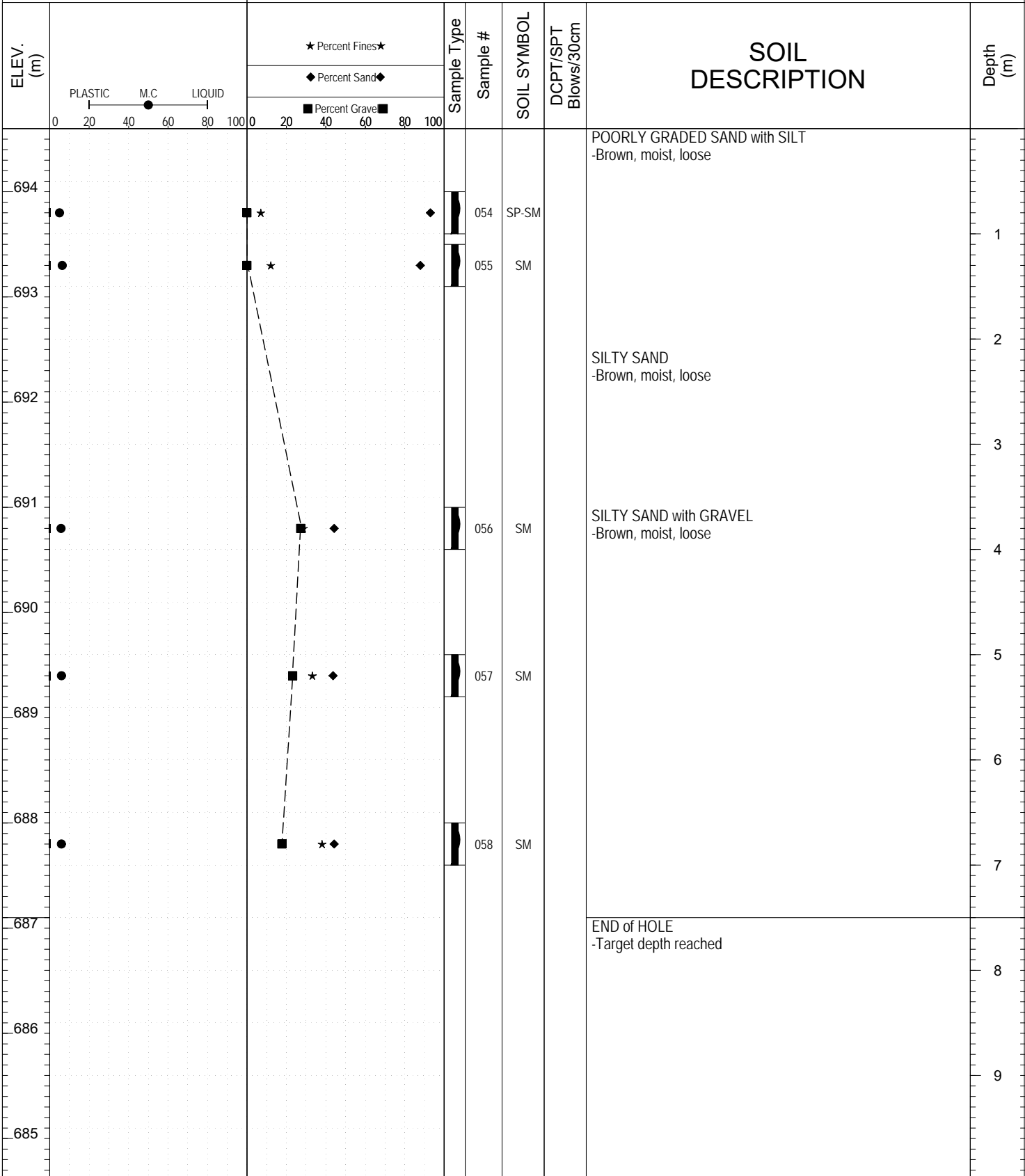
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COMPILED BY: R.Stilwell	Complete: 9/2/2016 11:00:00 AM
REVIEWED BY: Dave Lorenzi	Pit #: Page 1 of 1

SUBSURFACE EXPLORATION AND TEST REPORT		Campbell Highway		SOURCE/TP#: 896-5697					
Gateway Drilling		Campbell Highway Corridor, km 75-77		PROJECT NO: 552-202104-2035-0661-5					
B61 150mm Solid Stem		Coordinates: Z09V N6721905m E489710m		ELEVATION: 650.3m					
SAMPLE TYPE		<input type="checkbox"/> UNDISTURBED <input type="checkbox"/> DCPT <input checked="" type="checkbox"/> AUGER <input type="checkbox"/> BULK <input checked="" type="checkbox"/> SPT <input type="checkbox"/> CORE							
ELEV. (m)	★ Percent Fines ★ ◆ Percent Sand ◆ ■ Percent Gravel ■		Sample Type	Sample #	SOIL SYMBOL	DCPT/SPT Blows/30cm	SOIL DESCRIPTION	Depth (m)	
	PLASTIC M.C. LIQUID 0 20 40 60 80 100								
650	0	100	■	★	◆	051	SM	SILTY SAND -Brown, damp, loose	1
649								-Grinding on cobbles	
648	0	100	■	★	◆	052	SW-SM	WELL-GRADED SAND with SILT and GRAVEL -Dark brown, damp, compact	2
647									3
646	0	100	■	★	◆	053	SP-SM	POORLY GRADED SAND with SILT and GRAVEL -Dark brown, damp, compact	4
								END of HOLE -Target depth reached	



SUBSURFACE EXPLORATION AND TEST REPORT		Campbell Highway	SOURCE/TP#: 896-5698
Gateway Drilling		Campbell Highway Corridor, km 75-77	PROJECT NO: 552-202104-2035-0661-5
B61 150mm Solid Stem		Coordinates: Z09V N6722797m E489599m	ELEVATION: 694.6m

