CONTRACT DRAWINGS

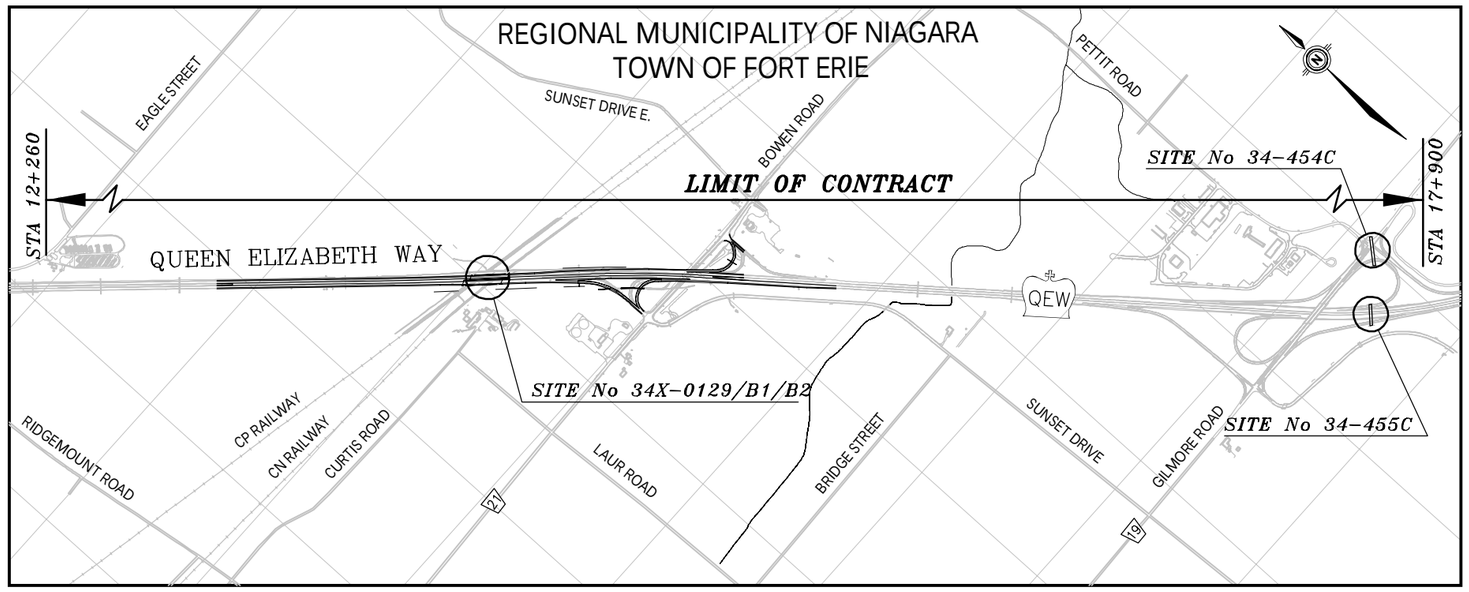
CONTRACT NO. 2019-2003

BOOK 1 OF 1

CENTRAL REGION

Ministry Of Transportation

Ontario



Key Plan

WP No 2116-16-00 Contract No 2019-2003

Work of GRADING, DRAINAGE, GRANULAR BASE, HOT MIX PAVING, ATMS, ELECTRICAL AND STRUCTURES

Hwy No QEW Region CENTRAL

Location FROM 1.4km NORTH OF BOWEN RD. INTERCHANGE SOUTHERLY TO GILMORE RD. INTERCHANGE

Length 5.6 km.

Reference Plans B-191-QEW-99608, B-191-QEW-99606 AND B-191-QEW-99605

Feb 26/19
Date

P. Eng.
Manager, Engineering

Feb. 26/19
Date

B. Sc. M.B.A.
Regional Director

Ministry of Transportation

Ontario

MINISTRY OF TRANSPORTATION, ONTARIO PH-D-302 89-10
DRAWING NAME: 60581-660-C-CNCP-QEW-KEYPLAN.DWG
CREATED: 2018/08/08 MODIFIED:

INDEX

W.P. No. 2116-16-00

Contract No. 2019-2003

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Sheet No.	Description

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

ALIGNMENT
HORIZONTAL & VERTICAL CONTROL
EXISTING QEW MEDIAN
STA 10+000.000 TO STA 14+921.041

SHEET 1

AECOM

Horizontal and Vertical Control

Ontario

Highway	QEW	**From Station**	10+000.000	**Grid Distance CSF**	0.99989805	**Plate No.**	0191 - 0000 - 001
Township	BERTIE	**To Station**	20+841.403	**Survey Date**		**Contract No.**	
Description	Existing CL QEW Median	**Zone**	MTM 10	**Date Revised**	1/30/2019	**Sheet No.**	001
WO/WP No		**Consultant**	CALLON DIETZ	**Coordinate System**	NAD 83 ORIGINAL		

Prepared For The Ministry Of Transportation

PT	ID	Chainage	Offset	Northing	Easting	Elev	Description	Angle	Bear BK	Bear AH	Curve		
	HOT	10+000.000		4758311.415	343762.146								
	PI	11+304.306		4757391.482	344686.774								
								180°0'0"	S 45°8'45" E	S 45°8'45" E		Deflection	
	BC	12+044.678		4756869.295	345211.627								
	PI	12+115.910		4756819.054	345262.124								
								177°40'5"	S 45°8'45" E	S 42°48'50" E		Arc	
												ARC	
											R=3500		LC=142.445
											TC= 71.232		OC=2°19'55"
	EC	12+187.123		4756766.801	345310.535		=12+187.120 QEW-BERTI-MAINLINE						
	BC	13+359.925		4755906.475	346107.595		=13+359.922 QEW-BERTI-MAINLINE						
	PI	13+402.033		4755875.586	346136.213								
								181°22'43"	S 42°48'50" E	S 44°11'33" E		Arc	
												ARC	
											R=3500		LC=84.212
											TC= 42.108		OC=1°22'43"
	EC	13+444.137		4755845.395	346165.565								
600	HCM	13+787.130	44.035	4755568.773	346373.083		919670406						
20031	SIB	13+996.132	-45.691	4755481.464	346583.106								
305	VCP	14+202.612	-14.289	4755311.528	346704.522	185.342	TOP OF RIB						
105	HCP	14+202.612	-14.289	4755311.528	346704.522		19mm X 2.0m RIB						
	BC	14+212.230		4755294.671	346700.981								
100	HCP	14+256.356	404.589	4754984.492	346437.917		19mm X 2.0m RIB						
300	VCP	14+256.356	404.589	4754984.492	346437.917	192.164	TOP OF RIB						
	PI	14+387.530		4755168.981	346823.178								
								174°15'55"	S 44°11'33" E	S 38°27'29" E		Arc	
												ARC	
											R=3500		LC=350.307
											TC= 175.3		OC=5°44'5"
301	VCP	14+429.922	232.544	4754982.546	346671.290	189.515	TOP OF RIB						
101	HCP	14+429.922	232.544	4754982.546	346671.290		19mm X 2.0m RIB						
601	HCM	14+441.945	16.287	4755114.268	346843.194		919670399						
308	VCP	14+441.945	16.287	4755114.268	346843.194	183.940	TOP OF HCM						
	EC	14+562.537		4755031.710	346932.204								
302	VCP	14+580.172	30.767	4754998.765	346919.079	190.574	TOP OF RIB						
102	HCP	14+580.172	30.767	4754998.765	346919.079		19mm X 2.0m RIB						
	HOT	14+620.09		4754986.641	346967.999		=10+000.000 BOWEN ROAD						
306	VCP	14+678.395	-18.369	4754952.410	347018.645	186.447	TOP OF RIB						
106	HCP	14+678.395	-18.369	4754952.410	347018.645		19mm X 2.0m RIB						
303	VCP	14+737.363	-156.231	4754991.976	347163.274	183.778	TOP OF RIB						
103	HCP	14+737.363	-156.231	4754991.976	347163.274		19mm X 2.0m RIB						
304	VCP	14+865.188	-346.371	4755010.137	347391.666	183.183	TOP OF RIB						
104	HCP	14+865.188	-346.371	4755010.137	347391.666		19mm X 2.0m RIB						
309	VCP	14+921.041	17.031	4754740.386	347141.836	187.271	TOP OF HCM						
602	HCM	14+921.041	17.031	4754740.386	347141.836		819870102						

Alignment: EX_CL_QEW

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
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MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

ALIGNMENT
HORIZONTAL & VERTICAL CONTROL
EXISTING QEW MEDIAN
STA 14+934.290 TO STA 20+841.403

SHEET 2

AECOM

Ontario

Highway QEW
Township BERTIE
Description Existing CL QEW Median
Consultant CALLON DIETZ

From Station 10+000.000
To Station 20+841.403
Zone MTM 10
Coordinate System NAD 83 ORIGINAL

Grid Distance CSF 0.99989805
Survey Date
Date Revised 1/30/2019

Plate No. 0191 - 0000 - 002
Contract No.
Sheet No. 002

WO/WP No

Prepared For The Ministry Of Transportation

PT	ID	Chainage	Offset	Northing	Easting	Elev	Description	Angle	Bear BK	Bear AH	Curve		
		14+934.290	-17.150	4754751.270	317176.842		10+000.000 4.750 LT RAMP_S-EW(RV1)						
107	HCP	15+055.261	-18.84	4754657.593	347253.402		19mm X 2.0m RIB						
307	VCP	15+055.261	-18.84	4754657.593	347253.402	188.422	TOP OF RIB						
603	HCM	15+203.519	18.289	4754518.405	347316.535		919670381						
310	VCP	15+203.519	18.289	4754518.405	347316.535	187.073	TOP OF HCM						
604	HCM	15+585.156	17.72	4754219.912	347554.336		919670379						
	BC	16+617.543		4753422.507	348210.295		=16+617.192 QEW-BERTI-MAINLINE						
	PI	17+282.568		4752901.750	348623.901								
								221°36'54"	S 38°27'29" E	S 80°4'23" E		Arc	
												ARC	
											R=1750		LC=1271.058
											TC= 665.025		OC=41°36'54"
	EC	17+888.601		4752787.103	349278.969								
	TS	20+080.432		4752409.245	351437.984								
	SC	20+151.861		4752395.976	351508.164								
	PI	20+207.267		4752387.379	351562.920								
								168°6'45"	S 80°4'23" E	S 68°11'8" E		SpiralCurveSpiral	
												SPIRAL	
											A=250	LS=71.429	OS=177°39'41"
											TL=47.623		TS=23.813
												ARC	
											R=875		LC=110.111
											TC= 55.128		OC=7°12'37"
												SPIRAL	
											A=250	LS=71.429	OS=177°39'41"
											TL=47.623		TS=23.813
	CS	20+261.972		4752365.884	351614.008								
	ST	20+333.400		4752340.247	351680.672								
	TS	20+494.196		4752280.495	351829.953								
	SC	20+563.761		4752255.956	351895.034								
	PI	20+638.931		4752226.712	351964.324								
								201°38'20"	S 68°11'8" E	S 89°49'28" E		SpiralCurveSpiral	
												SPIRAL	
											A=200	LS=69.565	OS=176°32'3"
											TL=46.386		TS=23.196
												ARC	
											R=575		LC=147.595
											TC= 74.206		OC=14°42'26"
												SPIRAL	
											A=200	LS=69.565	OS=176°32'3"
											TL=46.386		TS=23.196
	CS	20+711.356		4752227.884	352039.523								
	ST	20+780.922		4752226.268	352109.058								
	HOT	20+841.403		4752226.083	352169.539								

Alignment: EX_CL_QEW

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

ALIGNMENT
HORIZONTAL & VERTICAL CONTROL
REALIGNED QEW MEDIAN
STA 12+187.120 TO STA 15+054.909

SHEET 3

AECOM

Horizontal and Vertical Control

Ontario

Highway	QEW	**From Station**	12+187.120	**Grid Distance CSF**	0.99989955	**Plate No.**	0000 - 0000 - 001
Township	BERTIE	**To Station**	16+617.192	**Survey Date**		**Contract No.**	2016-E-0029
Description	QEW-Berti-Mainline	**Zone**	MTM 10	**Date Revised**	3/12/2019	**Sheet No.**	001
WO/WP No		**Consultant**	CALLON DIETZ	**Coordinate System**	NAD83 ORIG		

Prepared For The Ministry Of Transportation

PT	ID	Chainage	Offset	Northing	Easting	Elev	Description	Angle	Bear BK	Bear AH	Curve		
	HOT	12+187.120		4756766.801	345310.535								
	BC	13+733.473		4755632.452	346361.468								
657	HCM	13+787.809	34.969	4755568.773	346373.083		919670406						
	PI	13+817.689		4755570.674	346418.703								
								181°22'43"	S 42°48'50" E	S 44°11'33" E		Arc	
												ARC	
											R=7000		LC=168.424
											TC= 84.216		OC=1°22'43"
	EC	13+901.897		4755510.291	346477.407								
831	SIB	13+996.246	-55.691	4755481.464	346583.106								
305	VCP	14+202.726	-24.289	4755311.528	346704.522	185.342	TOP OF RIB						
105	HCP	14+202.726	-24.289	4755311.528	346704.522		19mm X 2.0m RIB						
354	VCP	14+251.368	394.835	4754984.492	346437.917	192.164	TOP OF RIB						
153	HCP	14+251.368	394.835	4754984.492	346437.917		19mm X 2.0m RIB						
	TS	14+303.212		4755222.548	346757.153								
	SC	14+370.712		4755173.974	346804.023								
355	VCP	14+421.898	227.688	4754982.546	346671.290	189.515	TOP OF RIB						
101	HCP	14+421.898	227.688	4754982.546	346671.290		19mm X 2.0m RIB						
658	HCM	14+441.261	11.918	4755114.268	346843.194		919670399						
308	VCP	14+441.261	11.918	4755114.268	346843.194	183.940	TOP OF HCM						
	PI	14+487.222		4755090.613	346885.421								
								174°15'55"	S 44°11'33" E	S 38°27'29" E		SpiralCurveSpiral	
												SPIRAL	
											A=450	LS=67.5	OS=179°21'20"
											TL=45		TS=22.5
												ARC	
											R=3000		LC=232.763
											TC= 116.44		OC=4°26'44"
												SPIRAL	
											A=450	LS=67.5	OS=179°21'20"
											TL=45		TS=22.5
102	HCP	14+579.234	30.149	4754998.765	346919.079		19mm X 2.0m RIB						
356	VCP	14+579.234	30.149	4754998.765	346919.079	190.574	TOP OF RIB						
	CS	14+603.475		4754999.220	346957.686								
	ST	14+670.975		4754946.521	346999.864								
106	HCP	14+678.044	-18.369	4754952.410	347018.645		19mm X 2.0m RIB						
306	VCP	14+678.044	-18.369	4754952.410	347018.645	186.447	TOP OF RIB						
303	VCP	14+737.012	-156.231	4754991.976	347163.274	183.778	TOP OF RIB						
103	HCP	14+737.012	-156.231	4754991.976	347163.274		19mm X 2.0m RIB						
304	VCP	14+864.837	-346.371	4755010.137	347391.666	183.183	TOP OF RIB						
104	HCP	14+864.837	-346.371	4755010.137	347391.666		19mm X 2.0m RIB						
309	VCP	14+920.690	17.031	4754740.386	347141.836	187.271	TOP OF HCM						
602	HCM	14+920.690	17.031	4754740.386	347141.836		819870102						
307	VCP	15+054.909	-18.84	4754657.593	347253.402	188.422	TOP OF RIB						
107	HCP	15+054.909	-18.84	4754657.593	347253.402		19mm X 2.0m RIB						

Alignment: QEW-Berti-Mainline

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

ALIGNMENT
HORIZONTAL & VERTICAL CONTROL
REALIGNED QEW MEDIAN
STA 15+203.168 TO STA 16+617.192

SHEET 4

AECOM

Ontario

WO/WP No

Highway QEW
Township BERTIE
Description QEW-Berti-Mainline
Consultant CALLON DIETZ

From Station 12+187.120
To Station 16+617.192
Zone MTM 10
Coordinate System NAD83 ORIG

Grid Distance CSF 0.99989955
Survey Date
Date Revised 3/12/2019

Plate No. 0000 - 0000 - 002
Contract No. 2016-E-0029
Sheet No. 002

Prepared For The Ministry Of Transportation

PT	ID	Chainage	Offset	Northing	Easting	Elev	Description	Angle	Bear BK	Bear AH	Curve		
310	VCP	15+203.168	18.289	4754518.405	347316.535	187.073	TOP OF HCM						
603	HCM	15+203.168	18.289	4754518.405	347316.535		919670381						
604	HCM	15+584.805	17.72	4754219.912	347554.336		919670379						
801	IB	16+003.197	-47.256	4753932.695	347865.431								
802	SIB	16+094.724	-45.716	4753860.066	347921.150								
803	SIB	16+124.478	-45.725	4753836.772	347939.662								
806	CM	16+307.455	-45.724	4753693.489	348053.462								
807	CM	16+432.157	-45.687	4753595.816	348130.990								
	HOT	16+617.192		4753422.507	348210.295								

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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METRIC

PLATE No
CONT 2019–2003
WP 2116–16–00

ALIGNMENT
HORIZONTAL & VERTICAL CONTROL
REALIGNED BOWEN ROAD
STA 9+543.085 TO STA 10+180.294

SHEET 5

AECOM

Horizontal and Vertical Control

Ontario

Highway	QEW	**From Station**	9+543.085	**Grid Distance CSF**	0.999989805
Township	BERTIE	**To Station**	10+465.068	**Survey Date**	
Description	Realigned Bowen Road	**Zone**	MTM 10	**Date Revised**	1/30/2019
WO/WP No		**Consultant**	CALLON DIETZ	**Coordinate System**	NAD83 ORIGINAL

Plate No. 0191 - 0000 - 009
Contract No.
Sheet No. 001

Prepared For The Ministry Of Transportation

PT	ID	Chainage	Offset	Northing	Easting	Elev	Description	Angle	Bear BK	Bear AH	Curve		
	HOT	9+543.085		4754982.327	346511.214								
	BC	9+623.602		4754985.343	346591.675								
20031	SIB	9+632.377	-496.107	4755481.464	346583.106								
	PI	9+646.641		4754986.206	346614.698								
								179°14'45"	N 87°51'13" E	N 88°36'28" E		Arc	
												ARC	
											R=3500		LC=46.077
											TC= 23.039		OC=0°45'15"
	EC	9+669.679		4754986.766	346637.730								
101	HCP	9+703.127	5.034	4754982.546	346671.290		19mm X 2.0m RIB						
301	VCP	9+703.127	5.034	4754982.546	346671.290	189.515	TOP OF RIB						
	BC	9+735.478		4754988.364	346703.510								
105	HCP	9+743.593	-323.054	4755311.528	346704.522		19mm X 2.0m RIB						
305	VCP	9+743.593	-323.054	4755311.528	346704.522	185.342	TOP OF RIB						
4	HOT	9+810.778	0	4754989.384	346778.801		=10+256.788 RAMP_N-EW(RV1)						
	PI	9+810.921		4754990.197	346778.930								
								177°31'49"	N 88°36'28" E	S 88°55'21" E		Arc	
												ARC	
											R=3500		LC=150.861
											TC= 75.442		OC=2°28'11"
5	HOT	9+816.527	0	4754989.395	346784.550		=10+000.000 SUNSET DRIVE						
6	HOT	9+822.277	0	4754989.397	346790.300		=9+823.272 RAMP_EW-S(RV1)						
601	HCM	9+873.285	-125.283	4755114.268	346843.194		919670399						
308	VCP	9+873.285	-125.283	4755114.268	346843.194	183.940	TOP OF HCM						
	EC	9+886.340		4754988.778	346854.359								
102	HCP	9+950.861	-11.202	4754998.765	346919.079		19mm X 2.0m RIB						
302	VCP	9+950.861	-11.202	4754998.765	346919.079	190.574	TOP OF RIB						
2	HOT	9+999.856	0	4754986.644	346967.855		=14+619.648 QEW-Berti-Mainline						
3	HOT	10+000.000	0	4754986.641	346967.999		=14+620.09 EX_CL_QEW						
106	HCP	10+051.281	33.273	4754952.410	347018.645		19mm X 2.0m RIB						
306	VCP	10+051.281	33.273	4754952.410	347018.645	186.447	TOP OF RIB						
	TS	10+097.227		4754984.813	347065.208								
	SC	10+151.005		4754984.337	347118.982								
309	VCP	10+166.854	244.367	4754740.386	347141.836	187.271	TOP OF HCM						
602	HCM	10+166.854	244.367	4754740.386	347141.836		819870102						
7	HOT	10+167.654	0	4754984.676	347135.628		=9+829.464 RAMP_EW-N(RV1)						
8	HOT	10+179.421	0	4754985.100	347147.387		=10+238.391 RAMP_S-EW(RV1)						
	PI	10+180.294		4754983.251	347148.261								
								187°8'33"	S 88°55'21" E	N 83°56'6" E		SpiralCurveSpiral	
												SPIRAL	
											A=220	LS=53.778	OS=178°17'18"
											TL=35.854		TS=17.927
												ARC	
											R=900		LC=58.418
											TC= 29.219		OC=3°43'8"

Alignment: Bowen Rd

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

ALIGNMENT
HORIZONTAL & VERTICAL CONTROL
REALIGNED BOWEN ROAD
STA 10+195.697 TO STA 10+365.175

SHEET 6

AECOM

Ontario

Highway QEW
Township BERTIE
Description Realigned Bowen Road
Consultant CALLON DIETZ

From Station 9+543.085
To Station 10+465.068
Zone MTM 10
Coordinate System NAD83 ORIGINAL

Grid Distance CSF 0.999989805
Survey Date
Date Revised 1/30/2019

Plate No. 0191 - 0000 - 010
Contract No.
Sheet No. 002

WO/WP No

Prepared For The Ministry Of Transportation

PT	ID	Chainage	Offset	Northing	Easting	Elev	Description	Angle	Bear BK	Bear AH	Curve		
												SPIRAL	
											A=220	LS=53.778	OS=178°17'18"
											TL=35.854		TS=17.927
303	VCP	10+195.697	-6.046	4754991.976	347163.274	183.778	TOP OF RIB						
103	HCP	10+195.697	-6.046	4754991.976	347163.274		19mm X 2.0m RIB						
	CS	10+209.422		4754986.879	347177.334								
307	VCP	10+250.808	334.951	4754657.593	347253.402	188.422	TOP OF RIB						
107	HCP	10+250.808	334.951	4754657.593	347253.402		19mm X 2.0m RIB						
	ST	10+263.200		4754992.028	347230.862								
603	HCM	10+298.350	480.024	4754518.405	347316.535		919670381						
310	VCP	10+298.350	480.024	4754518.405	347316.535	187.073	TOP OF HCM						
	TS	10+299.342		4754995.847	347266.802								
	SC	10+353.119		4755000.996	347320.330								
	PI	10+365.175		4755002.802	347332.267								
								175°2'42"	N 83°56'6" E	N 88°53'23" E		SpiralCurveSpiral	
												SPIRAL	
											A=220	LS=53.778	OS=178°17'18"
											TL=35.854		TS=17.927
												ARC	
											R=900		LC=24.053
											TC= 12.027		OC=1°31'53"
												SPIRAL	
											A=220	LS=53.778	OS=178°17'18"
											TL=35.854		TS=17.927
	CS	10+377.172		4755002.501	347344.336								
104	HCP	10+424.649	-6.183	4755010.137	347391.666		19mm X 2.0m RIB						
304	VCP	10+424.649	-6.183	4755010.137	347391.666	183.183	TOP OF RIB						
	ST	10+430.950		4755004.078	347398.088								
	HOT	10+465.068		4755004.739	347432.199								

Alignment: Bowen Rd

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

ALIGNMENT
HORIZONTAL & VERTICAL CONTROL
BOWEN ROAD RAMP EW-N
STA 9+829.464 TO STA 10+194.352

SHEET 7

AECOM

Horizontal and Vertical Control

Ontario

Highway	QEW	**From Station**	9+829.464	**Grid Distance CSF**	0.99989955	**Plate No.**	0000 - 0000 - 001
Township	BERTIE	**To Station**	10+194.352	**Survey Date**		**Contract No.**	2016-E-0029
Description	Ramp_EW-N	**Zone**	MTM 10	**Date Revised**	3/12/2019	**Sheet No.**	001
Consultant	CALLON DIETZ	**Coordinate System**	NAD83 ORIG				

WO/WP No

Prepared For The Ministry Of Transportation

PT	ID	Chainage	Offset	Northing	Easting	Elev	Description	Angle	Bear BK	Bear AH	Curve	
	HOT	9+829.464		4754984.676	347135.628							
	BC	9+842.473		4754971.673	347136.014							
107	HCP	9+902.772	-301.837	4754657.593	347253.402		19mm X 2.0m RIB					
307	VCP	9+902.772	-301.837	4754657.593	347253.402	188.422	TOP OF RIB					
602	HCM	9+916.265	-182.566	4754740.386	347141.836		819870102					
309	VCP	9+916.265	-182.566	4754740.386	347141.836	187.271	TOP OF HCM					
	CS	9+954.545		4754920.214	347057.750							
	PI	9+997.796		4754816.418	347140.623							
								39°34'23"	S 1°42'2" E	N 41°16'25" W	CurveSpiral	
											ARC	
											R=55	LC=112.073
											TC= 89.316	OC=116°45'4"
											SPIRAL	
											A=50	LS=45.455 OS=156°19'27"
											TL=30.579	TS=15.402
	ST	10+000.000		4754949.717	347023.625							
106	HCP	10+005.309	-1.967	4754952.410	347018.645		19mm X 2.0m RIB					
306	VCP	10+005.309	-1.967	4754952.410	347018.645	186.447	TOP OF RIB					
356	VCP	10+105.827	-46.219	4754998.765	346919.079	190.574	TOP OF RIB					
102	HCP	10+105.827	-46.219	4754998.765	346919.079		19mm X 2.0m RIB					
	HOT	10+194.352		4755095.786	346895.420							

Alignment: Ramp_EW-N

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

ALIGNMENT
HORIZONTAL & VERTICAL CONTROL
BOWEN ROAD RAMP EW-S
STA 9+823.272 TO STA 10+469.688

SHEET 8

AECOM

Horizontal and Vertical Control

Ontario

Highway QEW
Township BERTIE
Description Ramp_EW-S(rv1)
Consultant CALLON DIETZ

From Station 9+823.272
To Station 10+469.688
Zone MTM 10
Coordinate System NAD83 ORIGINAL

Grid Distance CSF 0.999989805
Survey Date
Date Revised 1/30/2019

Plate No. 0191 - 0000 - 012
Contract No.
Sheet No. 001

WO/WP No

Prepared For The Ministry Of Transportation

PT	ID	Chainage	Offset	Northing	Easting	Elev	Description	Angle	Bear BK	Bear AH	Curve		
6	HOT	9+823.272	0	4754989.397	346790.300		=9+822.277 BOWEN ROAD						
	BC	9+846.135		4755012.260	346790.311								
600	HCM	9+893.802	-674.889	4755568.773	346373.083		919670406						
20031	SIB	9+904.475	-482.522	4755481.464	346583.106								
105	HCP	9+908.318	-275.756	4755311.528	346704.522		19mm X 2.0m RIB						
305	VCP	9+908.318	-275.756	4755311.528	346704.522	185.342	TOP OF RIB						
	PI	9+930.511		4755096.636	346790.354								
								66°11'46"	N 0°1'43" E	S 66°10'3" E		Arc	
												ARC	
											R=55		LC=109.244
											TC= 84.376		
													OC=113°48'14"
308	VCP	9+931.360	-47.058	4755114.268	346843.194	183.940	TOP OF HCM						
601	HCM	9+931.360	-47.058	4755114.268	346843.194		919670399						
	CS	9+955.379		4755062.542	346867.535								
	SC	10+000.000		4755034.385	346901.716								
		10+000.000	4.750 LT	4755037.594	346905.218		=14+540.265 15.850 RT QEW-BERTI-MAINLINE						
102	HCP	10+038.133	11.022	4754998.765	346919.079		19mm X 2.0m RIB						
302	VCP	10+038.133	11.022	4754998.765	346919.079	190.574	TOP OF RIB						
	PI	10+105.848		4754956.345	346973.225								
								156°19'55"	S 66°10'3" E	S 42°29'58" E		Spiral	
								175°57'31"	S 42°29'58" E	S 38°27'29" E		Arc	
												SPIRAL	
												ARC	
											A=50	LS=44.621	OS=156°19'55"
											R=3000		LC=211.608
											TC= 105.848		OC=4°2'29"
											TL=29.755		TS=15.392
106	HCP	10+137.918	-34.034	4754952.410	347018.645		19mm X 2.0m RIB						
306	VCP	10+137.918	-34.034	4754952.410	347018.645	186.447	TOP OF RIB						
303	VCP	10+196.896	-171.019	4754991.976	347163.274	183.778	TOP OF RIB						
103	HCP	10+196.896	-171.019	4754991.976	347163.274		19mm X 2.0m RIB						
	EC	10+211.608		4754873.459	347039.057								
304	VCP	10+323.883	-361.121	4755010.137	347391.666	183.183	TOP OF RIB						
104	HCP	10+323.883	-361.121	4755010.137	347391.666		19mm X 2.0m RIB						
309	VCP	10+379.736	2.281	4754740.386	347141.836	187.271	TOP OF HCM						
602	HCM	10+379.736	2.281	4754740.386	347141.836		819870102						
	HOT	10+469.688		4754671.366	347199.567								

Alignment: Ramp_EW-S(rv1)

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Horizontal and Vertical Control

Ontario

Highway	QEW	**From Station**	9+518.407	**Grid Distance CSF**	0.999989805
Township	BERTIE	**To Station**	10+256.788	**Survey Date**	
Description	Ramp_N-EW(rv1)	**Zone**	MTM 10	**Date Revised**	1/30/2019
WO/WP No	**Consultant** CALLON DIETZ	**Coordinate System**	NAD83 ORIGINAL		

Plate No.	0191 - 0000 - 010	
Contract No.		
Sheet No.	001	

Prepared For The Ministry Of Transportation

PT	ID	Chainage	Offset	Northing	Easting	Elev	Description	Angle	Bear BK	Bear AH	Curve		
	HOT	9+518.407		4755583.849	346391.466								
	PI	9+613.710		4755512.534	346454.686								
								182°37'50"	S 41°33'23" E	S 44°11'13" E		Deflection	
20031	SIB	9+725.498	-70.431	4755481.464	346583.106								
	BC	9+831.239		4755356.550	346606.304								
	PI	9+915.670		4755296.007	346665.152								
								175°9'55"	S 44°11'13" E	S 39°21'8" E		Arc	
												ARC	
											R=2000		LC=168.761
											TC= 84.431		OC=4°50'5"
305	VCP	9+929.971	-41.536	4755311.528	346704.522	185.342	TOP OF RIB						
105	HCP	9+929.971	-41.536	4755311.528	346704.522		19mm X 2.0m RIB						
9	HOT	10+000.000	-4.75	4755233.732	346722.361		=14+270.941 17.150 RT QEW-BERTI-MAINLINE						
	CS	10+000.000		4755230.720	346718.688								
	SC	10+057.634		4755184.093	346752.447								
	PI	10+094.061		4755157.986	346778.331								
								140°48'27"	S 39°21'8" E	S 0°9'34" E		SpiralCurveSpiral	
												SPIRAL	
											A=110	LS=57.634	OS=170°29'4"
											TL=36.816		TS=20.933
												ARC	
											R=190		LC=66.571
											TC= 33.63		OC=20°4'30"
												SPIRAL	
											A=110	LS=63.684	OS=170°23'52"
											TL=42.519		TS=21.285
	CS	10+124.205		4755121.778	346774.881								
601	HCM	10+138.695	-66.713	4755114.268	346843.194		919670399						
308	VCP	10+138.695	-66.713	4755114.268	346843.194	183.940	TOP OF HCM						
	ST	10+187.889		4755058.282	346778.609								
304	VCP	10+237.742	-612.921	4755010.137	347391.666	183.183	TOP OF RIB						
104	HCP	10+237.742	-612.921	4755010.137	347391.666		19mm X 2.0m RIB						
102	HCP	10+247.798	-140.304	4754998.765	346919.079		19mm X 2.0m RIB						
302	VCP	10+247.798	-140.304	4754998.765	346919.079	190.574	TOP OF RIB						
303	VCP	10+255.267	-384.479	4754991.976	347163.274	183.778	TOP OF RIB						
103	HCP	10+255.267	-384.479	4754991.976	347163.274		19mm X 2.0m RIB						
	HOT	10+256.788		4754989.384	346778.801		=9+810.778 BOWEN ROAD						

Alignment: Ramp_N-EW(rv1)

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

ALIGNMENT
HORIZONTAL & VERTICAL CONTROL
BOWEN ROAD RAMP S-EW
STA 9+805.451 TO STA 10+238.391

SHEET 10

AECOM

Horizontal and Vertical Control

Ontario

WO/WP No

Highway	QEW	**From Station**	9+805.451	**Grid Distance CSF**	0.999989805
Township	BERTIE	**To Station**	10+238.391	**Survey Date**	
Description	Ramp_S-EW(rv1)	**Zone**	MTM 10	**Date Revised**	1/30/2019
Consultant	CALLON DIETZ	**Coordinate System**	NAD83 ORIGINAL		

Plate No. 0191 - 0000 - 014
Contract No.
Sheet No. 001

Prepared For The Ministry Of Transportation

PT	ID	Chainage	Offset	Northing	Easting	Elev	Description	Angle	Bear BK	Bear AH	Curve		
	HOT	9+805.451		4754595.280	347293.200								
107	HCP	9+879.303	3.556	4754657.593	347253.402		19mm X 2.0m RIB						
307	VCP	9+879.303	3.556	4754657.593	347253.402	188.422	TOP OF RIB						
10		10+000.000	-4.75	4754751.270	347176.842		=14+934.290 -17.150 LT EX_CL_QEW						
	TS	10+000.000		4754754.016	347180.717								
602	HCM	10+010.811	-39.658	4754740.386	347141.836		819870102						
309	VCP	10+010.811	-39.658	4754740.386	347141.836	187.271	TOP OF HCM						
	SC	10+046.944		4754794.407	347157.073								
	PI	10+052.026		4754799.170	347155.304								
								173°32'15"	N 20°22'45" W	N 13°54'60" W		Arc	
								165°3'26"	N 35°19'19" W	N 20°22'45" W		Spiral	
												ARC	
												SPIRAL	
											R=90		LC=10.151
											A=65	LS=46.944	OS=165°3'26"
											TL=31.409		TS=15.75
											TC= 5.081		OC=6°27'45"
	CS	10+057.096		4754804.102	347154.081								
								167°16'3"	N 13°54'60" W	N 1°11'3" W		Spiral	
												SPIRAL	
											A=60	LS=40	OS=167°16'3"
											TL=26.736		TS=13.396
	ST	10+097.096		4754843.836	347150.307								
306	VCP	10+208.368	-129.39	4754952.410	347018.645	186.447	TOP OF RIB						
106	HCP	10+208.368	-129.39	4754952.410	347018.645		19mm X 2.0m RIB						
	HOT	10+238.391		4754985.100	347147.387								
8	HOT	10+238.391	0	4754985.100	347147.387		=10+179.421 BOWEN ROAD						

Alignment: Ramp_S-EW(rv1)

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METRIC

PLATE No
CONT 2019–2003
WP 2116–16–00

ALIGNMENT
HORIZONTAL & VERTICAL CONTROL
SUNSET DRIVE
STA 10+000.000 TO STA 10+134.689

SHEET 11

AECOM

Horizontal and Vertical Control

Ontario

Highway	QEW	**From Station**	10+000.000	**Grid Distance CSF**	0.999989805	**Plate No.**	0191 - 0000 - 011
Township	BERTIE	**To Station**	10+134.689	**Survey Date**		**Contract No.**	
Description	Sunset Drive	**Zone**	MTM 10	**Date Revised**	1/30/2019	**Sheet No.**	001
WO/WP No		**Consultant**	CALLON DIETZ	**Coordinate System**	NAD83 ORIGINAL		

Prepared For The Ministry Of Transportation

PT	ID	Chainage	Offset	Northing	Easting	Elev	Description	Angle	Bear BK	Bear AH	Curve		
	HOT	10+000.000		4754989.395	346784.550		=9+816.527 BOWEN ROAD						
300	VCP	10+004.507	346.638	4754984.492	346437.917	192.164	TOP OF RIB						
100	HCP	10+004.507	346.638	4754984.492	346437.917		19mm X 2.0m RIB						
101	HCP	10+006.720	113.268	4754982.546	346671.290		19mm X 2.0m RIB						
301	VCP	10+006.720	113.268	4754982.546	346671.290	189.515	TOP OF RIB						
	BC	10+017.735		4754971.660	346784.570								
	PI	10+054.687		4754934.708	346784.612								
								252°55'54"	S 0°3'55" E	S 72°59'50" E		Arc	
												ARC	
											R=50		LC=63.645
											TC= 36.952		OC=72°55'54"
	EC	10+081.380		4754923.903	346819.949								
	HOT	10+134.689		4754908.314	346870.928								

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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METRIC

PLATE No
CONT 2019–2003
WP 2116–16–00

ALIGNMENT
HORIZONTAL & VERTICAL CONTROL
RAMP EW–N MAINTENANCE ACCESS RD
STA 9+977.766 TO STA 10+051.073

SHEET 12

AECOM

Horizontal and Vertical Control

Ontario

Highway	QEW	**From Station**	9+977.766	**Grid Distance CSF**	0.99989955	**Plate No.**	0000 - 0000 - 001
Township	BERTIE	**To Station**	10+051.073	**Survey Date**		**Contract No.**	2016-E-0029
Description	Access Road-Cl	**Zone**	MTM 10	**Date Revised**	3/12/2019	**Sheet No.**	001
Consultant	Callon Dietz	**Coordinate System**	NAD 83 ORIGINAL				

WO/WP No

Prepared For The Ministry Of Transportation

PT	ID	Chainage	Offset	Northing	Easting	Elev	Description	Angle	Bear BK	Bear AH	Curve		
	HOT	9+977.766		4754894.322	347095.549								
106	HCP	10+042.923	-71.015	4754952.410	347018.645		19mm X 2.0m RIB						
306	VCP	10+042.923	-71.015	4754952.410	347018.645	186.447	TOP OF RIB						
	HOT	10+051.073		4754967.295	347088.559								

Alignment: Access Road-Cl

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

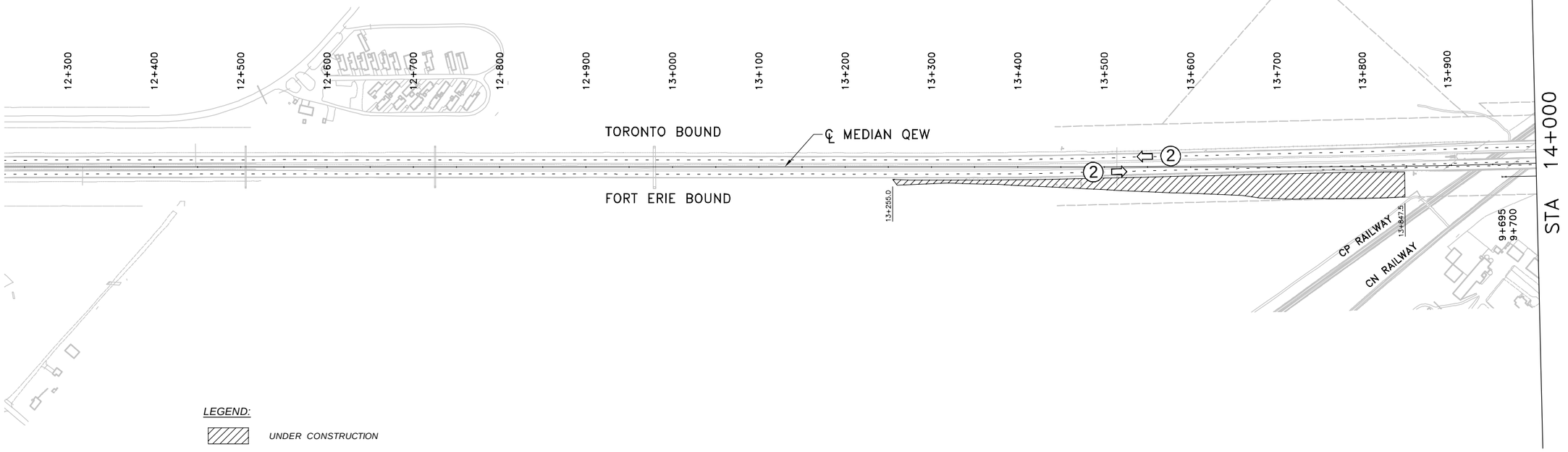
CONSTRUCTION SEQUENCING
STAGE 1A
STA 12+300 TO STA 14+000
Survey _____ Revised _____

SHEET 13

AECOM

STAGE 1A

CONSTRUCTION	TRAFFIC LOCATION AT BEGINNING OF STAGE
1. Construct the West portion (Segment 1) of the New Culvert under QEW north of Bowen Road. 2. Construct the west embankment to support the realigned Fort Erie Bound QEW Widening (Including approach to new CN/CP bridge and speed change lanes for N–EW ramp and EW–S ramp) 3. Construct embankment for the realigned N–EW and EW–S ramps at Bowen Rd. 4. Construct retaining wall along the west ROW.	– Maintain all existing lanes of QEW (Toronto Bound and Fort Erie Bound) and Bowen Road Interchange. – All ramps remain operational.