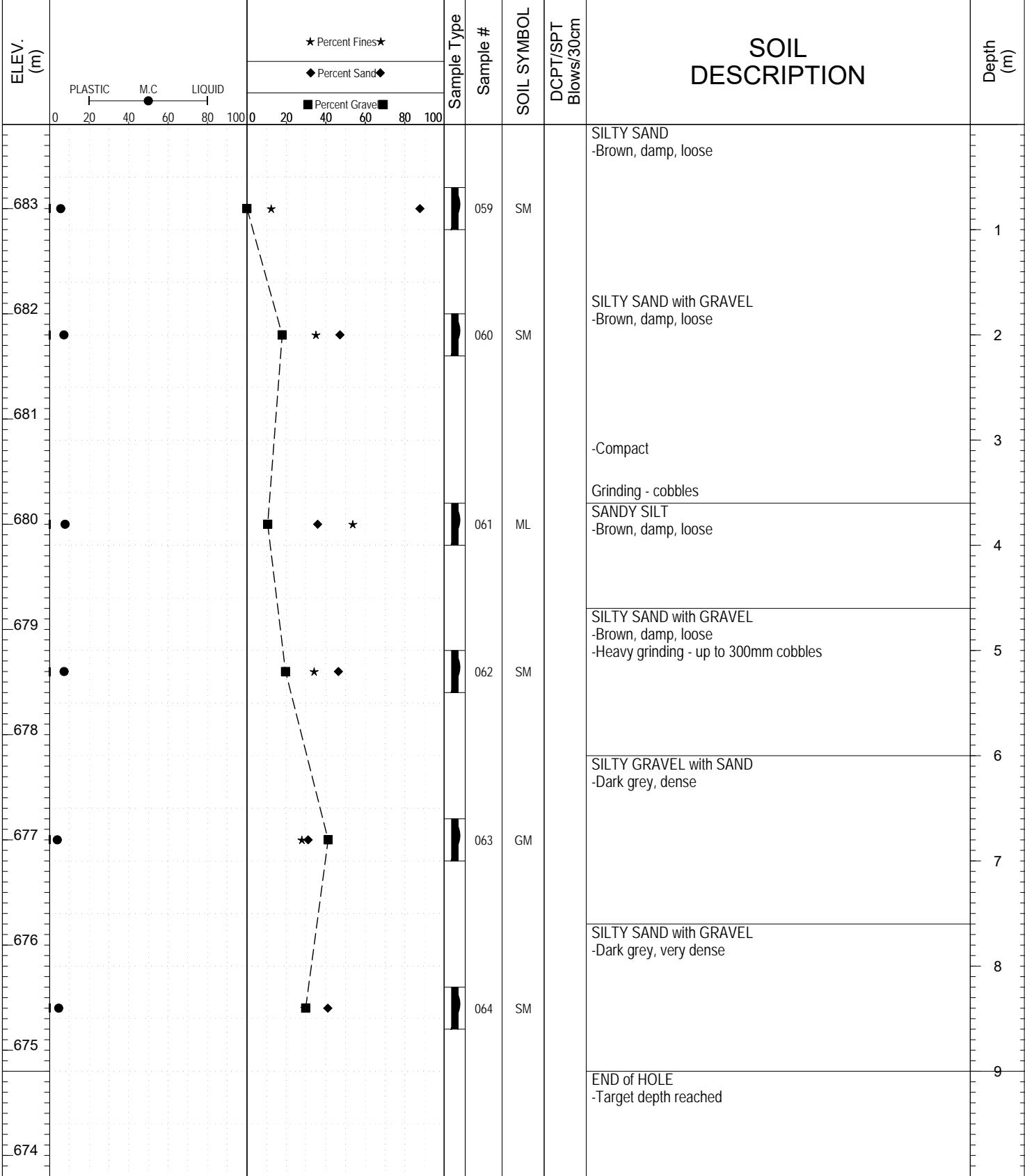
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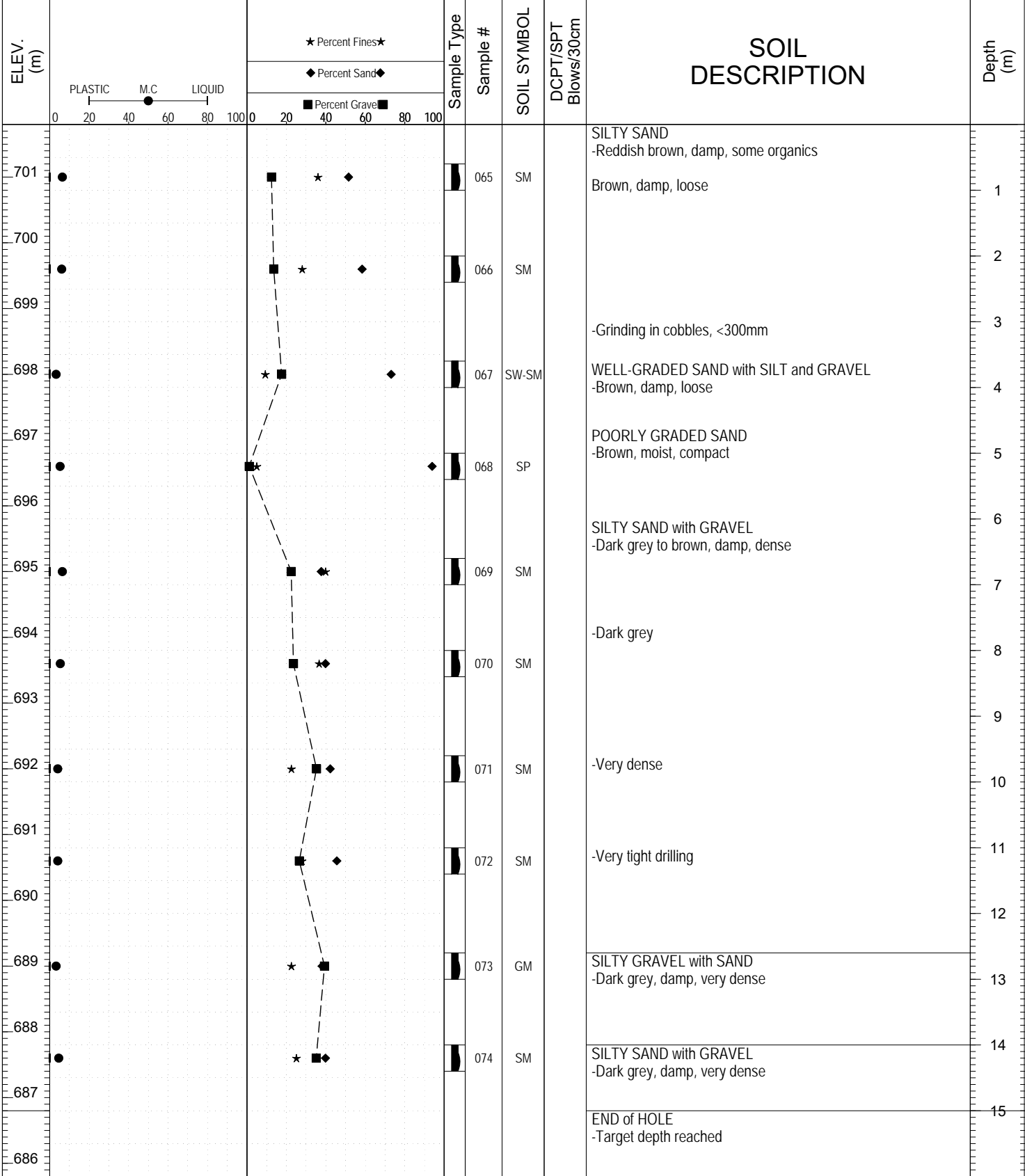
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LOGGED BY: R.Stilwell	Termination Depth: 7.5m
COMPILED BY: R.Stilwell	Complete: 9/2/2016 12:45:00 PM
REVIEWED BY: Dave Lorenzi	Pit #: Page 1 of 1

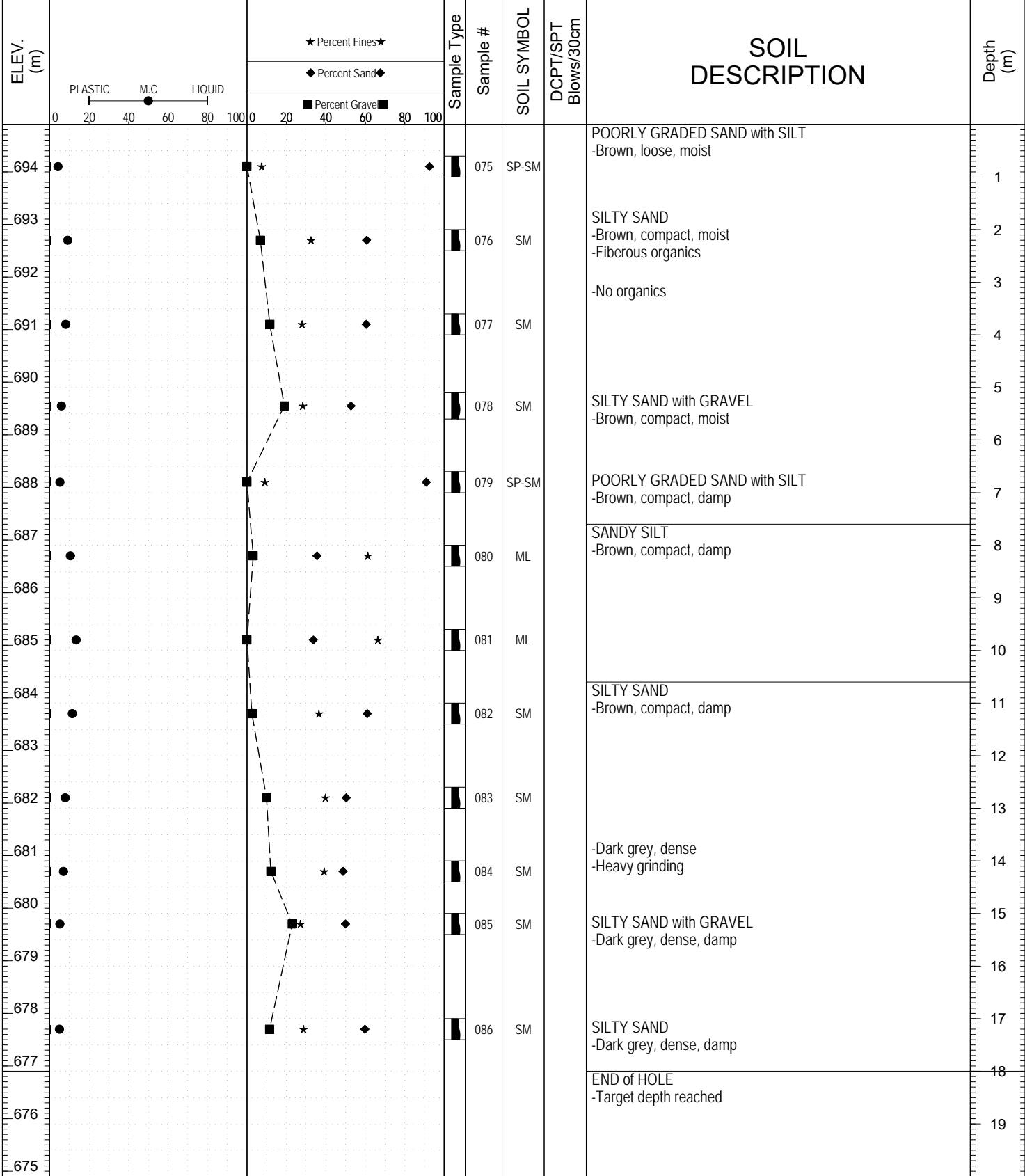
SAMPLE TYPE UNDISTURBED DCPT AUGER BULK SPT CORE