LEGEND:

UNDER CONSTRUCTION

STAGING TRAFFIC

TRAFFIC DIRECTION AND NUMBER OF LANES

SCALE
25m 0 50m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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METRIC

PLATE No
CONT 2019–XXXX
WP 2408–15–00

CONSTRUCTION SEQUENCING
STAGE 1A
STA 14+000 TO STA 15+700
Survey _____ Revised _____

SHEET 14

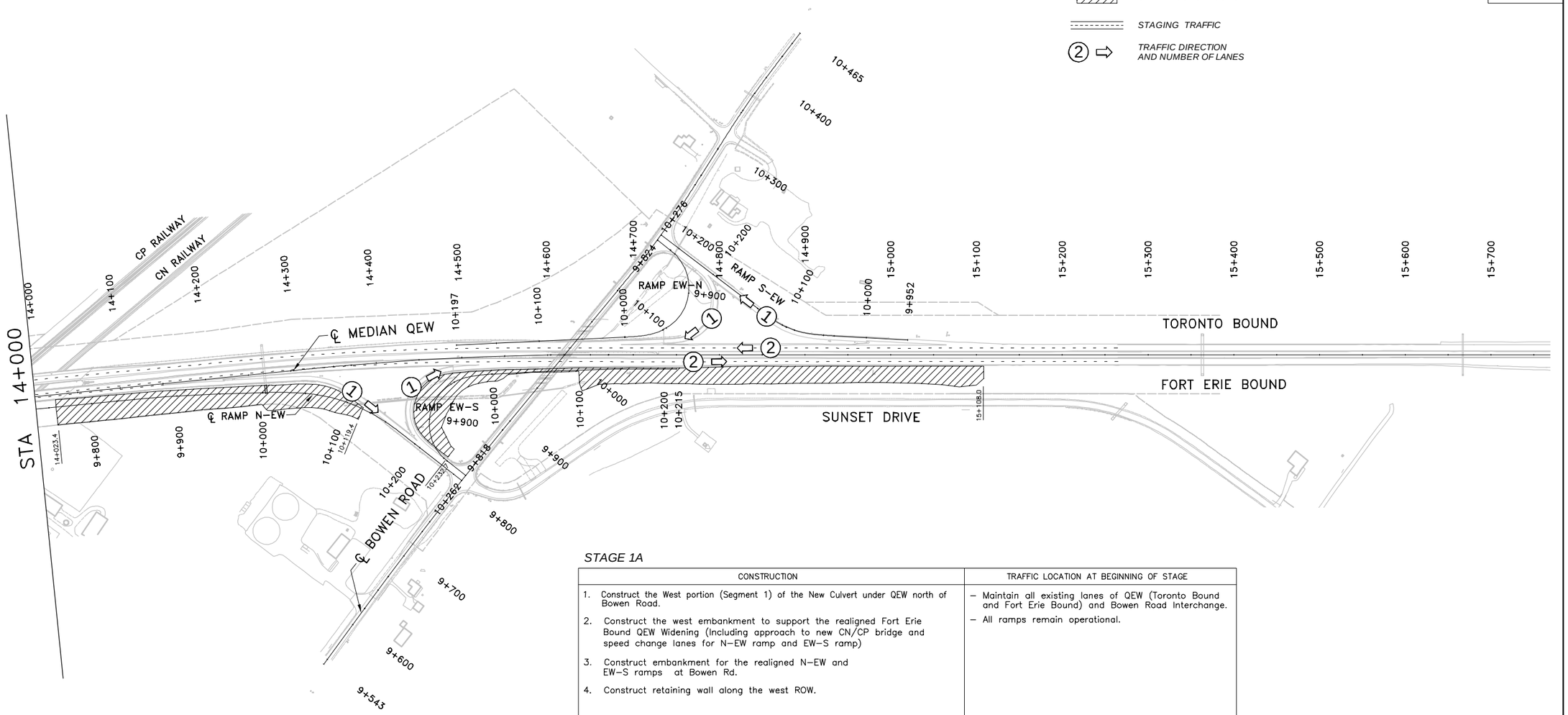
AECOM

LEGEND:

UNDER CONSTRUCTION

STAGING TRAFFIC

② ⇨ TRAFFIC DIRECTION AND NUMBER OF LANES



STAGE 1A

CONSTRUCTION	TRAFFIC LOCATION AT BEGINNING OF STAGE
1. Construct the West portion (Segment 1) of the New Culvert under QEW north of Bowen Road. 2. Construct the west embankment to support the realigned Fort Erie Bound QEW Widening (Including approach to new CN/CP bridge and speed change lanes for N–EW ramp and EW–S ramp) 3. Construct embankment for the realigned N–EW and EW–S ramps at Bowen Rd. 4. Construct retaining wall along the west ROW.	– Maintain all existing lanes of QEW (Toronto Bound and Fort Erie Bound) and Bowen Road Interchange. – All ramps remain operational.

SCALE
25m 0 50m
Horizontal

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MINISTRY OF TRANSPORTATION, ONTARIO PR–3–707 88–05

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

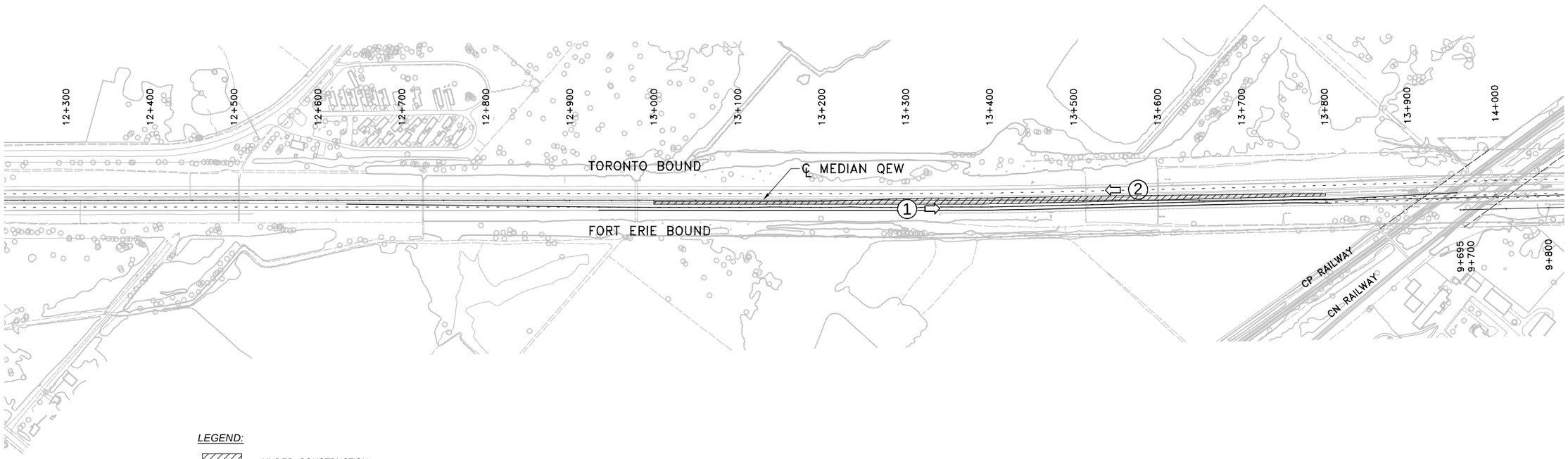
CONSTRUCTION SEQUENCING
PRE-STAGE 1B
STA 12+300 TO STA 14+000
Survey Revised

SHEET 15

AECOM

PRE-STAGE 1B

CONSTRUCTION	TRAFFIC LOCATION AT BEGINNING OF STAGE
1. Construct Fort Erie Bound median shoulder strengthening.	– Reduce Fort Erie Bound QEW traffic to single lane. – Maintain two lanes of traffic on Toronto Bound QEW.



LEGEND:

UNDER CONSTRUCTION

STAGING TRAFFIC

TRAFFIC DIRECTION AND NUMBER OF LANES

SCALE
25m 0 50m
Horizontal

METRIC

PLATE No
CONT 2019–XXXX
WP 2408–15–00

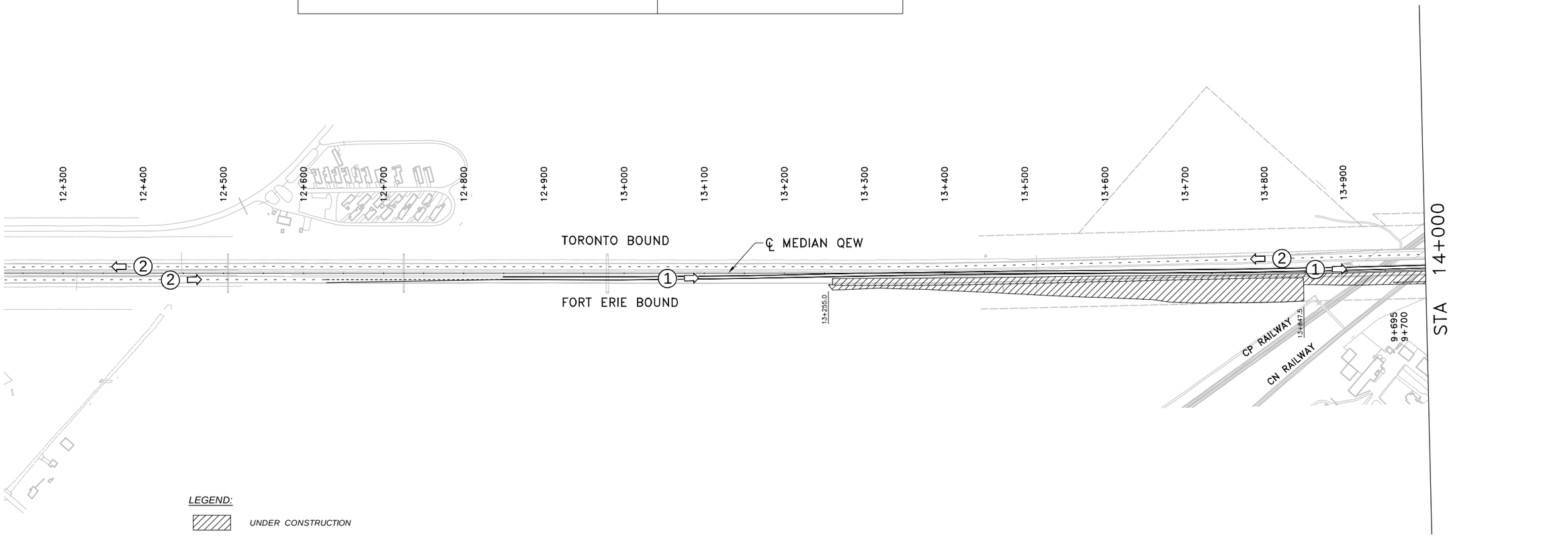
CONSTRUCTION SEQUENCING
STAGE 1B
STA 12+300 TO STA 14+000
Survey ____ Revised ____

SHEET 16

AECOM

STAGE 1B

CONSTRUCTION	TRAFFIC LOCATION AT BEGINNING OF STAGE
1. Demolish west portion of existing Fort Erie Bound CP–CN overhead structure. Construct west portion of new Fort Erie Bound CP–CN overhead structure. 2. Continue to construct west embankment to the new vertical profile to support the realigned Fort Erie Bound QEW Widening (Including approach to new CN/CP bridge and speed change lanes for N–EW ramp and EW–S ramp) 3. Construct the realigned N–EW and EW–S ramps at Bowen Rd. 4. Construct segment 2 of new culvert across QEW north of Bowen Rd. 5. Continue construction of retaining wall along the west ROW.	– Shift Fort Erie Bound QEW traffic towards median and reduce traffic to single lane. – Maintain two lanes of traffic on Toronto Bound QEW. – Close N–EW and EW–S ramps at Bowen Rd. – Maintain existing S–EW and EW–N ramps at Bowen Rd Interchange.



LEGEND:

UNDER CONSTRUCTION

STAGING TRAFFIC

TRAFFIC DIRECTION AND NUMBER OF LANES

SCALE
25m 0 50m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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METRIC

PLATE No
CONT 2019-XXXX
WP 2408-15-00

CONSTRUCTION SEQUENCING
STAGE 1B
STA 14+000 TO STA 15+700
Survey Revised

SHEET 17

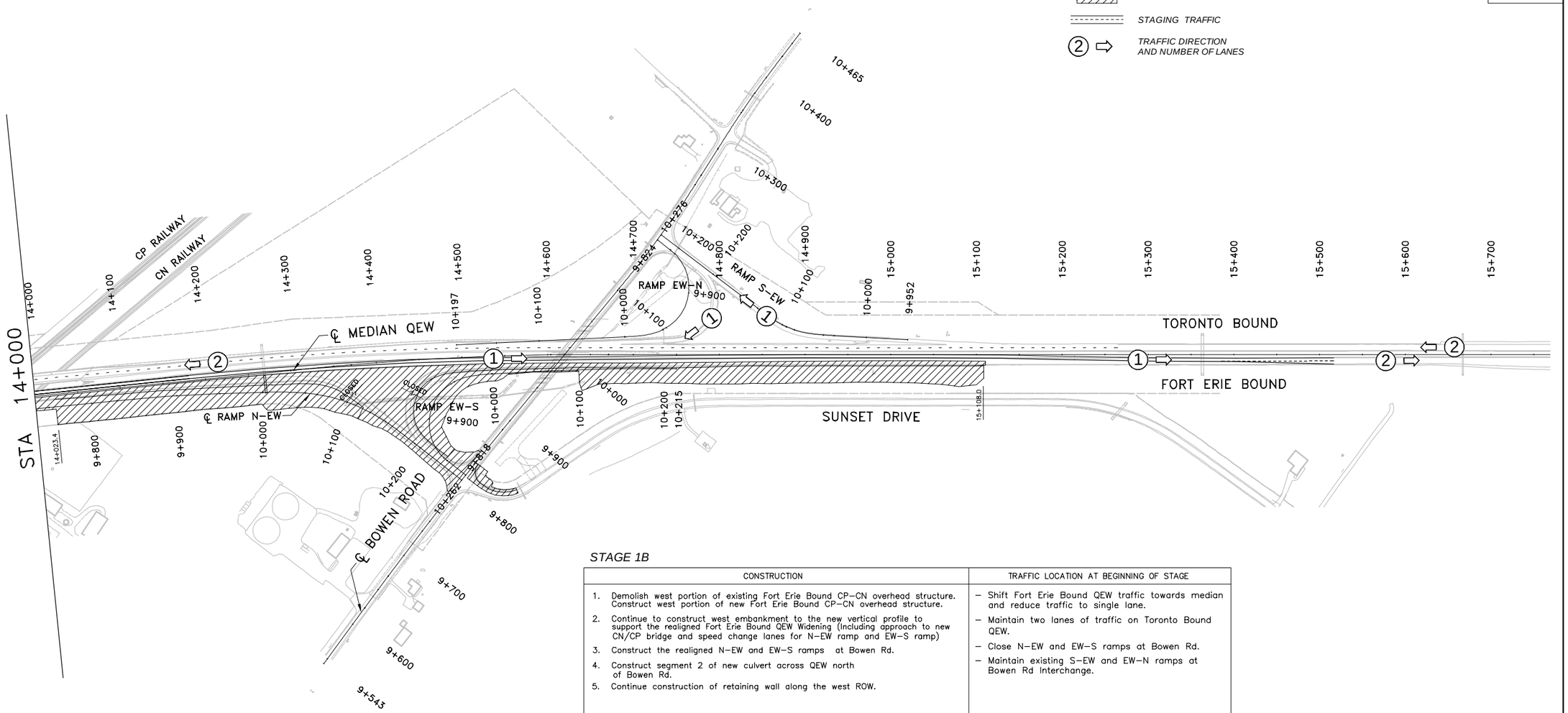
AECOM

LEGEND:

UNDER CONSTRUCTION

STAGING TRAFFIC

② ⇨ TRAFFIC DIRECTION AND NUMBER OF LANES



STAGE 1B

CONSTRUCTION	TRAFFIC LOCATION AT BEGINNING OF STAGE
1. Demolish west portion of existing Fort Erie Bound CP-CN overhead structure. Construct west portion of new Fort Erie Bound CP-CN overhead structure. 2. Continue to construct west embankment to the new vertical profile to support the realigned Fort Erie Bound QEW Widening (Including approach to new CN/CP bridge and speed change lanes for N-EW ramp and EW-S ramp) 3. Construct the realigned N-EW and EW-S ramps at Bowen Rd. 4. Construct segment 2 of new culvert across QEW north of Bowen Rd. 5. Continue construction of retaining wall along the west ROW.	– Shift Fort Erie Bound QEW traffic towards median and reduce traffic to single lane. – Maintain two lanes of traffic on Toronto Bound QEW. – Close N-EW and EW-S ramps at Bowen Rd. – Maintain existing S-EW and EW-N ramps at Bowen Rd Interchange.

SCALE
25m 0 50m
Horizontal

P:\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\Constr-Sequencing\60581660-C-CONSTR-SEQ-STG1B-15700.dwg (Model) Printed: Mar 18, 2019
MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

METRIC

PLATE No
CONT 2019-XXXX
WP 2408-15-00

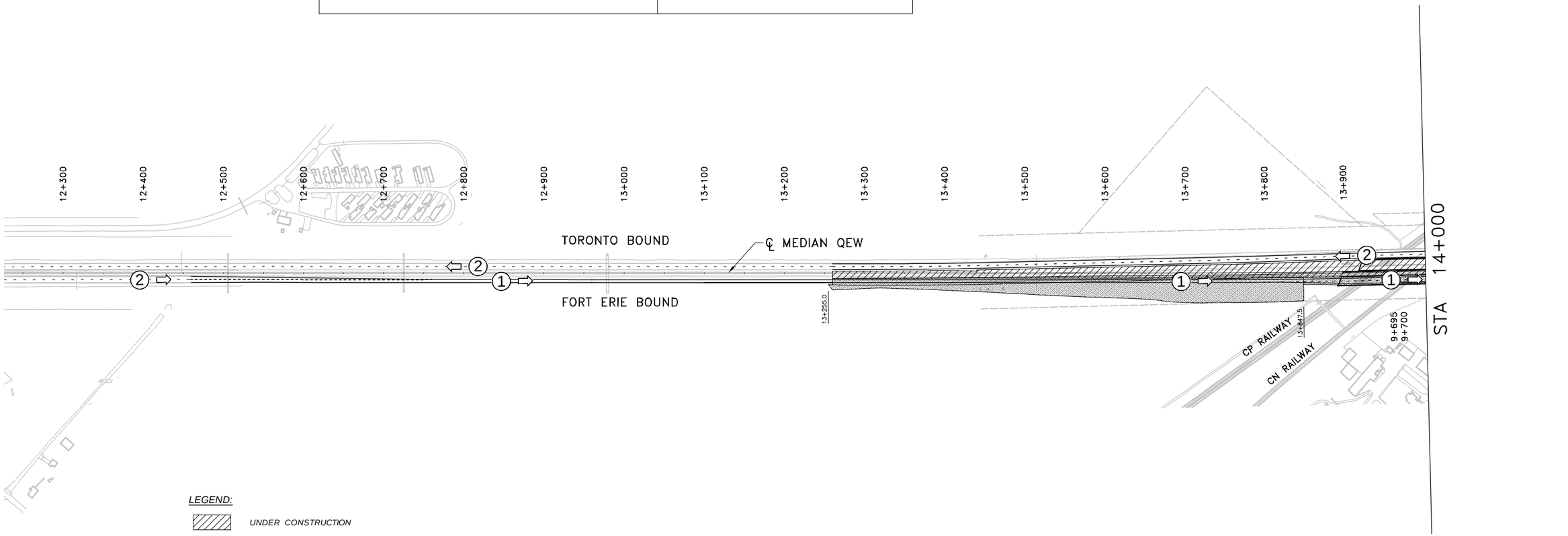
CONSTRUCTION SEQUENCING
STAGE 2A
STA 12+300 TO STA 14+000
Survey Revised

SHEET 18

AECOM

STAGE 2A

CONSTRUCTION	TRAFFIC LOCATION AT BEGINNING OF STAGE
1. Demolish remainder of existing Fort Erie Bound CP–CN overhead structure 2. Construct the central portion of QEW Realignment. 3. Construct segment 3 of new culvert across QEW north of Bowen Rd.	– Fort Erie Bound QEW realigned to new Fort Erie Bound CP–CN overhead structure and reduce to one lane of traffic and speed change lane. Realigned N–EW and EW–S ramps at Bowen Rd. are open. – Maintain two lanes of traffic on Toronto Bound QEW. Maintain existing S–EW and EW–N ramps at Bowen Rd Interchange. – Reopen 2 Fort Erie Bound QEW lanes (includes a direct taper at exist ramp) prior to winter shut down.



LEGEND:

- *UNDER CONSTRUCTION*
- *CONSTRUCTION COMPLETED IN PREVIOUS STAGE*
- *STAGING TRAFFIC*
- ② ⇨ *TRAFFIC DIRECTION AND NUMBER OF LANES*

SCALE
25m 0 50m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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METRIC

PLATE No
CONT 2019–XXXX
WP 2408–15–00

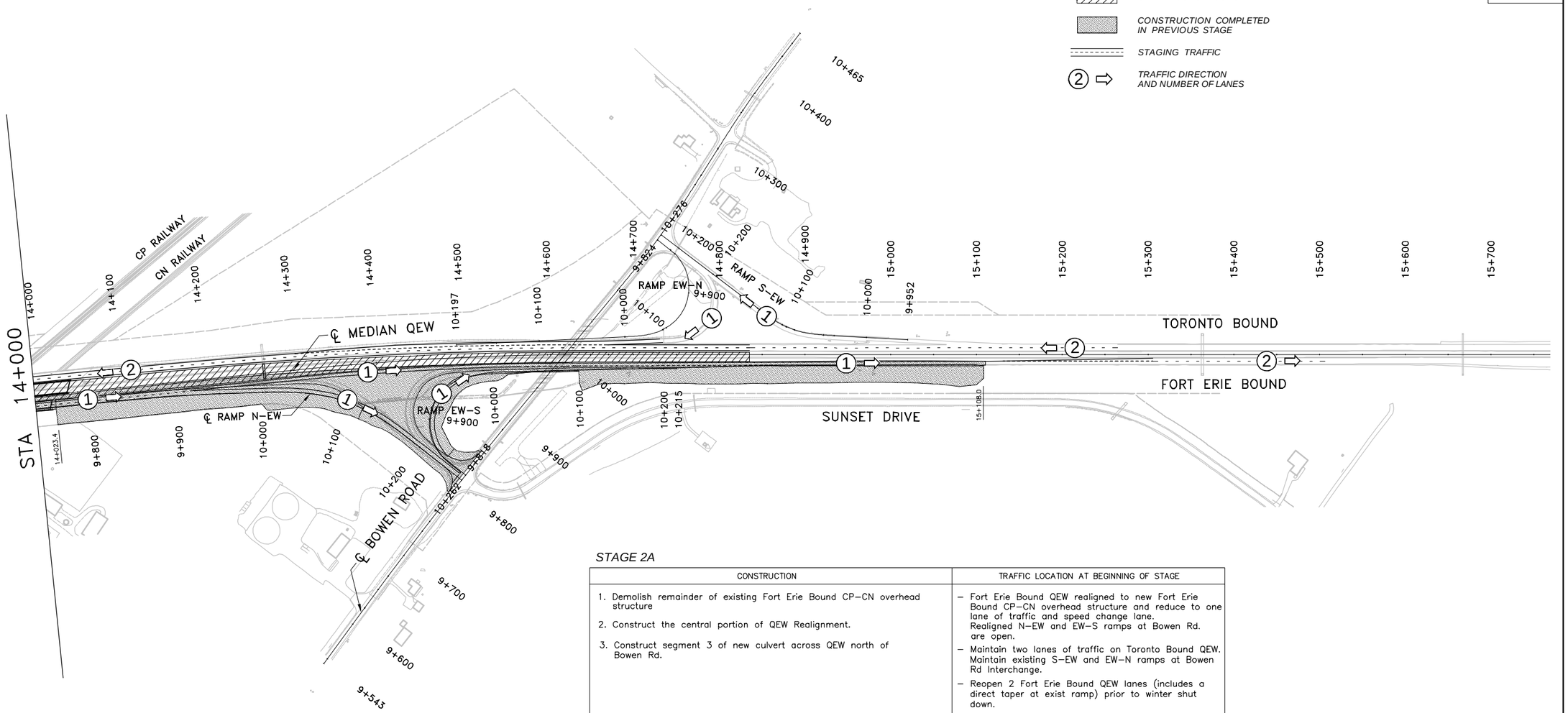
CONSTRUCTION SEQUENCING
STAGE 2A
STA 14+000 TO STA 15+700
Survey Revised

SHEET 19

AECOM

LEGEND:

- UNDER CONSTRUCTION
- CONSTRUCTION COMPLETED IN PREVIOUS STAGE
- STAGING TRAFFIC
- ② ⇨ TRAFFIC DIRECTION AND NUMBER OF LANES



STAGE 2A

CONSTRUCTION	TRAFFIC LOCATION AT BEGINNING OF STAGE
1. Demolish remainder of existing Fort Erie Bound CP–CN overhead structure 2. Construct the central portion of QEW Realignment. 3. Construct segment 3 of new culvert across QEW north of Bowen Rd.	– Fort Erie Bound QEW realigned to new Fort Erie Bound CP–CN overhead structure and reduce to one lane of traffic and speed change lane. Realigned N–EW and EW–S ramps at Bowen Rd. are open. – Maintain two lanes of traffic on Toronto Bound QEW. Maintain existing S–EW and EW–N ramps at Bowen Rd Interchange. – Reopen 2 Fort Erie Bound QEW lanes (includes a direct taper at exist ramp) prior to winter shut down.

SCALE
25m 0 50m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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METRIC

PLATE No
CONT 2019-XXXX
WP 2408-15-00

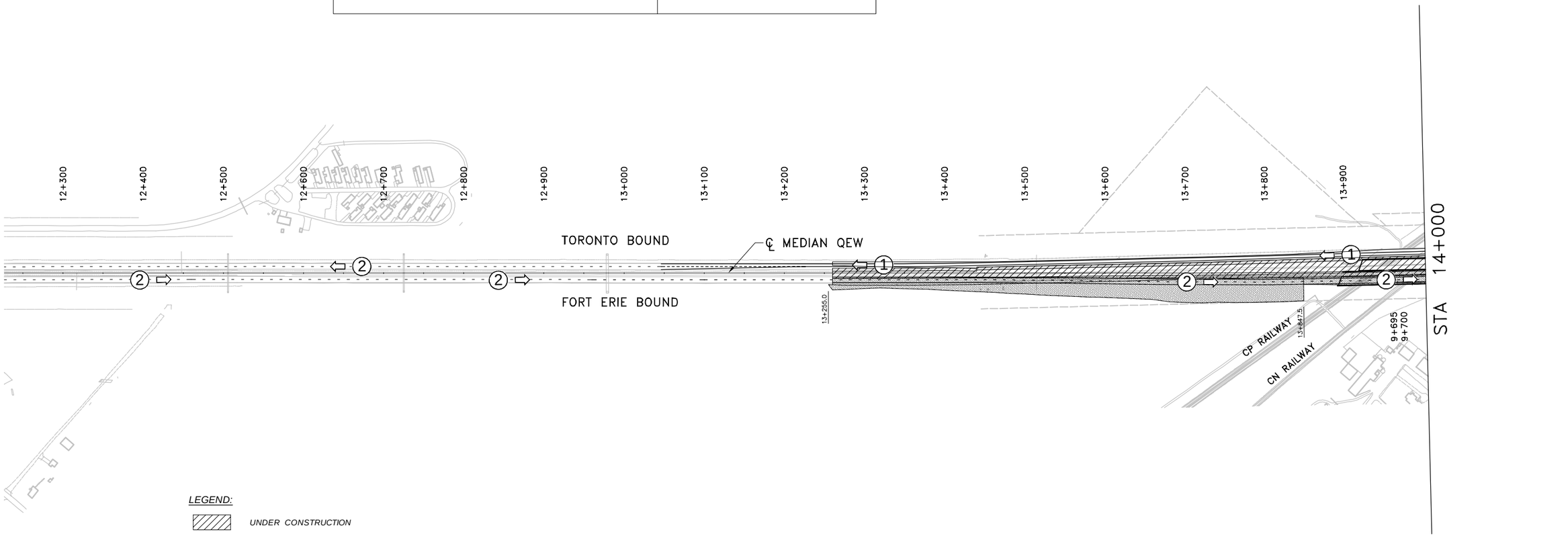
CONSTRUCTION SEQUENCING
STAGE 2B
STA 12+300 TO STA 14+000
Survey Revised

SHEET 20

AECOM

STAGE 2B

CONSTRUCTION	TRAFFIC LOCATION AT BEGINNING OF STAGE
1. Demolish west portion of existing Toronto Bound CP–CN overhead structure. 2. Construct remainder of Fort Erie Bound and new Toronto Bound CP–CN overhead structures at realigned median. 3. Continue to construct central portion of QEW Realignment. 4. Construct retaining wall along the east ROW. 5. Construct EW–N & S–EW Ramps at the Bowen Rd. Interchange.	– Shift Toronto Bound QEW traffic towards outside shoulder. Traffic reduced to one lane. – Maintain two lanes of traffic on Fort Erie Bound QEW between construction limits. (includes a direct taper at exit ramp). – Close Ramp EW–N & S–EW.



LEGEND:

- *UNDER CONSTRUCTION*
- *CONSTRUCTION COMPLETED IN PREVIOUS STAGE*
- *STAGING TRAFFIC*
- *TRAFFIC DIRECTION AND NUMBER OF LANES*

SCALE
25m 0 50m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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METRIC

PLATE No
CONT 2019-XXXX
WP 2408-15-00

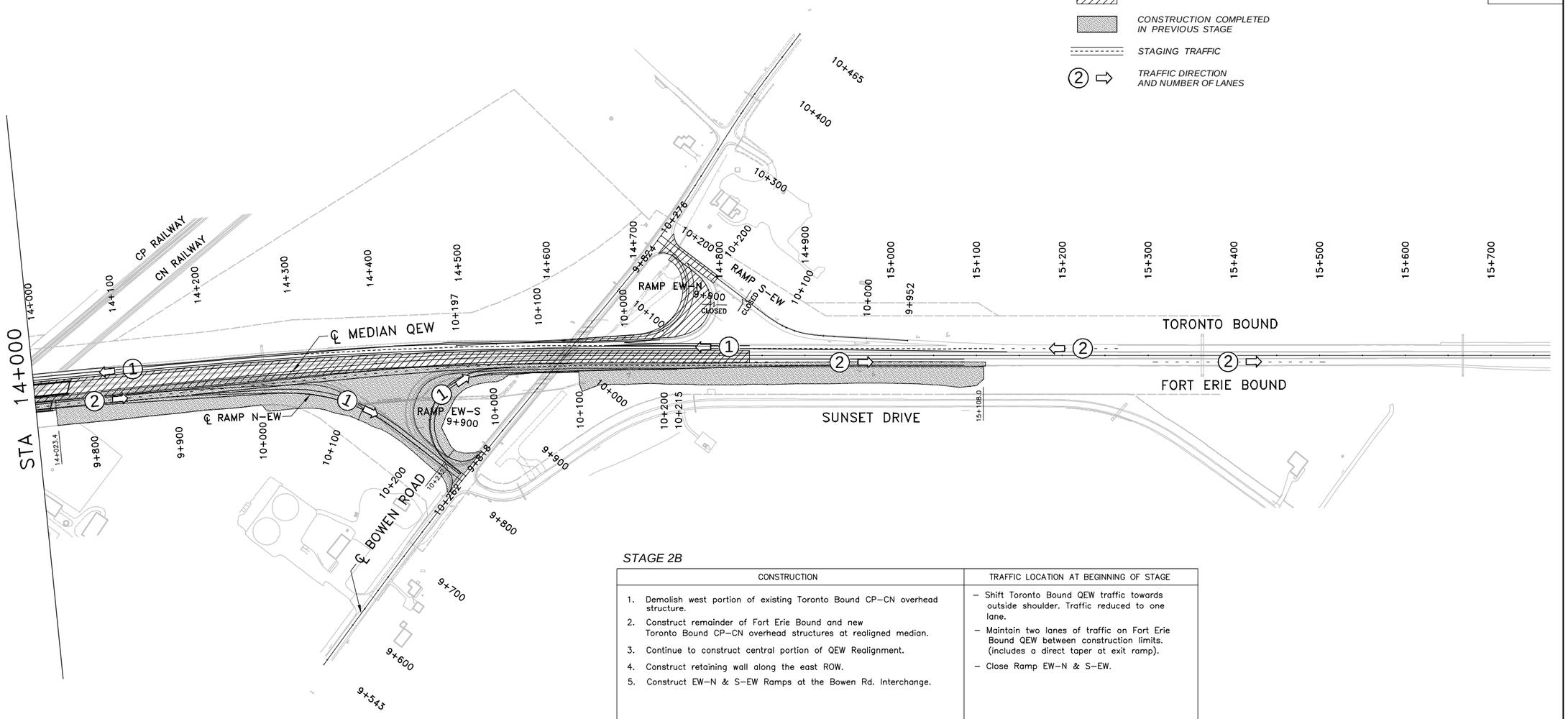
CONSTRUCTION SEQUENCING
STAGE 2B
STA 14+000 TO STA 15+700
Survey Revised

SHEET 21

AECOM

LEGEND:

- UNDER CONSTRUCTION
- CONSTRUCTION COMPLETED IN PREVIOUS STAGE
- STAGING TRAFFIC
- (2) ⇨ TRAFFIC DIRECTION AND NUMBER OF LANES



STAGE 2B

CONSTRUCTION	TRAFFIC LOCATION AT BEGINNING OF STAGE
1. Demolish west portion of existing Toronto Bound CP-CN overhead structure. 2. Construct remainder of Fort Erie Bound and new Toronto Bound CP-CN overhead structures at realigned median. 3. Continue to construct central portion of QEW Realignment. 4. Construct retaining wall along the east ROW. 5. Construct EW-N & S-EW Ramps at the Bowen Rd. Interchange.	– Shift Toronto Bound QEW traffic towards outside shoulder. Traffic reduced to one lane. – Maintain two lanes of traffic on Fort Erie Bound QEW between construction limits. (includes a direct taper at exit ramp). – Close Ramp EW-N & S-EW.

SCALE
25m 0 50m
Horizontal

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METRIC

PLATE No
CONT 2019-XXXX
WP 2408-15-00

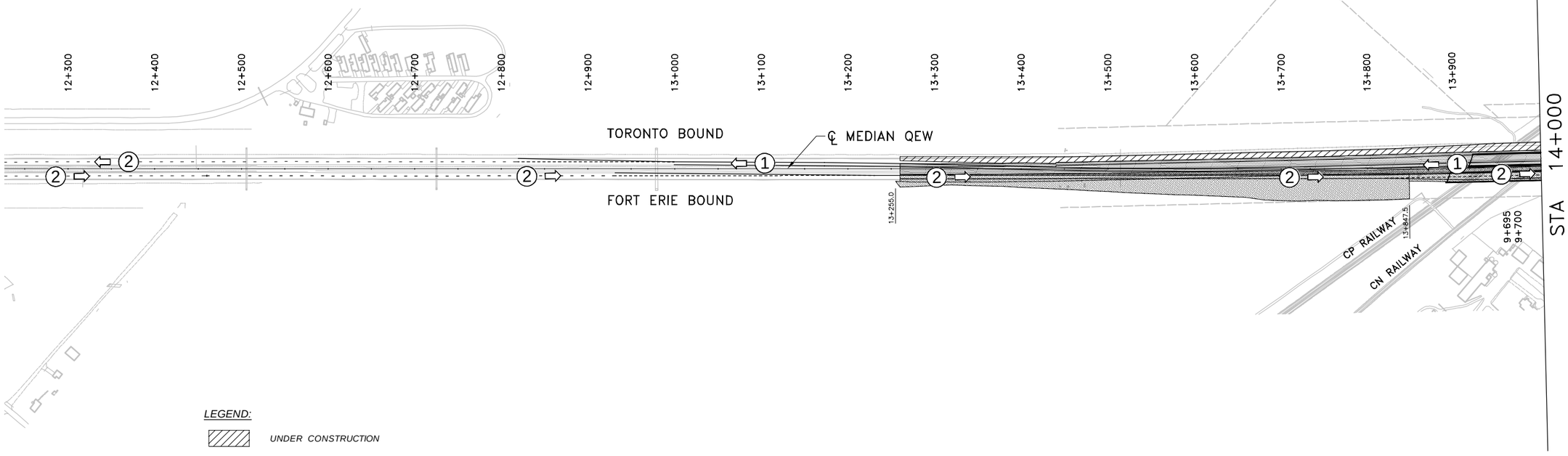
CONSTRUCTION SEQUENCING
STAGE 3A AND 3B
STA 12+300 TO STA 14+000
Survey Revised

SHEET 22

AECOM

STAGE 3A

CONSTRUCTION	TRAFFIC LOCATION AT BEGINNING OF STAGE
1. Construct remainder of realigned QEW Toronto Bound lanes. 2. Complete construction and embankment and retaining wall along the east ROW. 3. Continue to construct EW-N ramp at the Bowen Rd. Interchange. 4. Tie-in S-EW ramp at Bowen Rd with the realigned EW-N ramp. 5. Construct segment 4 of new culvert across QEW north of Bowen Rd. 6. Demolish remaining existing Toronto Bound CP-CN overhead structure (east portion). 7. Construct wildlife fence. *STAGE 3B* 1. Construct QEW median tall wall barrier. 2. Complete surface course paving and final pavement markings.	– Shift Toronto Bound QEW traffic to new Toronto Bound CP-CN overhead structure. Maintain one lane. – Maintain two lanes of traffic for Fort Erie Bound QEW. – Close EW-N & S-EW Ramps as required to complete tie-in.



LEGEND:

- *UNDER CONSTRUCTION*
- *CONSTRUCTION COMPLETED IN PREVIOUS STAGE*
- *STAGING TRAFFIC*
- *TRAFFIC DIRECTION AND NUMBER OF LANES*
- *CLOSURE OF ROADWAY*

SCALE
25m 0 50m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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METRIC

PLATE No
CONT 2019–XXXX
WP 2408–15–00

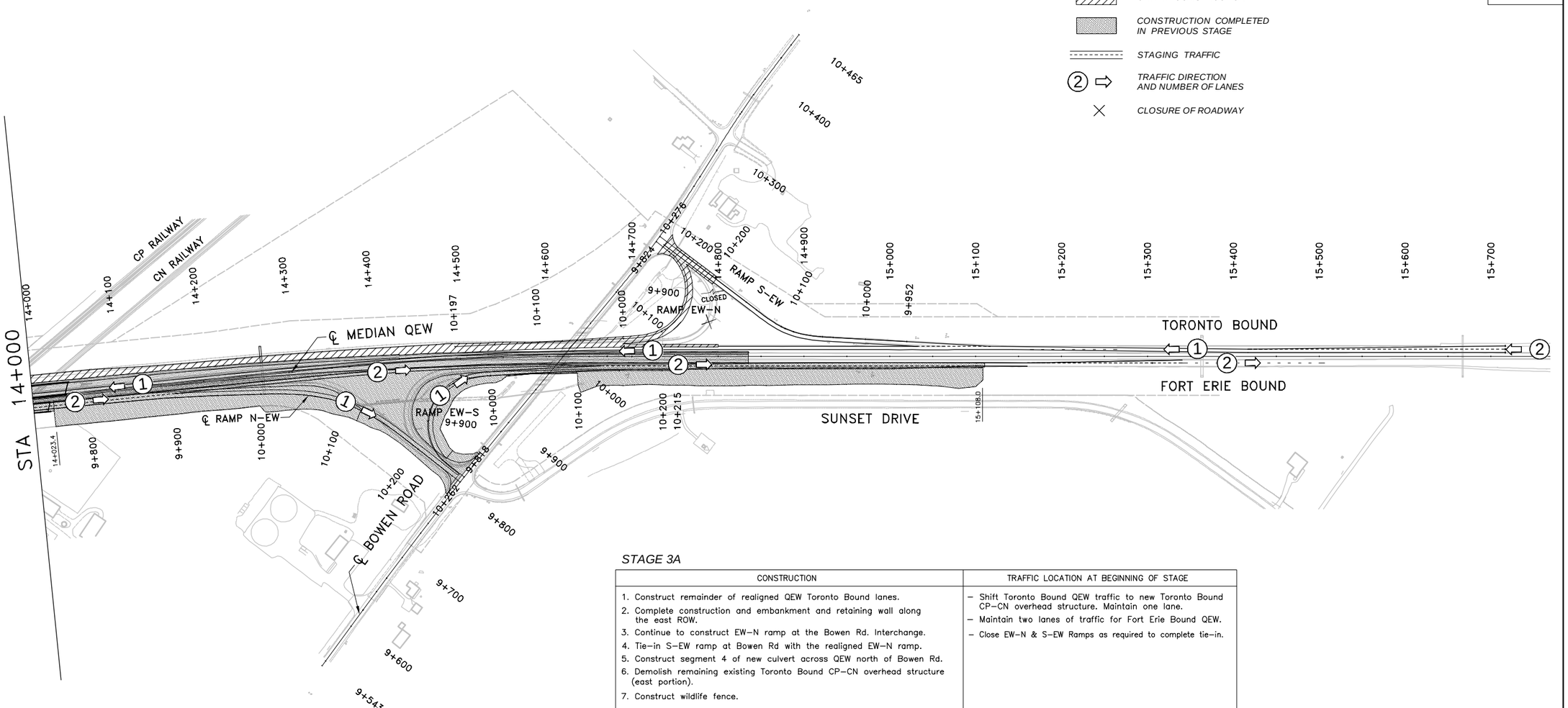
CONSTRUCTION SEQUENCING
STAGE 3A AND 3B
STA 14+000 TO STA 15+700
Survey Revised

SHEET 23

AECOM

LEGEND:

- UNDER CONSTRUCTION
- CONSTRUCTION COMPLETED IN PREVIOUS STAGE
- STAGING TRAFFIC
- (2) ⇨ TRAFFIC DIRECTION AND NUMBER OF LANES
- × CLOSURE OF ROADWAY



STAGE 3A

CONSTRUCTION	TRAFFIC LOCATION AT BEGINNING OF STAGE
1. Construct remainder of realigned QEW Toronto Bound lanes. 2. Complete construction and embankment and retaining wall along the east ROW. 3. Continue to construct EW–N ramp at the Bowen Rd. Interchange. 4. Tie–in S–EW ramp at Bowen Rd with the realigned EW–N ramp. 5. Construct segment 4 of new culvert across QEW north of Bowen Rd. 6. Demolish remaining existing Toronto Bound CP–CN overhead structure (east portion). 7. Construct wildlife fence.	– Shift Toronto Bound QEW traffic to new Toronto Bound CP–CN overhead structure. Maintain one lane. – Maintain two lanes of traffic for Fort Erie Bound QEW. – Close EW–N & S–EW Ramps as required to complete tie–in.

STAGE 3B

1. Construct QEW median tall wall barrier.
2. Complete surface course paving and final pavement markings.

SCALE
25m 0 50m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR–3–707 88–05
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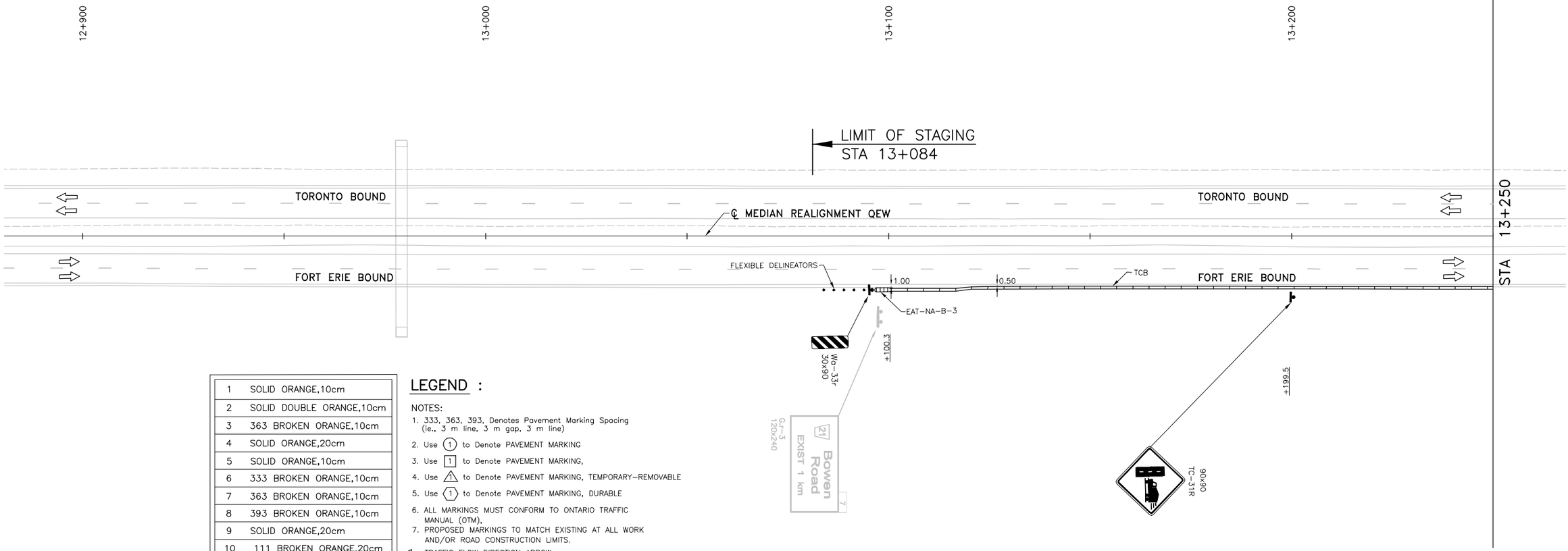
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW - STAGE 1A
STA 12+900 TO STA 13+250
Survey _____ Revised _____

SHEET 24

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
5. Use ⬡1 to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO RR-3-707 88-05
Printed: Mar 18, 2019
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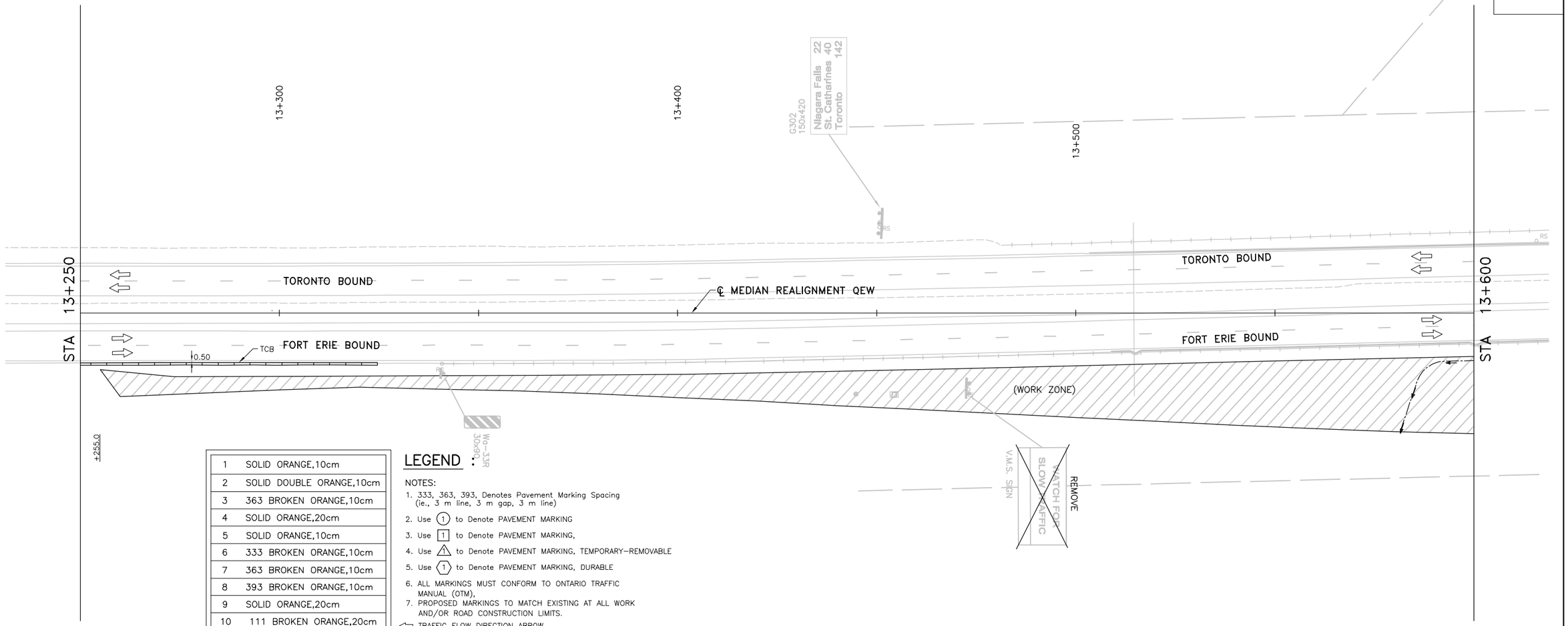
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW - STAGE 1A
STA 13+250 TO STA 13+600
Survey _____ Revised _____

SHEET 25

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
5. Use ⟨1⟩ to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

Printed: Mar 18, 2019

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

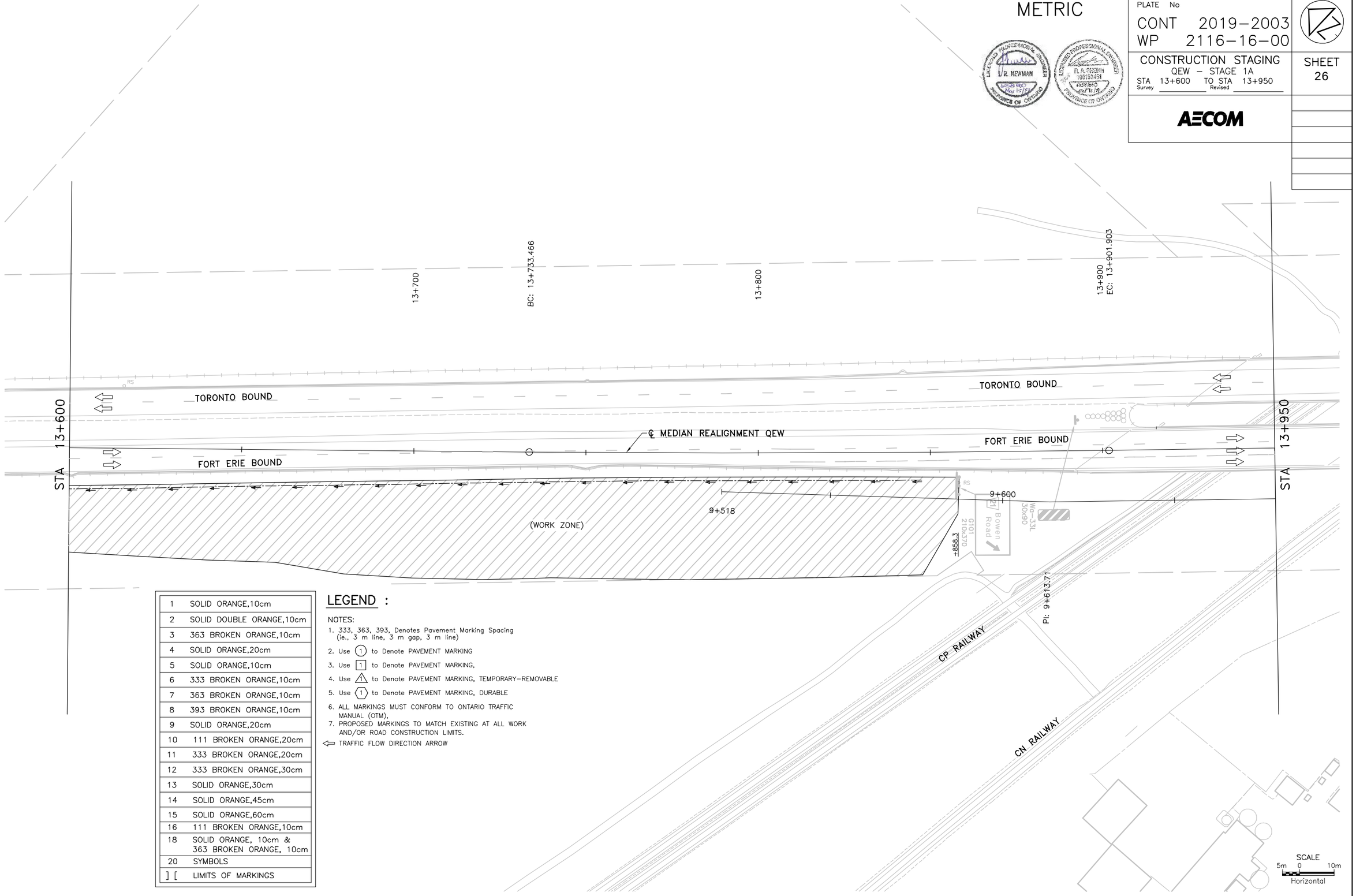
CONSTRUCTION STAGING
QEW - STAGE 1A
STA 13+600 TO STA 13+950
Survey Revised

SHEET 26

AECOM

R. NEWMAN
LICENSED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO
May 15/19

D. A. GREEN
100153451
LICENSED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
5. Use ⬡1 to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
Printed: Mar 18, 2019
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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – STAGE 1A
STA 13+950 TO STA 14+300
Survey Revised

SHEET 27

AECOM

CP RAILWAY

CN RAILWAY

14+000

14+100

14+200

Wa-33L 30x90

Rb-1a 60x90 MAXIMUM 100 km/h

TORONTO BOUND

TORONTO BOUND

STA 13+950

STA 14+300

℄ MEDIAN REALIGNMENT QEW

FORT ERIE BOUND

FORT ERIE BOUND

9+700

9+800

9+900

(WORK ZONE)

BC: 9+831.24

±150.2

±117.1

±018.1

RELOCATE

90x90 TC-31R

G703 120x240 QEW Via EDR EMERGENCE DETOUR ROUTE

℄ RAMP N-EW

10+000

10+000 C.S.

±276.7

Wa-33LR 45x90

7

G122 120x150

PRECAST CONC. CULVERT (SEGMENT 1)

1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠ to Denote PAVEMENT MARKING, TEMPORARY–REMOVABLE
5. Use ⬡1⬡ to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

Printed: Mar 18, 2019

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW - STAGE 1A
STA 14+300 TO STA 14+650
Survey Revised

SHEET 28

AECOM

LICENSED PROFESSIONAL ENGINEER R. NEWMAN PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER R. A. CHEEMA 100193451 PROVINCE OF ONTARIO

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

TS: 14+303.212
SC: 14+370.712
14+400
14+500
14+600
CS: 14+603.475
STA 14+300
STA 14+650
TORONTO BOUND
FORT ERIE BOUND
℄ MEDIAN REALIGNMENT QEW
R=3000m
A=450
℄ RAMP EW-N
10+194
10+100
10+000
(WORK ZONE)
10.50
TCB
OPSD 912.330
℄ RAMP EW-S
REMOVE
±540.4
10+000.00
SC: 10+057.63
10+100
CS: 10+124.21
℄ RAMP N-EW
10+200
ST: 10+187.89
CS: 9+955.38
9+900
9+500
SC: 10+000.00
℄ BOWEN ROAD
BC: 9+846.13
BC: 10+017.73
EC: 10+081.38
10+135
SUNSET DRIVE
HOC 9+822.277 BOWEN RD
=HOT 9+823.267 EW-S RAMP
HOC 9+810.778 BOWEN RD
=HOT 10+256.788 N-EW RAMP
HOC 9+816.527 BOWEN RD
=HOT 10+000.000 SUNSET DRIVE
78m TWA 800mm CULVERTS
STOP
DEAD END
FORT ERIE
SUNSET
QEW

1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
5. Use ⬡1 to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

\\CAMBY1FP001\Data\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PMK-STG1A-14650.dwg (Model) Printed: Mar 18, 2019

METRIC

1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠ to Denote PAVEMENT MARKING, TEMPORARY–REMOVABLE
5. Use ⟨1⟩ to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM).
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

PLATE No
CONT 2019–2003
WP 2116–16–00

CONSTRUCTION STAGING
QEW – STAGE 1A
STA 14+650 TO STA 15+000
Survey Revised

SHEET 29

AECOM

℄ BOWEN ROAD
HOC 10+167.654 BOWEN RD =HOT 9+829.461 EW–N RAMP
HOC 10+179.422 BOWEN RD =HOT 10+238.391 S–EW RAMP
BC: 9+842.47
CS: 9+954.55
ST: 14+670.975
ST: 10+000.00
℄ RAMP EW–N
℄ RAMP S–EW
ST: 10+097.18
CS: 10+057.10
SC: 10+046.94
EC: 10+211.61
℄ MEDIAN REALIGNMENT QEW
TORONTO BOUND
FORT ERIE BOUND
TCB
(WORK ZONE)
SUNSET DRIVE
RELOCATE
REMOVE
STA 14+650
STA 15+000

SCALE
5m 0 10m
Horizontal

\\CAMBY1FP001\Data\Projects\60581660 – CNCP QEW DD\900–CAD_GIS\910–CAD\C\20–SHEETS\STAGING\60581660–C–PMK–STG1A–15000.dwg (Model) Printed: Mar 18, 2019
MINISTRY OF TRANSPORTATION, ONTARIO PR–3–707 88–05

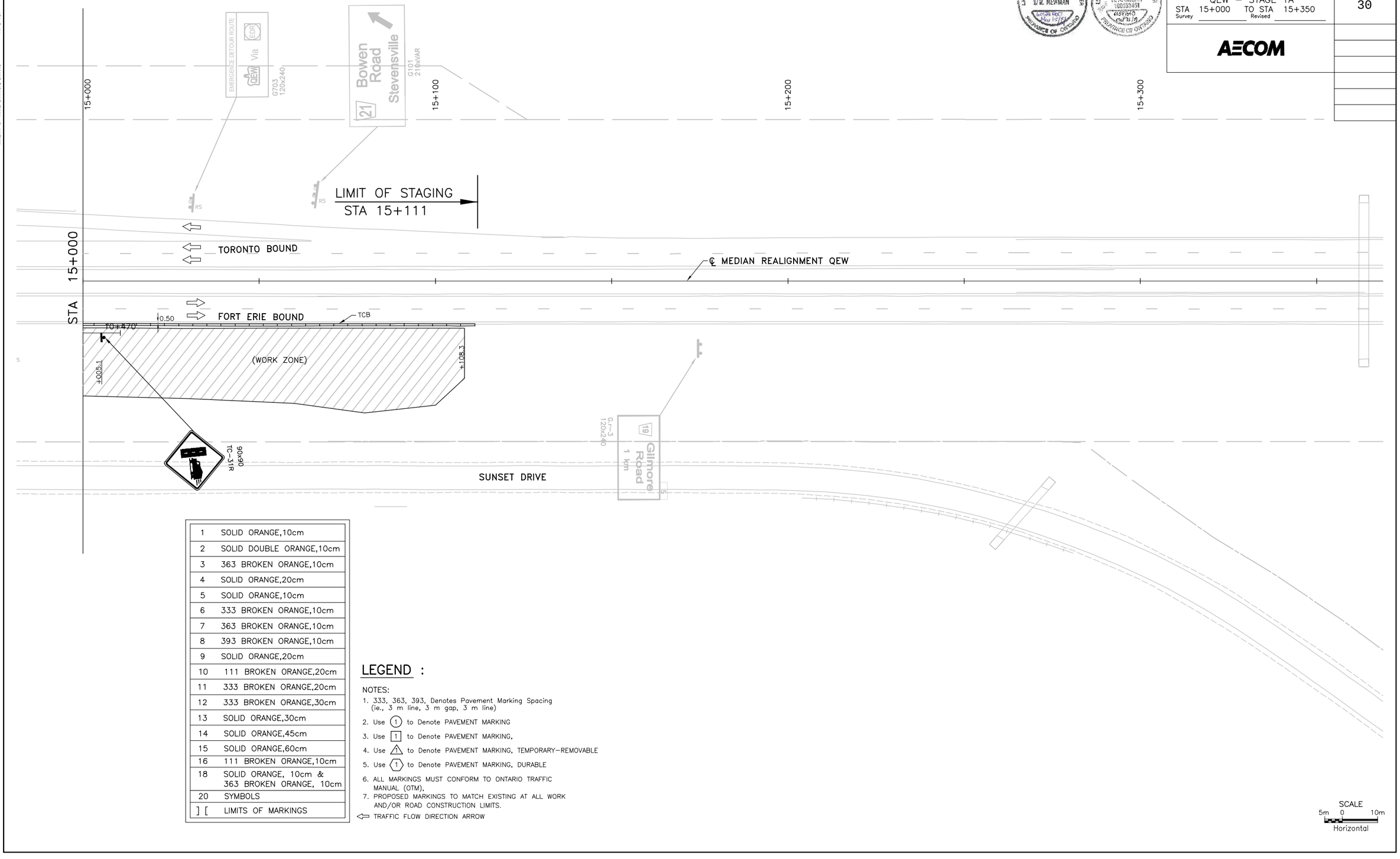
METRIC

PLATE No
CONT 2019–2003
WP 2116–16–00

CONSTRUCTION STAGING
QEW – STAGE 1A
STA 15+000 TO STA 15+350
Survey _____ Revised _____

SHEET 30

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY–REMOVABLE
5. Use ⬡1 to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
\\CAWBY1FP001\Data\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PMK-STG1A-15350.dwg (Model) Printed: Mar 18, 2019

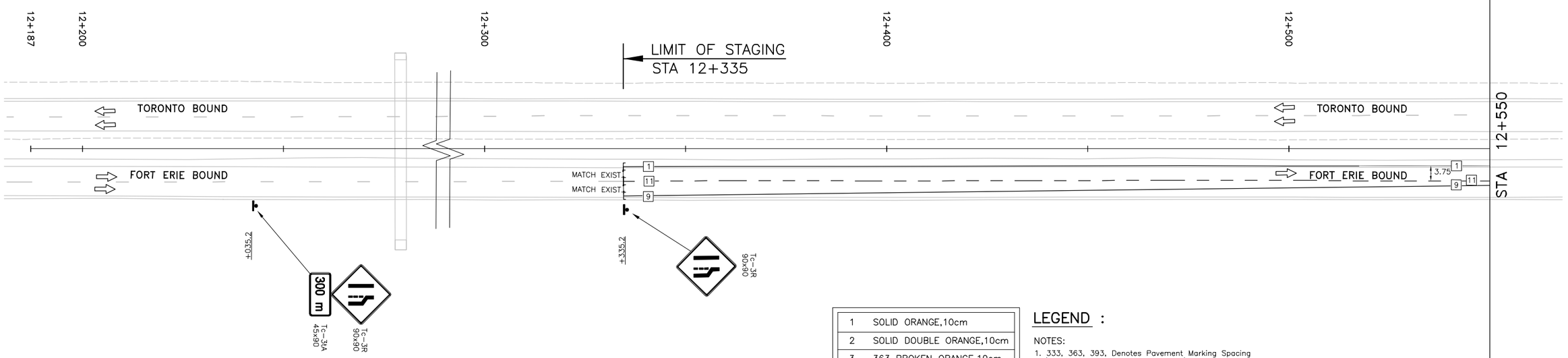
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – PRE-STAGE 1B
STA 12+200 TO STA 12+550
Survey ____ Revised ____

SHEET 31

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
5. Use ⬡1 to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

\\CAWBY1FPO01\Data\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PMK-PRE-STG-12550.dwg (Model) Printed: Mar 18, 2019
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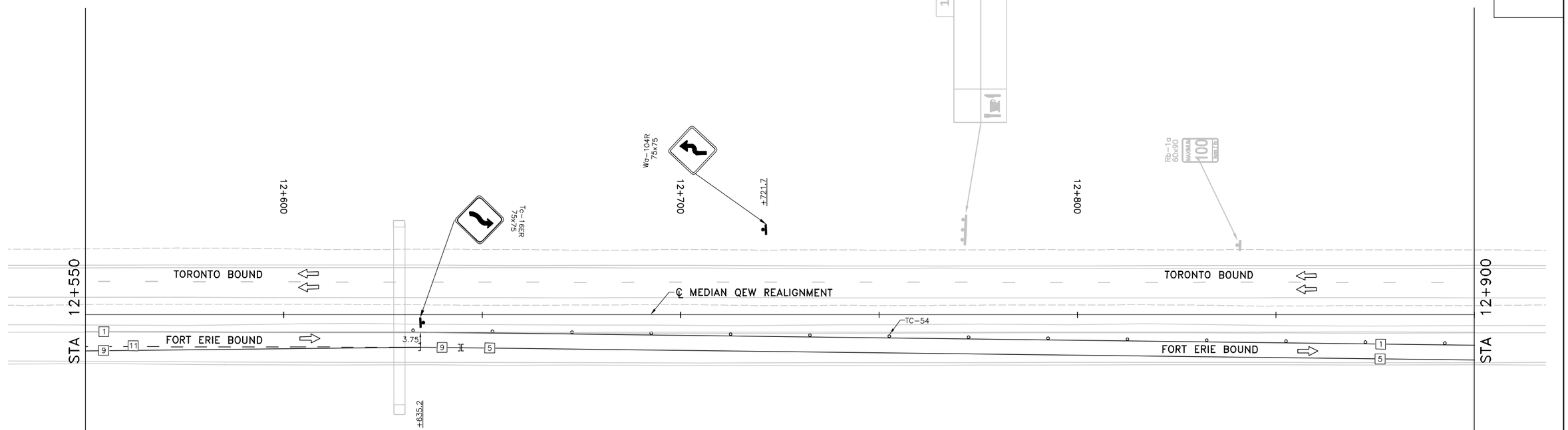
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – PRE-STAGE 1B
STA 12+550 TO STA 12+900
Survey Revised

SHEET 32

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
5. Use ⬡1 to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM).
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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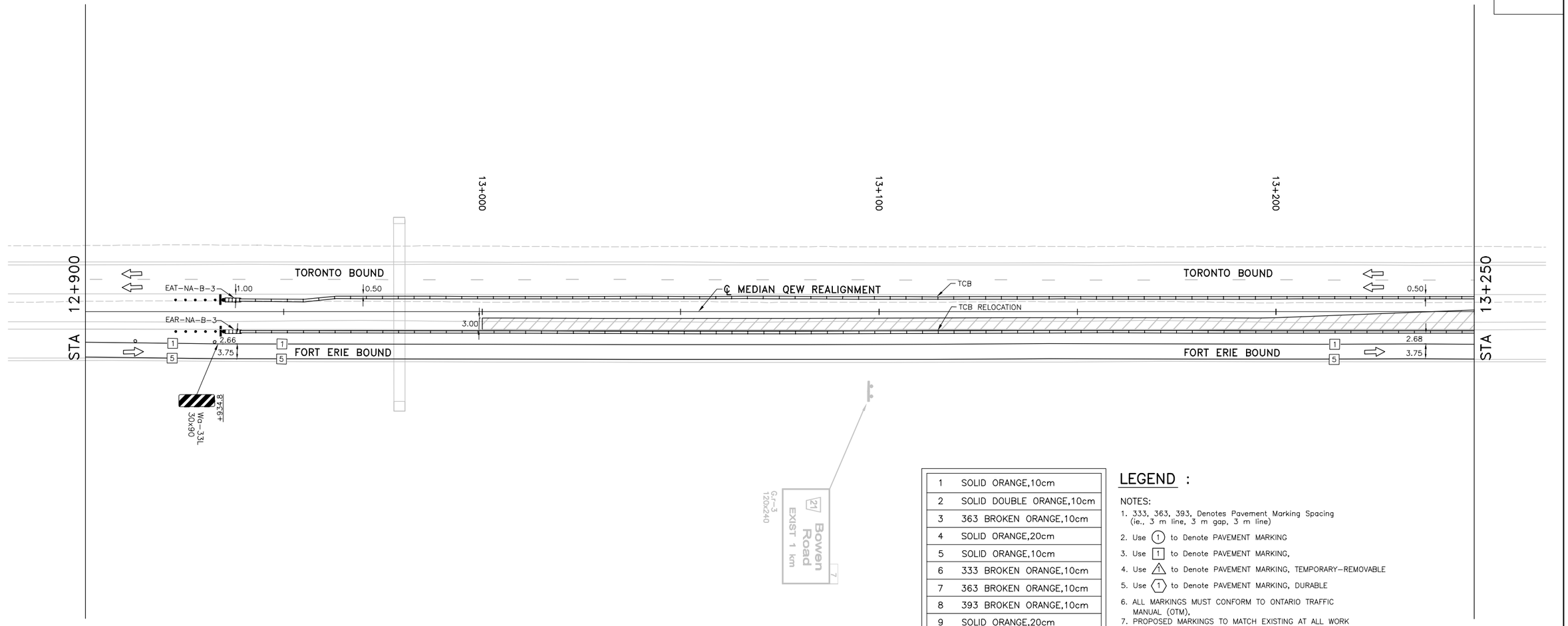
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – PRE-STAGE 1B
STA 12+900 TO STA 13+250
Survey _____ Revised _____

SHEET 33

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
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3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠ to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
5. Use ⟨1⟩ to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM).
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

\\CAWBY1FP001\Data\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PMK-PRE_STG-13250.dwg (Model) Printed: Mar 18, 2019
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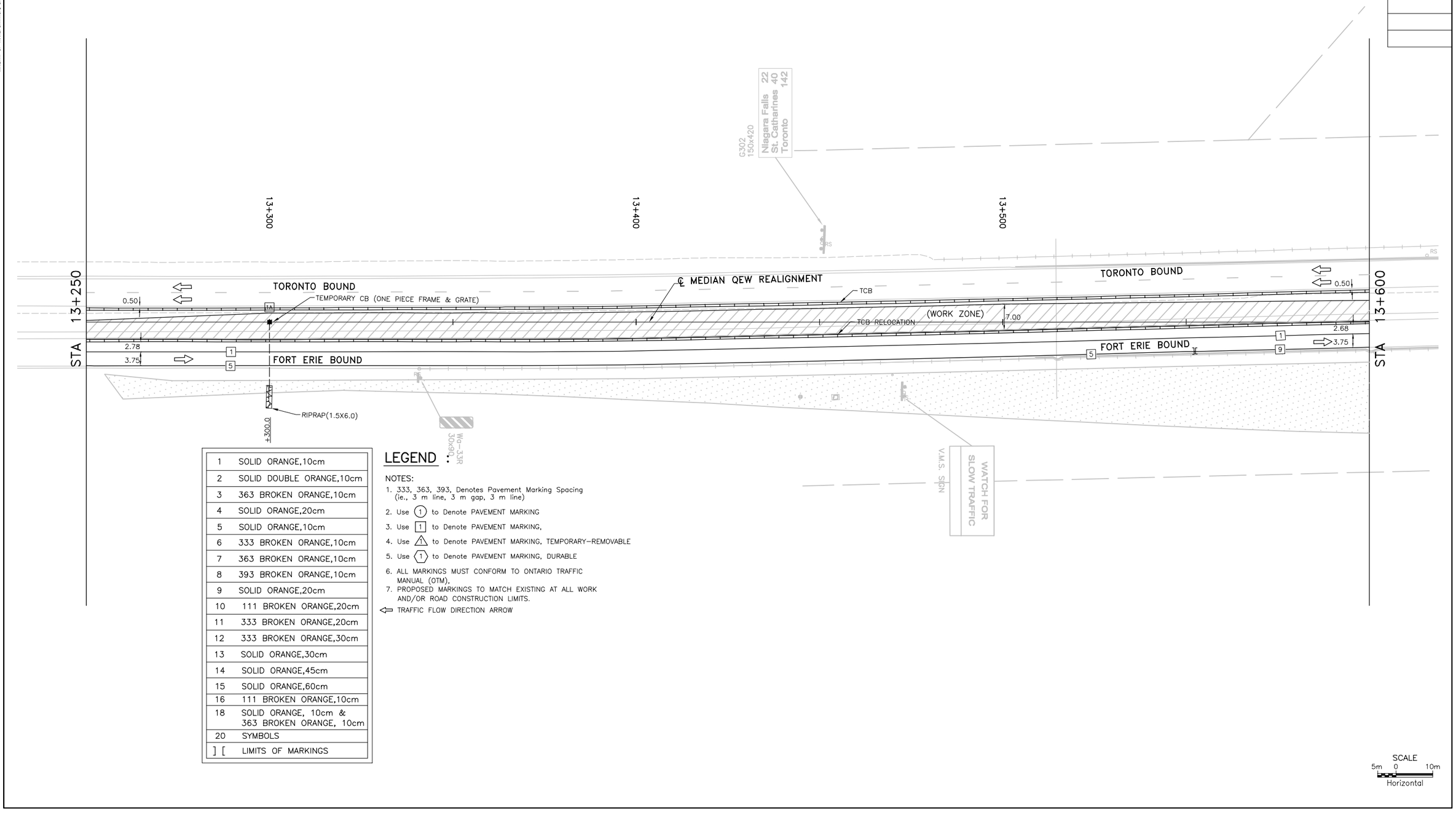
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – PRE-STAGE 1B
STA 13+250 TO STA 13+600
Survey _____ Revised _____

SHEET 34

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
5. Use ⬡1 to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

\\CAMBY1FP001\Data\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PMK-PRE-STG-1360D.dwg (Model) Printed: Mar 18, 2019
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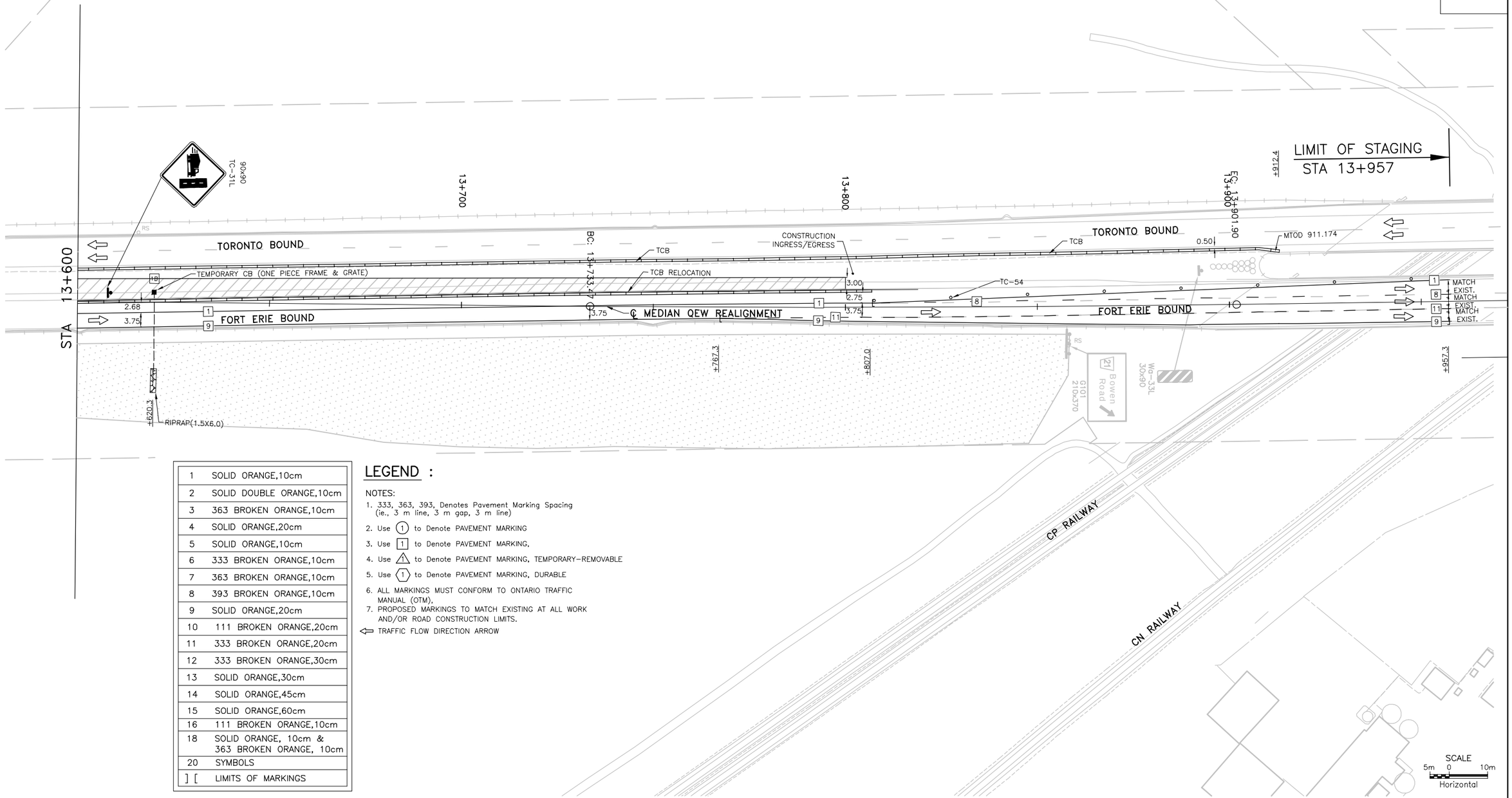
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – PRE-STAGE 1B
STA 13+600 TO STA 13+950
Survey Revised

SHEET 35

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
5. Use ⬡1 to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
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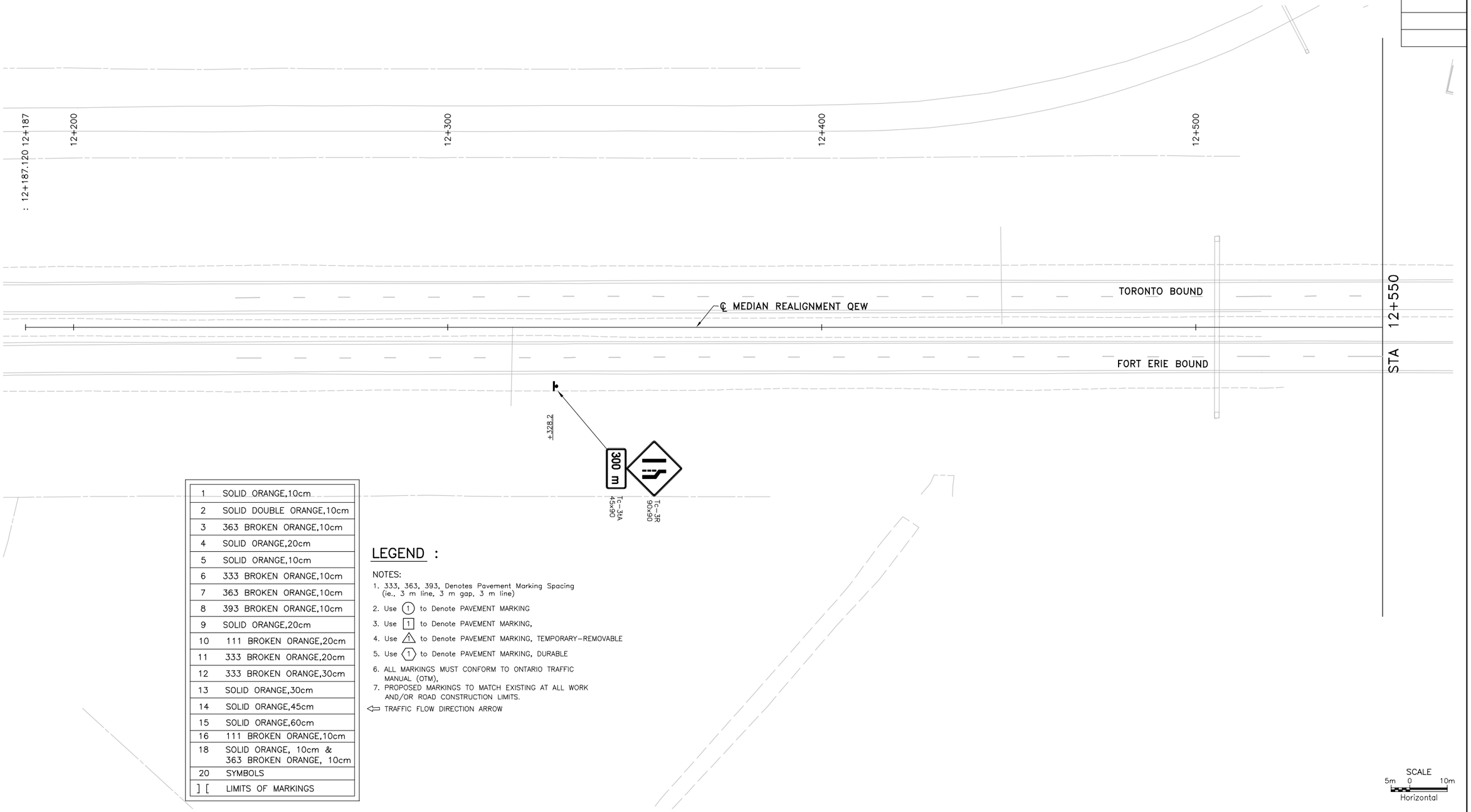
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW - STAGE 1B
STA Survey 12+200 TO STA Revised 12+550

SHEET 36

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
5. Use ◇1 to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

Printed: Mar 18, 2019

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW - STAGE 1B
STA 12+550 TO STA 12+900
Survey Revised

SHEET 37

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
5. Use ⬡1 to Denote PAVEMENT MARKING, DURABLE
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7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
Printed: Mar 18, 2019
\\CAMBY1FP001\Data\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PMK-STG1B-12900.dwg (Model)

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MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

METRIC



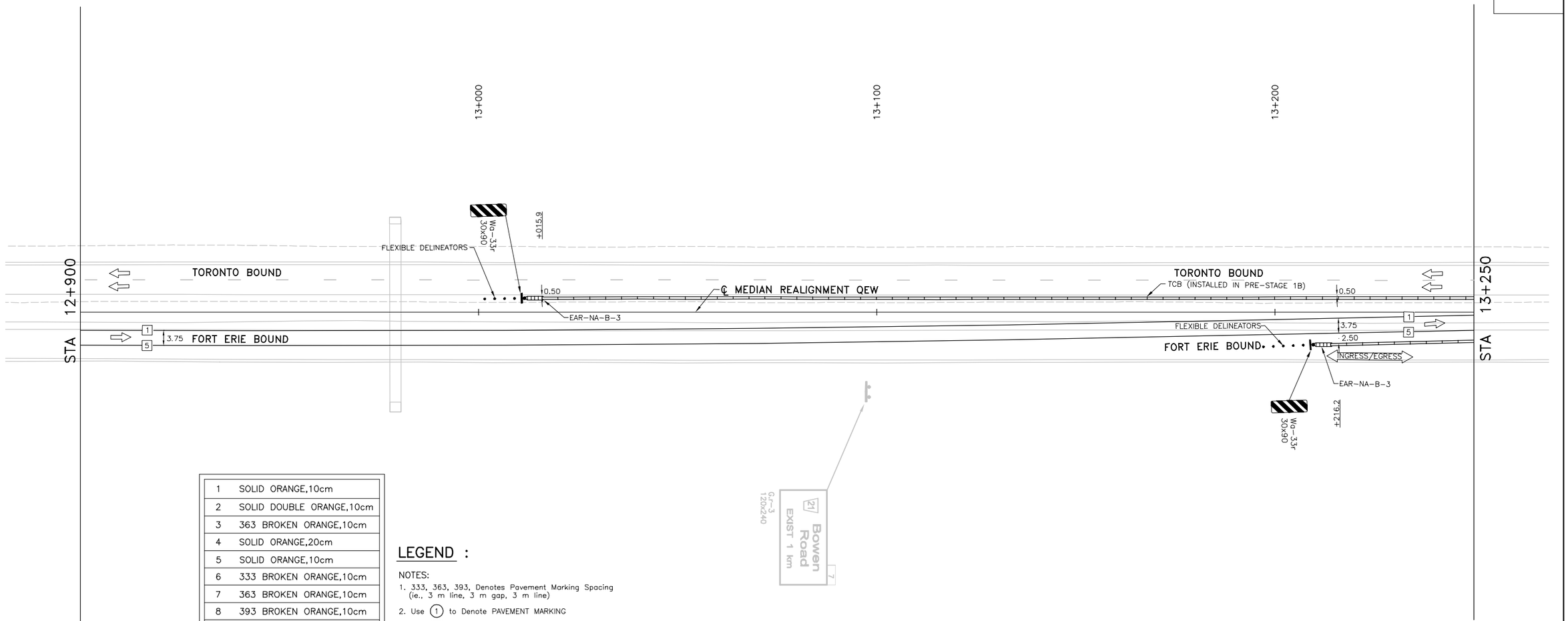


PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW - STAGE 1B
STA Survey 12+900 TO STA Revised 13+250

AECOM

SHEET 38



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
5. Use ◇1◇ to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

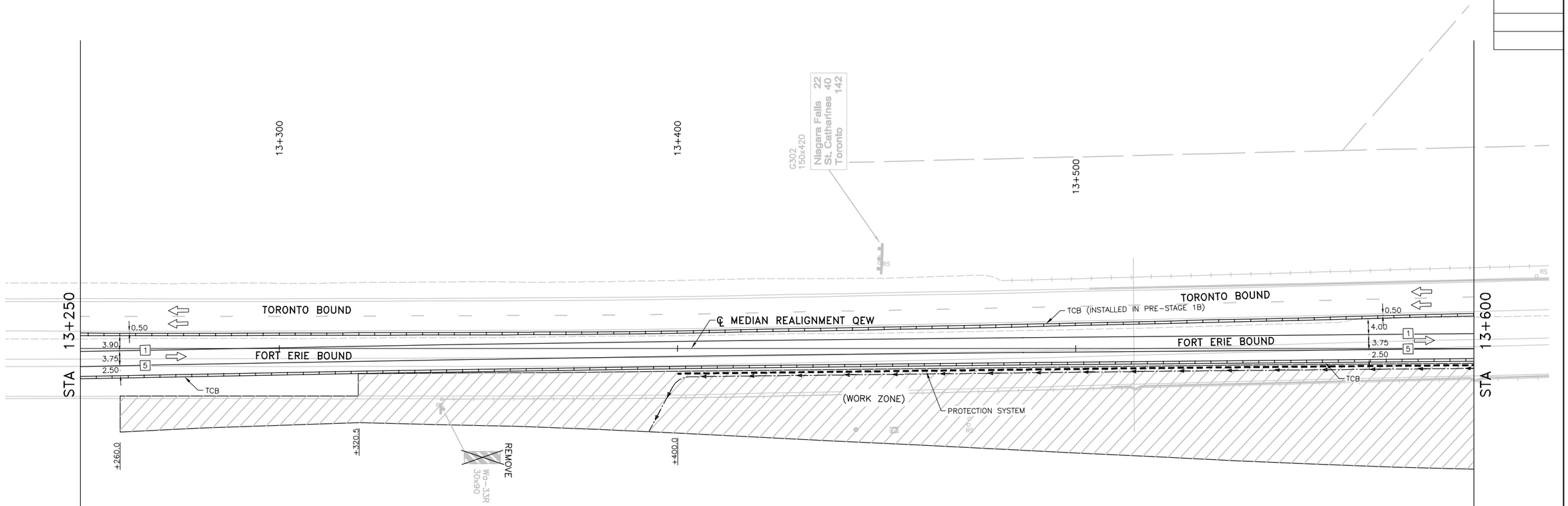
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW - STAGE 1B
STA 13+250 TO STA 13+600
Survey _____ Revised _____

SHEET 39

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
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7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

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Printed: Mar 18, 2019
\\CAWBY1FP001\Data\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PMK-STG1B-13600.dwg (Model)