SAMPLE TYPE UNDISTURBED DCPT AUGER BULK SPT CORE



SAMPLE TYPE UNDISTURBED DCPT AUGER BULK SPT CORE



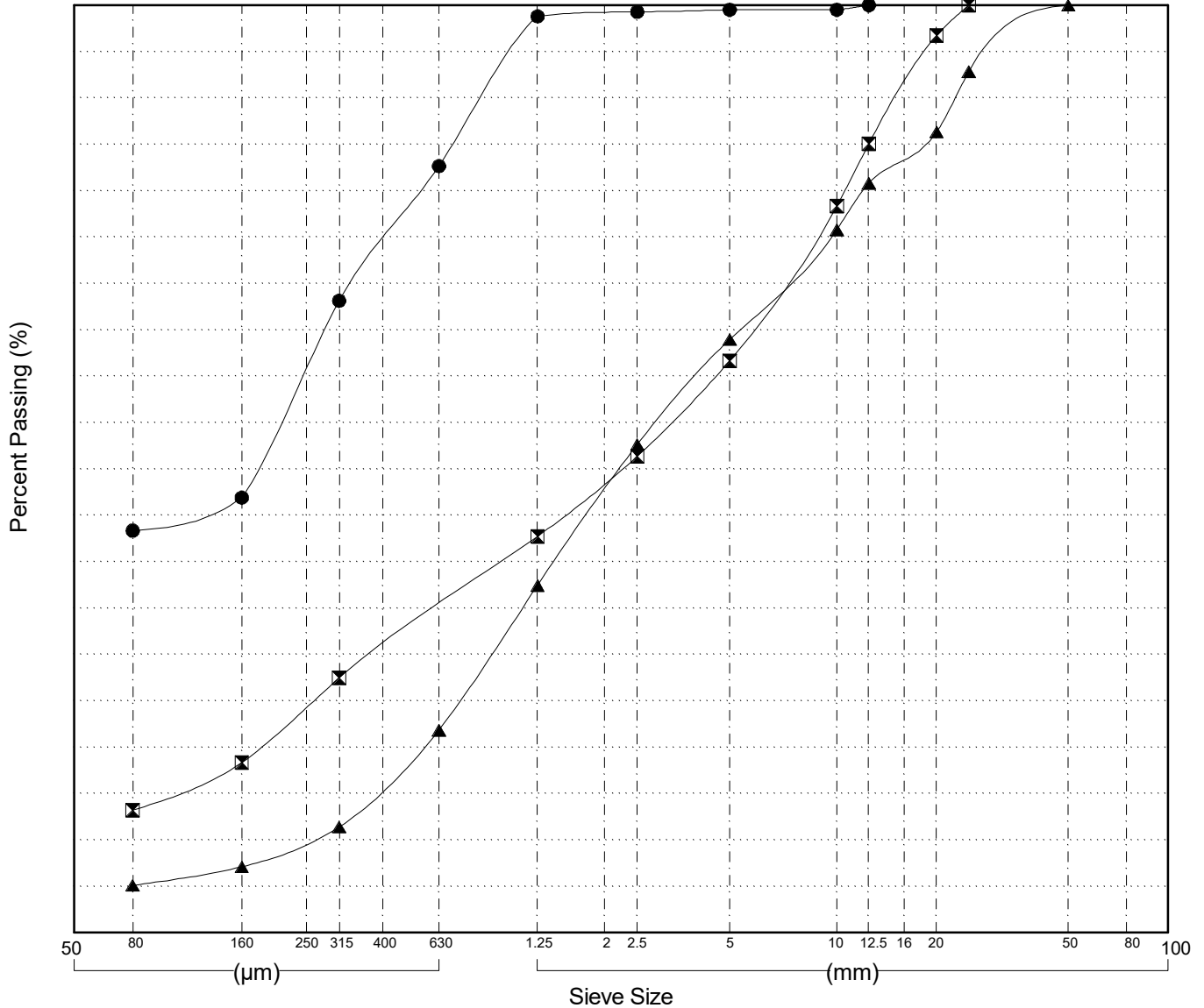
GRAIN SIZE ANALYSIS	Campbell Highway Corridor	SOURCE/TP#: 896-5695
Gateway Drilling	km 75-77	PROJECT NO: 552-202104-2035-0661-5
B61 150mm Solid Stem	Coordinates: Z09V N6721717m E489783m	ELEVATION: 665.9m

Master Revised July 2013

Field#	Lab#	Depth	Classification	%H2O	LL	PL	PI	Cc	Cu
● 045	263	1.8 to	SILTY SAND(SM)	29.8	NP	NP	NP		
☒ 046	264	2.6 to	SILTY SAND with GRAVEL(SM)	19.5	NP	NP	NP		
▲ 047	265	3.6 to	POORLY GRADED SAND with SILT and GRAVEL(SP-SM)	11.2	NP	NP	NP	0.8	15.0

Field#	Lab#	100.0	80.0	50.0	25.0	20.0	12.5	10.0	5.0	2.5	1.25	0.630	0.315	0.160	0.080	% Breakdown			
																Gravel	Sand	Silt	Clay
● 045	263	100.0	100.0	100.0	100.0	100.0	100.0	99.5	99.5	99.3	98.8	82.7	68.1	46.9	43.4	0.5	56.1	43.4	
☒ 046	264	100.0	100.0	100.0	100.0	96.7	85.1	78.3	61.7	51.4	42.7	35.1	27.5	18.3	13.2	38.3	48.4	13.2	
▲ 047	265	100.0	100.0	100.0	92.8	86.3	80.8	75.8	63.9	52.6	37.4	21.8	11.4	7.1	5.1	36.1	58.8	5.1	

Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse



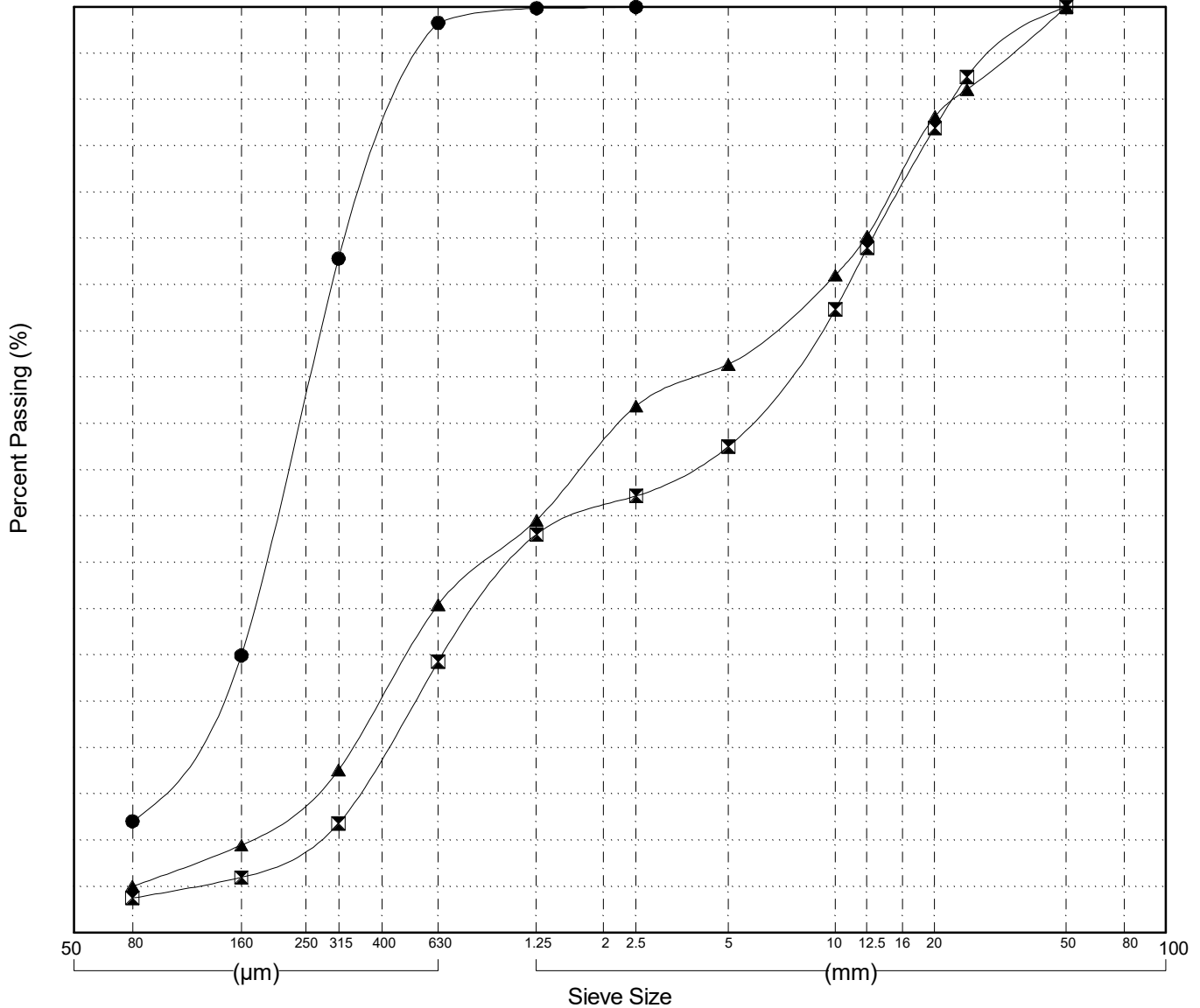
GRAIN SIZE ANALYSIS	Campbell Highway Corridor	SOURCE/TP#: 896-5696
Gateway Drilling	km 75-77	PROJECT NO: 552-202104-2035-0661-5
B61 150mm Solid Stem	Coordinates:Z09V N6721803m E489744m	ELEVATION: 672m

Master Revised July 2013

Field#	Lab#	Depth	Classification	%H2O	LL	PL	PI	Cc	Cu
● 048	266	0.4 to	SILTY SAND(SM)	4.0	NP	NP	NP	1.4	3.7
☒ 049	267	2.2 to	POORLY GRADED SAND with GRAVEL(SP)	3.0	NP	NP	NP	0.2	27.2
▲ 050	268	4.2 to	POORLY GRADED SAND with SILT and GRAVEL(SP-SM)	3.2	NP	NP	NP	0.4	23.3