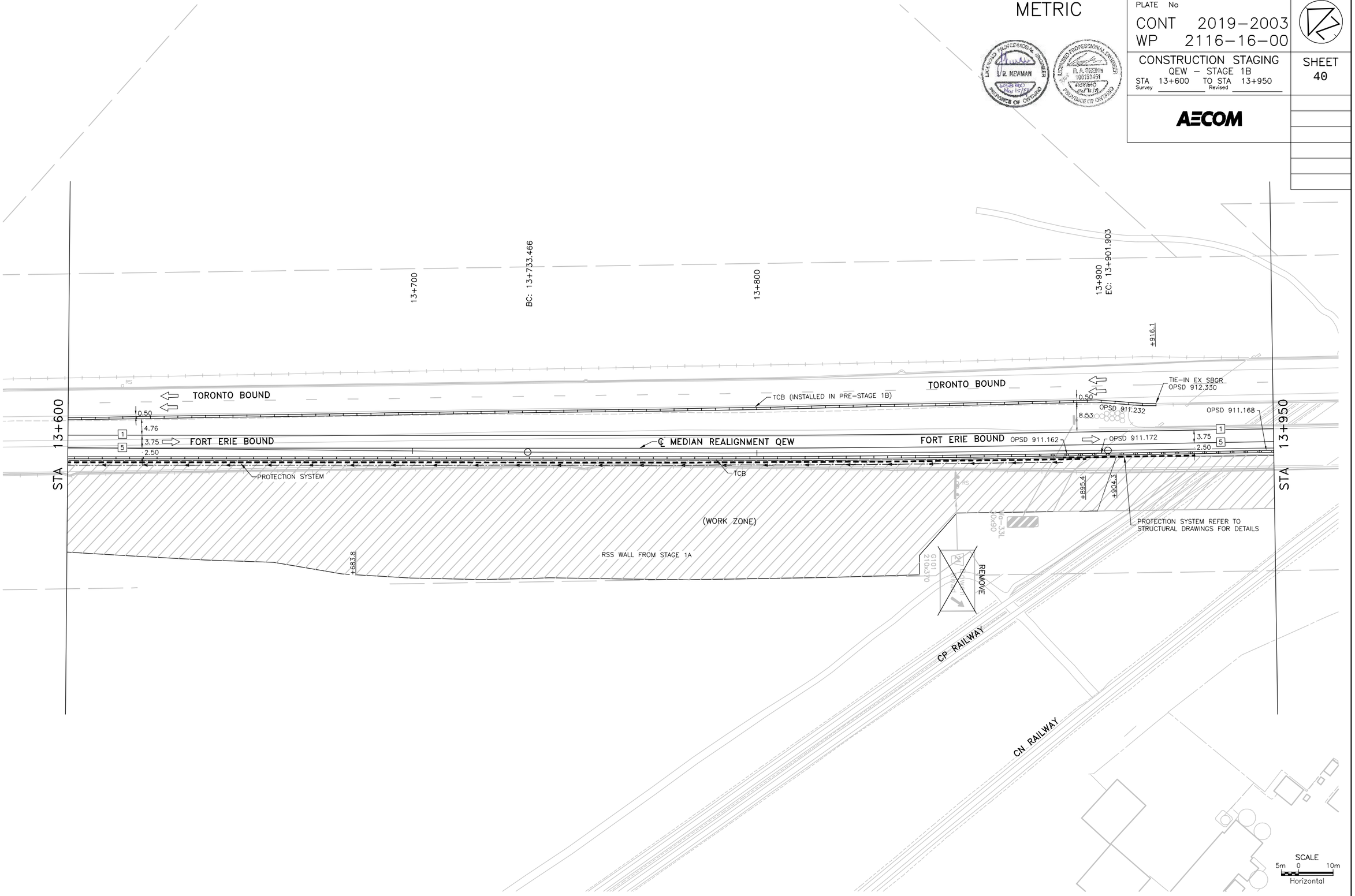
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW - STAGE 1B
STA 13+600 TO STA 13+950
Survey Revised

SHEET 40

AECOM



\\CAMBY1FPD01\Data\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PWK-STG1B-13950.dwg (Model) Printed: Mar 18, 2019
MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – STAGE 1B
STA 13+950 TO STA 14+300
Survey Revised

SHEET 41

AECOM

CP RAILWAY

CN RAILWAY

14+000

14+100

14+200

Wa-33L 30x90

Rb-1a 60x90

100 MAXIMUM km/h

±273.9

TORONTO BOUND

TORONTO BOUND

STA 13+950

STA 14+300

OPSD 911.172

OPSD 911.168

OPSD 911.162

FORT ERIE BOUND

FORT ERIE BOUND

℄ MEDIAN REALIGNMENT QEW

1 3.75

5 2.50

TCB

TCB

PROTECTION SYSTEM

±014.5

±023.0

±045.9

PROTECTION SYSTEM REFER TO STRUCTURAL DRAWINGS FOR DETAILS

(WORK ZONE)

G703 120x240 REMOVE

QEW Via

EMERGENCE DETOUR RAMP

Wa-33LR 45x90

G122 120x150 REMOVE

PRECAST CONC. CULVERT (SEGMENT 2)

±274.1

1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
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7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW - STAGE 1B
STA 14+300 TO STA 14+650
Survey ____ Revised ____

AECOM

SHEET 42

R. NEWMAN — LICENSED PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO

R. A. CHEEMA — LICENSED PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO

TS: 14+303.212
SC: 14+370.712
14+400
14+500
14+600
STA 14+300
STA 14+650
CS: 14+603.475
10+000

TORONTO BOUND
FORT ERIE BOUND
℄ MEDIAN REALIGNMENT QEW
R=3000m
℄ RAMP EW-N
INGRESS/EGRESS
PROTECTION SYSTEM
(WORK ZONE)
TCB
A=450
3.75
2.50
3.25
4.12
+480.2
+542.2
REMOVE
78m 7.1m 600mm CULVERTS
℄ BOWEN ROAD
9+000
9+800
±873.6
±791.0
RELOCATE TO STA 9+865
CLOSED
TC-53 (BARICADE)
TC-54
EXIST
SUNSET DRIVE
QEW TORONTO G127
STOP
SPEED LIMIT 70 KM/H
LOAD RESTRICTIONS IN EFFECT
BOWEN ROAD WEST

1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:
1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
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7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

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METRIC

1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

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⇦ TRAFFIC FLOW DIRECTION ARROW

R. NEWMAN — 100133451 — May 15/19 — PROVINCE OF ONTARIO

R. A. CHEUNG — 100133451 — May 15/19 — LICENSED PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO

PLATE No

CONT 2019–2003

WP 2116–16–00

CONSTRUCTION STAGING

QEW – STAGE 1B

STA 14+650 TO STA 15+000

Survey _____ Revised _____

AECOM

SHEET 43

10+200

10+100

14+700

14+800

14+900

ST: 14+670.975

HOC 10+179.422 BOWEN RD.
=HOT 10+238.391 S–EW RAMP

HOC 10+167.654 BOWEN RD.
=HOT 9+829.461 EW–N RAMP

℄ BOWEN ROAD

℄ RAMP S–EW

℄ RAMP EW–N

COVER

TORONTO

ONTARIO

Icd Golf

FORT ERIE

TORONTO BOUND

℄ MEDIAN REALIGNMENT QEW

FORT ERIE BOUND

TORONTO BOUND

FORT ERIE BOUND

STA 14+650

STA 15+000

3.75

3.72

3.75

1.85

TCB

TCB

SUNSET DRIVE

SCALE
5m 0 10m
Horizontal

\\CAWBY1FP001\Data\Projects\60581660 – CNCP QEW DD\900–CAD_GIS\910–CAD\C\20–SHEETS\STAGING\60581660–C–PMK–ST01B–15000.dwg (Model) Printed: Mar 18, 2019 MINISTRY OF TRANSPORTATION, ONTARIO PR–3–707 88–05

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW - STAGE 1B
STA 15+000 TO STA 15+350
Survey Revised

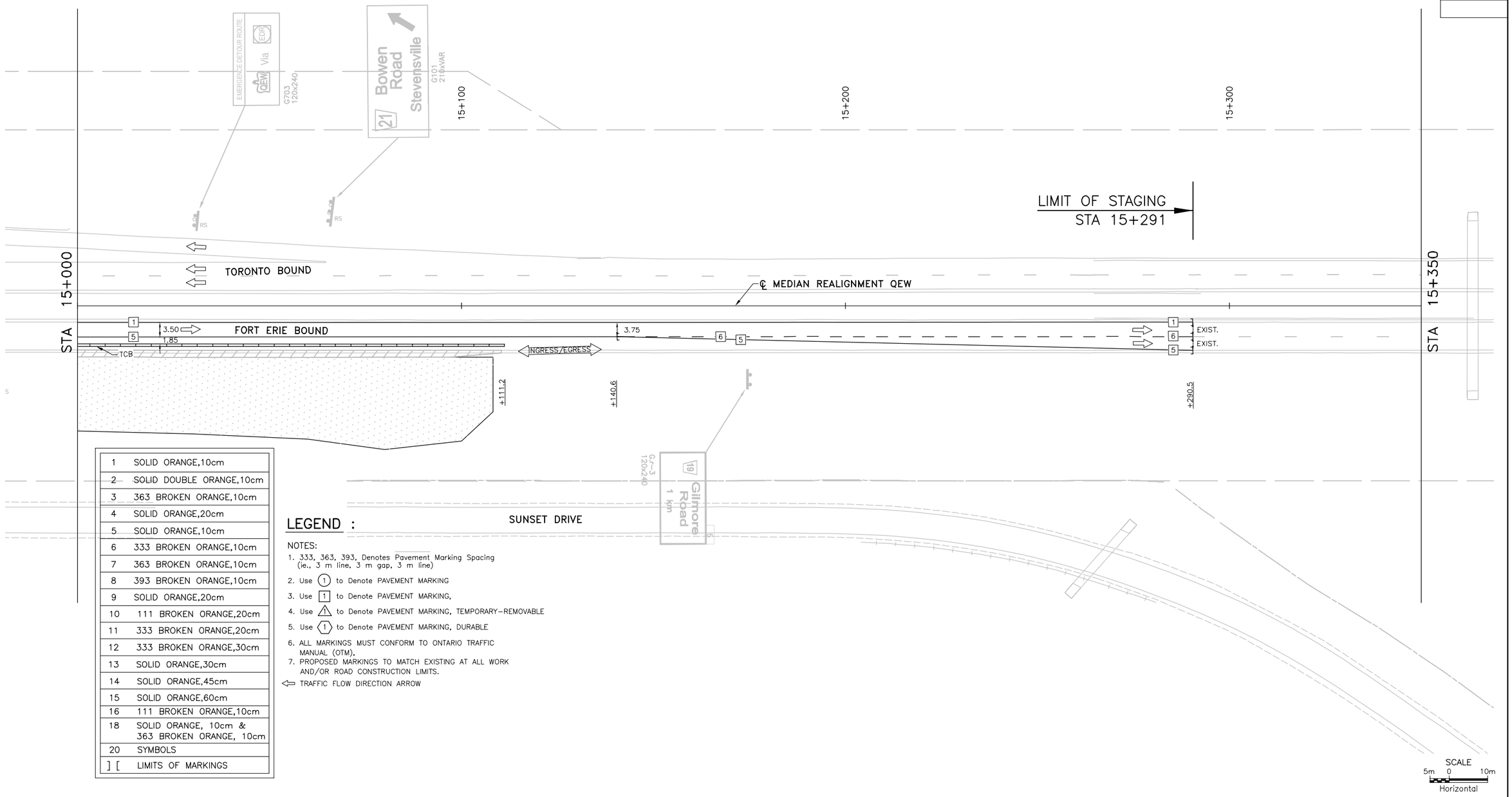
SHEET 44

AECOM

MINISTRY OF TRANSPORTATION, ONTARIO RR-3-707 88-05

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1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
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⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW - STAGE 2A
STA 12+200 TO STA 12+550
Survey Revised

SHEET 45

AECOM

R. NEWMAN
LICENSED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

R. A. GRUBER
100193451
LICENSED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

12+187
12+200
12+300
12+400
12+500
12+550
STA

℄ MEDIAN REALIGNMENT QEW

TORONTO BOUND

FORT ERIE BOUND

EXIST 1
EXIST 11
EXIST 9

1
11
9
3.75

±056.0

300 m

Tc-3TA 45x90

Tc-3R 90x90

±356.2

Tc-3R 90x90

LIMIT OF STAGING
STA 12+356

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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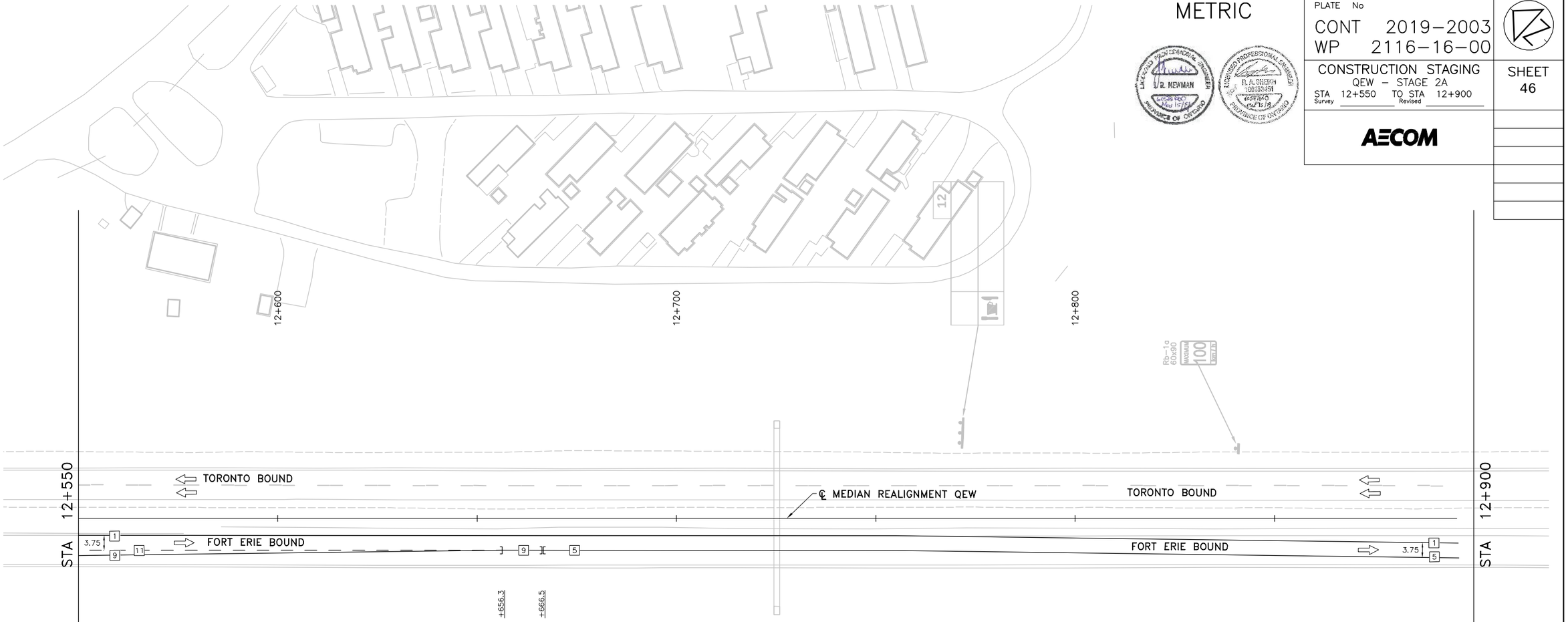
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW - STAGE 2A
STA Survey 12+550 TO STA Revised 12+900

SHEET 46

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
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5. Use ⟨1⟩ to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

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\\CAMBY1FPD01\Data\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CADD\C\20-SHEETS\STAGING\60581660-C-PMK-STG2A-12900.dwg (Model)

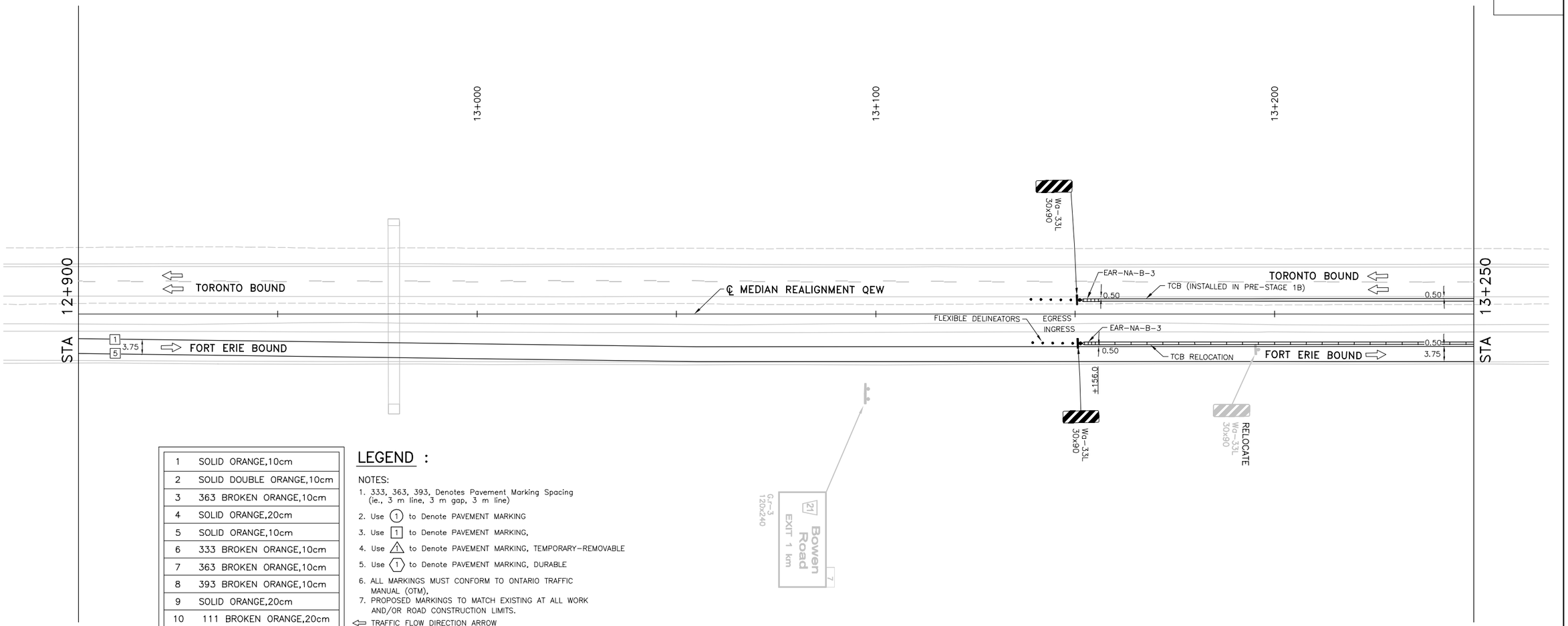
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – STAGE 2A
STA 12+900 TO STA 13+250
Survey _____ Revised _____

SHEET 47

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
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7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

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\\CAMBX1FPD01\Data\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PMK-STG2A-13250.dwg (Model)

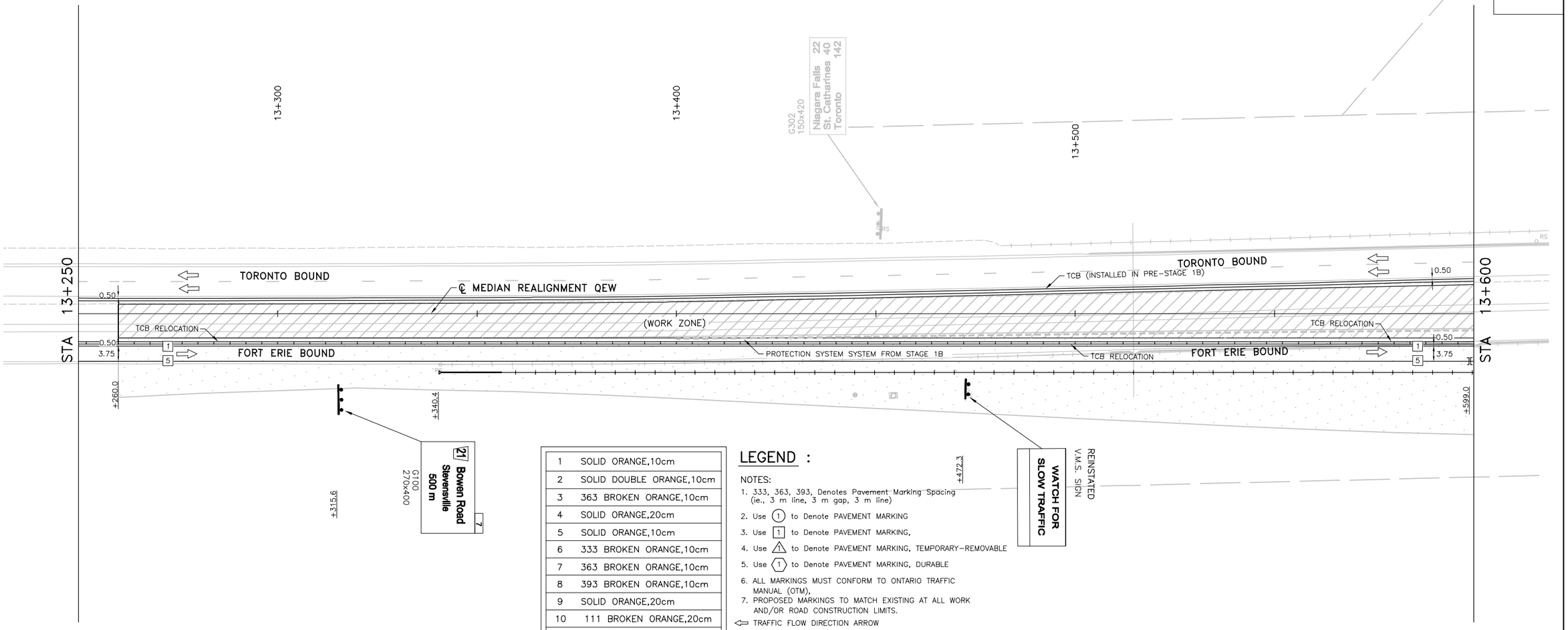
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – STAGE 2A
STA 13+250 TO STA 13+600
Survey Revised

SHEET 48

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

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⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

Printed: Mar 18, 2019

\\CAMBY1FP001\Data\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PMK-STG2A-13600.dwg (Model)

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – STAGE 2A
STA 13+600 TO STA 13+950
Survey Revised

SHEET 49

AECOM

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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\\CAMBY1FP001\Data\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PMK-ST02A-13950.dwg (Model)

13+700 13+800 13+900

STA 13+600 STA 13+950

TORONTO BOUND

TCB (INSTALLED IN PRE-STAGE 1B)

TORONTO BOUND

MTOD 911.174

OPSD 911.162

℄ MEDIAN REALIGNMENT QEW (WORK ZONE)

R=7000m

TCB RELOCATION

TCB RELOCATION

0.50

3.75

1

9

FORT ERIE BOUND

FORT ERIE BOUND

11

3.50

1.50

9+518

9+600

PROTECTION SYSTEM FROM STAGE 1B

REMOVE PI: 9+613.71

PROTECTION SYSTEM REFER TO STRUCTURAL DRAWINGS FOR DETAILS

RSS WALL FROM STAGE 1A

+683.8

+847.0

9+818

21 Bowen Road Stevensville

REINSTATE

G101
210x400

CP RAILWAY

CN RAILWAY

SCALE
5m 0 10m
Horizontal

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – STAGE 2A
STA 13+950 TO STA 14+300
Survey Revised

SHEET 50

AECOM

CP RAILWAY

CN RAILWAY

14+000

14+100

14+200

REMOVE Wg-33L 30x90

Rb-1a 60x90 MAXIMUM 100 km/h

TORONTO BOUND

MTOD 911.174

0.50

OPSD 911.162

TCB

PRECAST CONC. CULVERT (SEGMENT 3)

TORONTO BOUND

0.50

STA 13+950

(WORK ZONE)

℄ MEDIAN REALIGNMENT QEW

STA 14+300

0.50

3.75 [1]

3.50 [11]

1.50 [9]

TCB RELOCATION

FORT ERIE BOUND

PROTECTION SYSTEM REFER TO STRUCTURAL DRAWINGS FOR DETAILS

PROTECTION SYSTEM FROM STAGE 1B

RSS WALL FROM STAGE 1A

9+700

9+800

9+900

10+000

10+021

BC: 9+831.24

0.50

3.75 [9]

4.75 [9]

TCB RELOCATION

271.6

FORT ERIE BOUND

0.50

3.75 [1]

[5]

4.75 [1]

[5]

℄ RAMP N-EW

10+000

+997.1

+227.7

REINSTATE

Wg-33JR 45x90

G122 120x150

CS: 10+000.00

SCALE
5m 0 10m
Horizontal

LICENSED PROFESSIONAL ENGINEER R. NEWMAN PROVINCE OF ONTARIO
LICENSED PROFESSIONAL ENGINEER D. A. CHEUNG 100153451 PROVINCE OF ONTARIO

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
Printed: Mar 18, 2019
\\CAMBY1FPD01\Data\Projects\60581660 – CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PMK-STG2A-14300.dwg (Model)

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW - STAGE 2A
STA 14+300 TO STA 14+650
Survey ____ Revised ____

SHEET 51

AECOM

L.A. NEWMAN 100153451 PROVINCE OF ONTARIO

R. NEWMAN PROVINCE OF ONTARIO

STA 14+300

STA 14+650

14+400

14+500

14+600

10+194

10+100

10+000

9+900

9+823

9+846.13

TORONTO BOUND

FORT ERIE BOUND

TCB

℄ MEDIAN REALIGNMENT QEW

(WORK ZONE) R=3000m

A=450 TCB RELOCATION

TEMPORARY PAVED SHOULDER WHERE BE REMOVED

℄ RAMP EW-N

℄ RAMP EW-S

℄ RAMP N-EW

℄ BOWEN ROAD

℄ SUNSET DRIVE

6 DELINEATORS AT 10.0m SPACING

9 DELINEATORS AT 10.0m SPACING

78m - 1800mm CULVERTS

GATE STOP

REINSTATE

REMOVE

RELOCATE STA 9+833

RELOCATE STA 9+826.5

RELOCATE STA 9+850

REINSTATE STA 10+244

SC: 10+057.63

CS: 10+124.21

ST: 10+187.89

SC: 10+000.00

CS: 9+955.38

SCALE
5m 0 10m
Horizontal

1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:
1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
5. Use (1) to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM).
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

\\CAMBY1FP001\Data\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PMK-STG2A-14650.dwg (Model) Printed: Mar 18, 2019

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW - STAGE 2A
STA 14+650 TO STA 15+000
Survey _____ Revised _____

SHEET 52

AECOM

LEGEND :

NOTES:
1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠ to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
5. Use (1) to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

R. NEWMAN — LICENCE 100 — May 15/20 — LICENCE OF ONTARIO

R. A. CROWN — 100193451 — 2020/03/13 — PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO

HOC 10+179.422 BOWEN RD. =HOT 10+238.391 S-EW RAMP
HOC 10+167.654 BOWEN RD. =HOT 9+829.461 EW-N RAMP
℄ BOWEN ROAD
℄ RAMP S-EW
℄ RAMP EW-N
℄ RAMP EW-S
℄ MEDIAN REALIGNMENT QEW
TORONTO BOUND
FORT ERIE BOUND
(WORK ZONE)
TCB
TCB RELOCATION
FLEXIBLE DELINEATORS
EAT-NA-U-3
RELOCATE
SUNSET DRIVE
ONTARIO
ICC Golf
UNCOVER
REMOVE
STA 14+650
STA 15+000
SCALE 5m 0 10m Horizontal

\\CAWBY1FPG01\Data\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PMK-ST02A-15000.dwg (Model) Printed: Mar 18, 2019
MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

METRIC

PLATE No

CONT 2019-2003

WP 2116-16-00

CONSTRUCTION STAGING

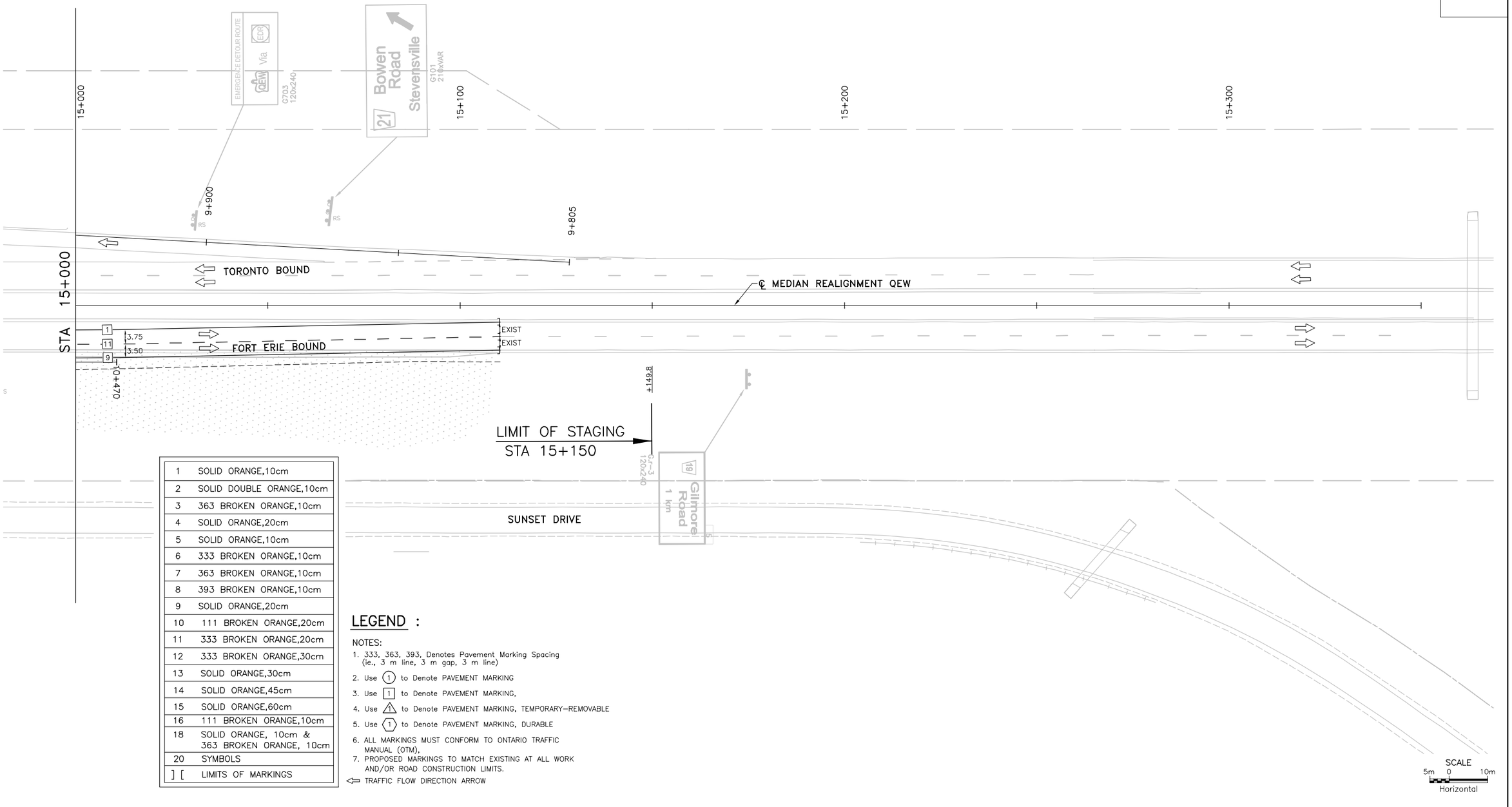
QEW – STAGE 2A

STA 15+000 TO STA 15+350

Survey Revised

SHEET 53

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY–REMOVABLE
5. Use ⬡1 to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

Printed: Mar 18, 2019

\\CAMBY1FPD01\Data\Projects\60581660 – CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PMK-STG2A-15350.dwg (Model)

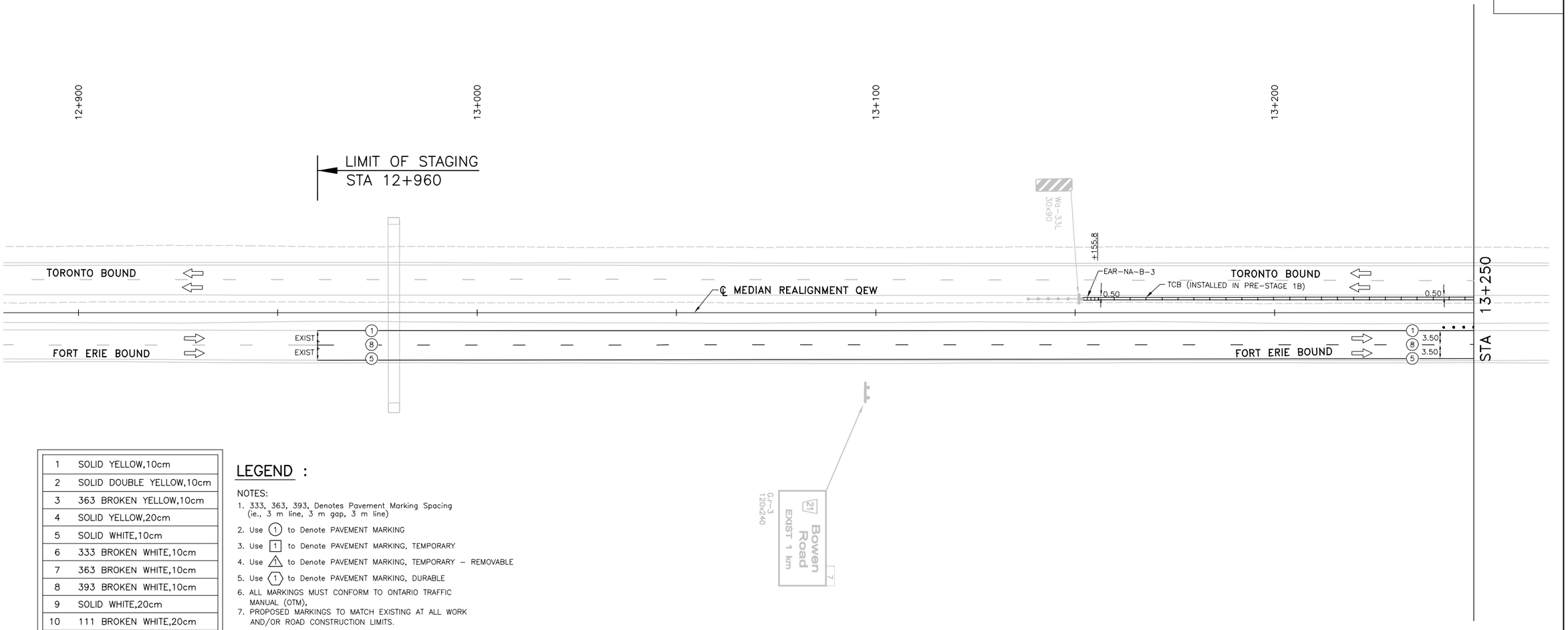
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – WINTER SHUTDOWN
STA 12+900 TO STA 13+250
Survey _____ Revised _____

SHEET 54

AECOM



1	SOLID YELLOW,10cm
2	SOLID DOUBLE YELLOW,10cm
3	363 BROKEN YELLOW,10cm
4	SOLID YELLOW,20cm
5	SOLID WHITE,10cm
6	333 BROKEN WHITE,10cm
7	363 BROKEN WHITE,10cm
8	393 BROKEN WHITE,10cm
9	SOLID WHITE,20cm
10	111 BROKEN WHITE,20cm
11	333 BROKEN WHITE,20cm
12	333 BROKEN WHITE,30cm
13	SOLID WHITE,30cm
14	SOLID WHITE,45cm
15	SOLID WHITE,60cm
16	111 BROKEN WHITE,10cm
18	SOLID YELLOW, 10cm & 363 BROKEN YELLOW, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING, TEMPORARY
4. Use ⟨1⟩ to Denote PAVEMENT MARKING, TEMPORARY – REMOVABLE
5. Use ⟨1⟩ to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

\\CAWBY1FP001\Data\Projects\60581660 - CNCP QEW DD\300-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PMK-WSD-13250.dwg (Model) Printed: Mar 18, 2019
MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

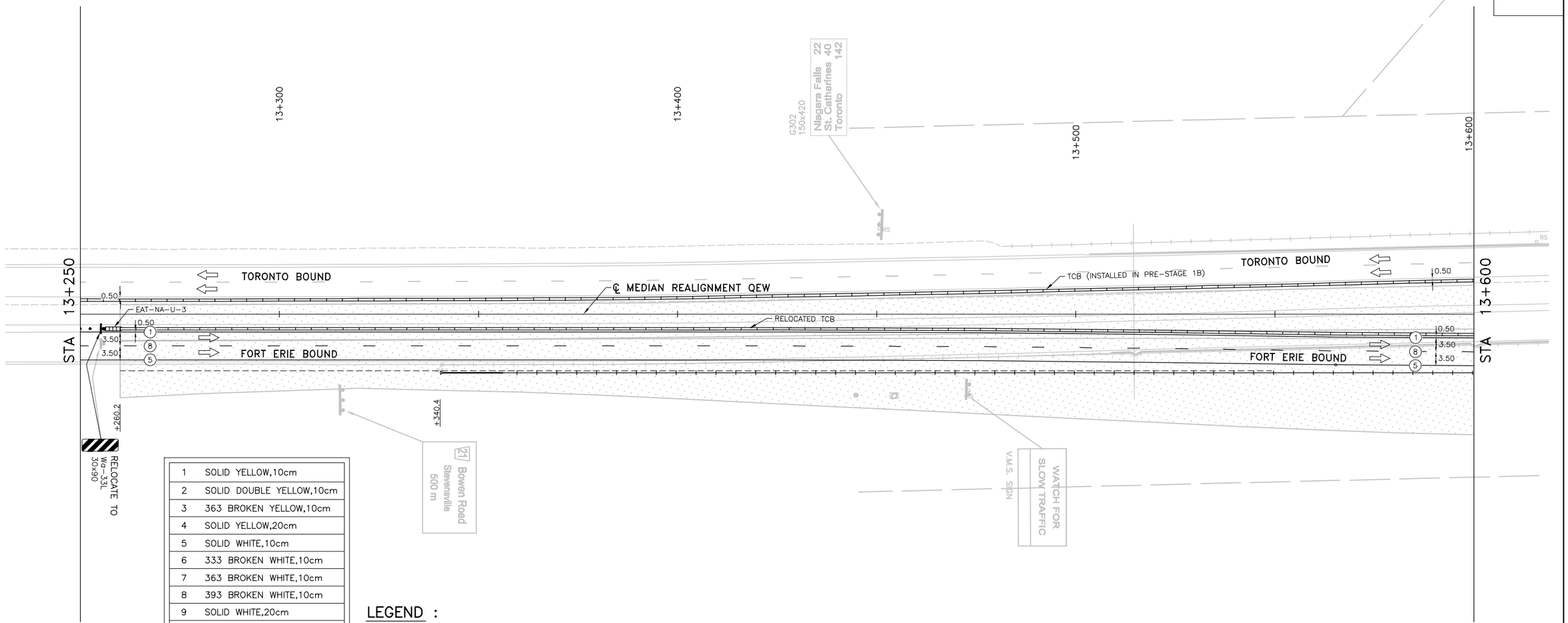
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – WINTER SHUTDOWN
STA 13+250 TO STA 13+600
Survey _____ Revised _____

SHEET 55

AECOM



1	SOLID YELLOW,10cm
2	SOLID DOUBLE YELLOW,10cm
3	363 BROKEN YELLOW,10cm
4	SOLID YELLOW,20cm
5	SOLID WHITE,10cm
6	333 BROKEN WHITE,10cm
7	363 BROKEN WHITE,10cm
8	393 BROKEN WHITE,10cm
9	SOLID WHITE,20cm
10	111 BROKEN WHITE,20cm
11	333 BROKEN WHITE,20cm
12	333 BROKEN WHITE,30cm
13	SOLID WHITE,30cm
14	SOLID WHITE,45cm
15	SOLID WHITE,60cm
16	111 BROKEN WHITE,10cm
18	SOLID YELLOW, 10cm & 363 BROKEN YELLOW, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING, TEMPORARY
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY – REMOVABLE
5. Use ⟨1⟩ to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
\\CAWBY1FPO01\Data\Projects\60581660 - CNCP QEW ED\900-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PMK-WSD-13600.dwg (Model) Printed: Mar 18, 2019

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

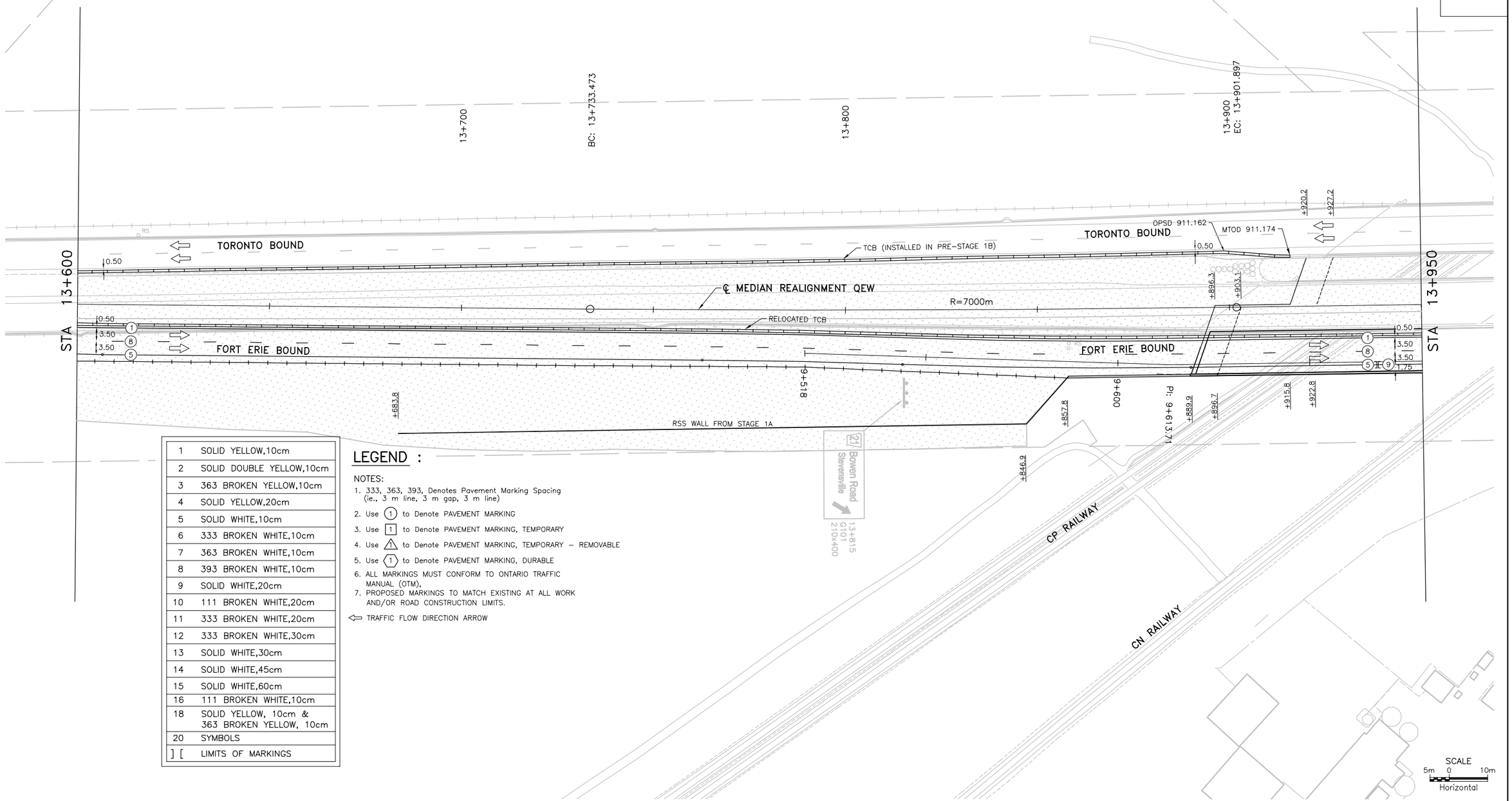
CONSTRUCTION STAGING
QEW – WINTER SHUTDOWN
STA 13+600 TO STA 13+950
Survey _____ Revised _____

SHEET 56

AECOM

R. NEWMAN
PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

D. A. GREEN
100153451
PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO



1	SOLID YELLOW,10cm
2	SOLID DOUBLE YELLOW,10cm
3	363 BROKEN YELLOW,10cm
4	SOLID YELLOW,20cm
5	SOLID WHITE,10cm
6	333 BROKEN WHITE,10cm
7	363 BROKEN WHITE,10cm
8	393 BROKEN WHITE,10cm
9	SOLID WHITE,20cm
10	111 BROKEN WHITE,20cm
11	333 BROKEN WHITE,20cm
12	333 BROKEN WHITE,30cm
13	SOLID WHITE,30cm
14	SOLID WHITE,45cm
15	SOLID WHITE,60cm
16	111 BROKEN WHITE,10cm
18	SOLID YELLOW, 10cm & 363 BROKEN YELLOW, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING, TEMPORARY
4. Use ⟨1⟩ to Denote PAVEMENT MARKING, TEMPORARY – REMOVABLE
5. Use ⟨1⟩ to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

\\CAWBY1FP001\Data\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PMK-WSD-13950.dwg (Model) Printed: Mar 18, 2019

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – WINTER SHUTDOWN
STA 13+950 TO STA 14+300
Survey _____ Revised _____

SHEET 57

AECOM

CP RAILWAY

CN RAILWAY

14+000 14+100 14+200 14+300

±030.8 ±035.2 ±043.0

TORONTO BOUND

MTOD 911.174

0.50

OPSD 911.162

TCB (INSTALLED IN STAGE 2A)

TORONTO BOUND

0.50

STA 13+950

±014.9 ±022.7

℄ MEDIAN REALIGNMENT QEW

±233.2

±281.1

STA 14+300

RELOCATED TCB

0.50 3.50 3.50 1.75

FORT ERIE BOUND

0.50 3.50 3.50 4.75 4.75

FORT ERIE BOUND

9+700 ±008.6 ±018.3 ±022.9 9+800 9+831.24

℄ RAMP N-EW

±153.4 9+900

RSS WALL FROM STAGE 1A

±962.2 10+000.00 ±010.0 10+000

Wg-33LR 45x90

9122 120x150

1	SOLID YELLOW,10cm
2	SOLID DOUBLE YELLOW,10cm
3	363 BROKEN YELLOW,10cm
4	SOLID YELLOW,20cm
5	SOLID WHITE,10cm
6	333 BROKEN WHITE,10cm
7	363 BROKEN WHITE,10cm
8	393 BROKEN WHITE,10cm
9	SOLID WHITE,20cm
10	111 BROKEN WHITE,20cm
11	333 BROKEN WHITE,20cm
12	333 BROKEN WHITE,30cm
13	SOLID WHITE,30cm
14	SOLID WHITE,45cm
15	SOLID WHITE,60cm
16	111 BROKEN WHITE,10cm
18	SOLID YELLOW, 10cm & 363 BROKEN YELLOW, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:
1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING, TEMPORARY
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY – REMOVABLE
5. Use (1) to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – WINTER SHUTDOWN
STA 14+300 TO STA 14+650
Survey _____ Revised _____

SHEET 58

AECOM

R. NEWMAN
LICENSED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

R. A. CHEEMA
100193451
LICENSED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

TS: 14+303.212
SC: 14+370.712
14+400
14+500
14+600
CS: 14+603.475
STA 14+300
STA 14+650
TORONTO BOUND
FORT ERIE BOUND
TCB (INSTALLED IN STAGE 2A)
℄ MEDIAN REALIGNMENT QEW
RELOCATED TCB
R=3000m
A=450
TEMPORARY PAVED SHOULDER CONSTRUCTED IN STAGE 2A WHERE BE REMOVED
℄ RAMP N-EW
℄ RAMP EW-S
℄ BOWEN ROAD
SUNSET DRIVE
SC: 10+057.63
SC: 10+124.21
CS: 10+187.89
SC: 9+955.38
CS: 9+846.13
CS: 10+000.00
10+000
10+100
9+900
9+800
10+200
10+257
+549.6
+447.4
+850.0
+836.5
+790.6
+796.19
6 DELINEATORS AT 10.0m SPACING
9 DELINEATORS AT 10.0m SPACING
78m TWIN 800mm CULVERTS
CATÉ STOP
STOP
Sunset Drive
To Bowen Dr. N.
To Bowen Dr.

1	SOLID YELLOW,10cm
2	SOLID DOUBLE YELLOW,10cm
3	363 BROKEN YELLOW,10cm
4	SOLID YELLOW,20cm
5	SOLID WHITE,10cm
6	333 BROKEN WHITE,10cm
7	363 BROKEN WHITE,10cm
8	393 BROKEN WHITE,10cm
9	SOLID WHITE,20cm
10	111 BROKEN WHITE,20cm
11	333 BROKEN WHITE,20cm
12	333 BROKEN WHITE,30cm
13	SOLID WHITE,30cm
14	SOLID WHITE,45cm
15	SOLID WHITE,60cm
16	111 BROKEN WHITE,10cm
18	SOLID YELLOW, 10cm & 363 BROKEN YELLOW, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:
1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING, TEMPORARY
4. Use ⚠ to Denote PAVEMENT MARKING, TEMPORARY – REMOVABLE
5. Use ⟨1⟩ to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
Printed: Mar 18, 2019
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METRIC

1	SOLID YELLOW,10cm
2	SOLID DOUBLE YELLOW,10cm
3	363 BROKEN YELLOW,10cm
4	SOLID YELLOW,20cm
5	SOLID WHITE,10cm
6	333 BROKEN WHITE,10cm
7	363 BROKEN WHITE,10cm
8	393 BROKEN WHITE,10cm
9	SOLID WHITE,20cm
10	111 BROKEN WHITE,20cm
11	333 BROKEN WHITE,20cm
12	333 BROKEN WHITE,30cm
13	SOLID WHITE,30cm
14	SOLID WHITE,45cm
15	SOLID WHITE,60cm
16	111 BROKEN WHITE,10cm
18	SOLID YELLOW, 10cm & 363 BROKEN YELLOW, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:
1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING, TEMPORARY
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY – REMOVABLE
5. Use ⟨1⟩ to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM).
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

PLATE No
CONT 2019–2003
WP 2116–16–00

CONSTRUCTION STAGING
QEW – WINTER SHUTDOWN
STA 14+650 TO STA 15+000
Survey _____ Revised _____

SHEET 59

AECOM

10+200 · 10+238 · 10+200.00 · 10+100 · ℄ BOWEN ROAD · 14+700 · ST: 14+670.975 · ±670.1 · ℄ RAMP EW–N · 14+800 · ℄ RAMP S–EW · 10+100 ST: 10+097.10 · 14+900 · CS: 10+057.10 · SC: 10+046.94 · 10+000 · TS: 10+000.00 · ±823.7 · STA 14+650 · STA 15+000 · TORONTO BOUND · FORT ERIE BOUND · TCB (INSTALLED IN STAGE 2A) · FLEXIBLE DELINEATORS · ℄ MEDIAN REALIGNMENT QEW · RELOCATED TCB · EAR–NA–U–3 · EAR–NA–B–3 · 10+200 · EC: 10+211.61 · 10+300 · 10+316.3 · 10+400 · SUNSET DRIVE · REINSTATE TO STA 41+595 · REINSTATE TO STA 41+878 · ONTARIO · ICC Golf · STOP · 40 · 100 · 30 · 4.0 m

SCALE
5m 0 10m
Horizontal

\\CAWBY1FP001\Data\Projects\60581660 – CNCP QEW DD\900–CAD_GIS\910–CAD\CAD\20–SHEETS\STAGING\60581660–C–PMK–WSD–15000.dwg (Model) Printed: Mar 18, 2019
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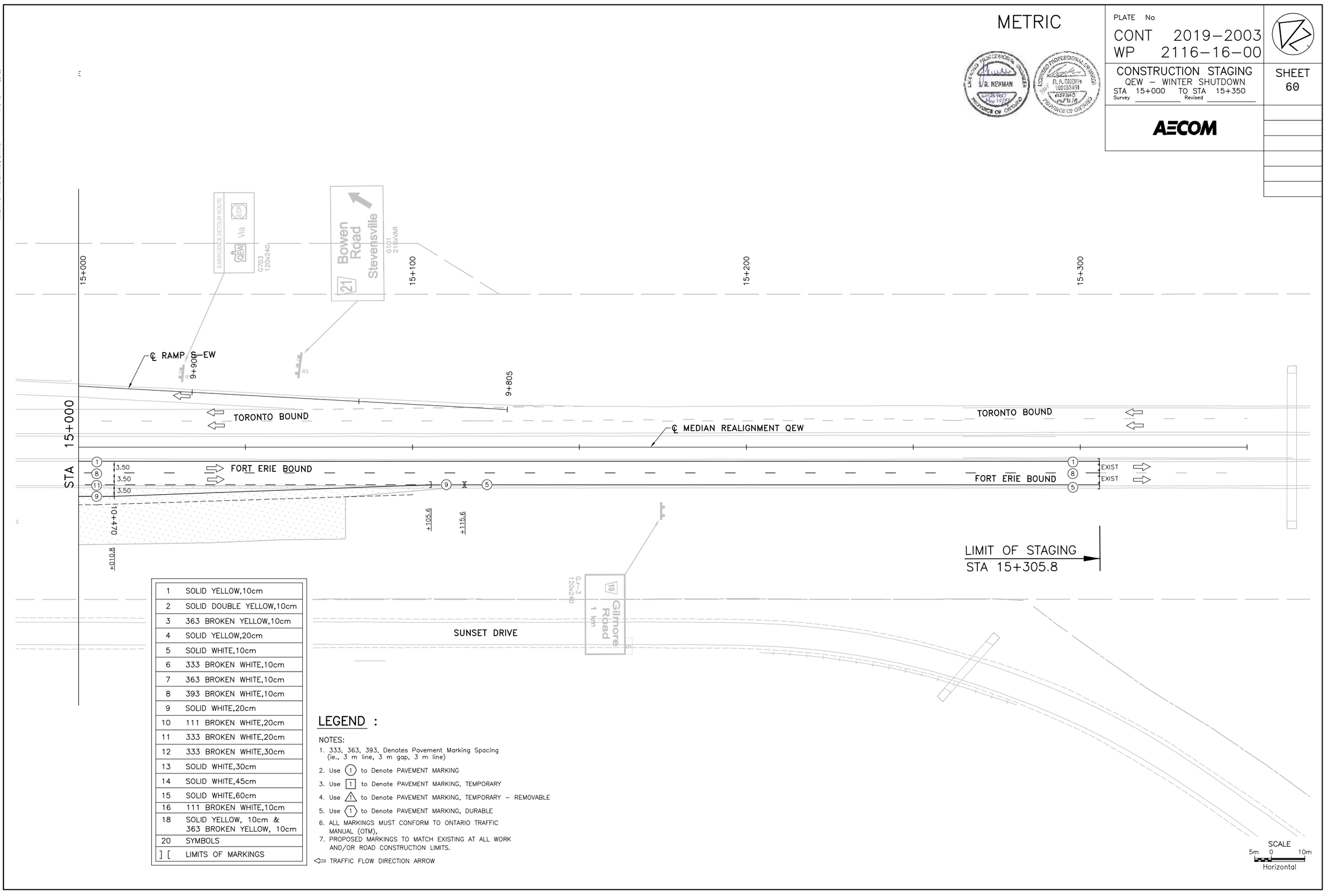
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – WINTER SHUTDOWN
STA 15+000 TO STA 15+350
Survey _____ Revised _____

SHEET 60

AECOM



1	SOLID YELLOW,10cm
2	SOLID DOUBLE YELLOW,10cm
3	363 BROKEN YELLOW,10cm
4	SOLID YELLOW,20cm
5	SOLID WHITE,10cm
6	333 BROKEN WHITE,10cm
7	363 BROKEN WHITE,10cm
8	393 BROKEN WHITE,10cm
9	SOLID WHITE,20cm
10	111 BROKEN WHITE,20cm
11	333 BROKEN WHITE,20cm
12	333 BROKEN WHITE,30cm
13	SOLID WHITE,30cm
14	SOLID WHITE,45cm
15	SOLID WHITE,60cm
16	111 BROKEN WHITE,10cm
18	SOLID YELLOW, 10cm & 363 BROKEN YELLOW, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING, TEMPORARY
4. Use ⟨1⟩ to Denote PAVEMENT MARKING, TEMPORARY – REMOVABLE
5. Use ⟨1⟩ to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

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\\CAWBY1FP001\Data\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PMK-WSD-15350.dwg (Model)

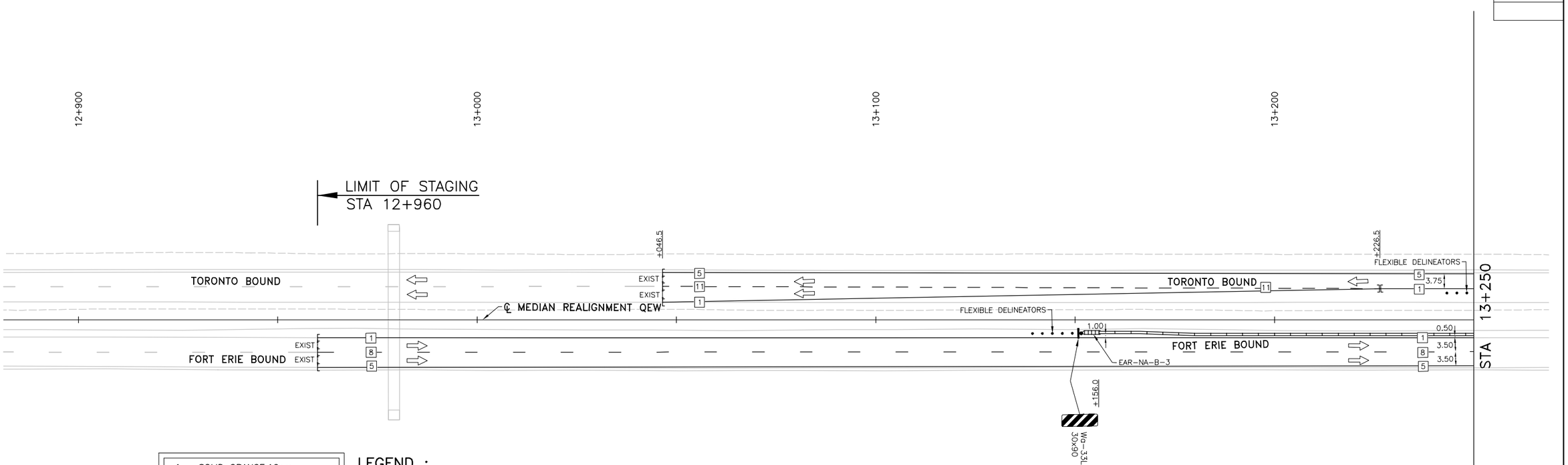
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – STAGE 2B
STA 12+900 TO STA 13+250
Survey Revised

SHEET 61

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠ to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
5. Use ⟨1⟩ to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

R. NEWMAN LICENSED PROFESSIONAL ENGINEER PROVINCE OF ONTARIO
P. A. GRECH 100193451 LICENSED PROFESSIONAL ENGINEER PROVINCE OF ONTARIO

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
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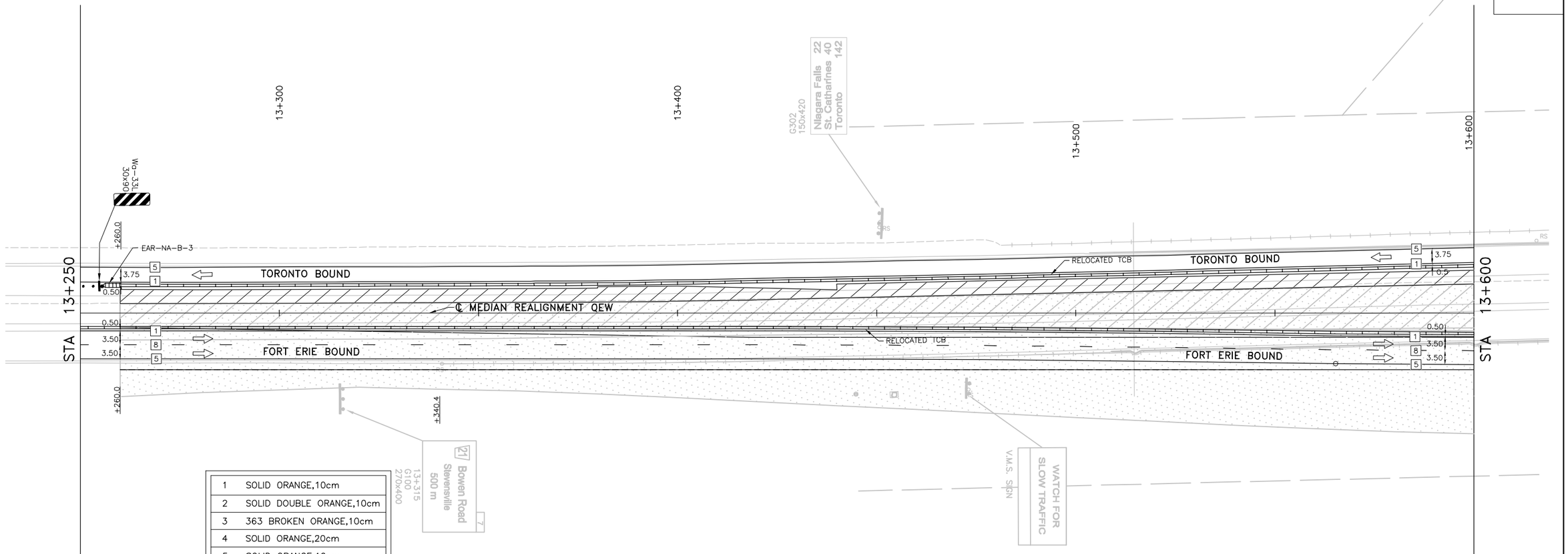
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – STAGE 2B
STA 13+250 TO STA 13+600
Survey Revised

SHEET 62

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY–REMOVABLE
5. Use ⟨1⟩ to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

\\CAWBY1FPD01\Data\Projects\60581660 – CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PMK-ST2B-13600.dwg (Model) Printed: Mar 18, 2019
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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW - STAGE 2B
STA 13+600 TO STA 13+950
Survey _____ Revised _____

SHEET 63

AECOM

R. NEWMAN — May 15/19

D. A. GREEN — 100153451 — May 15/19

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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STA 13+600

STA 13+950

13+700

13+800

13+900

±762.2

±888.9

±901.1

±936.1

±948.6

±683.8

±832.6

BC: 13+733.473

EC: 13+901.897

TORONTO BOUND

FORT ERIE BOUND

RELOCATED TCB

℄ MEDIAN REALIGNMENT QEW (WORK ZONE)

R=7000m

PROTECTION REFER TO STRUCTURAL DRAWINGS FOR DETAILS

OPSD 911.168

OPSD 911.162

OPSD 911.172

2.50 min.

3.75

0.5

0.50

3.50

1.75

27 Bowen Road Stevensville

13+815 G101 210x400

CP RAILWAY

CN RAILWAY

1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
5. Use ⟨1⟩ to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

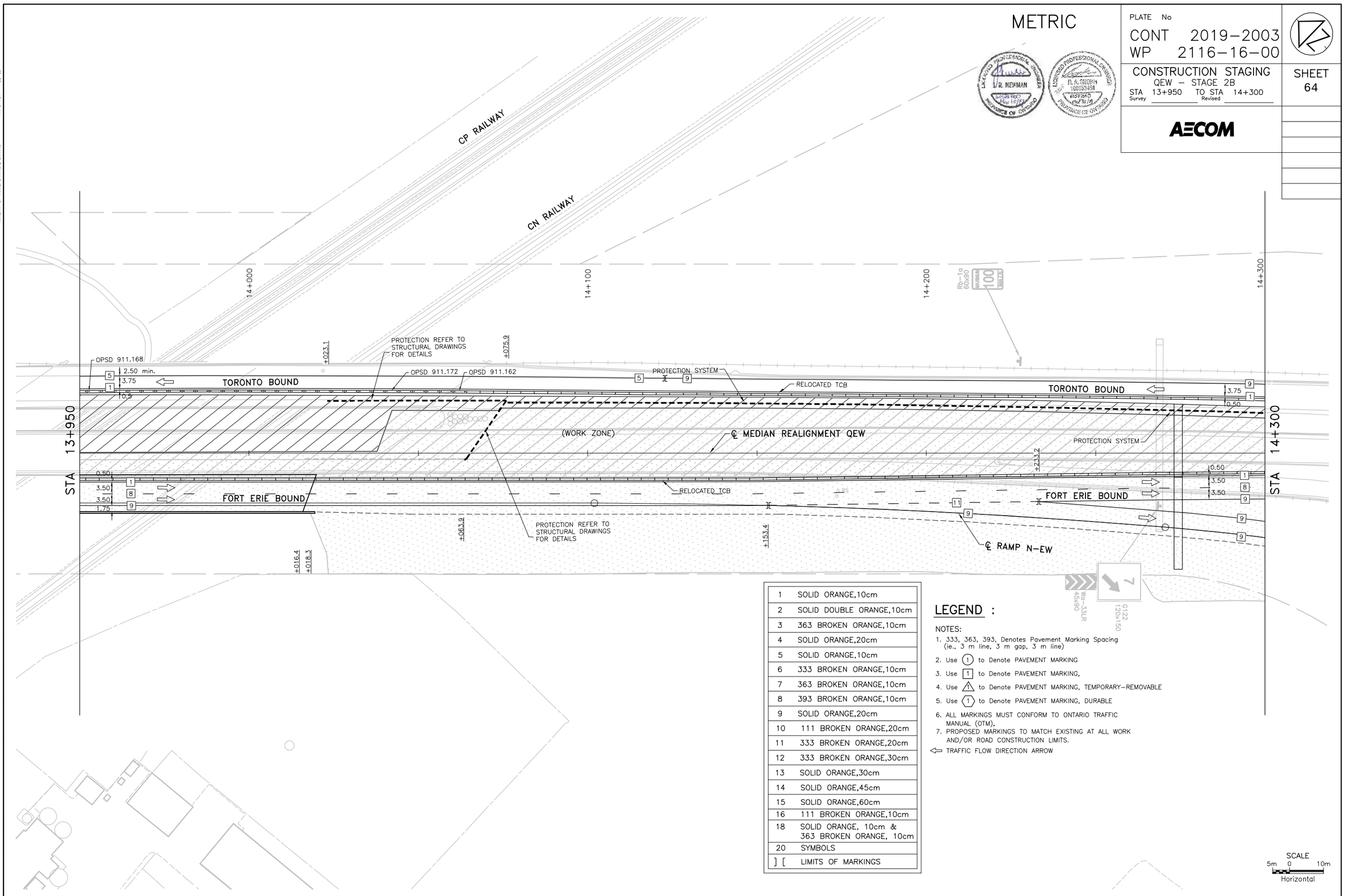
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – STAGE 2B
STA 13+950 TO STA 14+300
Survey Revised

SHEET 64

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY–REMOVABLE
5. Use ⬡1 to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM).
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – STAGE 2B
STA 14+300 TO STA 14+650
Survey _____ Revised _____

SHEET 65

AECOM

R. NEWMAN

R. A. GREEN 100153451

STA 14+300

STA 14+650

TORONTO BOUND

FORT ERIE BOUND

℄ MEDIAN REALIGNMENT QEW

PROTECTION SYSTEM

(WORK ZONE)

RELOCATED TCB

A=450

R=3000m

℄ RAMP EW-N

℄ RAMP EW-S

℄ RAMP N-EW

℄ BOWEN ROAD

SUNSET DRIVE

TS: 14+303.212

SC: 14+3

CS: 14+603.475

EC: 10+081.38

78m TWIN 800mm CULVERTS

6 DELINEATORS AT 10.0m SPACING

9 DELINEATORS AT 10.0m SPACING

GATE STOP

14+400

14+500

14+600

10+100

10+135

+318.1

+480.0

10+194

+540.3

+447.4

+627.7

+836.5

+850.0

+790.6

+961.6

10+000

1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY–REMOVABLE
5. Use ⬡1 to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

METRIC





PLATE No

CONT 2019-2003

WP 2116-16-00

CONSTRUCTION STAGING

QEW – STAGE 2B

STA 14+650 Survey TO STA 15+000 Revised

AECOM

SHEET 66

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use △1 to Denote PAVEMENT MARKING, TEMPORARY–REMOVABLE
5. Use ⬡1 to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM).
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

\\CAMBY1FP001\Data\Projects\60581660 – CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PMK-STG2B-15000.dwg (Model) Printed: Mar 18, 2019
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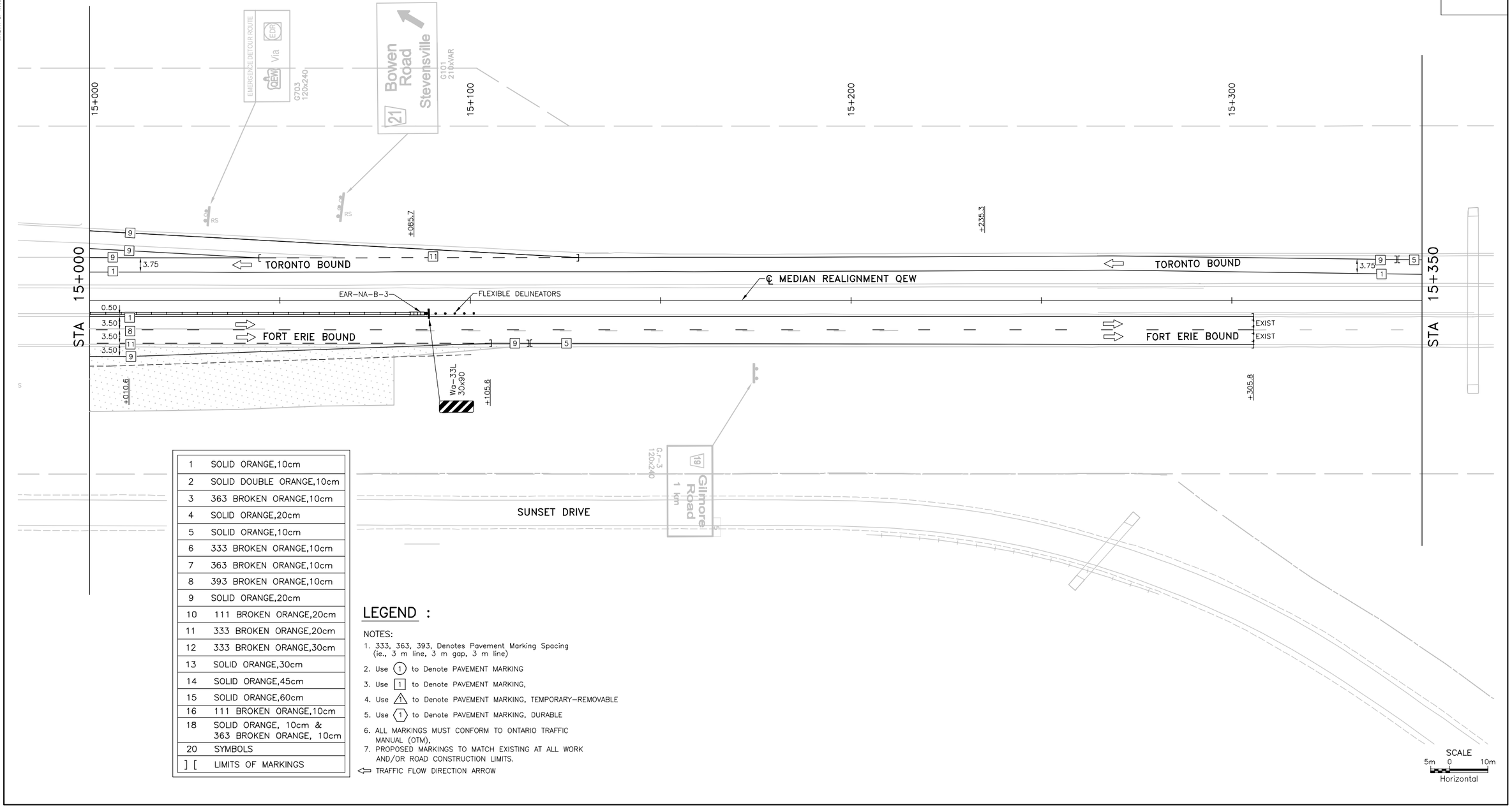
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW - STAGE 2B
STA 15+000 TO STA 15+350
Survey Revised

SHEET 67

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
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5. Use ⬡1 to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW - STAGE 2B
STA 15+350 TO STA 15+700
Survey _____ Revised _____

SHEET 68

AECOM

R. NEWMAN — Nov 15/19

R. A. CHEEMA — 100193451 — Nov 15/19

15+350

15+400

15+500

15+600

15+700

STA 15+350

3.75

5

1

TORONTO BOUND

FORT ERIE BOUND

5

9

11

3.75

3.75

11

9

1

TORONTO BOUND

FORT ERIE BOUND

1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
5. Use ⬡1 to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – STAGE 2B
STA Survey 15+700 TO STA Revised 15+935

SHEET 69

AECOM

LIMIT OF STAGING
STA 15+935

STA 15+700

15+800

15+900

16+000

Tc-3R 90x90

±935.1

Tc-3R 90x90

Tc-3tA 45x90

300 m

±635.1

3.75

TORONTO BOUND

FORT ERIE BOUND

EXIST

EXIST

–REMOVABLE

)RK

SCALE
5m 0 10m
Horizontal

\\CAMBY1FPG01\Data\Projects\60581660 – CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PMK-STG2B-16050.dwg (Model) Printed: Mar 18, 2019
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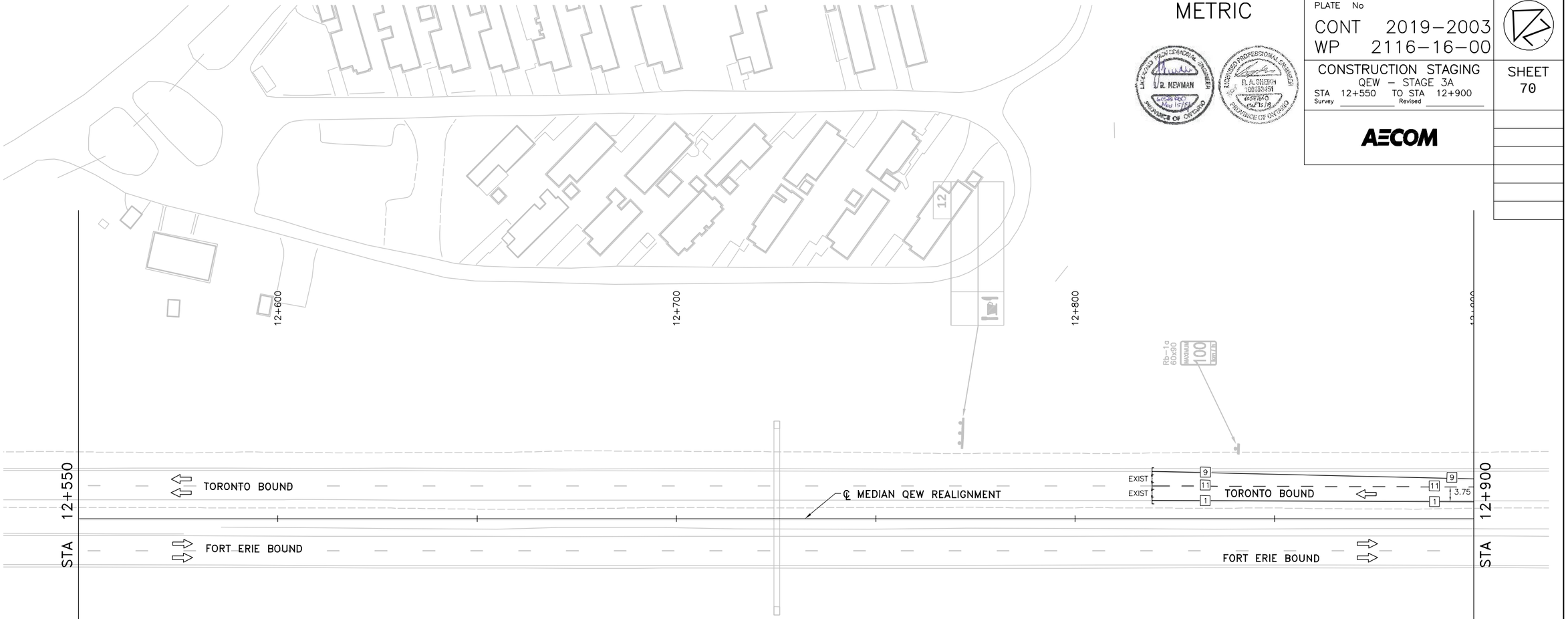
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW - STAGE 3A
STA 12+550 TO STA 12+900
Survey _____ Revised _____

SHEET 70

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
5. Use ⟨1⟩ to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

LIMIT OF STAGING
STA 12+819

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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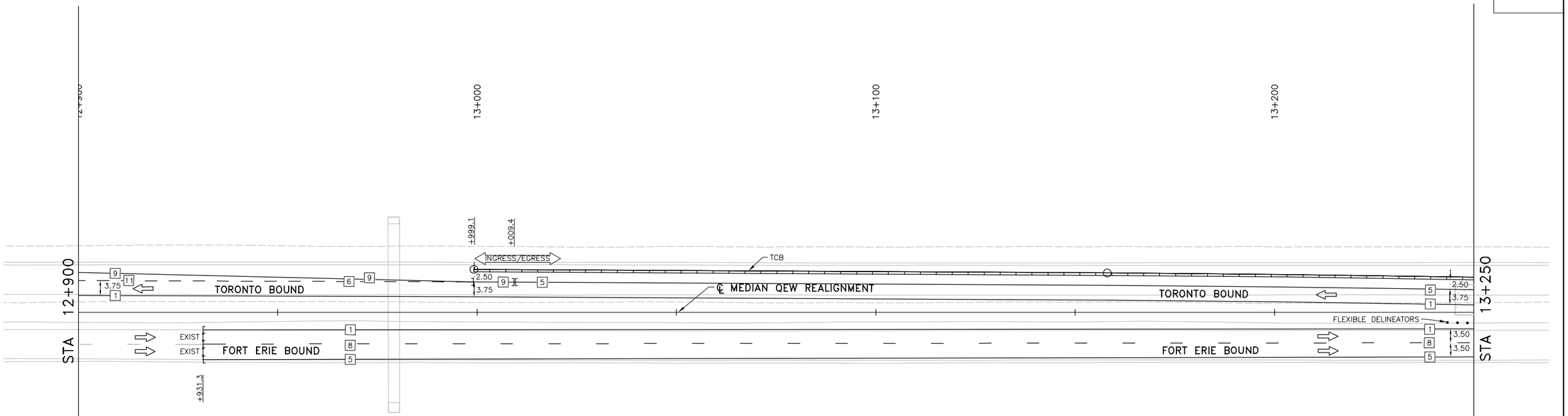
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – STAGE 3A
STA 12+900 TO STA 13+250
Survey Revised

SHEET 71

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY–REMOVABLE
5. Use ⬡1 to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
Printed: Mar 18, 2019
\\CAWBY1FP001\Data\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PMK-ST3A-13250.dwg (Model)

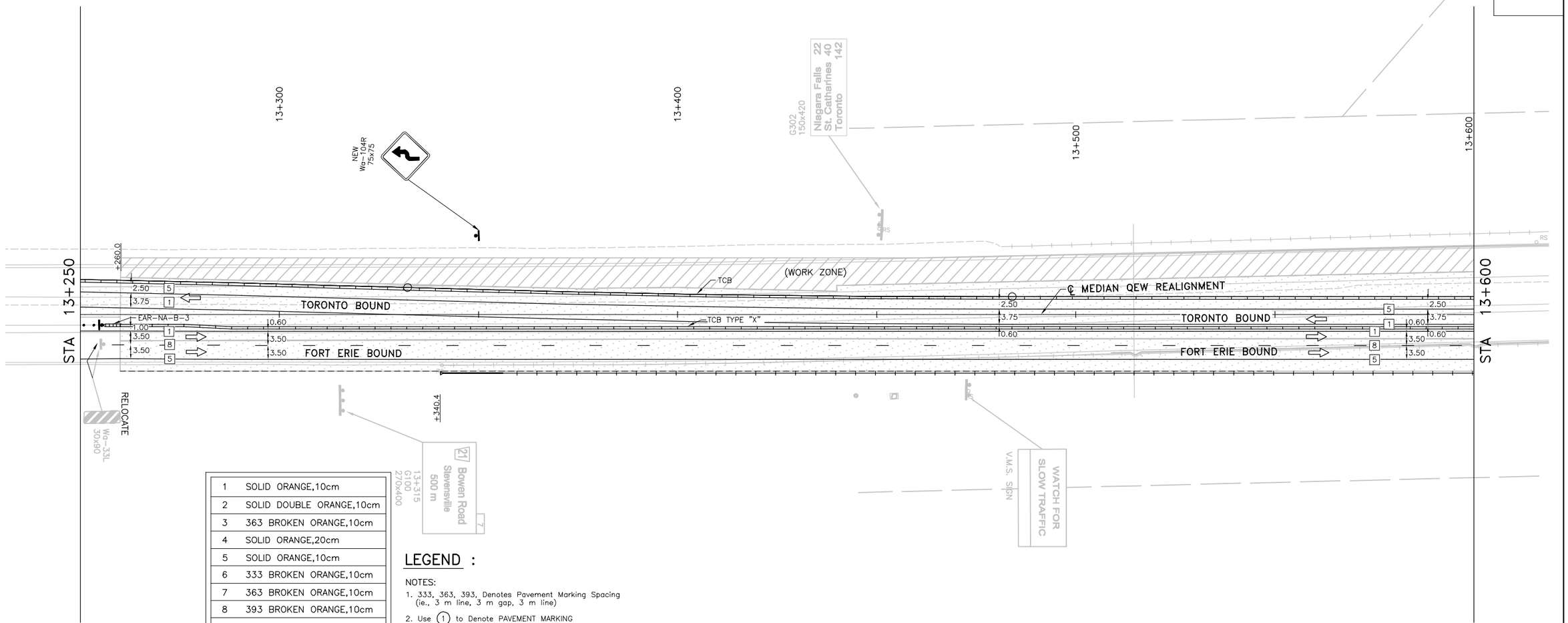
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – STAGE 3A
STA 13+250 TO STA 13+600
Survey Revised

SHEET 72

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY–REMOVABLE
5. Use ⟨1⟩ to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

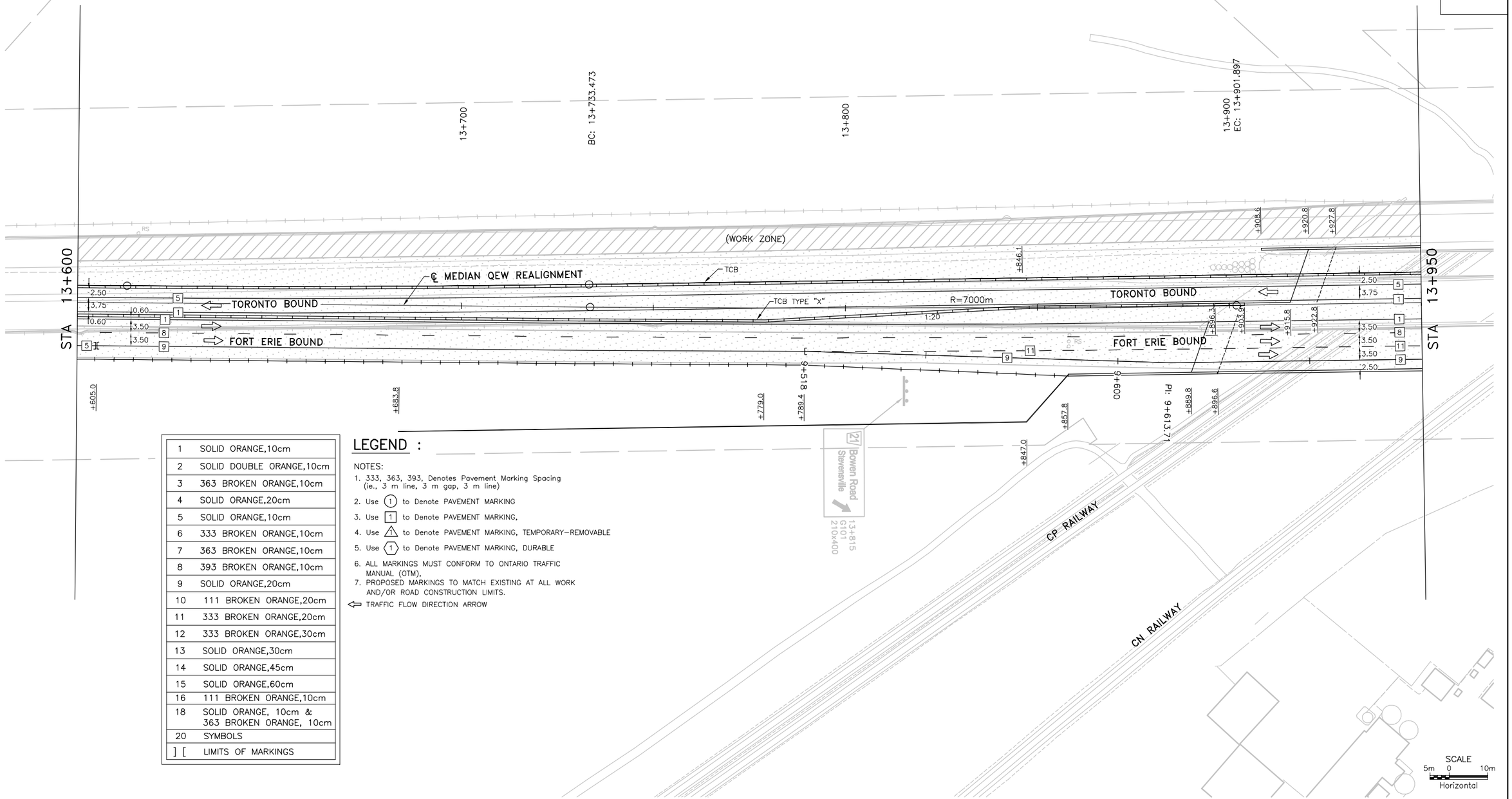
CONSTRUCTION STAGING
QEW – STAGE 3A
STA 13+600 TO STA 13+950
Survey Revised

SHEET 73

AECOM

R. NEWMAN
LICENSED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

D. A. GREEN
100153451
LICENSED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY–REMOVABLE
5. Use ⬡1 to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – STAGE 3A
STA 13+950 TO STA 14+300
Survey Revised

SHEET 74

AECOM

CP RAILWAY

CN RAILWAY

14+000 14+100 14+200 14+300

(WORK ZONE)

PRECAST CONC. CULVERT (SEGMENT 4)

STA 13+950 STA 14+300

TORONTO BOUND

FORT ERIE BOUND

℄ MEDIAN QEW REALIGNMENT

TCB TYPE "X"

TCB

℄ RAMP N-EW

PC: 9+831.24

CS: 10+000.00

10+000

1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:
1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY–REMOVABLE
5. Use ⬡1 to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

\\CAMBY1FP001\Data\Projects\60581660 – CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PMK-STG3A-14300.dwg (Model) Printed: Mar 18, 2019
MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

METRIC

PLATE No
CONT 2019–2003
WP 2116–16–00

CONSTRUCTION STAGING
QEW – STAGE 3A
STA 14+300 TO STA 14+650
Survey ____ Revised ____

SHEET 75

AECOM

R. NEWMAN — LICENSED PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO — May 15/19

D. A. GREEN — 100153451 — LICENSED PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO — May 15/19

STA 14+300

STA 14+650

TS: 14+303.212

SC: 14+370.712

14+400

14+500

14+600

CS: 14+603.475

(WORK ZONE)

TORONTO BOUND

FORT ERIE BOUND

℄ MEDIAN QEW REALIGNMENT

R=3000m

A=450

TCB

TCB TYPE "X"