Field#	Lab#	100.0	80.0	50.0	25.0	20.0	12.5	10.0	5.0	2.5	1.25	0.630	0.315	0.160	0.080	%Breakdown			
																Gravel	Sand	Silt	Clay
● 048	266	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.9	98.3	72.8	30.0	12.1	0.0	87.9	12.1	
☒ 049	267	100.0	100.0	100.0	92.4	87.0	74.0	67.3	52.5	47.2	43.0	29.3	11.8	6.0	3.8	47.5	48.8	3.8	
▲ 050	268	100.0	100.0	100.0	91.1	88.2	75.3	71.0	61.4	56.9	44.6	35.4	17.6	9.5	5.0	38.6	56.4	5.0	

Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse



Highways and Public Works
Transportation Engineering Branch

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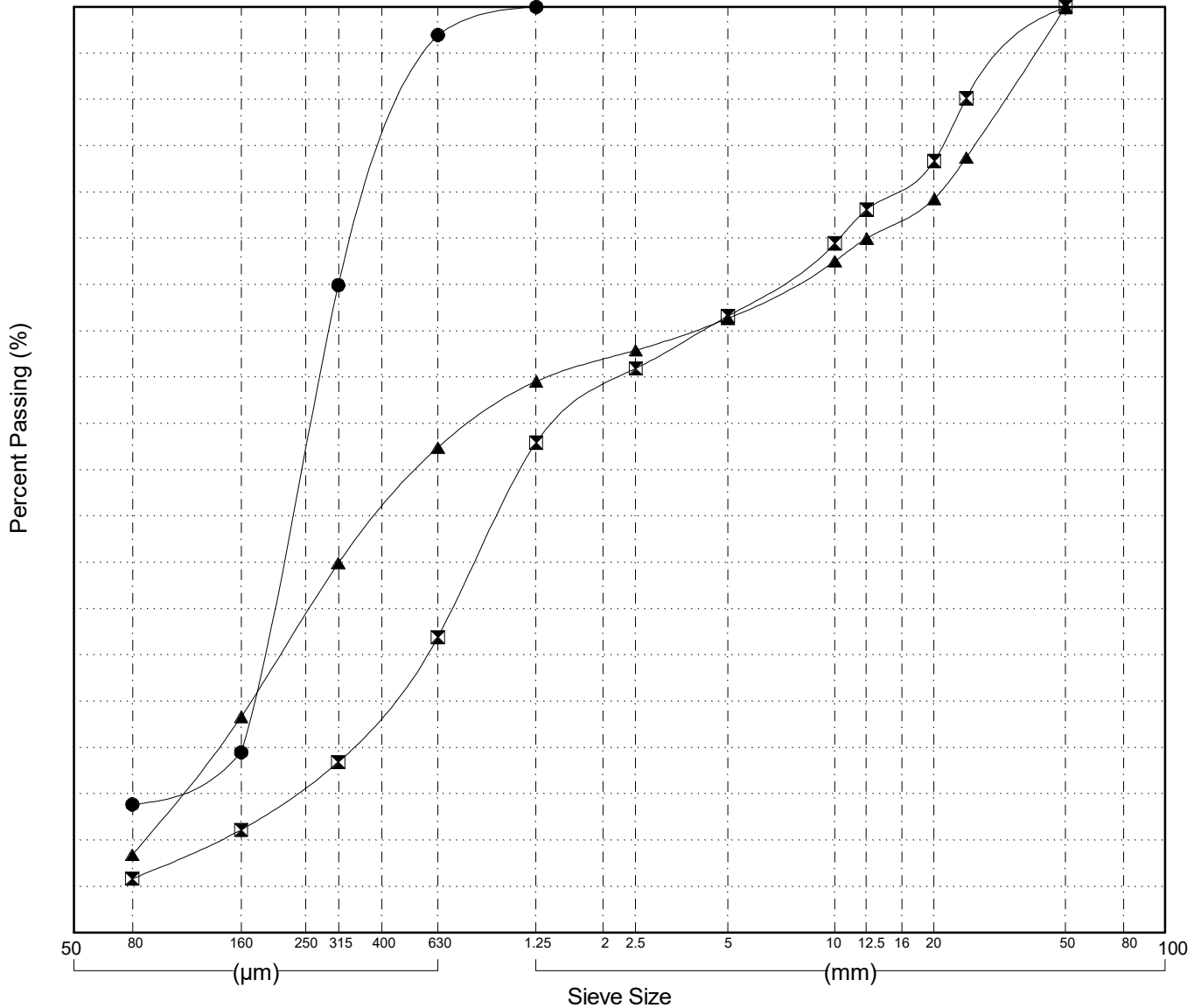
GRAIN SIZE ANALYSIS	Campbell Highway Corridor	SOURCE/TP#: 896-5697
Gateway Drilling	km 75-77	PROJECT NO: 552-202104-2035-0661-5
B61 150mm Solid Stem	Coordinates: Z09V N6721905m E489710m	ELEVATION: 650.3m

Master Revised July 2013

Field#	Lab#	Depth	Classification	%H2O	LL	PL	PI	Cc	Cu
● 051	269	0.2 to	SILTY SAND(SM)	6.3	NP	NP	NP		
☒ 052	270	1.8 to	WELL-GRADED SAND with SILT and GRAVEL(SW-SM)	3.9	NP	NP	NP	1.0	16.9
▲ 053	271	3.6 to	POORLY GRADED SAND with SILT and GRAVEL(SP-SM)	3.8	NP	NP	NP	0.4	16.9

Field#	Lab#	% PASSING	100.0	80.0	50.0	25.0	20.0	12.5	10.0	5.0	2.5	1.25	0.630	0.315	0.160	0.080	% Breakdown			
			Gravel	Sand	Silt	Clay														
● 051	269	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	97.0	70.0	19.5	13.9	0.0	86.1	13.9	
☒ 052	270	100.0	100.0	100.0	90.1	83.4	78.1	74.5	66.6	61.0	53.0	31.9	18.4	11.1	5.9		33.4	60.8	5.9	
▲ 053	271	100.0	100.0	100.0	83.7	79.3	75.0	72.5	66.3	62.9	59.6	52.4	39.9	23.3	8.4		33.7	57.9	8.4	

Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse



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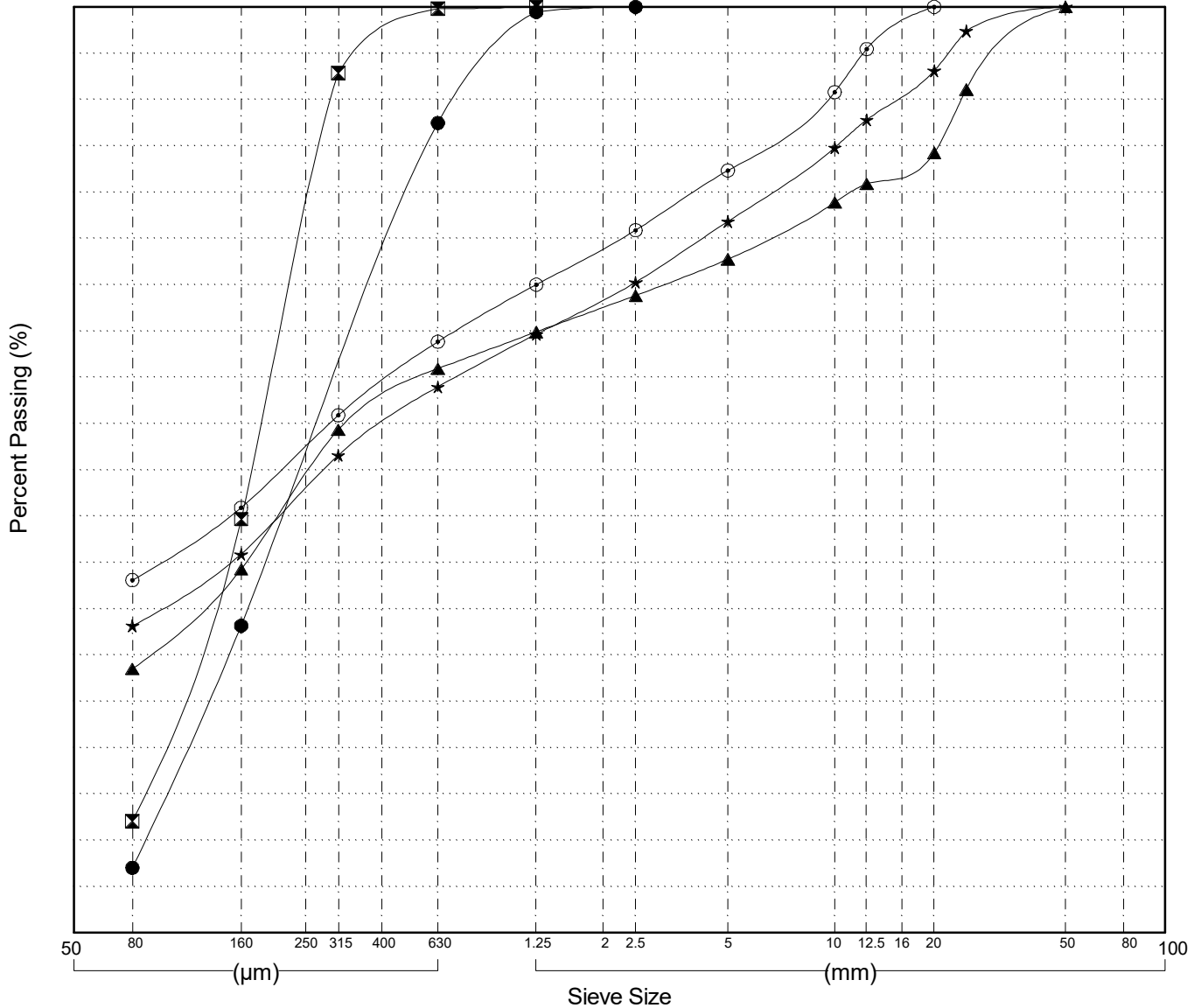
GRAIN SIZE ANALYSIS	Campbell Highway Corridor	SOURCE/TP#: 896-5698
Gateway Drilling	km 75-77	PROJECT NO: 552-202104-2035-0661-5
B61 150mm Solid Stem	Coordinates: Z09V N6722797m E489599m	ELEVATION: 694.6m