2.50

3.75

0.60

3.50

3.50

2.60

4.75

RAMP EW–N

10+194

±530.1

10+100

±605.6

±625.9

±643.3

EAT–W–U–3

℄ RAMP EW–S

CS: 9+955.38

9+850

±930.6

SC: 10+000.00

10+000

℄ RAMP N–EW

SC: 10+057.63

10+100

±042.5

6 DELINEATORS AT 10.0m SPACING

78m TWIN 800mm CULVERTS

9 DELINEATORS AT 10.0m SPACING

9+900

CS: 10+124.21

ST: 10+187.89

10+200

℄ BOWEN ROAD

BC: 9+846.13

9+823

10+000

10+135

10+100

BC: 10+257.73

EC: 10+081.38

SUNSET DRIVE

1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
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3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠ to Denote PAVEMENT MARKING, TEMPORARY–REMOVABLE
5. Use ⟨1⟩ to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

METRIC

1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – STAGE 3A
STA 14+650 TO STA 15+000
Survey Revised

SHEET 76

AECOM

LEGEND :

NOTES:
1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
5. Use ⟨1⟩ to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM).
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

STA 10+200
℄ BOWEN ROAD
℄ RAMP S-EW
RAMP EW-N
(WORK ZONE)
COVER
REMOVE
TC-53 (BARICADE)
TC-54
EAT-RE-U-2
INGRESS/EGRESS
DC: 9+842.7
9+829
9+900
10+100
ST: 10+097.10
EAT-N-U-2
CS: 10+057.10
SC: 10+046.94
CS: 9+954.55
ST: 14+670.975
ST: 10+000.00
10+000
10+238
10+200
14+700
14+800
14+900
±188.5
±218.5
±229.5
±140.8
±101.5
±888.0
±968.8
±906.4
±965.2
±125.1
TCB
FLEXIBLE DELINEATORS
EAR-NA-B-3
RELOCATE
ITS: 10+000.00
℄ MEDIAN QEW REALIGNMENT
R=1500m
TCB TYPE "X"
TORONTO BOUND
FORT ERIE BOUND
SUNSET DRIVE
EC: 10+211.61
10+300
10+400
STA 14+650
STA 15+000
ONTARIO
Golf
Fort Erie Railroad Museum
3.75
0.60
3.50
4.75

SCALE
5m 0 10m
Horizontal

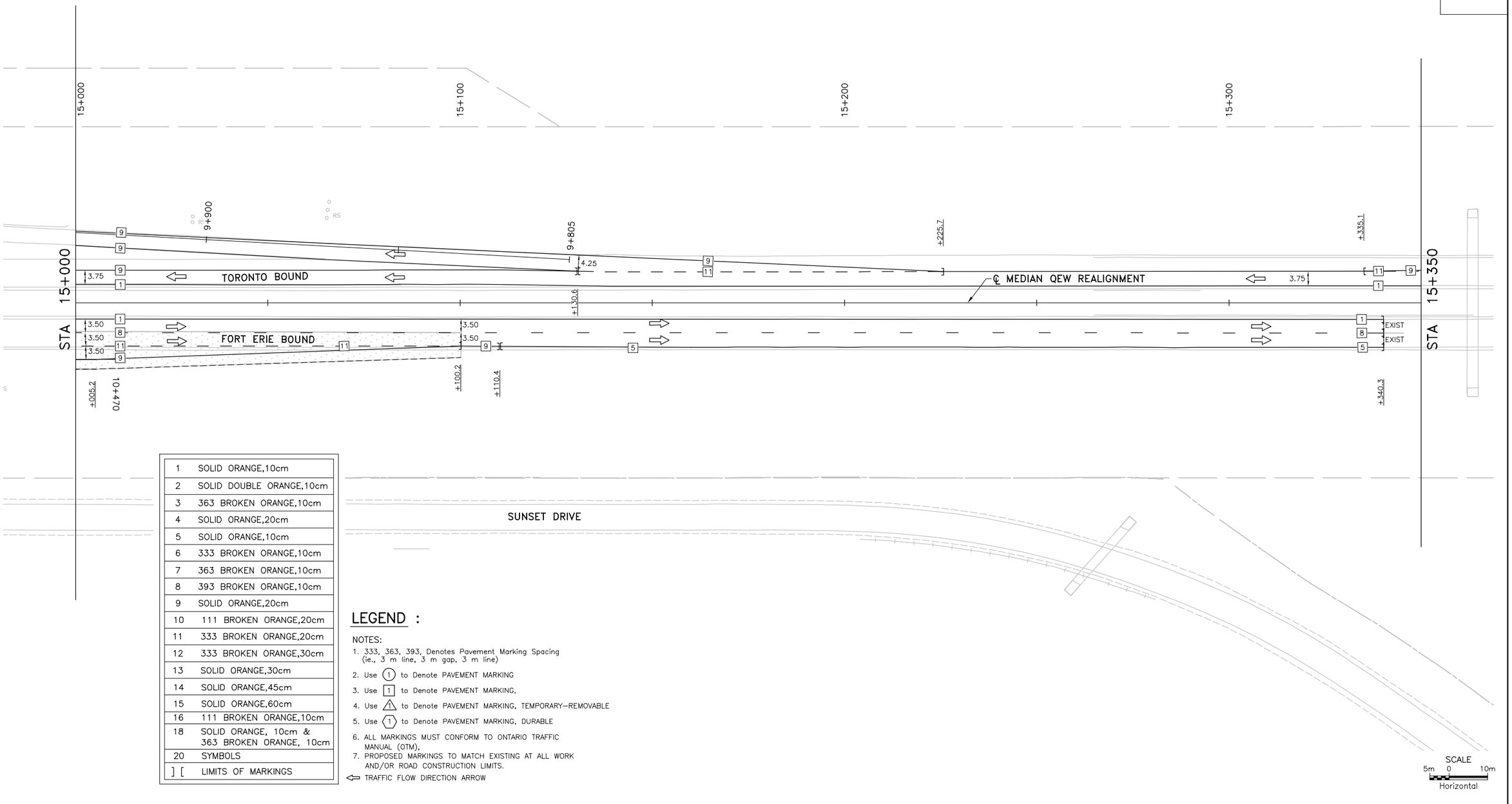
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – STAGE 3A
STA 15+000 TO STA 15+350
Survey Revised

SHEET 77

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⟨1⟩ to Denote PAVEMENT MARKING, TEMPORARY–REMOVABLE
5. Use ⟨1⟩ to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM).
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

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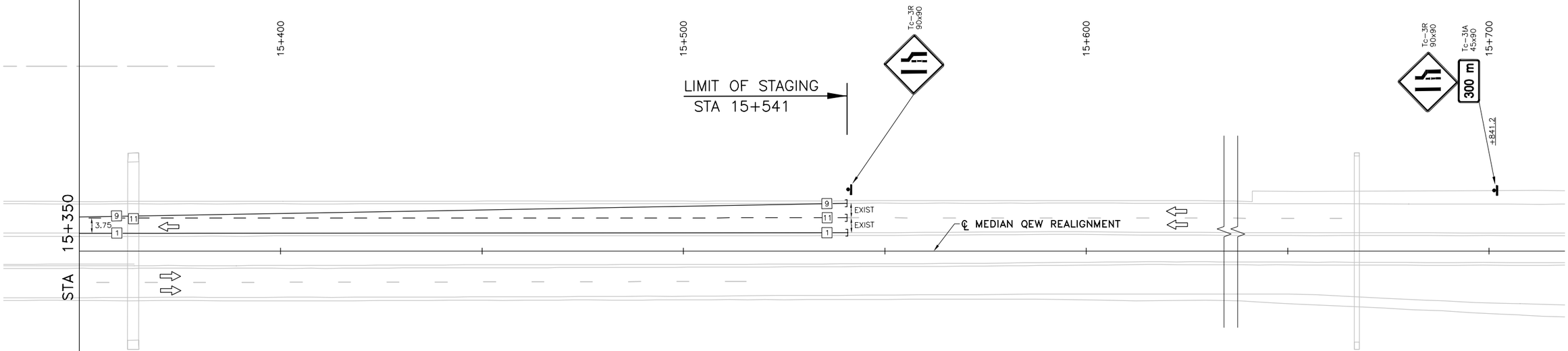
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW - STAGE 3A
STA 15+350 TO STA 15+700
Survey Revised

SHEET 78

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
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⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW - STAGE 3B
STA 12+550 TO STA 12+900
Survey _____ Revised _____

SHEET 79

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
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⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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\\CAMBY1FP001\Data\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PMK-STG3B-12900.dwg (Model)

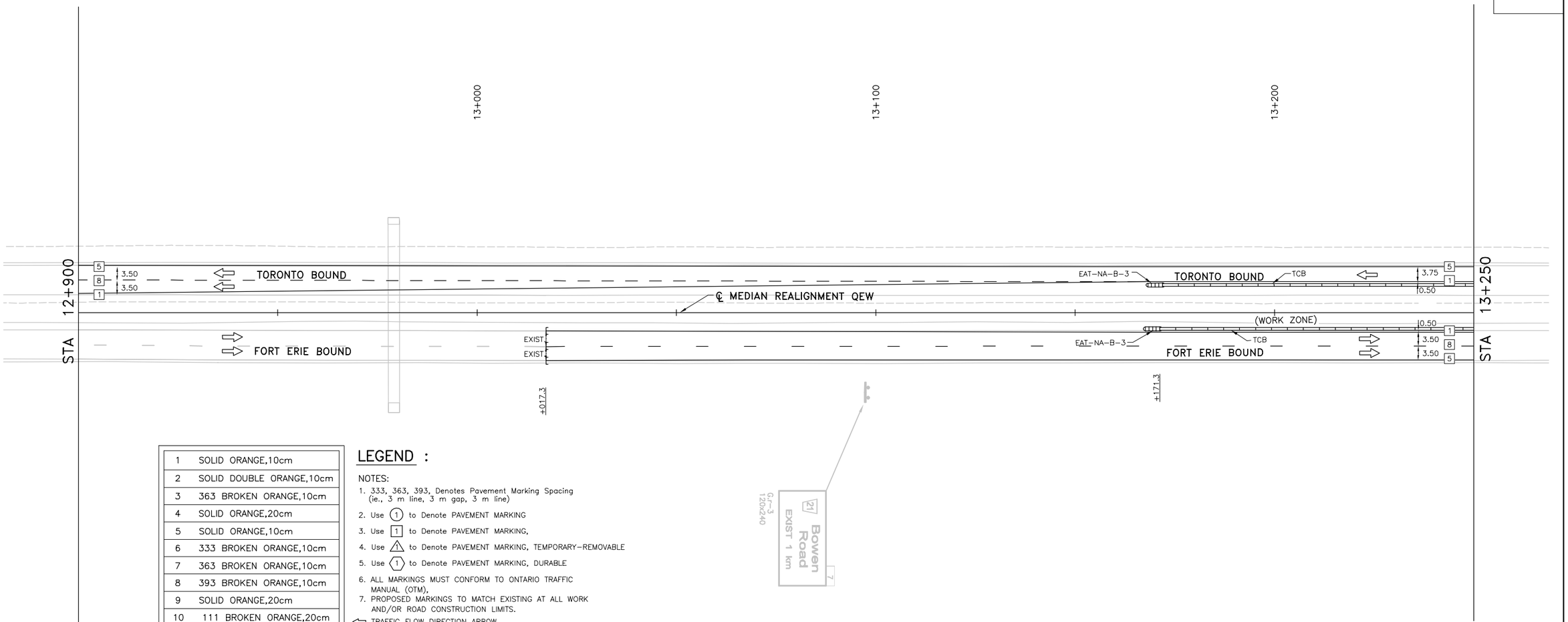
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – STAGE 3B
STA 12+900 TO STA 13+250
Survey Revised

SHEET 80

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

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3. Use [1] to Denote PAVEMENT MARKING,
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5. Use ⟨1⟩ to Denote PAVEMENT MARKING, DURABLE
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7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

\\CAWBY1FP001\Data\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PMK-ST63B-13250.dwg (Model) Printed: Mar 18, 2019

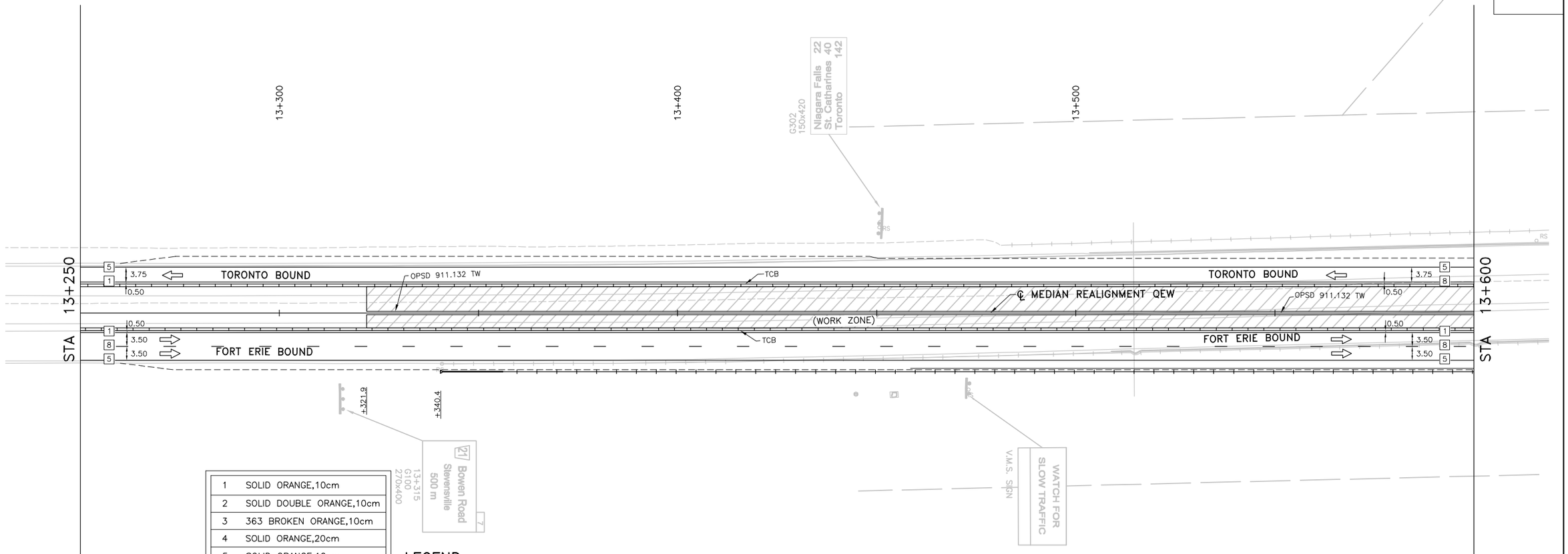
METRIC

PLATE No
CONT 2019–2003
WP 2116–16–00

CONSTRUCTION STAGING
QEW – STAGE 3B
STA 13+250 TO STA 13+600
Survey Revised

SHEET 81

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
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14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

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3. Use [1] to Denote PAVEMENT MARKING,
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7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW – STAGE 3B
STA 13+600 TO STA 13+950
Survey Revised

SHEET 82

AECOM

R. NEWMAN
LICENSED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

R. A. GREEN
100153451
LICENSED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

STA 13+600

STA 13+950

13+700

BC: 13+733.473

13+800

13+900
EC: 13+901.897

TORONTO BOUND

FORT ERIE BOUND

℄ MEDIAN REALIGNMENT QEW

OPSD 911.132 TW

TCB

(WORK ZONE)

R=7000m

PI: 9+613.71

±809.4

±683.8

9+518

±857.8

9+600

±847.0

27 Bowen Road Stevensville
13+815
G101
210x400

CP RAILWAY

CN RAILWAY

1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⟨1⟩ to Denote PAVEMENT MARKING, TEMPORARY–REMOVABLE
5. Use ⟨1⟩ to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM).
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

P:\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PMK-STG3B-13950.dwg (Model) Printed: Mar 18, 2019

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW - STAGE 3B
STA 13+950 TO STA 14+300
Survey Revised

SHEET 83

AECOM

CP RAILWAY

CN RAILWAY

14+000

14+100

14+200

Rb-1a 60x90 100 MAXIMUM km/h

RETAINING WALL

STA 13+950

STA 14+300

TORONTO BOUND

OPSD 911.132 TW

TCB

±133.0

±221.2

±269.8

2.75

3.75

0.50

3.25

(WORK ZONE)

FORT ERIE BOUND

3.50

±959.2

4.75

9+900

±917.9

9+700

±018.1

±022.9

9+800

BC: 9+831.24

CS: 10+000.00

10+000

Wa-33LR 45x90

G122 120x150

1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:
1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
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3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
5. Use ⬡1 to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-D-707 88-05

Printed: Mar 18, 2019

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW - STAGE 3B
STA 14+300 TO STA 14+650
Survey Revised

SHEET 84

AECOM

LICENSED PROFESSIONAL ENGINEER R. NEWMAN PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER R.A. SHEIKH 100103451 PROVINCE OF ONTARIO

STA 14+300

STA 14+650

TS: 14+303.212

SC: 14+370.712

RETAINING WALL

TORONTO BOUND

FORT ERIE BOUND

℄ MEDIAN REALIGNMENT QEW

R=3000m (WORK ZONE)

OPSD 911.132 TW

A=450

TCB

RAMP EW-N

RAMP EW-S

RAMP N-EW

78m TWIN 800mm CULVERTS

6 DELINEATORS AT 10.0m SPACING

9 DELINEATORS AT 10.0m SPACING

GATE STOP

℄ BOWEN ROAD

SUNSET DRIVE

BC: 9+846.13

EC: 9+886.34

CS: 9+955.38

CS: 14+603.475

ST: 10+187.89

SC: 10+124.21

SC: 10+057.63

SC: 10+000.00

10+000

10+100

10+194

10+200

10+251

10+600

9+800

9+823

9+900

14+500

14+600

±099.1

±049.0

±535.5

±042.4

±105.3

1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠ to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
5. Use ⟨1⟩ to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-D-707 88-05
Printed: Mar 18, 2019
\\CAWBY1FP001\Data\Projects\60581660 - CNCP QEW DD\300-CAD_GIS\910-CAD\C\20-SHEETS\STAGING\60581660-C-PWK-ST63B-14650.dwg (Model)

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MINISTRY OF TRANSPORTATION, ONTARIO PR-D-707 88-05

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW - STAGE 3B
STA 14+650 Survey TO STA 15+000 Revised

SHEET 85

AECOM

1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:
1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
5. Use ⟨1⟩ to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

STA 14+650
STA 15+000
℄ BOWEN ROAD
℄ RAMP S-EW
RAMP EW-N (WORK ZONE)
℄ MEDIAN REALIGNMENT QEW (WORK ZONE)
TORONTO BOUND
FORT ERIE BOUND
SUNSET DRIVE
TS: 10+097.23
SC: 10+151.00
CS: 9+954.55
ST: 10+000.00
ST: 10+057.10
SC: 10+046.94
TS: 10+000.00
EC: 10+211.61
RELOCATE TO STA 14+909
OPSD 911.132 TW
TCB
EAT-NA-B-3
COVER
REMOVE
ONTARIO ICC Golf
FORT ERIE QEW
Fort Erie Railroad Museum
SCALE 5m 0 10m Horizontal

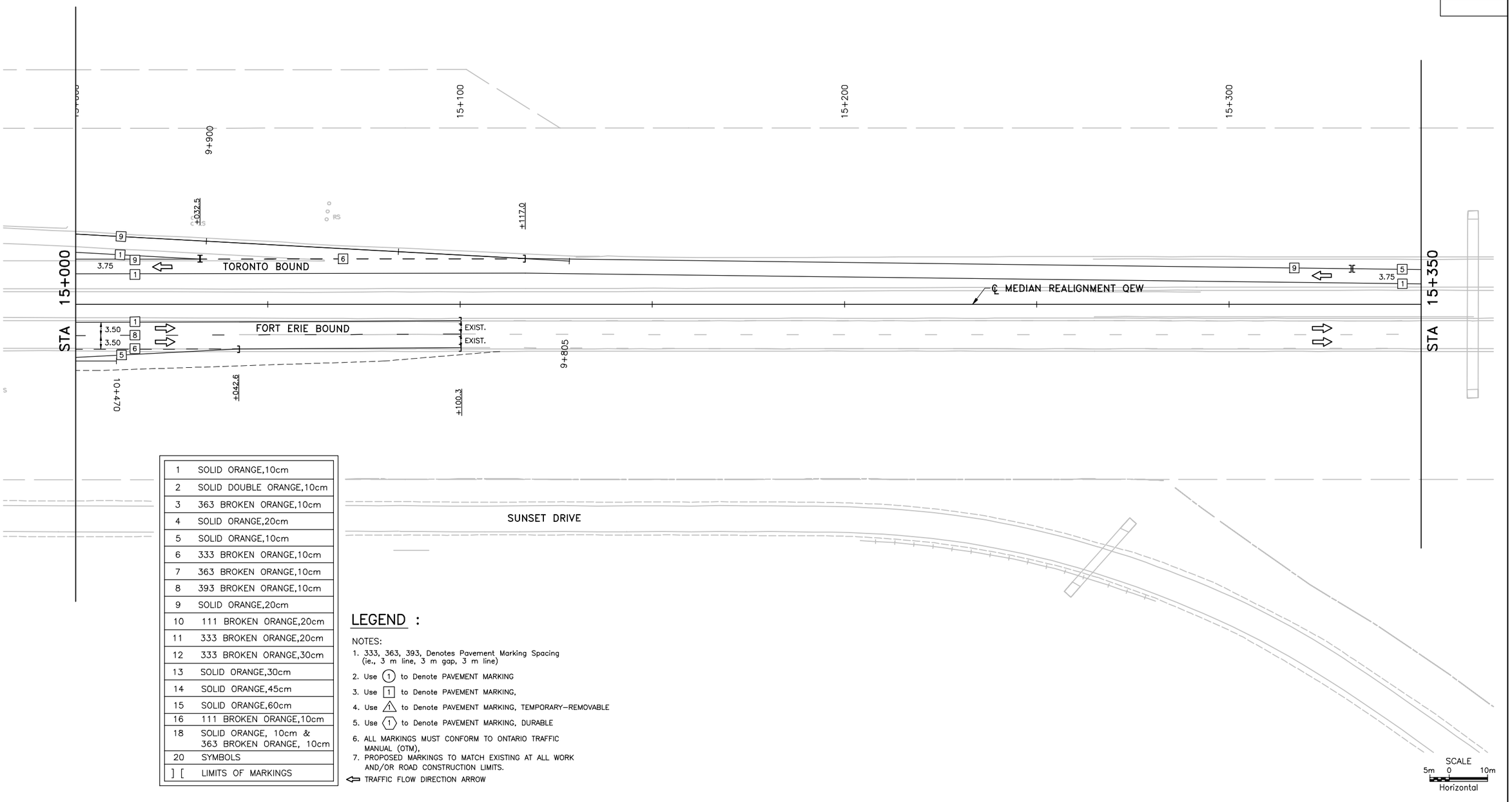
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW - STAGE 3B
STA 15+000 TO STA 15+350
Survey Revised

SHEET 86

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⟨1⟩ to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
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7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-D-707 88-05
Printed: Mar 18, 2019
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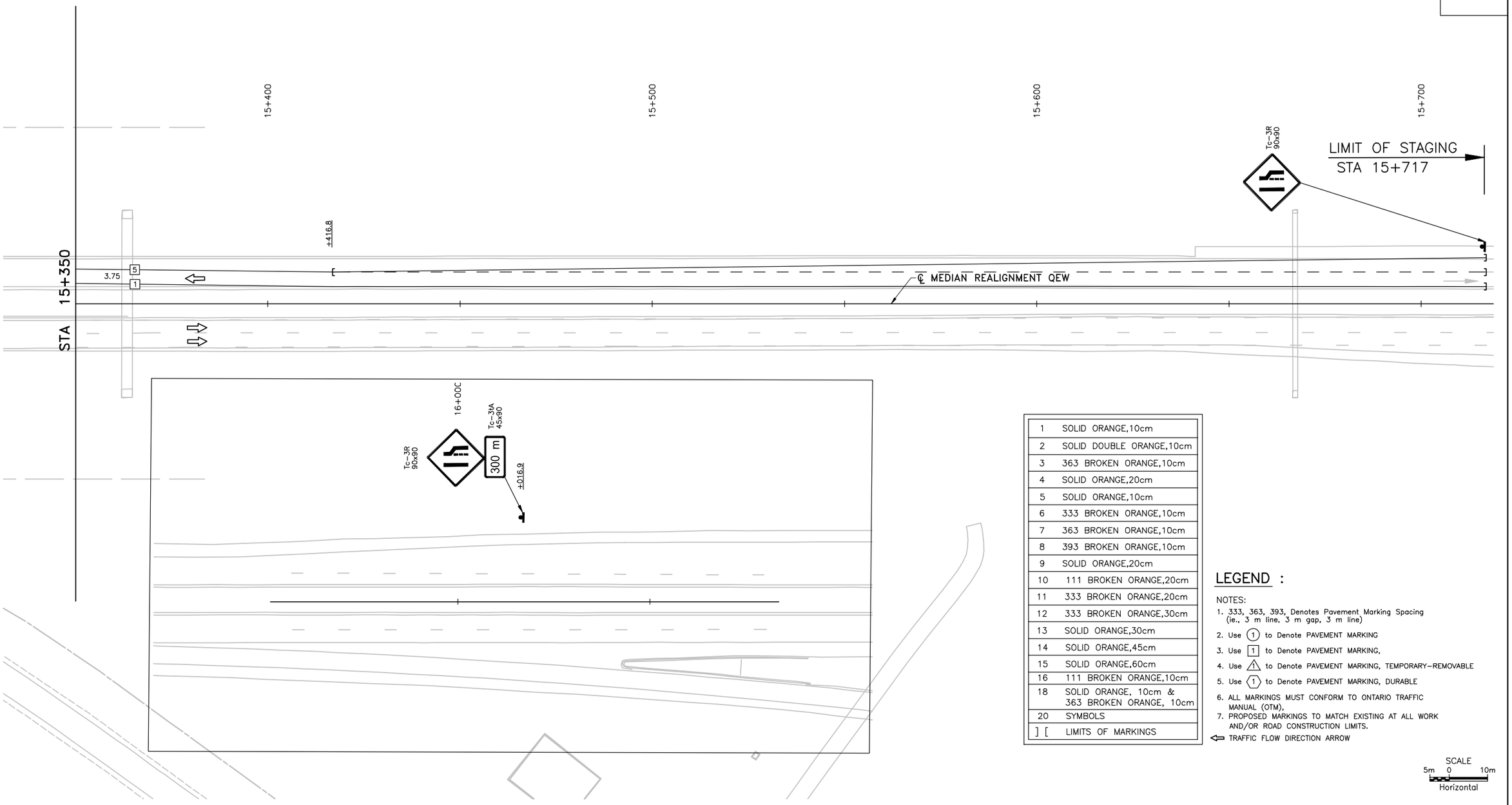
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

CONSTRUCTION STAGING
QEW - STAGE 3B
STA 15+350 TO STA 15+700
Survey Revised

SHEET 87

AECOM



1	SOLID ORANGE,10cm
2	SOLID DOUBLE ORANGE,10cm
3	363 BROKEN ORANGE,10cm
4	SOLID ORANGE,20cm
5	SOLID ORANGE,10cm
6	333 BROKEN ORANGE,10cm
7	363 BROKEN ORANGE,10cm
8	393 BROKEN ORANGE,10cm
9	SOLID ORANGE,20cm
10	111 BROKEN ORANGE,20cm
11	333 BROKEN ORANGE,20cm
12	333 BROKEN ORANGE,30cm
13	SOLID ORANGE,30cm
14	SOLID ORANGE,45cm
15	SOLID ORANGE,60cm
16	111 BROKEN ORANGE,10cm
18	SOLID ORANGE, 10cm & 363 BROKEN ORANGE, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING,
4. Use ⟨1⟩ to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
5. Use ⟨1⟩ to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-D-707 88-05

Printed: Mar 18, 2019

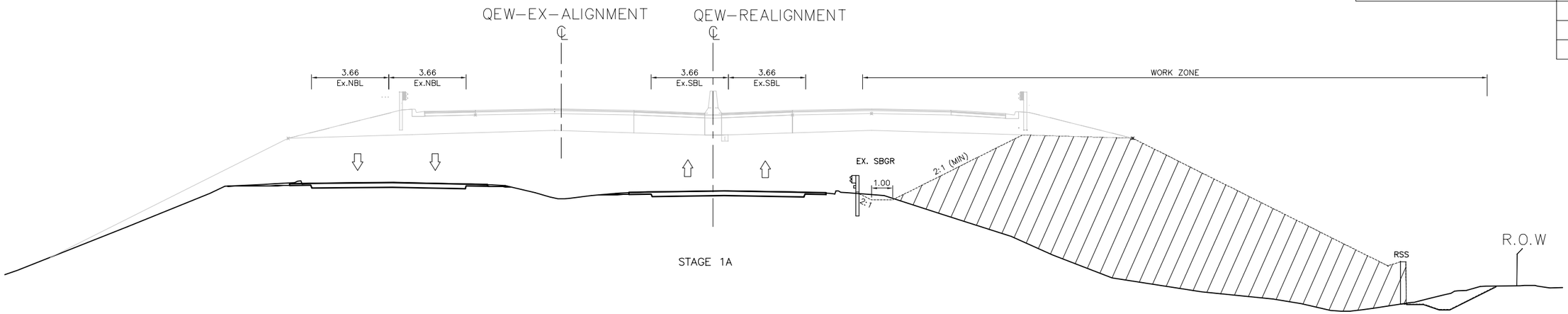
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METRIC

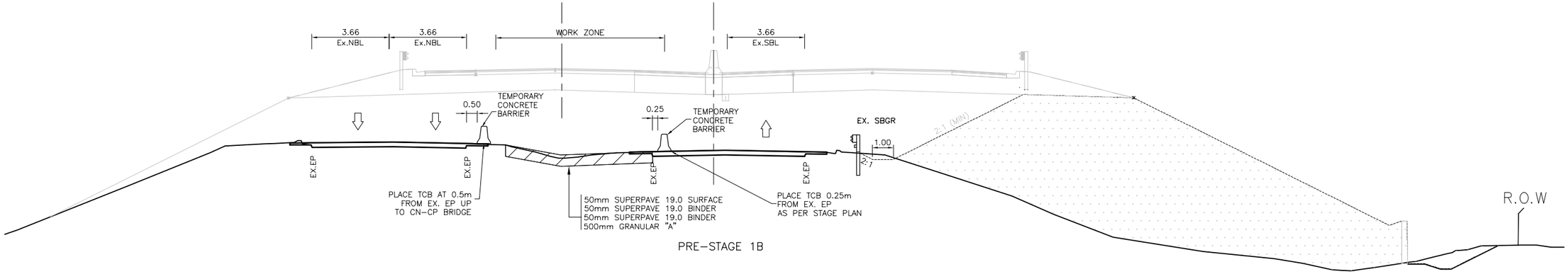
CONT	2019-2014
WP	2369-15-00
STAGING TYPICALS	SHEET 88

AECOM

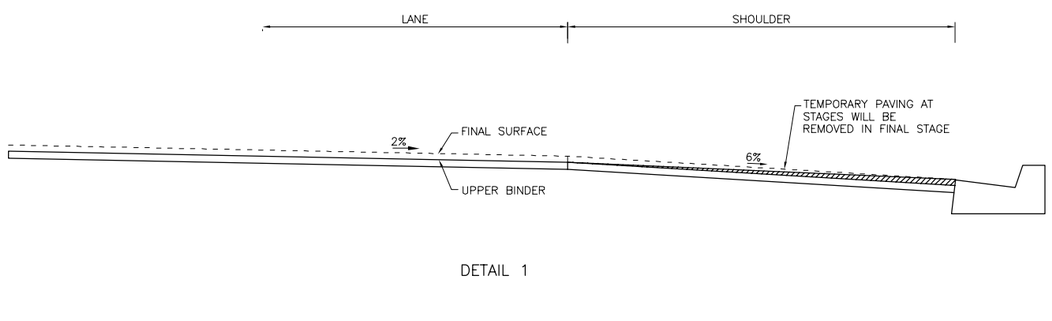
TYPICAL QEW STAGING (13+700)



STAGE 1A



PRE-STAGE 1B



DETAIL 1

NOTES:

1. DRAWING TO BE READ IN CONJUNCTION WITH OPSD 200 SERIES.
2. ALL BINDER COURSES AND MILLED SURFACES TO BE TACK COATED.

SCALE

N.T.S.

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

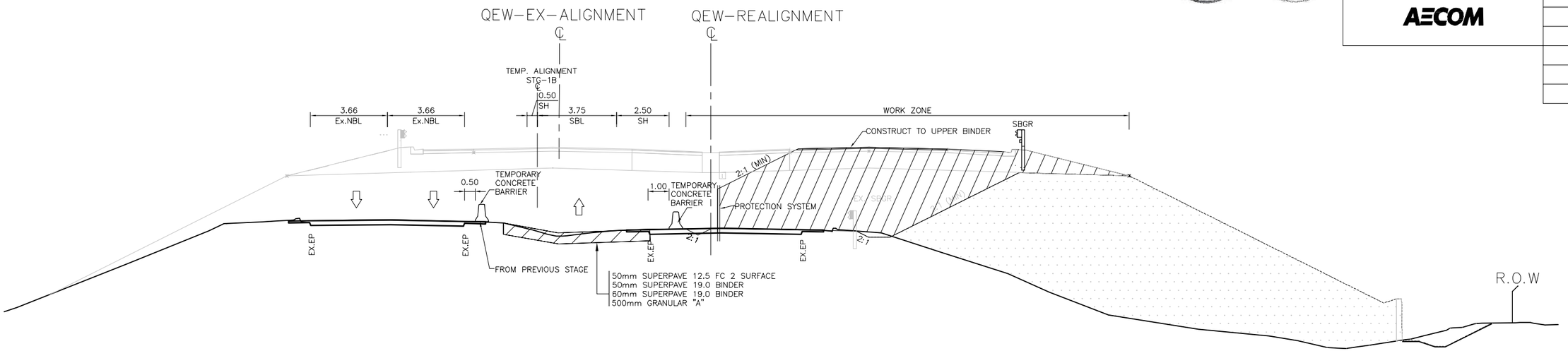
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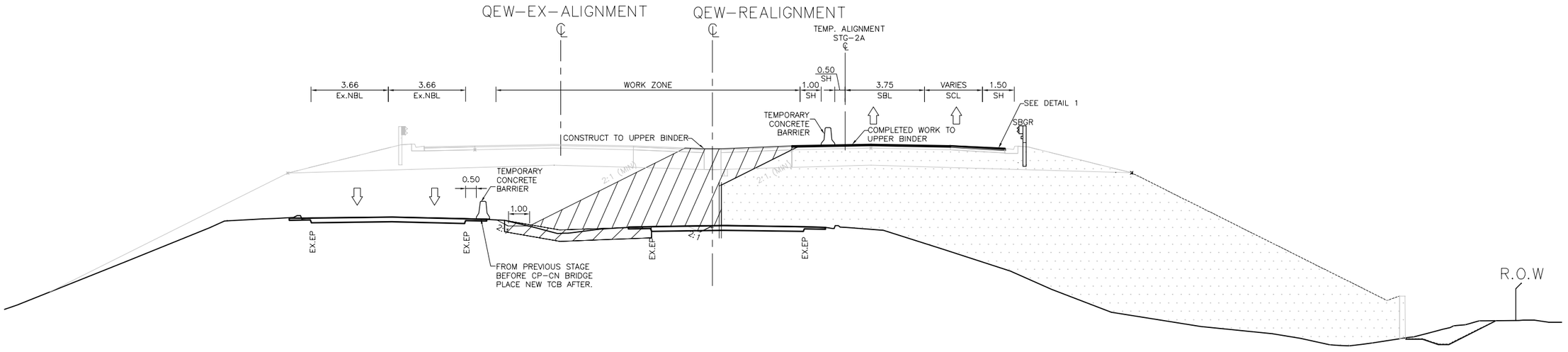
CONT	2019-2014
WP	2369-15-00
STAGING TYPICALS	SHEET 89

AECOM

TYPICAL QEW STAGING (13+700)



STAGE 1B



STAGE 2A

NOTES:

1. DRAWING TO BE READ IN CONJUNCTION WITH OPSD 200 SERIES.
2. ALL BINDER COURSES AND MILLED SURFACES TO BE TACK COATED.

SCALE

N.T.S.

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

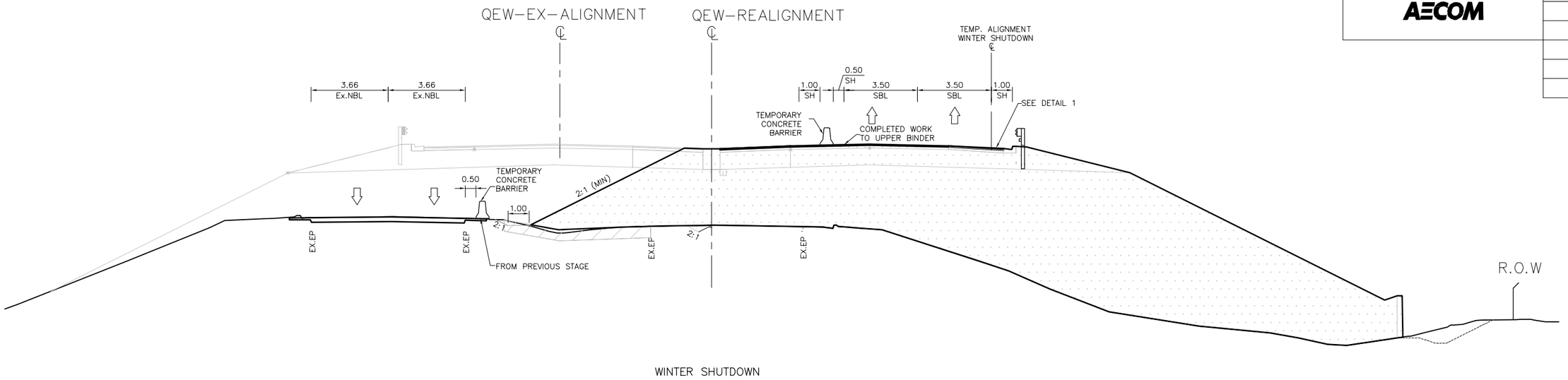
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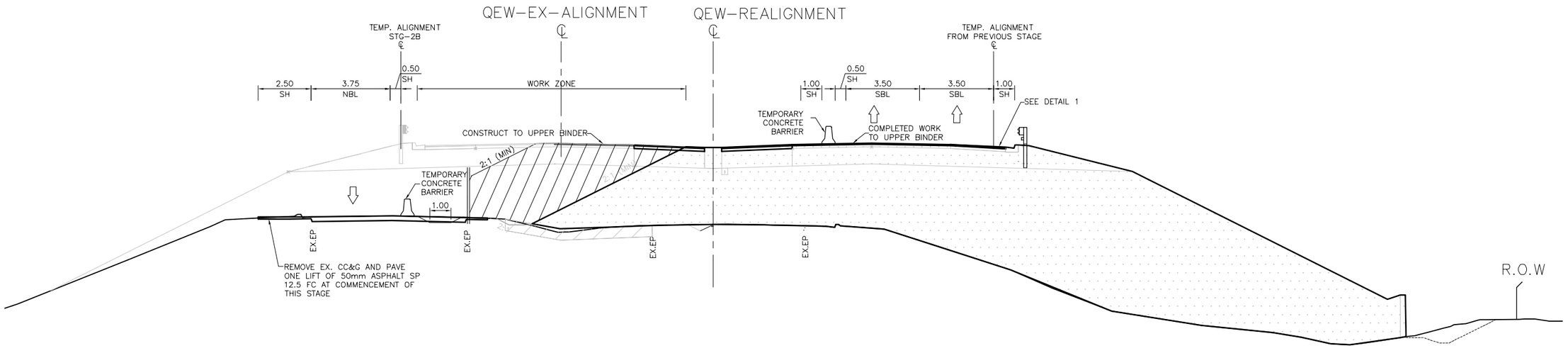
CONT	2019-2014
WP	2369-15-00
STAGING TYPICALS	SHEET 90

AECOM

TYPICAL QEW STAGING (13+700)



WINTER SHUTDOWN



STAGE 2B

NOTES:

1. DRAWING TO BE READ IN CONJUNCTION WITH OPSD 200 SERIES.
2. ALL BINDER COURSES AND MILLED SURFACES TO BE TACK COATED.

SCALE

N.T.S.

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

DRAWING NAME: 60541071-C-TYP-CON7-1.dwg
CREATED: 2017/03/20 MODIFIED: 2018/08/17 11:18:31

METRIC

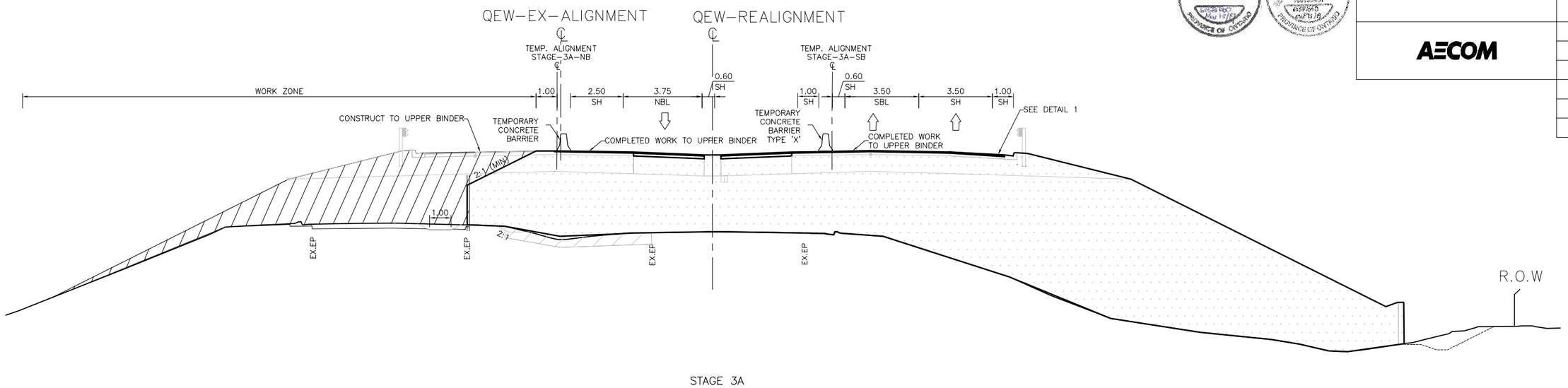
CONT 2019-2014
WP 2369-15-00

STAGING TYPICALS

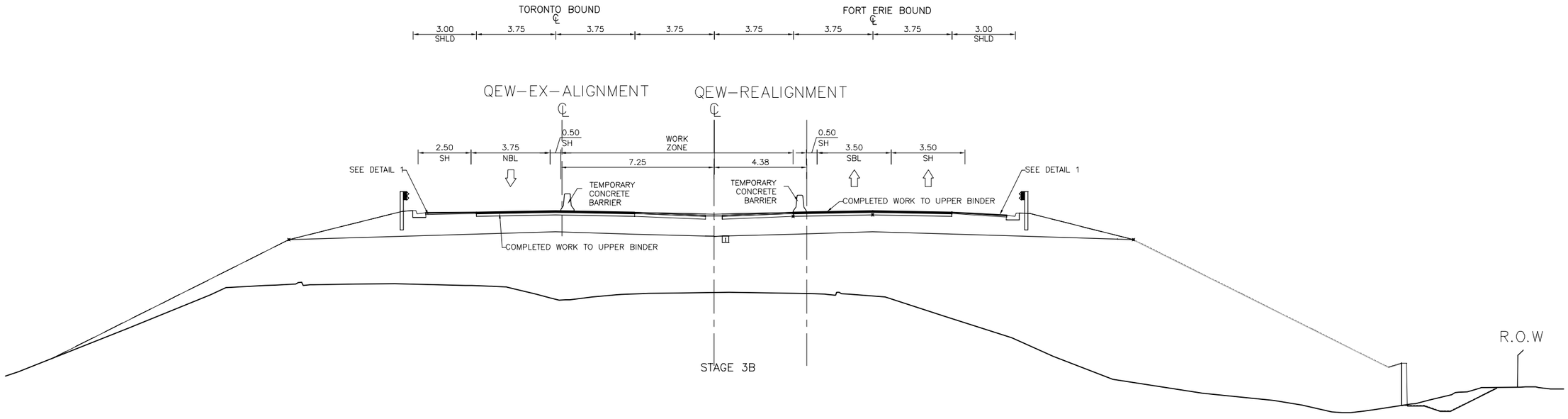
SHEET 91

AECOM

TYPICAL QEW STAGING (13+700)



STAGE 3A



STAGE 3B

NOTES:

1. DRAWING TO BE READ IN CONJUNCTION WITH OPSD 200 SERIES.
2. ALL BINDER COURSES AND MILLED SURFACES TO BE TACK COATED.

SCALE
N.T.S.