Master Revised July 2013

Field#	Lab#	Depth	Classification	%H ₂ O	LL	PL	PI	C _c	C _u
● 054	272	0.6 to	POORLY GRADED SAND with SILT(SP-SM)	5.0	NP	NP	NP	0.8	3.9
☒ 055	273	1.1 to	SILTY SAND(SM)	6.3	NP	NP	NP	0.9	2.8
▲ 056	274	3.6 to	SILTY SAND with GRAVEL(SM)	5.7	NP	NP	NP		
★ 057	275	5.0 to	SILTY SAND with GRAVEL(SM)	6.0	NP	NP	NP		
⊙ 058	276	6.6 to	SILTY SAND with GRAVEL(SM)	5.9	NP	NP	NP		

Field#	Lab#	%PASSING															%Breakdown			
		100.0	80.0	50.0	25.0	20.0	12.5	10.0	5.0	2.5	1.25	0.630	0.315	0.160	0.080	Gravel	Sand	Silt	Clay	
● 054	272	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.4	87.5	60.0	33.2	7.0	0.0	93.0	7.0		
☒ 055	273	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.8	92.9	44.7	12.1	0.0	87.9	12.1		
▲ 056	274	100.0	100.0	100.0	91.1	84.2	80.9	78.9	72.8	68.8	64.9	60.9	54.3	39.3	28.5	27.2	44.2	28.5		
★ 057	275	100.0	100.0	100.0	97.4	93.1	87.8	84.8	76.8	70.3	64.6	59.0	51.6	40.9	33.2	23.2	43.7	33.2		
⊙ 058	276	100.0	100.0	100.0	100.0	100.0	95.4	90.8	82.3	75.9	70.0	63.8	55.9	45.9	38.1	17.7	44.2	38.1		

Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse



Highways and Public Works
Transportation Engineering Branch

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REVIEWED BY: Dave Lorenzi

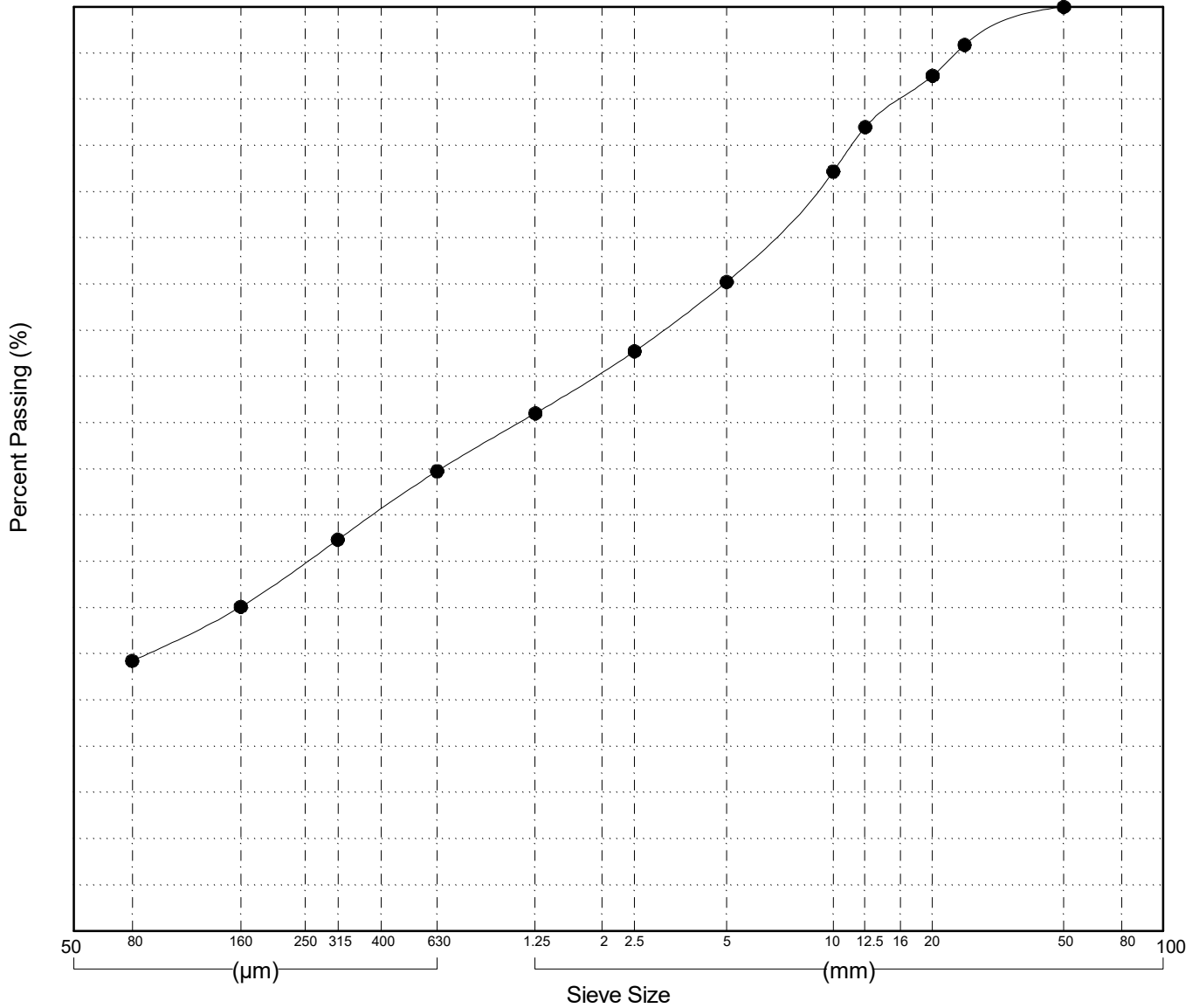
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GRAIN SIZE ANALYSIS	Campbell Highway Corridor	SOURCE/TP#: 896-5699
Gateway Drilling	km 75-77	PROJECT NO: 552-202104-2035-0661-5
B61 150mm Solid Stem	Coordinates: Z09V N6722891m E489561m	ELEVATION: 683.8m

Master Revised July 2013

Field#	Lab#	Depth	Classification											%H2O	LL	PL	PI	Cc	Cu	
● 064	282	8.2 to	SILTY SAND with GRAVEL(SM)											4.6	NP	NP	NP			
Field#	Lab#		100.0	80.0	50.0	25.0	20.0	12.5	10.0	5.0	2.5	1.25	0.630	0.315	0.160	0.080	% Breakdown			
● 064	282	% PASSING	100.0	100.0	100.0	95.9	92.5	87.0	82.2	70.2	62.7	56.0	49.8	42.4	35.1	29.3	Gravel	Sand	Silt	Clay
																	29.8	41.0	29.3	

Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse



Highways and Public Works
Transportation Engineering Branch

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REVIEWED BY: Dave Lorenzi

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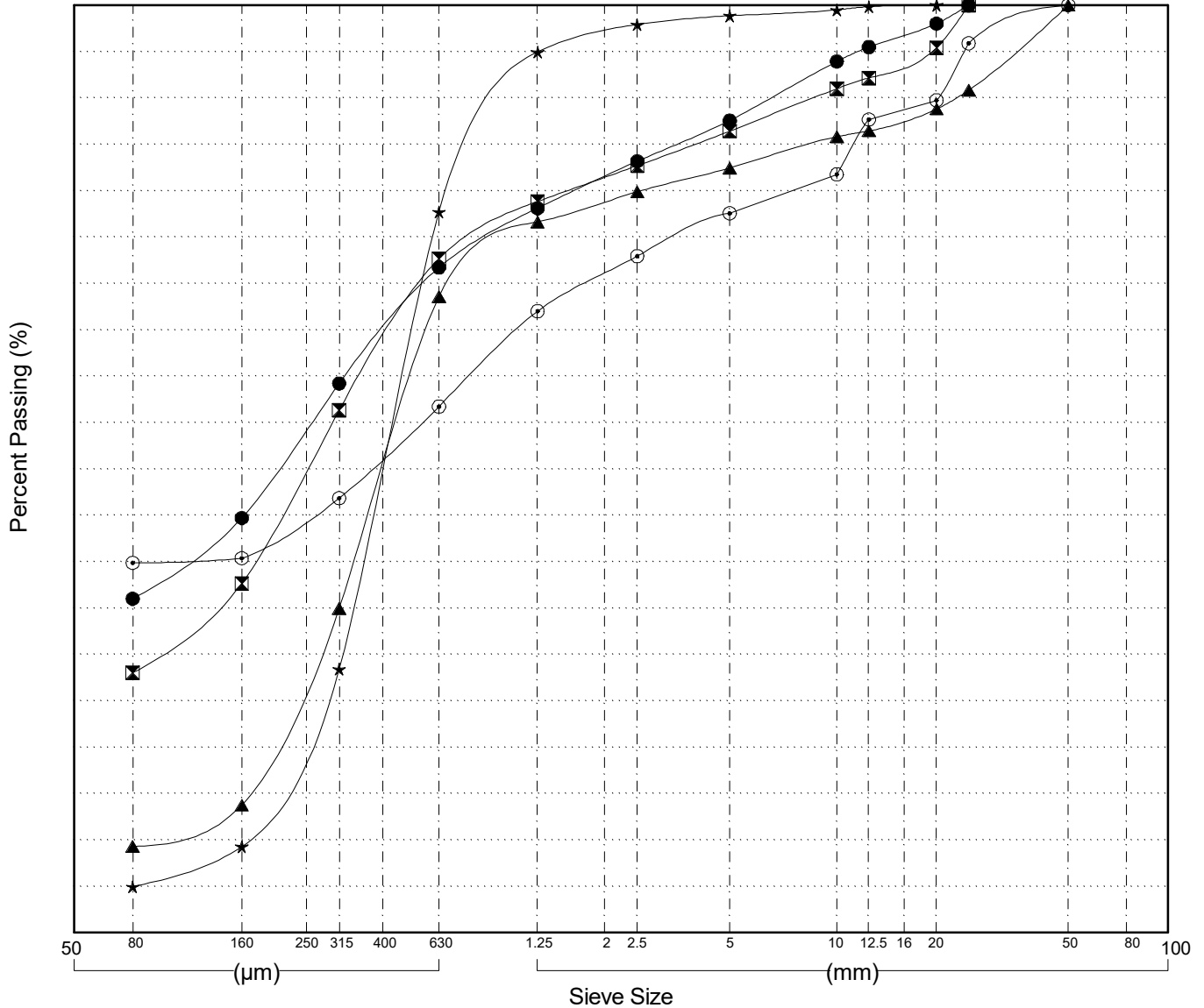
GRAIN SIZE ANALYSIS	Campbell Highway Corridor	SOURCE/TP#: 896-5700
Gateway Drilling	km 75-77	PROJECT NO: 552-202104-2035-0661-5
B61 150mm Solid Stem	Coordinates: Z09V N6722935m E489548m	ELEVATION: 701.8m

Master Revised July 2013

Field#	Lab#	Depth	Classification	%H2O	LL	PL	PI	Cc	Cu
● 065	283	0.6 to	SILTY SAND(SM)	6.4	NP	NP	NP		
☒ 066	284	2.0 to	SILTY SAND(SM)	6.1	NP	NP	NP		
▲ 067	285	3.6 to	WELL-GRADED SAND with SILT and GRAVEL(SW-SM)	3.3	NP	NP	NP	1.6	6.3
★ 068	286	5.0 to	POORLY GRADED SAND(SP)	5.3	NP	NP	NP	1.3	3.0
⊙ 069	287	6.6 to	SILTY SAND with GRAVEL(SM)	6.4	NP	NP	NP		

Field#	Lab#	% PASSING															% Breakdown			
		100.0	80.0	50.0	25.0	20.0	12.5	10.0	5.0	2.5	1.25	0.630	0.315	0.160	0.080	Gravel	Sand	Silt	Clay	
● 065	283	100.0	100.0	100.0	100.0	98.0	95.5	93.9	87.6	83.2	78.1	71.7	59.2	44.7	36.0	12.4	51.5	36.0		
☒ 066	284	100.0	100.0	100.0	100.0	95.4	92.2	91.0	86.4	82.7	78.8	72.6	56.3	37.7	28.0	13.6	58.4	28.0		
▲ 067	285	100.0	100.0	100.0	90.8	88.8	86.4	85.8	82.4	79.9	76.6	68.6	35.0	13.8	9.3	17.6	73.1	9.3		
★ 068	286	100.0	100.0	100.0	100.0	100.0	99.8	99.5	98.9	97.9	94.9	77.7	28.4	9.3	5.0	1.1	93.9	5.0		
⊙ 069	287	100.0	100.0	100.0	95.9	89.7	87.7	81.8	77.6	72.9	67.0	56.7	46.8	40.4	39.9	22.4	37.7	39.9		

Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse



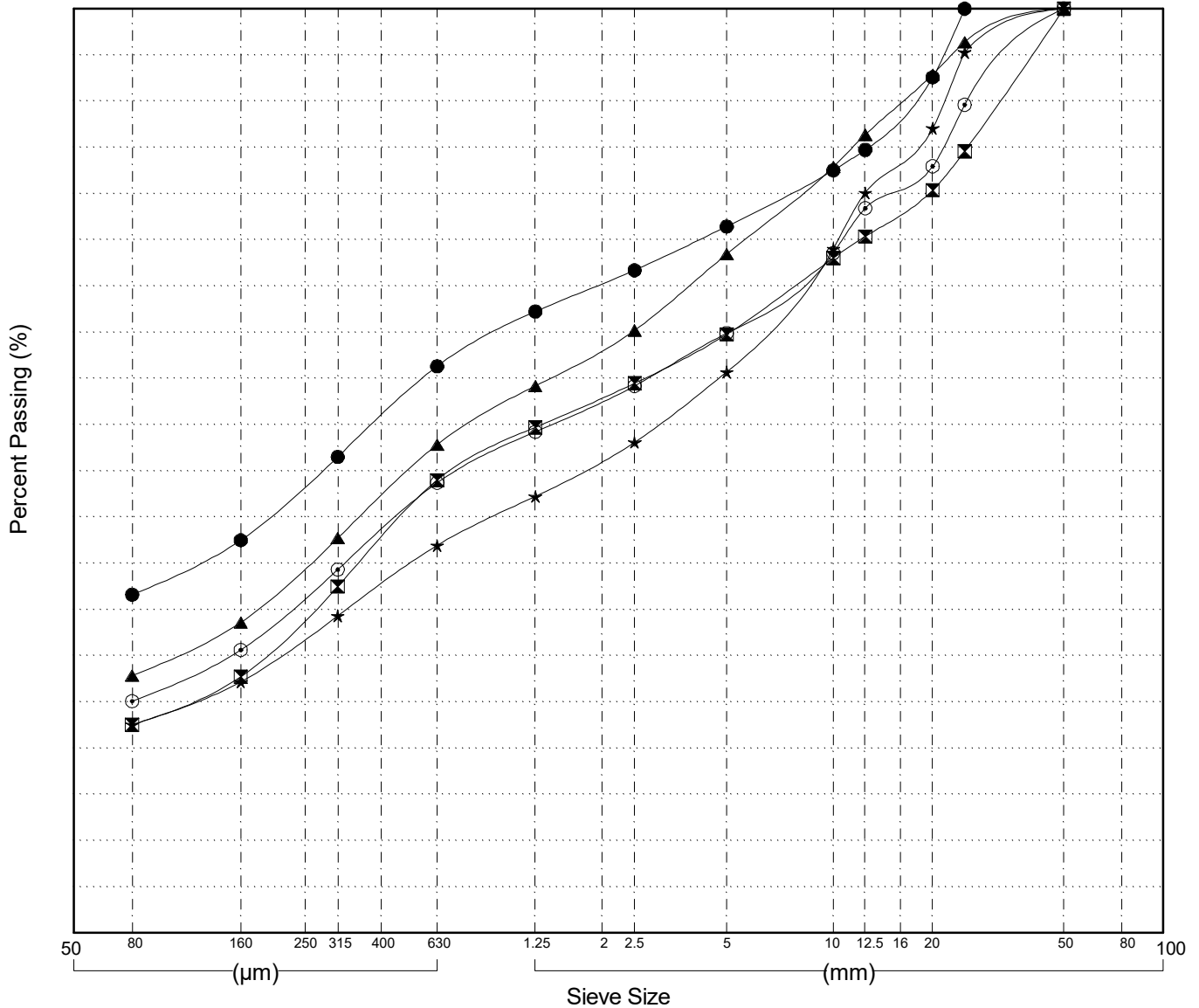
GRAIN SIZE ANALYSIS	Campbell Highway Corridor	SOURCE/TP#: 896-5700
Gateway Drilling	km 75-77	PROJECT NO: 552-202104-2035-0661-5
B61 150mm Solid Stem	Coordinates: Z09V N6722935m E489548m	ELEVATION: 701.8m