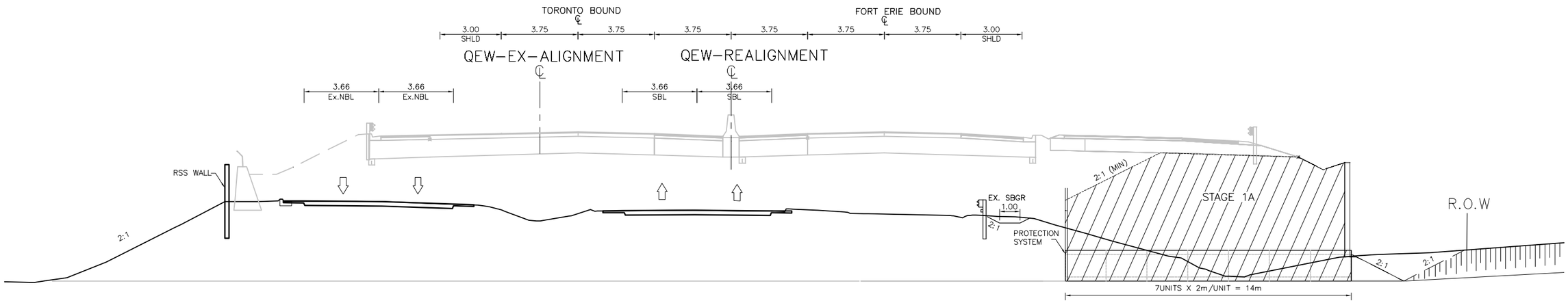
MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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CREATED: 2017/03/20 MODIFIED: 2018/08/17 11:18:31

METRIC

CONT 2019-2014 WP 2369-15-00	
STAGING TYPICALS	SHEET 92
AECOM	

STAGING FOR PRE-CAST CULVERT INSTAUATION



STAGE 1A / SEGMENT#1

NOTES:

1. DRAWING TO BE READ IN CONJUNCTION WITH OPSD 200 SERIES.
2. ALL BINDER COURSES AND MILLED SURFACES TO BE TACK COATED.

SCALE
N.T.S.

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

DRAWING NAME: 60541071-C-TYP-CON7-1.dwg
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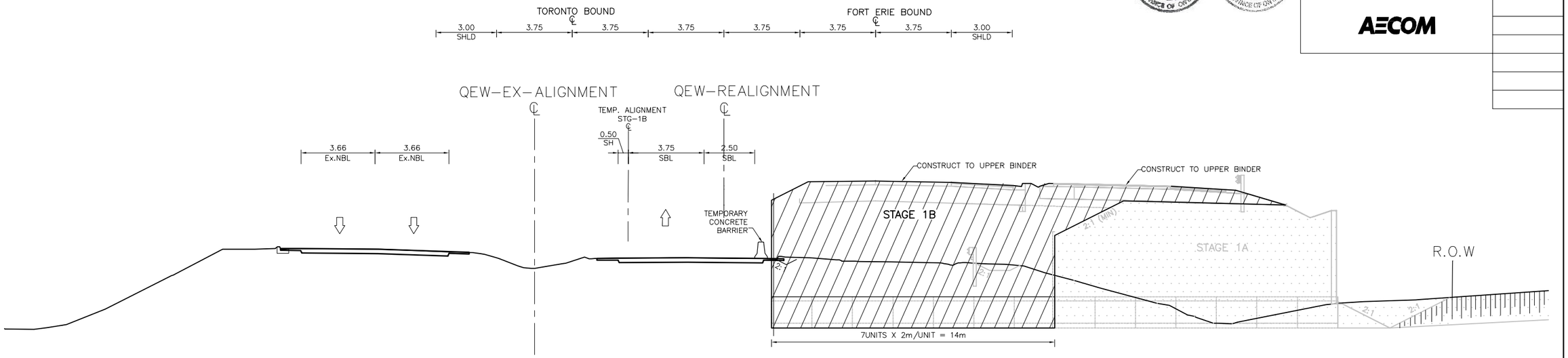
CONT 2019-2014
WP 2369-15-00

STAGING TYPICALS

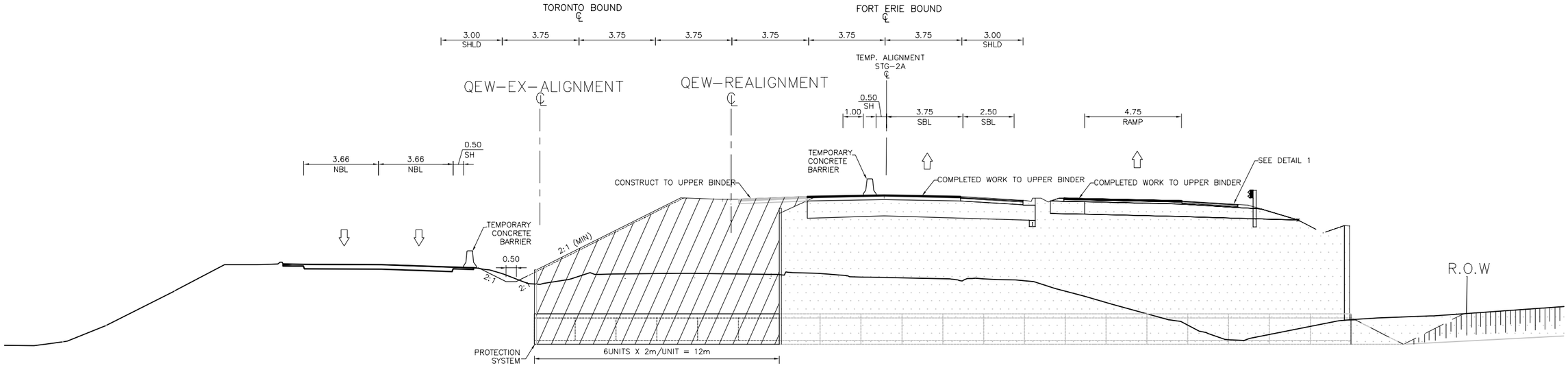
SHEET 93

AECOM

STAGING FOR PRE-CAST CULVERT INSTAUATION



STAGE 1B/SEGMENT #2



STAGE 2A/SEGMENT #3

NOTES:

1. DRAWING TO BE READ IN CONJUNCTION WITH OPSD 200 SERIES.
2. ALL BINDER COURSES AND MILLED SURFACES TO BE TACK COATED.

SCALE
N.T.S.

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

DRAWING NAME: 60541071-C-TYP-CON7-1.dwg
CREATED: 2017/03/20
MODIFIED: 2018/08/17 11:18:31

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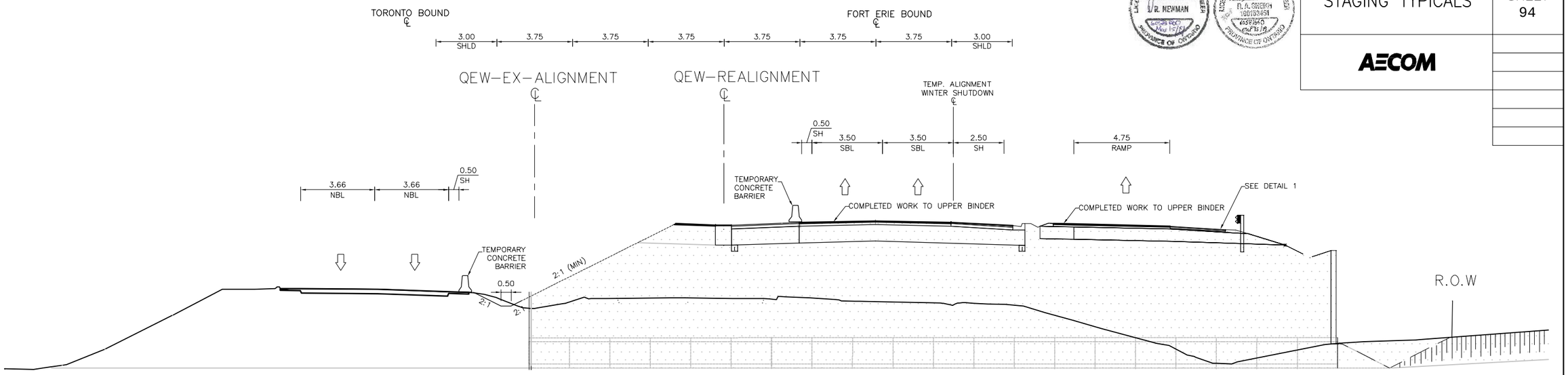
CONT 2019-2014
WP 2369-15-00

STAGING TYPICALS

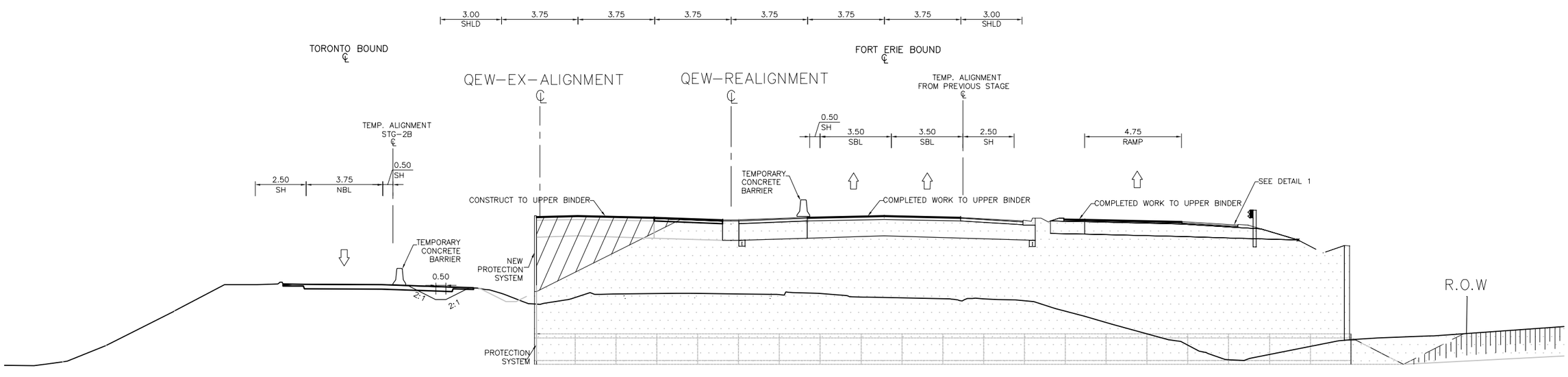
SHEET 94

AECOM

STAGING FOR PRE-CAST CULVERT INSTAUATION



WINTER SHUTDOWN



STAGE 2B

NOTES:

1. DRAWING TO BE READ IN CONJUNCTION WITH OPSD 200 SERIES.
2. ALL BINDER COURSES AND MILLED SURFACES TO BE TACK COATED.

SCALE
N.T.S.

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

DRAWING NAME: 60541071-C-TYP-CON7-1.dwg
CREATED: 2017/03/20
MODIFIED: 2018/08/17 11:18:31

METRIC

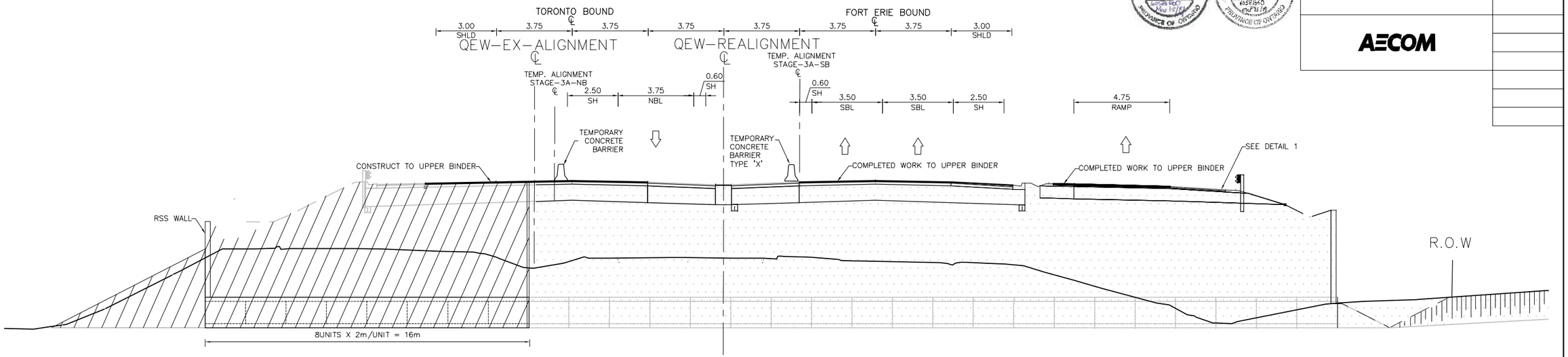
CONT 2019-2014
WP 2369-15-00

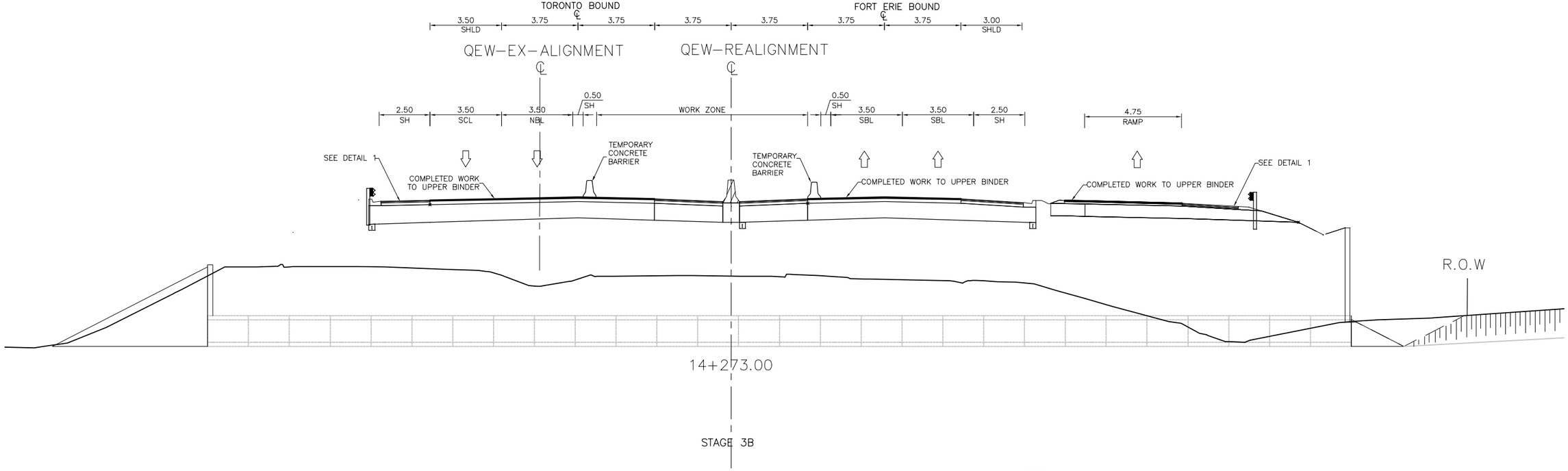
STAGING TYPICALS

SHEET 95

AECOM

STAGING FOR PRE-CAST CULVERT INSTAUATION





NOTES:

1. DRAWING TO BE READ IN CONJUNCTION WITH OPSD 200 SERIES.
2. ALL BINDER COURSES AND MILLED SURFACES TO BE TACK COATED.

SCALE
N.T.S.

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

DRAWING NAME: 60541071-C-TYP-CON7-1.dwg
CREATED: 2017/03/20 MODIFIED: 2018/08/17 11:18:31

METRIC

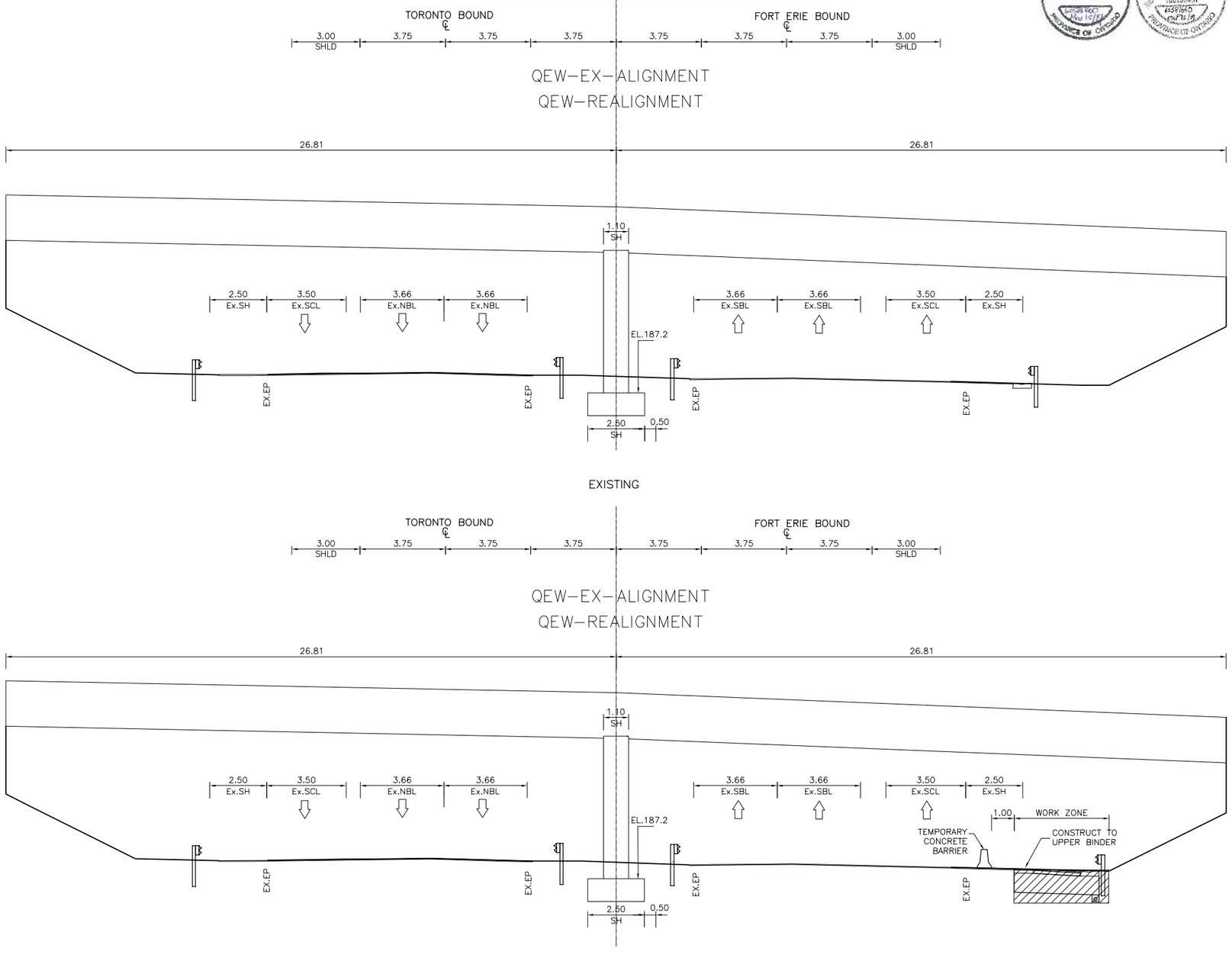
CONT 2019-2014
WP 2369-15-00

STAGING TYPICALS

SHEET 96

AECOM

STAGING AT BOWEN ROAD UNDERPASS.



STAGE 1A

NOTES:

1. DRAWING TO BE READ IN CONJUNCTION WITH OPSD 200 SERIES.
2. ALL BINDER COURSES AND MILLED SURFACES TO BE TACK COATED.

SCALE
N.T.S.

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

DRAWING NAME: 60541071-C-TYP-CON7-1.dwg
CREATED: 2017/03/20
MODIFIED: 2018/08/17 11:18:31

METRIC

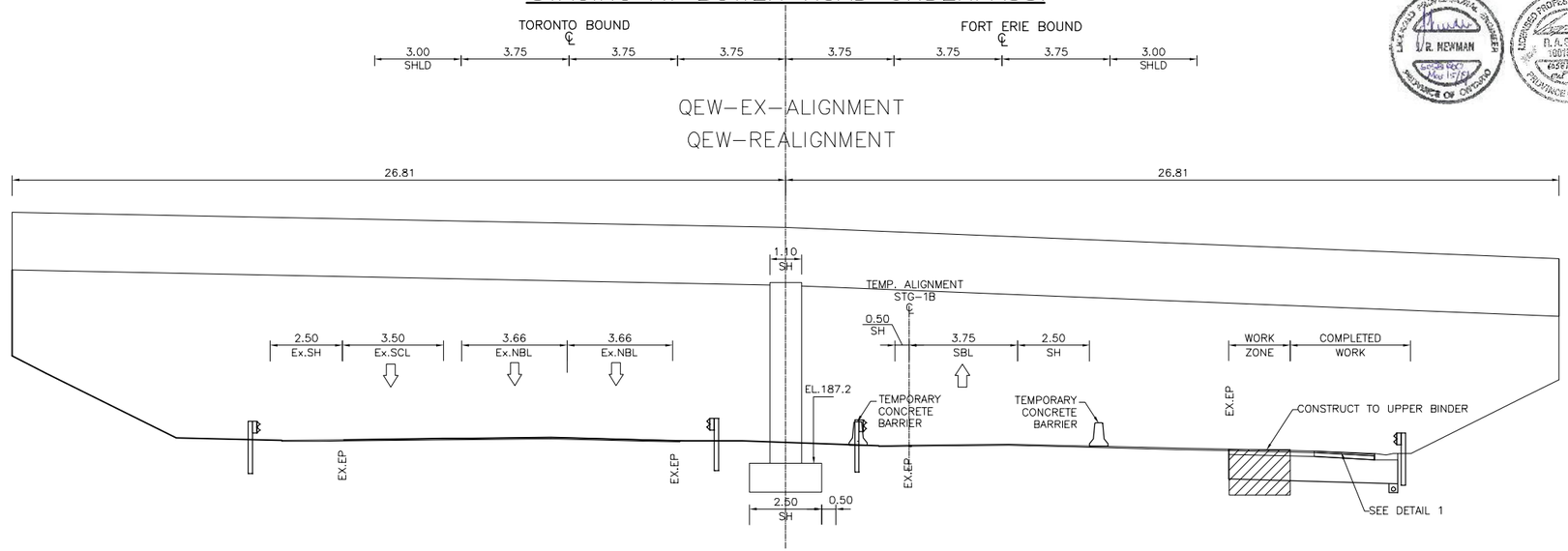
CONT 2019-2014
WP 2369-15-00

STAGING TYPICALS

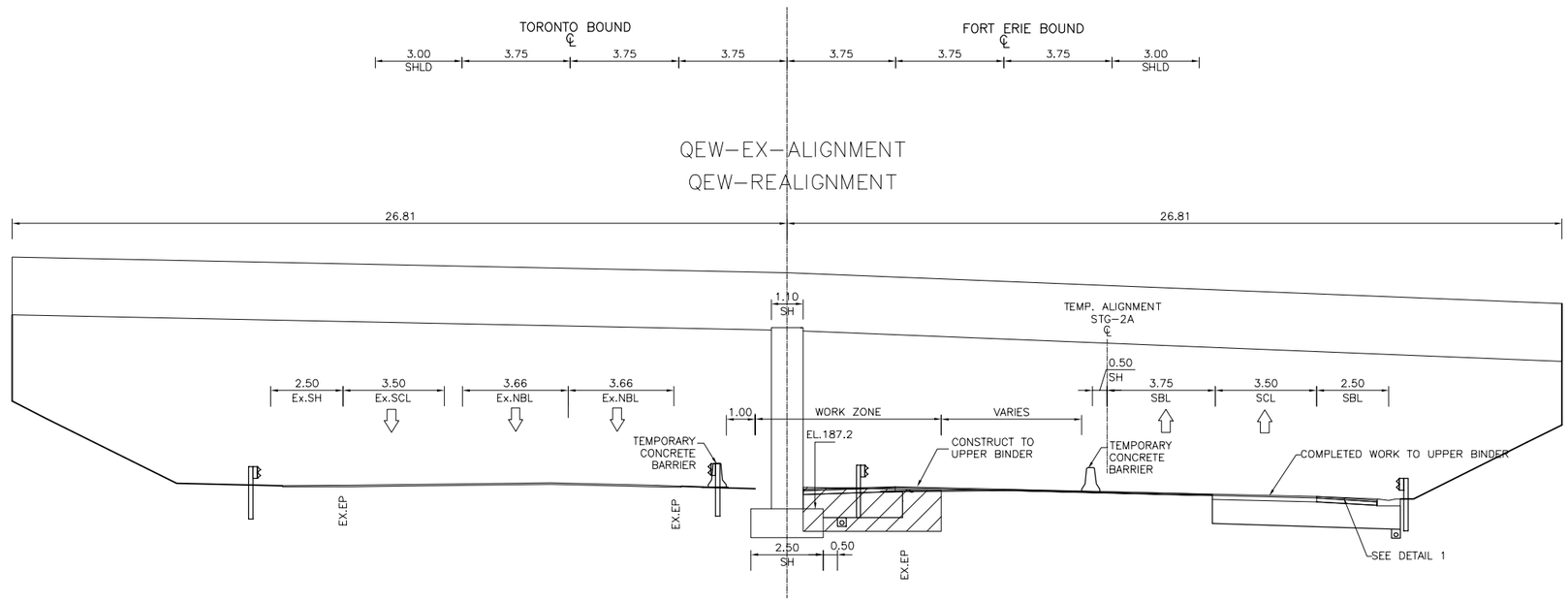
SHEET 97

AECOM

STAGING AT BOWEN ROAD UNDERPASS.



STAGE 1B



STAGE 2A

NOTES:

1. DRAWING TO BE READ IN CONJUNCTION WITH OPSD 200 SERIES.
2. ALL BINDER COURSES AND MILLED SURFACES TO BE TACK COATED.

SCALE
N.T.S.

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

DRAWING NAME: 60541071-C-TYP-CON7-1.dwg
CREATED: 2017/03/20 MODIFIED: 2018/08/17 11:18:31

METRIC

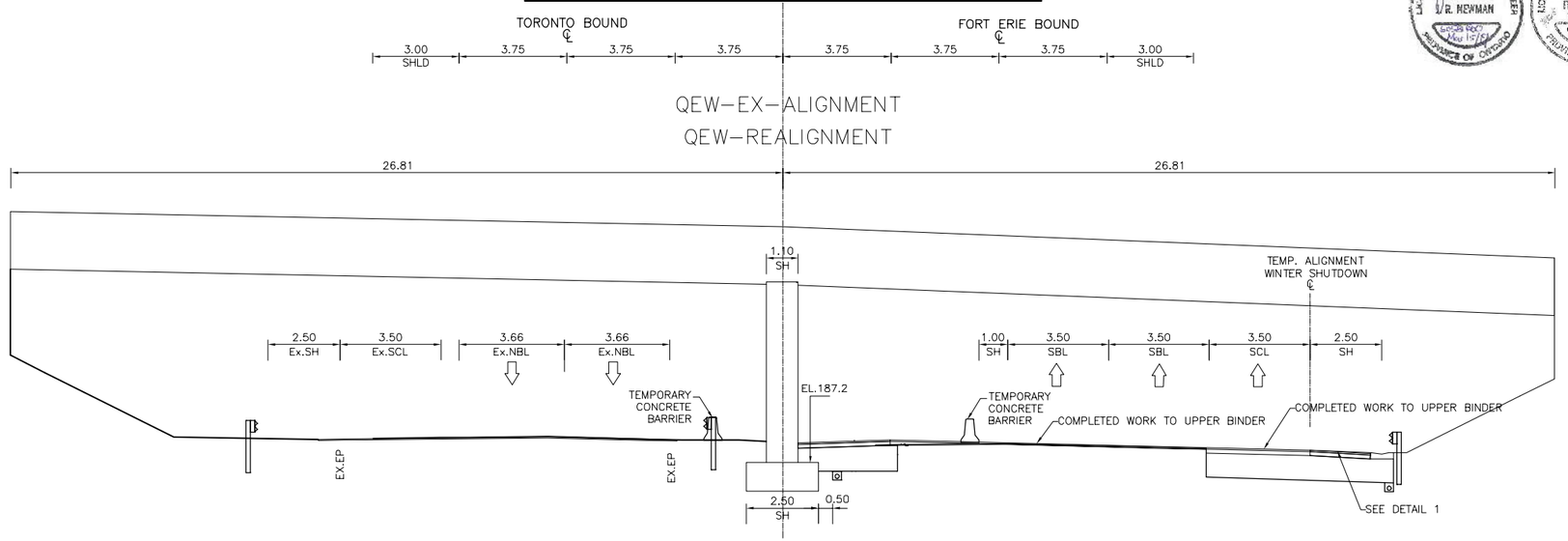
CONT 2019-2014
WP 2369-15-00

STAGING TYPICALS

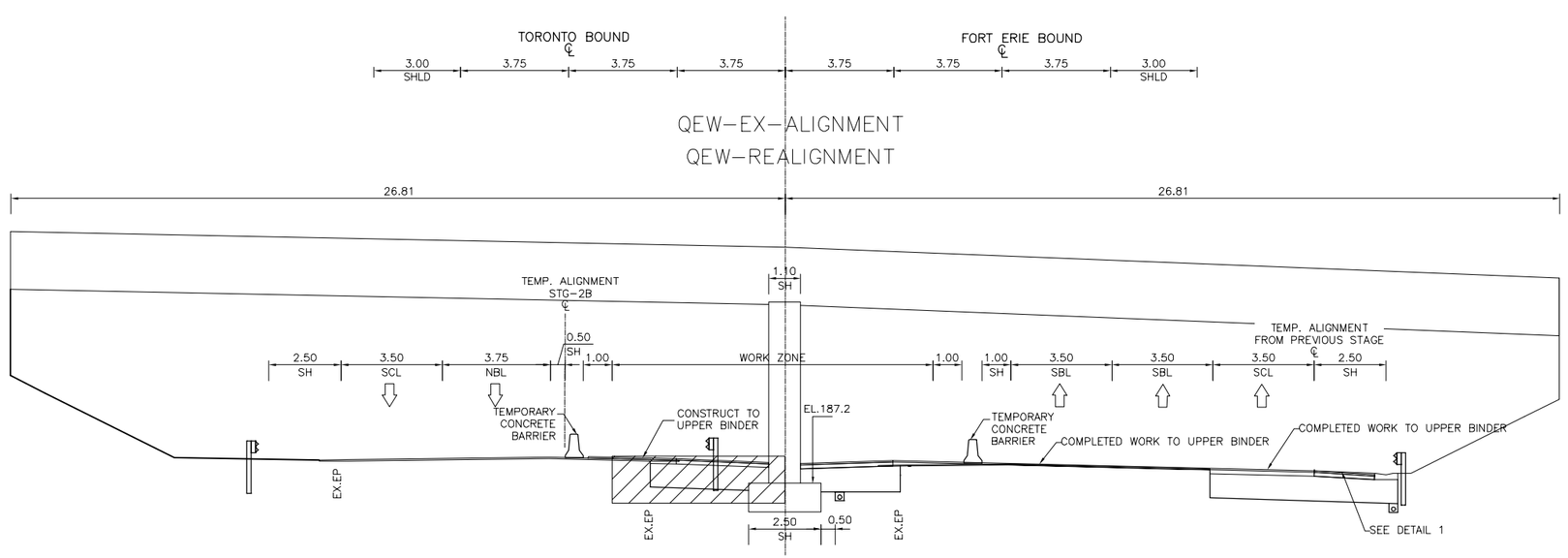
SHEET 98

AECOM

STAGING AT BOWEN ROAD UNDERPASS.



WINTER SHUTDOWN



STAGE 2B

NOTES:

1. DRAWING TO BE READ IN CONJUNCTION WITH OPSD 200 SERIES.
2. ALL BINDER COURSES AND MILLED SURFACES TO BE TACK COATED.

SCALE
N.T.S.

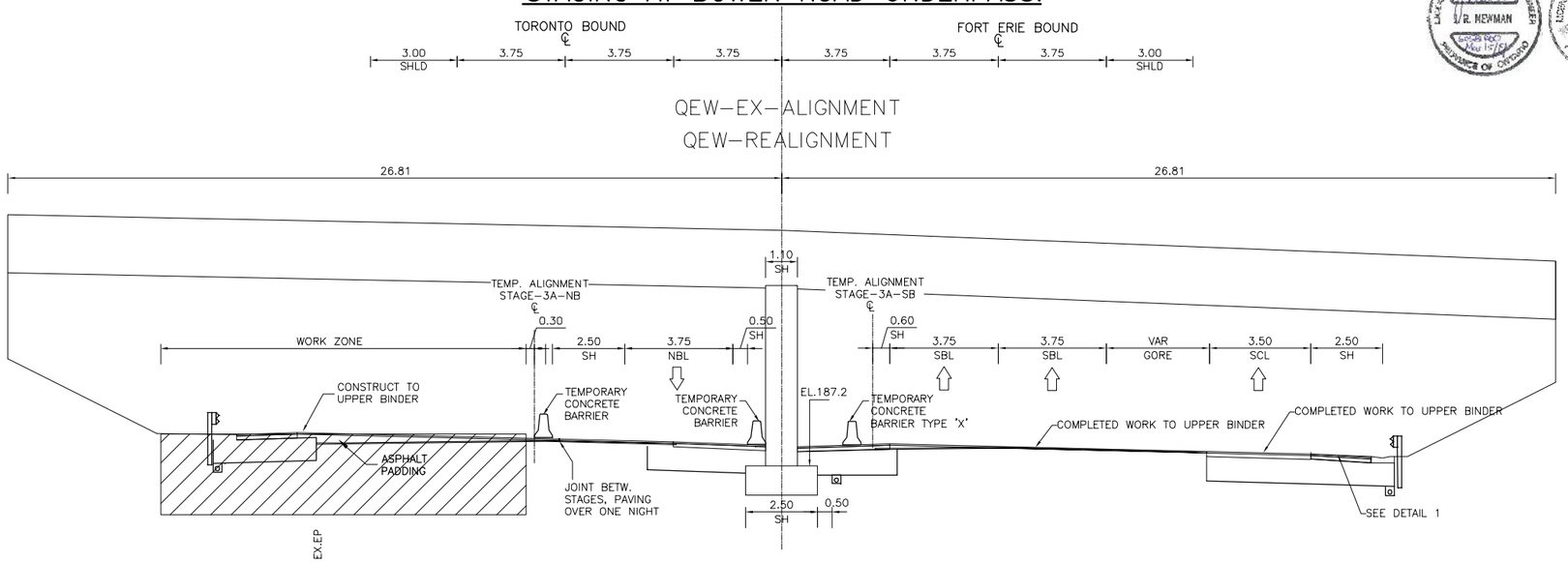
MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
DRAWING NAME: 60541071-C-TYP-CON7-1.dwg MODIFIED: 2018/08/17 11:18:31
CREATED: 2017/03/20

METRIC

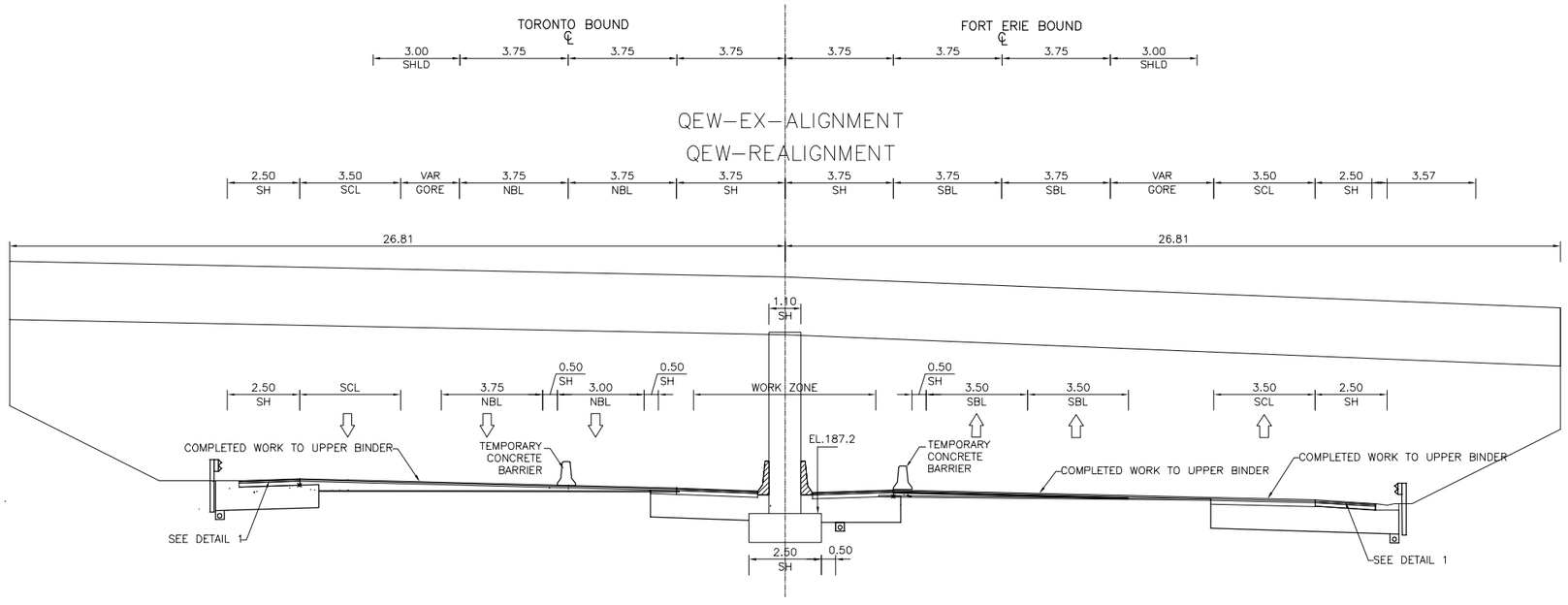
CONT	2019-2014
WP	2369-15-00
STAGING TYPICALS	SHEET 99

AECOM

STAGING AT BOWEN ROAD UNDERPASS.



STAGE 3A



STAGE 3B

NOTES:

1. DRAWING TO BE READ IN CONJUNCTION WITH OPSD 200 SERIES.
2. ALL BINDER COURSES AND MILLED SURFACES TO BE TACK COATED.

SCALE
N.T.S.

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

DRAWING NAME: 60541071-C-TYP-CON7-1.dwg
CREATED: 2017/03/20
MODIFIED: 2018/08/17 11:18:31

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

DETOUR PLAN
(EMERGENCY DETOUR ROUTE)
Survey _____ Revised _____

SHEET
100

AECOM

LICENSED PROFESSIONAL ENGINEER
D.R. NEWMAN
PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER
R.A. SHEIKH
PROVINCE OF ONTARIO

LEGEND:

X ROADWAY CLOSURE



SCALE
N.T.S.

MINISTRY OF TRANSPORTATION, ONTARIO PH-D-707 SR-05

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

DETOUR PLAN (LONG TERM)-RAMP CLOSURES AT QEW/BOWEN ROAD INTERCHANGE (ON RAMP CLOSURES)

DETOUR PLAN
(RAMP EW-N & EW-S CLOSURES)
Survey _____ Revised _____

SHEET 101

AECOM

LEGEND

D-X / TC-10xx REFERS TO DETOUR X AND CORRESPONDING SIGNAGE

DETOUR D-X TC-10AL | TC-10AR | TC-10BL | TC-10BR | TC-10C | ENDS TC-10D | TC-10EL | TC-10ER | TC-10FL | TC-10FR

PORTABLE VARIABLE MESSAGE SIGN

① TC-64 ANS: Access To QEW Toronto / To Be Closed / XXXX XX - XXXX XX

② TC-64 ANS: Access To QEW Fort Erie / To Be Closed / XXXX XX - XXXX XX

TC-64 AWS: Access To QEW Toronto / Closed / XXXX XX - XXXX XX

TC-64 AWS: Access To QEW Fort Erie / Closed / XXXX XX - XXXX XX

OR

TC-64 ANS: Access To QEW Fort Erie / To Be Closed / XXXX XX - XXXX XX

TC-64 ANS: Access To QEW Toronto / To Be Closed / XXXX XX - XXXX XX

TC-64 AWS: Access To QEW Fort Erie / Closed / XXXX XX - XXXX XX

TC-64 AWS: Access To QEW Toronto / Closed / XXXX XX - XXXX XX

TC-64 DRS: QEW Via D-1

TC-64 DRS: QEW Via D-2

④ TC-64 AWS/ANS: Access to QEW / Closed / XXXX XX - XXXX XX

GENERAL NOTES :

1. THE PVMS MESSAGING AND LOCATIONS ARE TO BE APPROVED TWO WEEKS PRIOR TO IMPLEMENTATION.
2. THE PVMS SIGNS SHALL BE ACTIVATED ONE WEEK PRIOR TO STAGING IMPLEMENTATION.
3. DETOUR SIGNS SHALL BE COVERED WHEN NOT IN USE.
4. THIS IS A SUGGESTED STAGING PLAN OLNY.
5. ALL SIGNS SHALL BE IN ACCORDANCE WITH OTM BOOK 7. CONTRACTOR HAS TO REPLACE 'X' & DATES.
6. THE CONTRACTOR SHALL INSERT THE APPROPRIATE MONTH AN DATE TO REPLACE THE NOTED XXXX-XX ON THE TC-64 SIGNS.
7. THE CONTRACTOR SHALL INSERT THE APPROPRIATE DETOUR NUMBER TO REPLACE THE X ON THE DETOUR MARKER SIGNS.

SCALE
N.T.S.