Master Revised July 2013

Field#	Lab#	Depth	Classification	%H2O	LL	PL	PI	Cc	Cu
● 070	288	8.0 to	SILTY SAND with GRAVEL(SM)	5.4	NP	NP	NP		
☒ 071	289	9.6 to	SILTY SAND with GRAVEL(SM)	4.1	NP	NP	NP		
▲ 072	290	11.0 to	SILTY SAND with GRAVEL(SM)	4.1	NP	NP	NP		
★ 073	291	12.6 to	SILTY GRAVEL with SAND(GM)	3.2	NP	NP	NP		
⊙ 074	292	14.0 to	SILTY SAND with GRAVEL(SM)	4.6	NP	NP	NP		

Field#	Lab#	% PASSING	Sieve Size (mm)													% Breakdown			
			100.0	80.0	50.0	25.0	20.0	12.5	10.0	5.0	2.5	1.25	0.630	0.315	0.160	0.080	Gravel	Sand	Silt
● 070	288	100.0	100.0	100.0	100.0	92.6	84.7	82.5	76.4	71.7	67.2	61.3	51.5	42.5	36.6	23.6	39.8	36.6	
☒ 071	289	100.0	100.0	100.0	84.6	80.4	75.4	73.0	64.8	59.5	54.7	49.0	37.5	27.7	22.5	35.2	42.2	22.5	
▲ 072	290	100.0	100.0	100.0	96.4	92.9	86.3	82.9	73.4	65.2	59.2	52.8	42.7	33.6	27.8	26.6	45.6	27.8	
★ 073	291	100.0	100.0	100.0	95.3	87.1	80.1	74.0	60.7	53.1	47.2	41.9	34.3	27.2	22.5	39.3	38.1	22.5	
⊙ 074	292	100.0	100.0	100.0	89.6	82.9	78.4	73.6	64.9	59.2	54.2	48.7	39.3	30.6	25.1	35.1	39.8	25.1	

Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse



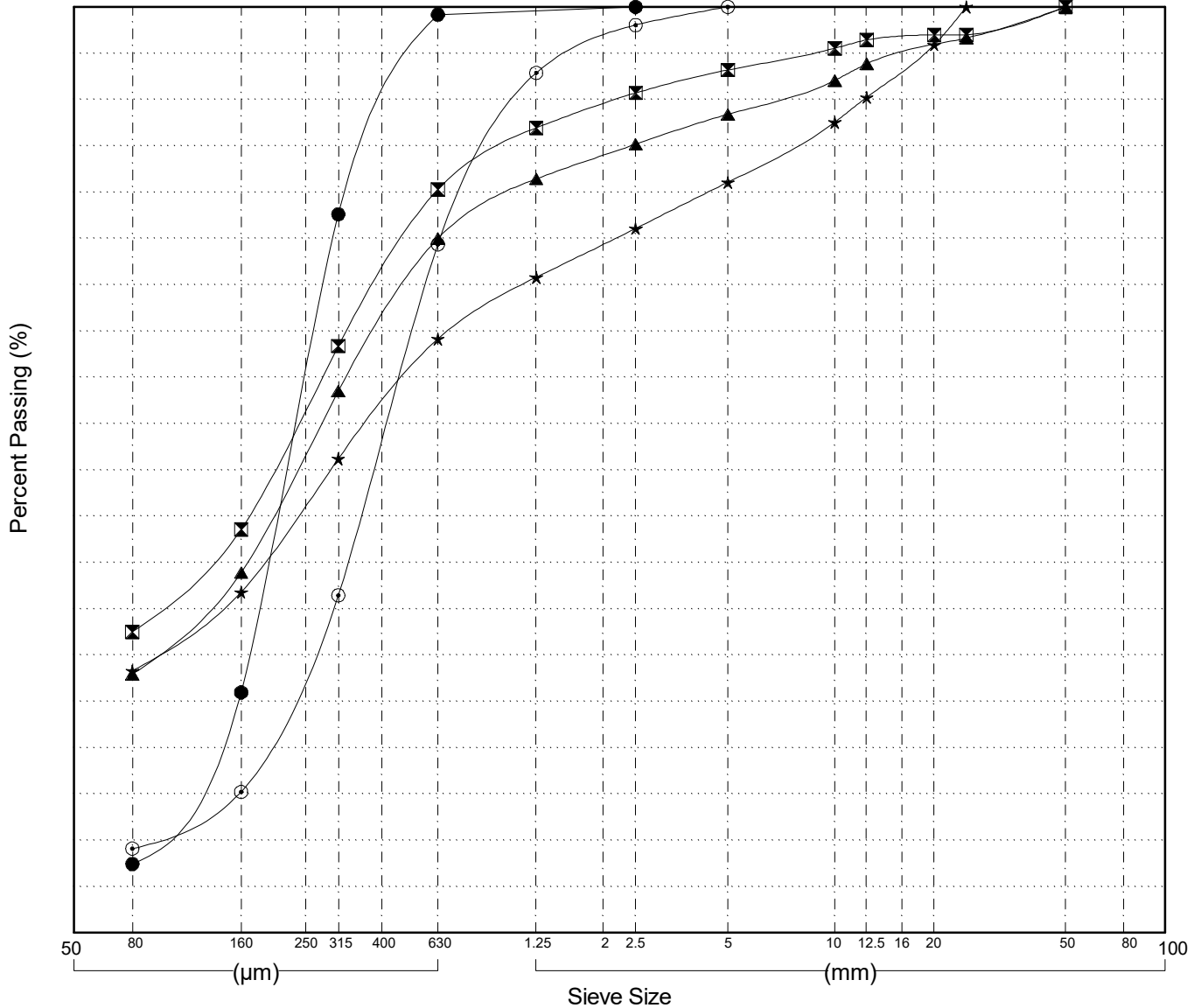
GRAIN SIZE ANALYSIS	Campbell Highway Corridor	SOURCE/TP#: 896-5701
Gateway Drilling	km 75-77	PROJECT NO: 552-202104-2035-0661-5
B61 150mm Solid Stem	Coordinates: Z09V N6722991m E489483m	ELEVATION: 694.9m

Master Revised July 2013

Field#	Lab#	Depth	Classification	%H ₂ O	LL	PL	PI	C _c	C _u
● 075	293	0.6 to	POORLY GRADED SAND with SILT(SP-SM)	4.2	NP	NP	NP	1.4	3.0
☒ 076	294	2.0 to	SILTY SAND(SM)	9.1	NP	NP	NP		
▲ 077	295	3.6 to	SILTY SAND(SM)	8.2	NP	NP	NP		
★ 078	296	5.1 to	SILTY SAND with GRAVEL(SM)	5.9	NP	NP	NP		
⊙ 079	297	6.6 to	POORLY GRADED SAND with SILT(SP-SM)	5.2	NP	NP	NP	1.6	5.8

Field#	Lab#	% PASSING													% Breakdown				
		100.0	80.0	50.0	25.0	20.0	12.5	10.0	5.0	2.5	1.25	0.630	0.315	0.160	0.080	Gravel	Sand	Silt	Clay
● 075	293	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.6	99.2	77.6	26.0	7.4	0.0	92.6	7.4	
☒ 076	294	100.0	100.0	100.0	97.0	97.0	96.4	95.5	93.2	90.7	86.9	80.3	63.4	43.6	32.5	6.8	60.7	32.5	
▲ 077	295	100.0	100.0	100.0	96.6	95.7	93.9	92.1	88.4	85.2	81.4	75.0	58.5	38.9	27.9	11.6	60.5	27.9	
★ 078	296	100.0	100.0	100.0	100.0	95.9	90.2	87.5	81.1	76.1	70.8	64.1	51.2	36.8	28.3	18.9	52.7	28.3	
⊙ 079	297	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	98.0	92.9	74.4	36.5	15.2	9.1	0.0	90.9	9.1	

Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse



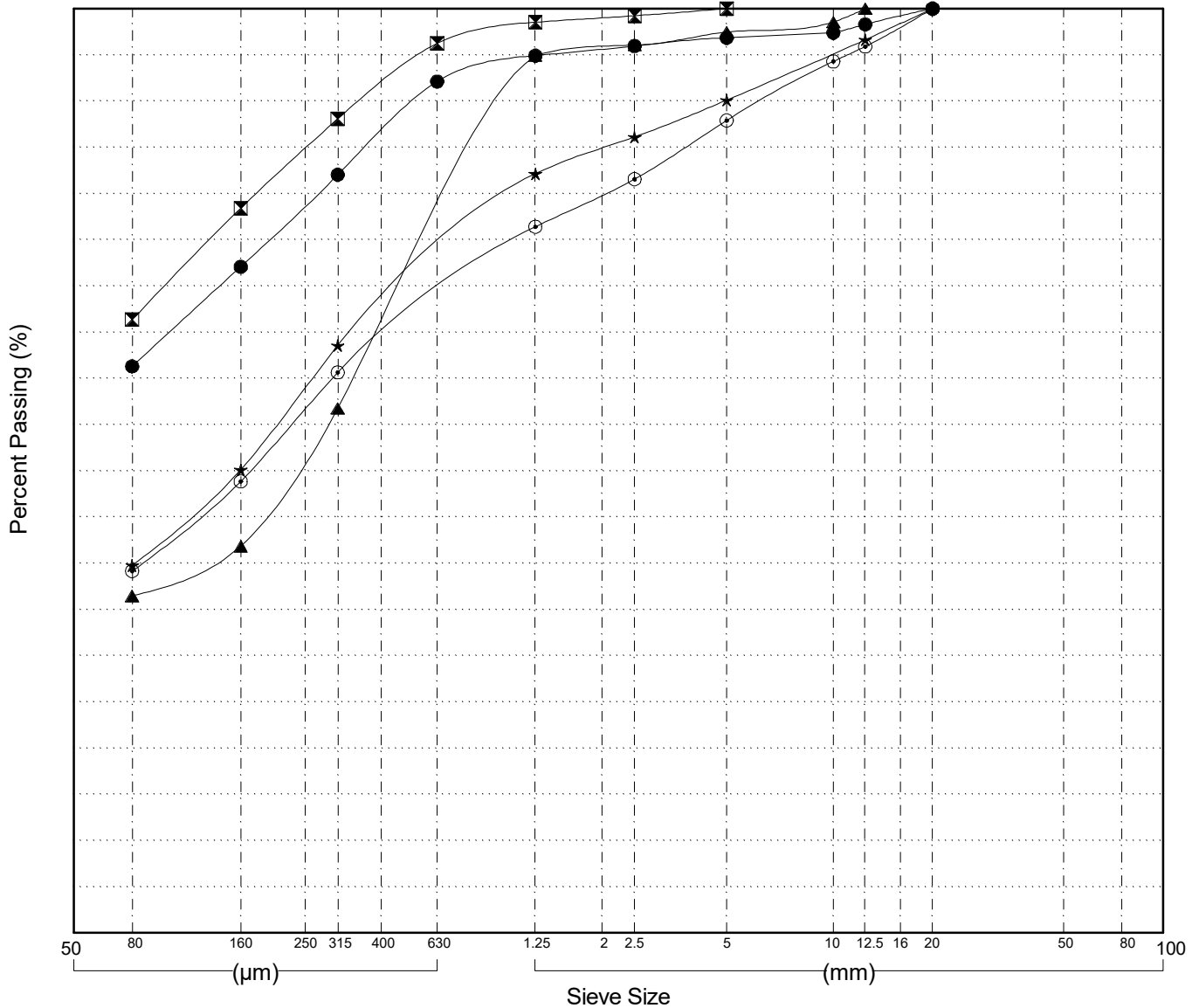
GRAIN SIZE ANALYSIS	Campbell Highway Corridor	SOURCE/TP#: 896-5701
Gateway Drilling	km 75-77	PROJECT NO: 552-202104-2035-0661-5
B61 150mm Solid Stem	Coordinates: Z09V N6722991m E489483m	ELEVATION: 694.9m

Master Revised July 2013

Field#	Lab#	Depth	Classification	%H ₂ O	LL	PL	PI	C _c	C _u
● 080	298	8.0 to	SANDY SILT (ML)	10.5	NP	NP	NP		
☒ 081	299	9.6 to	SANDY SILT (ML)	13.4	NP	NP	NP		
▲ 082	300	11.0 to	SILTY SAND (SM)	11.5	NP	NP	NP		
★ 083	301	12.6 to	SILTY SAND (SM)	7.9	NP	NP	NP		
⊙ 084	302	14.0 to	SILTY SAND (SM)	7.0	NP	NP	NP		

Field#	Lab#	% PASSING															% Breakdown			
		100.0	80.0	50.0	25.0	20.0	12.5	10.0	5.0	2.5	1.25	0.630	0.315	0.160	0.080	Gravel	Sand	Silt	Clay	
● 080	298	100.0	100.0	100.0	100.0	100.0	98.3	97.4	96.8	96.0	94.9	92.1	82.0	72.1	61.3	3.2	35.5	61.3		
☒ 081	299	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.2	98.5	96.2	88.1	78.4	66.4	0.0	33.6	66.4		
▲ 082	300	100.0	100.0	100.0	100.0	100.0	100.0	98.6	97.5	96.1	94.9	76.0	56.8	41.9	36.5	2.5	61.0	36.5		
★ 083	301	100.0	100.0	100.0	100.0	100.0	96.6	95.1	90.1	86.1	82.1	72.9	63.6	50.1	39.8	9.9	50.3	39.8		
⊙ 084	302	100.0	100.0	100.0	100.0	100.0	95.9	94.3	87.9	81.6	76.4	68.6	60.6	48.9	39.2	12.1	48.7	39.2		

Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse



Highways and Public Works
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REVIEWED BY: Dave Lorenzi

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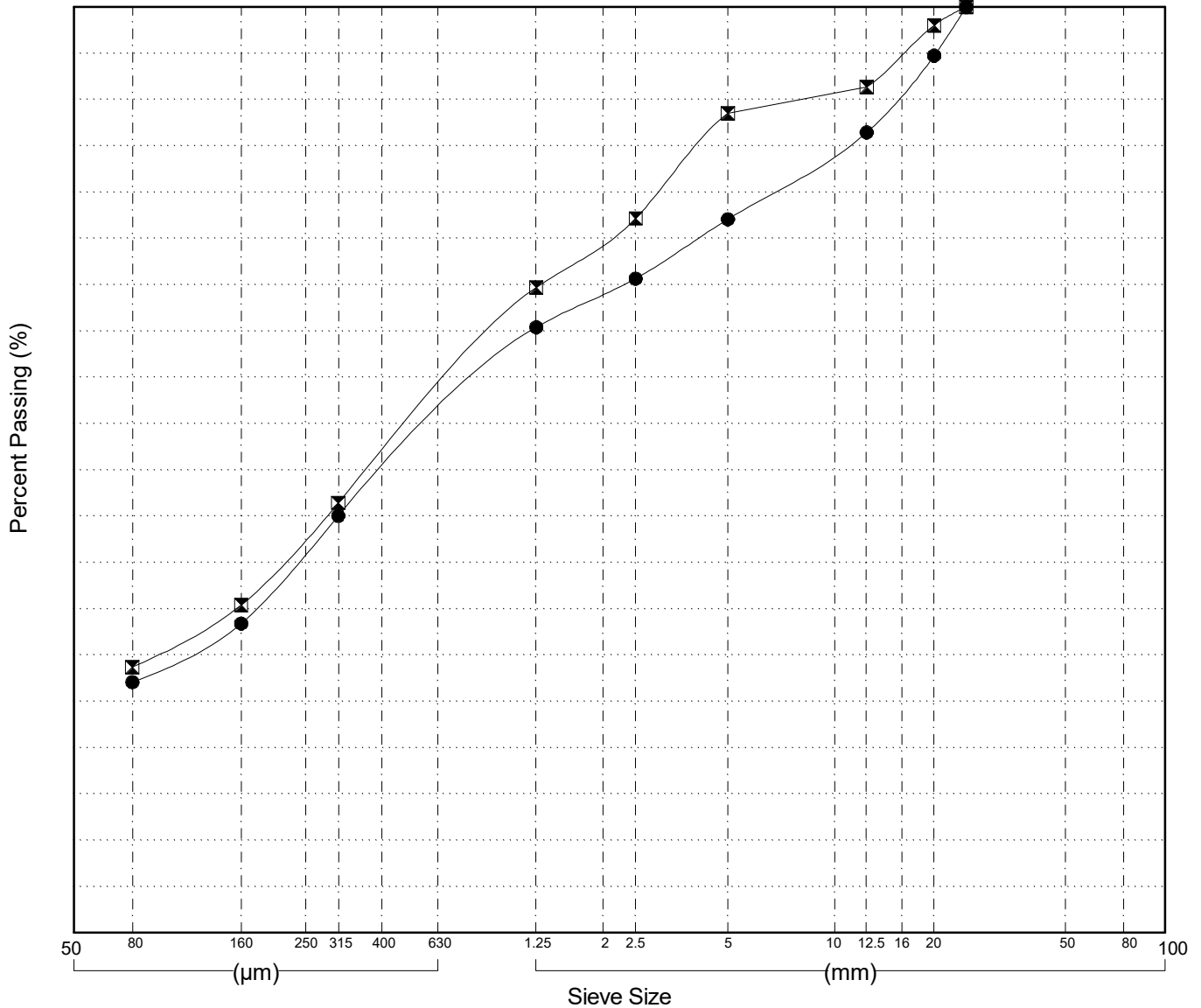
GRAIN SIZE ANALYSIS	Campbell Highway Corridor	SOURCE/TP#: 896-5701
Gateway Drilling	km 75-77	PROJECT NO: 552-202104-2035-0661-5
B61 150mm Solid Stem	Coordinates: Z09V N6722991m E489483m	ELEVATION: 694.9m

Master Revised July 2013

Field#	Lab#	Depth	Classification	%H2O	LL	PL	PI	Cc	Cu
● 085	303	15.0 to	SILTY SAND with GRAVEL(SM)	5.1	NP	NP	NP		
☒ 086	304	17.0 to	SILTY SAND(SM)	4.9	NP	NP	NP		

Field#	Lab#	% PASSING	100.0	80.0	50.0	25.0	20.0	12.5	10.0	5.0	2.5	1.25	0.630	0.315	0.160	0.080	% Breakdown			
			Gravel	Sand	Silt	Clay														
● 085	303	100.0	100.0	100.0	100.0	94.7	86.4	84.3	77.1	70.7	65.4	55.3	45.1	33.4	27.1		22.9	50.0	27.1	
☒ 086	304	100.0	100.0	100.0	100.0	98.0	91.3	90.7	88.5	77.2	69.7	58.1	46.4	35.4	28.7		11.5	59.8	28.7	

Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse



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