MINISTRY OF TRANSPORTATION, ONTARIO PR-D-707 88-05

P:\60581660 - CNCP QEW DD\900-CAD_GIS\910-CADD\C\20-SHEETS\TC-64\60581660-C-TC64-LONG-TERM-Detour1-2.dwg (Model) Printed: Mar 18, 2019

DETOUR PLAN (LONG TERM)–RAMP CLOSURES AT QEW/BOWEN ROAD INTERCHANGE (OFF RAMP CLOSURES)

METRIC

PLATE No
CONT 2019–2003
WP 2116–16–00

DETOUR PLAN
(RAMP N–EW & S–EW CLOSURES)
Survey _____ Revised _____

SHEET 102

AECOM

LEGEND

D–X / TC–10xx — REFERS TO DETOUR X AND CORRESPONDING SIGNAGE

TC–10AL	TC–10AR	TC–10BL	TC–10BR	TC–10C	TC–10D	TC–10EL	TC–10ER	TC–10FL	TC–10FR
DETOUR D–X	DETOUR D–X	DETOUR D–X	DETOUR D–X	DETOUR D–X	DETOUR D–X ENDS	DETOUR D–X	DETOUR D–X	DETOUR D–X	DETOUR D–X

③
TC–64 ANS
Access To Bowen Rd
To Be Closed
XXXX XX – XXXX XX

③
TC–64 AWS
Access To Bowen Rd
Closed
XXXX XX – XXXX XX

④
TC–64 AWS/ANS
Access to QEW
Closed
XXXX XX – XXXX XX

TC–64 DRS
Bowen Road
Via D–3

GENERAL NOTES :

1. THE PVMS MESSAGING AND LOCATIONS ARE TO BE APPROVED TWO WEEKS PRIOR TO IMPLEMENTATION.
2. THE PVMS SIGNS SHALL BE ACTIVATED ONE WEEK PRIOR TO STAGING IMPLEMENTATION.
3. DETOUR SIGNS SHALL BE COVERED WHEN NOT IN USE.
4. THIS IS A SUGGESTED STAGING PLAN OLNY.
5. ALL SIGNS SHALL BE IN ACCORDANCE WITH OTM BOOK 7.
6. THE CONTRACTOR SHALL INSERT THE APPROPRIATE MONTH AN DATE TO REPLACE THE NOTED XXXX–XX ON THE TC–64 SIGNS.
7. THE CONTRACTOR SHALL INSERT THE APPROPRIATE DETOUR NUMBER TO REPLACE THE X ON THE DETOUR MARKER SIGNS.

SCALE
N.T.S.

PORTABLE VARIABLE MESSAGE SIGN

NETHERBY RD
TOWNLINE RD.
COLLEGE RD
EAGLE ST.
E MAIN ST.
CURTIS.RD
BOWEN RD.
BRIDGE ST.
GILMORE RD.
BERTIE ST.
GARRISON RD.
RIDGE RD. N
STEVENSVILLE RD.
WINGER RD.
EAST AVE.
SIDER RD.
SHISLER RD.
RIDGMOUNT RD.
SUMMER RD.
MILLER AVE.
SUNSET DR.
ARCADIA ST.
PETTIT RD.
THOMPSHON RD.
PHIPPS ST.
LAUR RD.
TEAL RD.
SPEARS RD.
CONCESSION RD.
GORHAM RD.
ROSE HILL RD.
BUFFALO RD.
CRESCENT RD.
KRAFT RD.
ALFRED ST.
QEW

PW–D–707 SR–05
MINISTRY OF TRANSPORTATION, ONTARIO

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

REMOVALS
STA 13+260 TO STA 13+600
Survey _____ Revised _____

SHEET 103

AECOM

R. NEWMAN
LICENSED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

R. A. CHEEMA
100193451
LICENSED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

13+300
13+400
13+500
13+600

LIMIT OF REMOVALS
STA 13+260

+340.0
+481.3
+260.0
+340.4

℄ MEDIAN QEW (REALIGNMENT)

STA 13+600

300 CSP
600 CSP
RS
FOCUM
BCU

SUPPLEMENTAL LEGEND :

- REMOVE ASPHALT PAVEMENT FULL DEPTH
- REMOVE ASPHALT PAVEMENT PARTIAL DEPTH
- REMOVE ASPHALT PAVEMENT FROM CONCRETE SURFACE
- REMOVE ASPHALT PAVEMENT FROM CONCRETE STRUCTURE

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

Printed: Mar 18, 2019

P:\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\Removals\60581660-C-CNCP-QEW-REM-13600.dwg (Model)

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

REMOVALS
STA 13+600 TO STA 13+950
Survey _____ Revised _____

SHEET 104

AECOM

LICENSED PROFESSIONAL ENGINEER
R. NEWMAN
PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER
D. A. GRIGGS
100153451
PROVINCE OF ONTARIO

MINISTRY OF TRANSPORTATION, ONTARIO RR-3-707 88-05

STA 13+600

STA 13+950

13+700

BC: 13+733.473

13+800

13+900
EC: 13+901.897

DEMOLISH CP/CN STRUCTURES
IN STAGED CONSTRUCTION

300 CSP

℄ MEDIAN QEW (REALIGNMENT)

R=7000m

13 BARRIER

BACK SEAT NOT EXPOSED

9+600

9+518

600 CSP

450 CSP

900 CSP

BCU

CP RAILWAY

CN RAILWAY

PI: 9+613.71

SUPPLEMENTAL LEGEND :

- REMOVE ASPHALT PAVEMENT FULL DEPTH
- REMOVE ASPHALT PAVEMENT PARTIAL DEPTH
- REMOVE ASPHALT PAVEMENT FROM CONCRETE SURFACE
- REMOVE ASPHALT PAVEMENT FROM CONCRETE STRUCTURE

SCALE
5m 0 10m
Horizontal

P:\60581660 - CNCP QEW (D)\900-CAD_GIS\910-CAD\C\20-SHEETS\Removals\60581660-C-CNCP-QEW-REM-13950.dwg (Model) Printed: Mar 18, 2019

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

REMOVALS
STA 13+950 TO STA 14+300
Survey _____ Revised _____

SHEET 105

AECOM

CP RAILWAY
CN RAILWAY
P-2511-24
P-2511-24

STA 13+950
STA 14+300

14+000
14+100
14+200
14+300

DEMOLISH CP/CN STRUCTURES IN STAGED CONSTRUCTION

ABANDON EXISTING CONCRETE CULVERT
1800 x 930 x 56.80 NRP

℄ MEDIAN QEW (REALIGNMENT)

9+700
9+800
9+900
10+000

R=2000

℄ RAMP N-EW

+062.5
BC: 9+831.24
+225.5
+276.2
CS: 10+000.00

7.2
6.9

UNUSED RAMP BASE
300 CSP

SUPPLEMENTAL LEGEND :

- REMOVE ASPHALT PAVEMENT FULL DEPTH
- REMOVE ASPHALT PAVEMENT PARTIAL DEPTH
- REMOVE ASPHALT PAVEMENT FROM CONCRETE SURFACE
- REMOVE ASPHALT PAVEMENT FROM CONCRETE STRUCTURE

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

P:\60581660 - CNCP QEW DS\900-CAD_GIS\910-CAD\C\20-SHEETS\Removals\60581660-C-CNCP-QEW-REM-14300.dwg (Model) Printed: Mar 18, 2019

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

REMOVALS
STA 14+300 TO STA 14+650
Survey _____ Revised _____

SHEET 106

AECOM

LICENSED PROFESSIONAL ENGINEER R. NEWMAN PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER D. A. CHEUNG 100193451 PROVINCE OF ONTARIO

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

STA 14+300

STA 14+650

TS: 14+303.212

SC: 14+370.712

CS: 14+603.475

14+400

14+500

14+600

HOS 14+619.648 MEDIAN QEW
= HOT 9+999.856 BOWEN RD

℄ MEDIAN QEW (REALIGNMENT)

R=3000m

A=450

A=450

R-3000

10+100

10+194

10+000

+440.0

+580.0

+628.3

+623.6

+483.8

℄ RAMP EW-S

A-50

A-110

R-190

10+100

78m TWIN 800mm CULVERTS

℄ RAMP N-EW

A-110

STA: 10+077
OFFSET: 17 R

STA: 10+121
OFFSET: 14 R

SC: 10+057.63

CS: 10+124.21

+809.1

GATE STOP

+788.8

7.0

9+900

R-55

STA: 9+933
OFFSET: 15 R

CS: 9+955.38

STA: 9+913
OFFSET: 15 R

STA: 9+897
OFFSET: 13 R

STA: 9+870
OFFSET: 15 R

EC: 9+846.13

STA: 9+851
OFFSET: 22 L

+850.7

11.0

+859

STA: 9+854
OFFSET: 17 R

STA: 9+844
OFFSET: 23 L

10+200

+194.7

ST: 10+187.89

9+800

10+057

HOC 9+822.277 BOWEN RD
=HOT 9+823.267 EW-S RAMP

HOC 9+810.778 BOWEN RD
=HOT 10+236.788 N-EW RAMP

+790.9

HOC 9+816.527 BOWEN RD
=HOT 10+000.000 SUNSET DRIVE

R-825

10+000

+837.4

BC: 10+017.73

EC: 10+081.38

+088.1

R-50

SC: 10+000.00

9+900

℄ BOWEN ROAD

℄ SUNSET DRIVE

10+135

10+100

SUPPLEMENTAL LEGEND :

- REMOVE ASPHALT PAVEMENT FULL DEPTH
- REMOVE ASPHALT PAVEMENT PARTIAL DEPTH
- REMOVE ASPHALT PAVEMENT FROM CONCRETE SURFACE
- REMOVE ASPHALT PAVEMENT FROM CONCRETE STRUCTURE

SCALE
5m 0 10m
Horizontal

P:\60581660 - CNCP QEW DD\800-CAD_GIS\910-CAD\C\20-SHEETS\Removals\60581660-C-CNCP-QEW-RDM-14650.dwg (Model) Printed: Mar 18, 2019

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

REMOVALS
STA 14+650 TO STA 15+000
Survey _____ Revised _____

SHEET 107

AECOM

SUPPLEMENTAL LEGEND :

- REMOVE ASPHALT PAVEMENT FULL DEPTH
- REMOVE ASPHALT PAVEMENT PARTIAL DEPTH
- REMOVE ASPHALT PAVEMENT FROM CONCRETE SURFACE
- REMOVE ASPHALT PAVEMENT FROM CONCRETE STRUCTURE

℄ BOWEN ROAD
℄ RAMP EW-N
℄ RAMP S-EW
℄ RAMP EW-S
℄ MEDIAN QEW (REALIGNMENT)
SUNSET DRIVE
HOC 10+167.654 BOWEN RD
=HOT 9+829.461 EW-N RAMP
HOC 10+179.422 BOWEN RD
=HOT 10+238.391 S-EW RAMP
BC: 9+842.47
ST: 14+670.975
ST: 10+000.00
CS: 9+954.55
R-55
9+900
A-50
A-60
R-90
A-65
ST: 10+087.10
CS: 10+057.10
SC: 10+046.94
EC: 10+211.61
+203.1
+135.2
+156.6
+156.4
+786.8
+755.5
+800.0
STA 14+650
STA 15+000
10+100
10+200
10+300
10+400
14+700
14+800
10+000

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

Printed: Mar 18, 2019

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

REMOVALS
STA 15+000 TO STA 15+350
Survey _____ Revised _____

SHEET
108

AECOM

15+000
15+100
15+200
15+300

LIMIT OF REMOVALS
STA 15+110.4

℄ MEDIAN QEW (REALIGNMENT)

15+000
STA
10+470
+110.4

SUNSET DRIVE

SUPPLEMENTAL LEGEND :

- REMOVE ASPHALT PAVEMENT FULL DEPTH
- REMOVE ASPHALT PAVEMENT PARTIAL DEPTH
- REMOVE ASPHALT PAVEMENT FROM CONCRETE SURFACE
- REMOVE ASPHALT PAVEMENT FROM CONCRETE STRUCTURE

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO RR-3-707 88-05

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

NEW CONSTRUCTION
STA 13+250 TO STA 13+600
Survey _____ Revised _____

SHEET 109

AECOM

LIMIT OF PAVING
STA 13+260

13+300 13+400 13+500 13+600

HOT 13+359.925 QEW (EXISTING)
= HOT 13+359.922 QEW (REALIGNMENT)

WILDLIFE FENCE

TYPE M30 SBGR
OPSD 912.185

1.0x16.2 RIP-RAP

OPSD 912.255
OPSD 202.032

OPSD 605.030

OPSD 600.030 OPSD 600.010

300 CSP

EXIST

EARTH DITCH CLEANOUT

EAP-NA-B-3

TORONTO BOUND

℄ MEDIAN QEW (REALIGNMENT)

OPSD 911.132 TW

℄ MEDIAN QEW (EXISTING)

OPSD 921.101

FORT ERIE BOUND

SBEAT

OPSD 605.030

OPSD 600.010

TYPE M30 SBGR
OPSD 912.185

600 CSP

RIP-RAP
1.5m x 3.3m

OPSD 202.031

RIP-RAP
1.5m x 6.5m

1.0x9.8 RIP-RAP

MAINTENANCE PAD
MTOD-2940.220'MOD'

RIP-RAP
1.5m x 6.3m

RIP-RAP
1.5m x 10.5m

WILDLIFE FENCE

STA 13+600

SUPPLEMENTAL LEGEND :

LIGHT DUTY
SILT FENCE (OPSD 219.110)

FIBRE ROLL FLOW CHECK DAM
(OPSD 219.191)

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

Printed: Mar. 18, 2019

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

NEW CONSTRUCTION
STA 13+600 TO STA 13+950
Survey _____ Revised _____

SHEET 110

AECOM

LICENSED PROFESSIONAL ENGINEER — R. NEWMAN — PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER — D. A. GRIGGS — 100153451 — PROVINCE OF ONTARIO

MINISTRY OF TRANSPORTATION, ONTARIO — RR-3-707 88-05

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WILDLIFE ANIMAL JUMP OUT PAD +643.0
WILDLIFE FENCE
WILDLIFE ANIMAL JUMP OUT PAD +850.0
WILDLIFE FENCE
OPSD 912.430
13+700
13+800
13+900
STA 13+600
STA 13+950
TYPE M30 SBGR OPSD 912.185
OPSD 600.010
TORONTO BOUND
OPSD 911.132 TW
℄ MEDIAN QEW (REALIGNMENT)
R=7000m
OPSD 911.380
FORT ERIE BOUND
OPSD 600.010
TYPE M30 SBGR OPSD 912.185
9+518
9+600
OPSD 912.430
RIP-RAP 1.5m x 14.8m
TOE WALL OPSD 3120.100
WILDLIFE ANIMAL JUMP OUT PAD +644.0
WILDLIFE FENCE
+666.6
+683.8
+701.8
LIMIT OF WILDLIFE FENCE
RETAINING WALL (RW-W1)
PI: 9+613.71
CP RAILWAY
CN RAILWAY
13 BARRELS
ROCK MAY BE EXPOSED
SCALE 5m 0 10m Horizontal

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

NEW CONSTRUCTION
STA 13+950 TO STA 14+300
Survey _____ Revised _____

SHEET 111

AECOM

P-2511-24

CP RAILWAY

CN RAILWAY

STA 13+950

STA 14+300

14+000

14+100

14+200

14+300

9+700

9+800

9+900

10+000

WILDLIFE ANIMAL JUMP OUT PAD

+088.0

WILDLIFE FENCE

+181.9

TOE WALL OPSD 3120.100

+243.3

RETAINING WALL (RW-E3)

INVERT EL. 180.00

LIMIT OF WILDLIFE FENCE

+284.3

MW C1-3 EL. 181.382

OPSD 912.430

+044.6

+128.2

TYPE M30 SBGR OPSD 912.185

OPSD 600.010

2.60

7.50

TORONTO BOUND

2.10

+221.2

11.00

℄ MEDIAN QEW (REALIGNMENT)

OPSD 911.132 TW

OPSD 911.380

STA: 14+054 OFFSET: 6.0 R

FORT ERIE BOUND

STA: 14+224.5 OFFSET: 11.1 R

OPSD 607.010

℄ RAMP N-EW

R=2000m

OPSD 600.030

OPSD 608.010

TYPE M30 SBGR OPSD 912.185

IDENTIFIED ARCHEOLOGY ZONE ACCESS IS PROHIBITED UNTIL AUTHORIZED BY THE CONTRACT ADMINISTRATOR.

OPSD 912.430

TYPE M30 SBGR OPSD 912.185

+192.0

BC: 9+831.24

RETAINING WALL (RW-W2)

STA: 14+054 OFFSET: 35.6 R

STA: 14+224.5 OFFSET: 35.8 R

INVERT EL. 180.30

MW C1-2 EL. 181.800

CS: 10+000.00

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

NEW CONSTRUCTION
STA 14+300 TO STA 14+650
Survey _____ Revised _____

SHEET 112

AECOM

R. NEWMAN — LICENSED PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO

R. A. CHECKO — LICENSED PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO

STA 14+300

STA 14+650

STA: 14+325.2 OFFSET: 59.0 L

STA: 14+479.2 OFFSET: 55.5 L

IDENTIFIED ARCHEOLOGY ZONE
ACCESS IS PROHIBITED

14+400 14+500 14+600

STA: 14+325.2 OFFSET: 24.0 L

RETAINING WALL (RW-E3)

MW RW-6 EL. 183.638

OPSD 600.010

TOE WALL OPSD 3120.100

TYPE M30 SBGR OPSD 912.185

STA: 14+479.2 OFFSET: 22.2 L

OPSD 605.030

WILDLIFE FENCE

TYPE M20 SBGR OPSD 912.185

HOS 14+619.648 MEDIAN QEW
= HOT 9+999.856 BOWEN RD

TORONTO BOUND

OPSD 911.132 TW-1

℄ MEDIAN QEW (REALIGNMENT)

R=3000m

A=450

FORT ERIE BOUND

OPSD 911.132 TW-2

MTOD 911.383

OPSD 600.030

RIP-RAP 1.5m x 2.2m

RIP-RAP 1.5m x 4.2m

OPSD 801.041

℄ RAMP EW-S

A=110

A=50

OPSD 600.010

SBEAT

TYPE M30 SBGR OPSD 912.185

OPSD 912.255

1.0x7.0 RIP-RAP

1.0x6.5 RIP-RAP

RIP-RAP 3.0m x 3.0m

R=190m

WILDLIFE ANIMAL JUMP OUT PAD

SC: 10+057.63

℄ RAMP N-EW

CS: 10+124.21

ST: 10+187.89

9.0m RAMP CLOSURE GATE MTOD 960.101

OPSD 608.010

RIP-RAP 3.0m x 10.8m

TIE INTO EXIST. SBGR

CONNECT TO EXIST. SUBDRAIN

BC: 9+846.13

OPSD 605.030

TYPE M30 SBGR OPSD 912.185

R=55m

9+900

℄ BOWEN ROAD

CS: 9+955.38

SC: 10+000.00

HOC 9+822.277 BOWEN RD
=HOT 9+823.267 EW-S RAMP

HOC 9+810.778 BOWEN RD
=HOT 10+256.788 N-EW RAMP

CONNECT WITH EXIST. SBGR

OPSD 600.040

R-27.5

R-1.0

R-20

R-15

R-40

R-50

EC: 10+081.38

℄ SUNSET DRIVE

HOC 9+816.527 BOWEN RD
=HOT 10+000.000 SUNSET DRIVE

SCALE
5m 0 10m
Horizontal

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MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

METRIC

PLATE No

CONT 2019-2003

WP 2116-16-00

NEW CONSTRUCTION

STA 14+650 TO STA 15+000

Survey _____ Revised _____

SHEET 113

AECOM

LICENSED PROFESSIONAL ENGINEER R. NEWMAN PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER P. A. CHECHIK 100193451 PROVINCE OF ONTARIO

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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HOC 10+179.422 BOWEN RD. =HOT 10+238.391 S-EW RAMP

HOC 10+167.654 BOWEN RD. =HOT 9+829.461 EW-N RAMP

℄ BOWEN ROAD

℄ RAMP S-EW

℄ RAMP EW-N

LIMIT OF PAVING STA 10+156.6

TRAFFIC COUNTER

TYPE M30 SBGR OPSD 912.185

OPSD 600.040

OPSD 608.010

OPSD 605.030

OPSD 912.255

TIE INTO EXIST. SBGR / CONNECT TO EXIST. SUBDRAIN

RIP-RAP 3.0m x 10.0m

9.0m RAMP CLOSURE GATE MTOD 960.101

TYPE M20 SBGR OPSD 912.185

SBEAT

OPSD 202.031

TORONTO BOUND

OPSD 911.132 TW-1

EAP-NA-B-3

OPSD 921.101

℄ MEDIAN QEW (EXISTING)

EARTH DITCH CLEANOUT

FORT ERIE BOUND

RIP-RAP 1.5m x 5.2m

ST 14+670.975 QEW (REALIGNMENT) = HOT 14+671.326 QEW (EXISTING)

SUNSET DRIVE

ST: 10+000.00

ST: 10+087.10

CS: 10+057.10

SC: 10+046.94

EC: 10+211.61

STA 14+650

STA 15+000

SCALE 5m 0 10m Horizontal

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

NEW CONSTRUCTION
STA 15+000 TO STA 15+350
Survey _____ Revised _____

SHEET
114

AECOM

LAKELAND POWER ENGINEERING PROJECTS
R. NEWMAN
PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER
D. A. CHERRY
100193451
PROVINCE OF ONTARIO

MINISTRY OF TRANSPORTATION, ONTARIO
PR-3-707 88-05

15+000
15+100
15+200
15+300

LIMIT OF PAVING
STA 15+110.4

LS
RS

STA 15+000

EARTH DITCH CLEANOUT

TORONTO BOUND

℄ MEDIAN QEW (EXISTING)

1.50
1.50
8:1
EXIST
11.00
FORT ERIE BOUND
10+470
2.50
2.50
8:1
+005.2
+110.4

DI

SUNSET DRIVE

SCALE
5m 0 10m
Horizontal

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

NEW CONSTRUCTION
GILMORE ROAD CULVERTS

Survey _____ Revised _____

SHEET 115

AECOM

CONSTRUCTION ACCESS 1

OPSD 219.180

LAYDOWN AREA

4.0

RAMP W-S

RAMP E-N

GILMORE ROAD

PETTIT ROAD

CONSTRUCTION ACCESS 4

TEMPORARY CULVERT

OPSD 219.180

SITE No 34-455C

SITE No 34-454C

FRENCHMAN'S CREEK

TCB

CONSTRUCTION ACCESS 2

OPSD 219.180 (TYP)

EAT-RE-U-2

FORT ERIE BOUND

MEDIAN QEW

TORONTO BOUND

PETTIT ROAD

OPSD 219.180

OPSD 219.130

CONSTRUCTION ACCESS 3

RAMP S-W

RAMP S-E

EAT-NA-U-2

RAMP W-N

RAMP S-EW

SPEARS ROAD

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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METRIC

QEW TORONTO BOUND PROFILE

PLATE No
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WP 2116-16-00

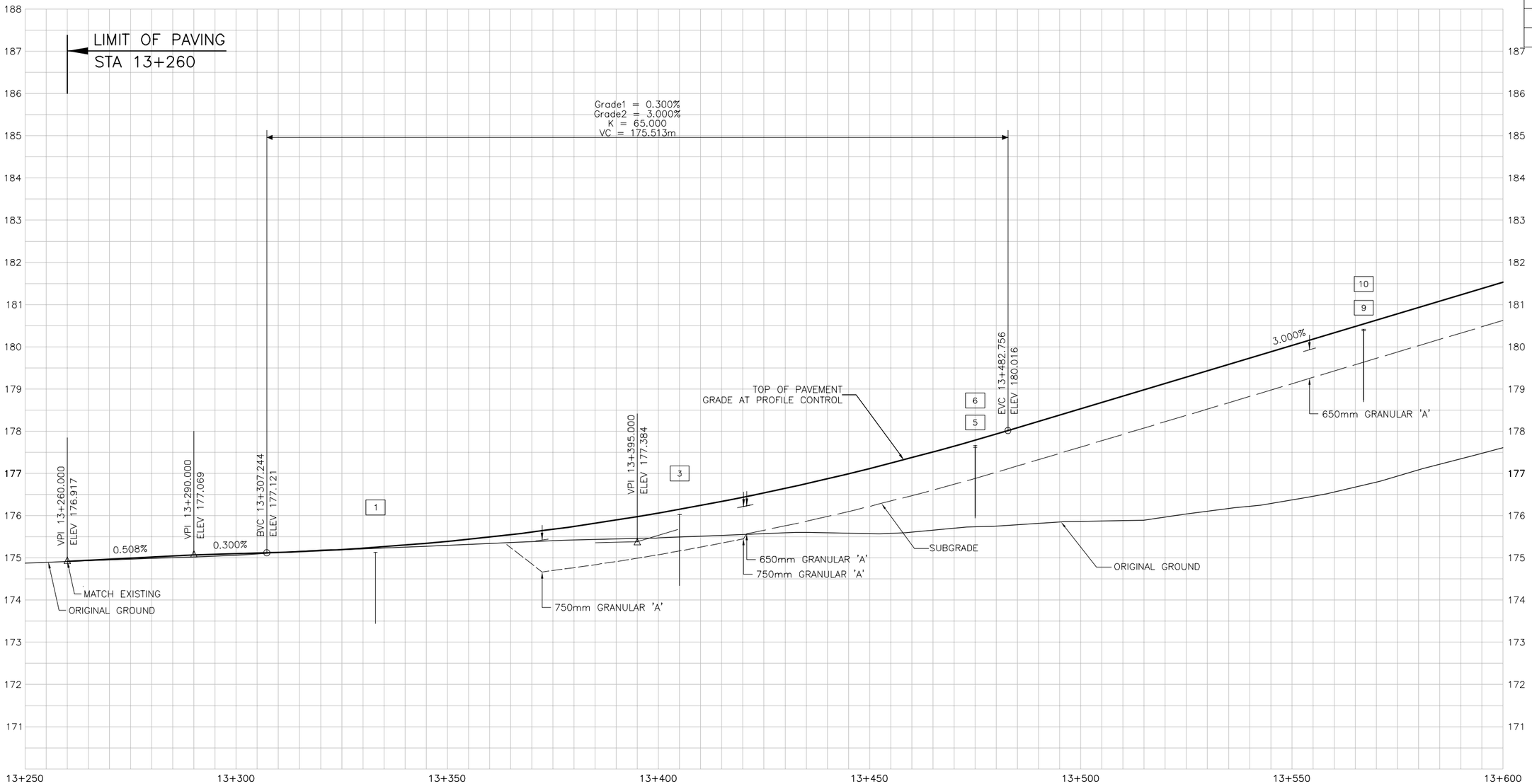
PROFILES
STA 13+250 TO STA 13+600
Survey _____ Revised _____

SHEET 116

AECOM

LICENSED PROFESSIONAL ENGINEER D. R. NEWMAN PROVINCE OF ONTARIO Mar 15/19

LICENSED PROFESSIONAL ENGINEER D. A. GRIGSBY 100193451 PROVINCE OF ONTARIO Mar 15/19



SCALE
5m 0 10m Horizontal
0.5m 0 1.0m Vertical

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

SHEET 117

PROFILES
STA 13+600 TO STA 13+950
Survey _____ Revised _____

AECOM

QEW TORONTO BOUND PROFILE

Grade1 = 3.000%
Grade2 = -1.650%
K = 95.000
VC = 441.750m

VPI 13+922.710
ELEV 193.215

BVC 13+701.835
ELEV 186.589

TOP OF PAVEMENT
GRADE AT PROFILE CONTROL

3.000%

SUBGRADE

650mm GRANULAR 'A'

ORIGINAL GROUND

300ø

MIN. CLEARANCE 7.1mm
PROVIDED AT TOP OF RAIL

℄ CP RAILWAY

194 193 192 191 190 189 188 187 186 185 184 183 182 181 180 179 178 177

13+600 13+650 13+700 13+750 13+800 13+850 13+900 13+950

SCALE
5m 0 10m Horizontal
0.5m 0 1.0m Vertical

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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P:\60581660 - CNCP QEW OD\900-CAD_GIS\910-CAD\C\20-SHEETS\Profiles\2019-01-30\60581660-C-CNCP-QEW-PROF-NB-13950.dwg (Model)

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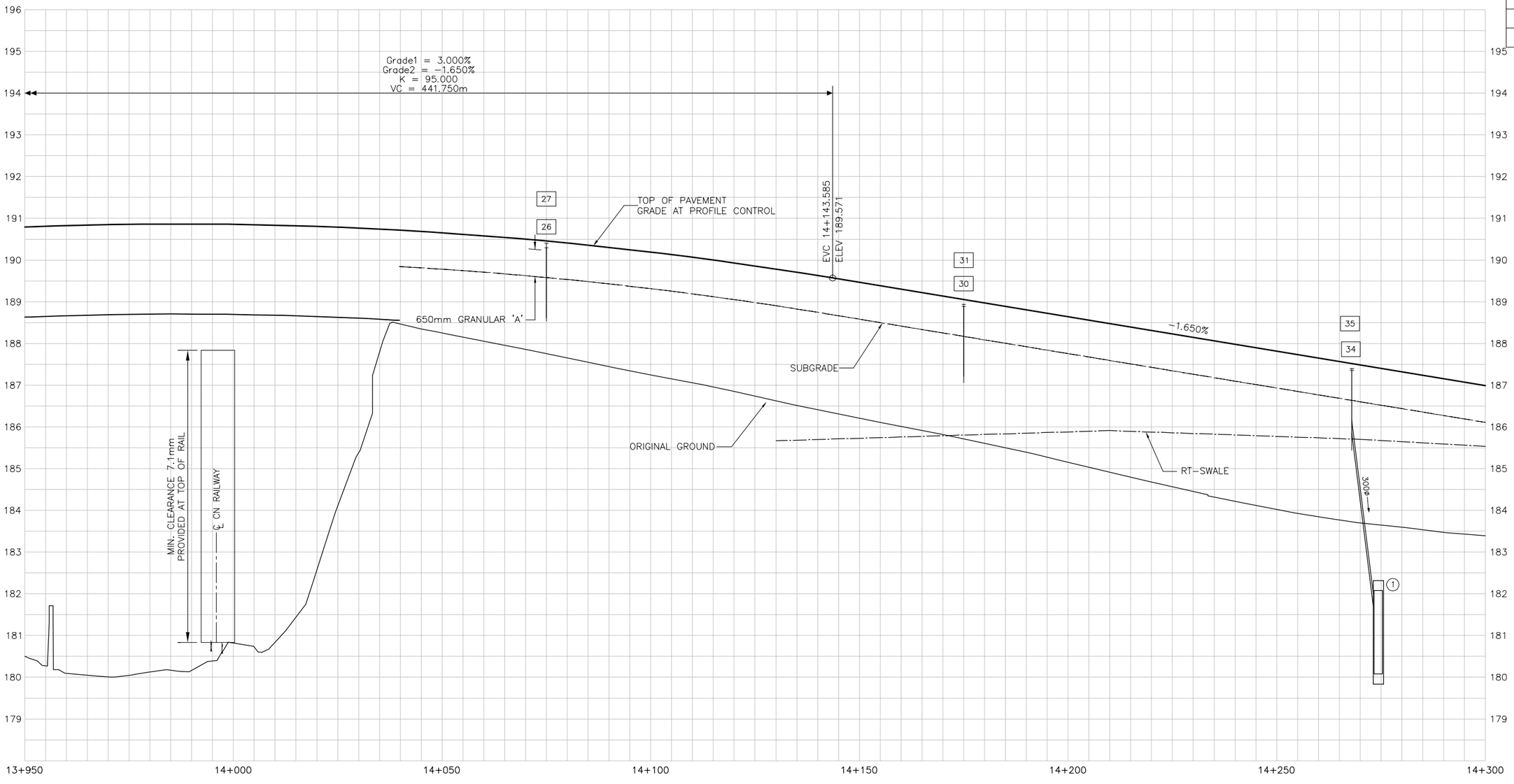
PLATE No
CONT 2019-2003
WP 2116-16-00

PROFILES
STA 13+950 TO STA 14+300
Survey _____ Revised _____

SHEET 118

AECOM

QEW TORONTO BOUND PROFILE



SCALE
5m 0 10m Horizontal
0.5m 0 1.0m Vertical

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METRIC

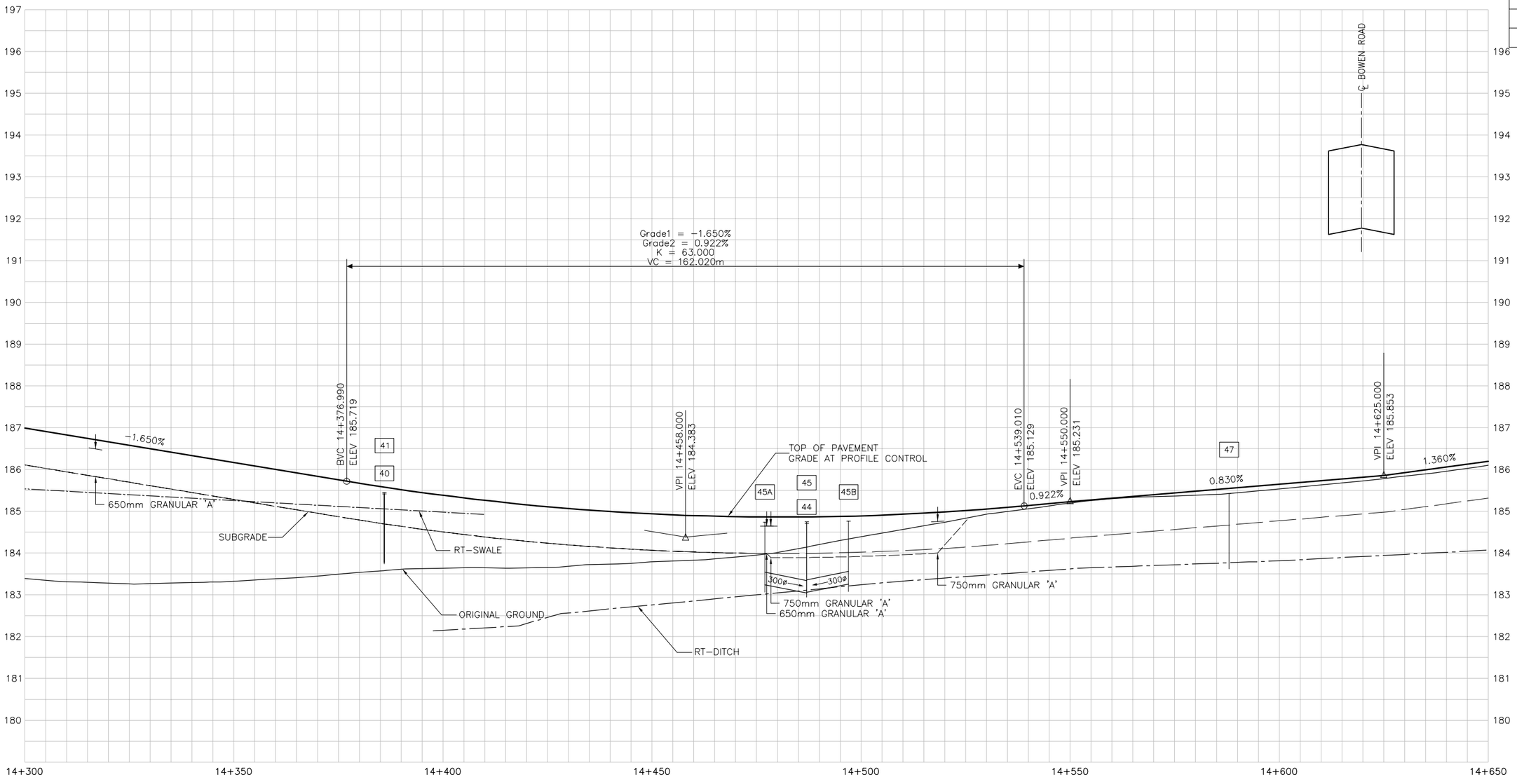
PLATE No
CONT 2019-2003
WP 2116-16-00

PROFILES
STA 14+300 TO STA 14+650
Survey _____ Revised _____

SHEET 119

AECOM

QEW TORONTO BOUND PROFILE



SCALE
5m 0 10m Horizontal
0.5m 0 1.0m Vertical

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

PROFILES
STA 14+650 TO STA 15+000
Survey _____ Revised _____

SHEET 120

AECOM

QEW TORONTO BOUND PROFILE

LIMIT OF PAVING
STA 14+800

Grade1 = 1.360%
Grade2 = 0.320%
K = 120.000
VC = 124.796m

BVC 14+672.602
ELEV 186.501

VPI 14+735.000
ELEV 187.349

EVC 14+797.398
ELEV 187.549

VPI 14+800.000
ELEV 187.557

1.360%

0.320%

TOP OF PAVEMENT
GRADE AT PROFILE CONTROL

49

ORIGINAL GROUND

MATCH EXISTING

ORIGINAL GROUND

RT-DITCH

198 197 196 195 194 193 192 191 190 189 188 187 186 185 184 183 182 181

14+650 14+700 14+750 14+800 14+850 14+900 14+950 15+000

SCALE
5m 0 10m Horizontal
0.5m 0 1.0m Vertical

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

PROFILES
STA 13+250 TO STA 13+600
Survey _____ Revised _____

SHEET 121

AECOM

QEW FORT ERIE BOUND PROFILE

LIMIT OF PAVING
STA 13+260

Grade1 = 0.300%
Grade2 = 3.000%
K = 65.000
VC = 175.513m

VPI 13+260.000
ELEV 176.917

VPI 13+290.000
ELEV 177.069

BVC 13+307.244
ELEV 177.121

VPI 13+395.000
ELEV 177.384

EVC 13+482.756
ELEV 180.016

0.508%

0.300%

3.000%

MATCH EXISTING

ORIGINAL GROUND

750mm GRANULAR 'A'

650mm GRANULAR 'A'

TOP OF PAVEMENT
GRADE AT PROFILE CONTROL

ORIGINAL GROUND

RT-DITCH

SCALE
5m 0 10m Horizontal
0.5m 0 1.0m Vertical

P:\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\Profiles\2019-01-30\60581660-C-CNCP-QEW-PROF-SB-13600.dwg (Model) Printed: Mar 18, 2019
MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

METRIC

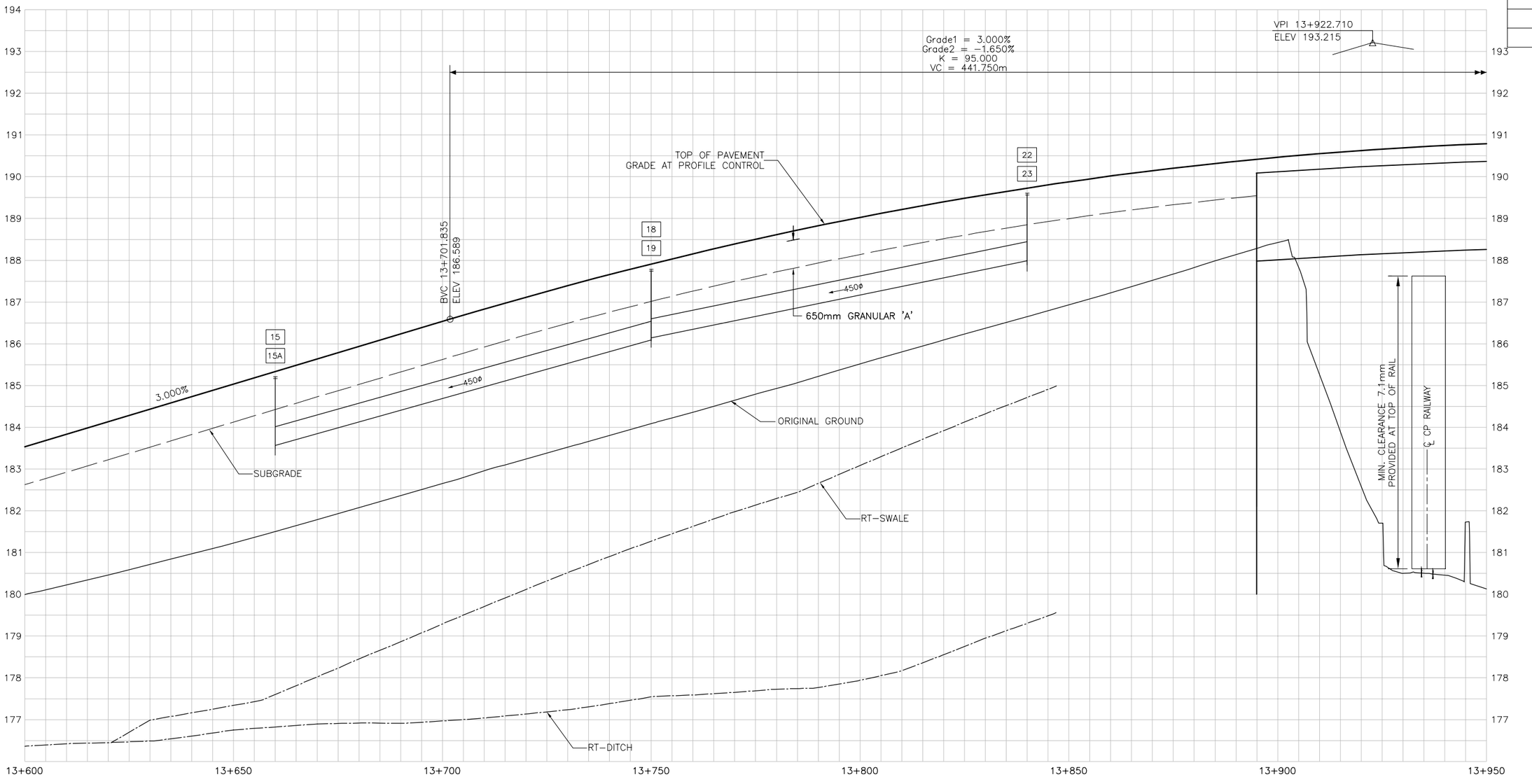
PLATE No
CONT 2019-2003
WP 2116-16-00

PROFILES
STA 13+600 TO STA 13+950
Survey _____ Revised _____

SHEET 122

AECOM

QEW FORT ERIE BOUND PROFILE



SCALE
5m 0 10m Horizontal
0.5m 0 1.0m Vertical

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

PROFILES
STA 13+950 TO STA 14+300
Survey _____ Revised _____

SHEET 123

AECOM

QEW FORT ERIE BOUND PROFILE

Grade1 = 3.000%
Grade2 = -1.650%
K = 95.000
VC = 441.750m

TOP OF PAVEMENT GRADE AT PROFILE CONTROL

EVC 14+143.585
ELEV 189.571

-1.650%

25
28
29
32
33
36
37
38
39

300ø
375ø
450ø
450ø

650mm GRANULAR 'A'
SUBGRADE

RW-W3

ORIGINAL GROUND

RT-SWALE

RT-DITCH

MIN. CLEARANCE 7.1mm
PROVIDED AT TOP OF RAIL

℄ CN RAILWAY

1

CONCRETE BOX CULVERT

196 195 194 193 192 191 190 189 188 187 186 185 184 183 182 181 180 179

13+950 14+000 14+050 14+100 14+150 14+200 14+250 14+300

SCALE
5m 0 10m Horizontal
0.5m 0 1.0m Vertical

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

PROFILES
STA 14+300 TO STA 14+650
Survey _____ Revised _____

SHEET 124

AECOM

QEW FORT ERIE BOUND PROFILE

Grade1 = -1.650%
Grade2 = 0.738%
K = 63.000
VC = 150.448m

BVC 14+376.776
ELEV 185.723

VPI 14+452.000
ELEV 184.482

EVC 14+527.224
ELEV 185.037

-1.650%

0.738%

TOP OF PAVEMENT GRADE AT PROFILE CONTROL

650mm GRANULAR 'A'

SUBGRADE

ORIGINAL GROUND

RT-DITCH

TOE OF TOE WALL AT THE GRADING

750mm GRANULAR 'A'

650mm GRANULAR 'A'

750mm GRANULAR 'A'

375ø

RT-DITCH

℄ BOWEN ROAD

42 43 46 48

2 3 4 5

197 196 195 194 193 192 191 190 189 188 187 186 185 184 183 182 181 180

14+300 14+350 14+400 14+450 14+500 14+550 14+600 14+650

SCALE
5m 0 10m Horizontal
0.5m 0 1.0m Vertical

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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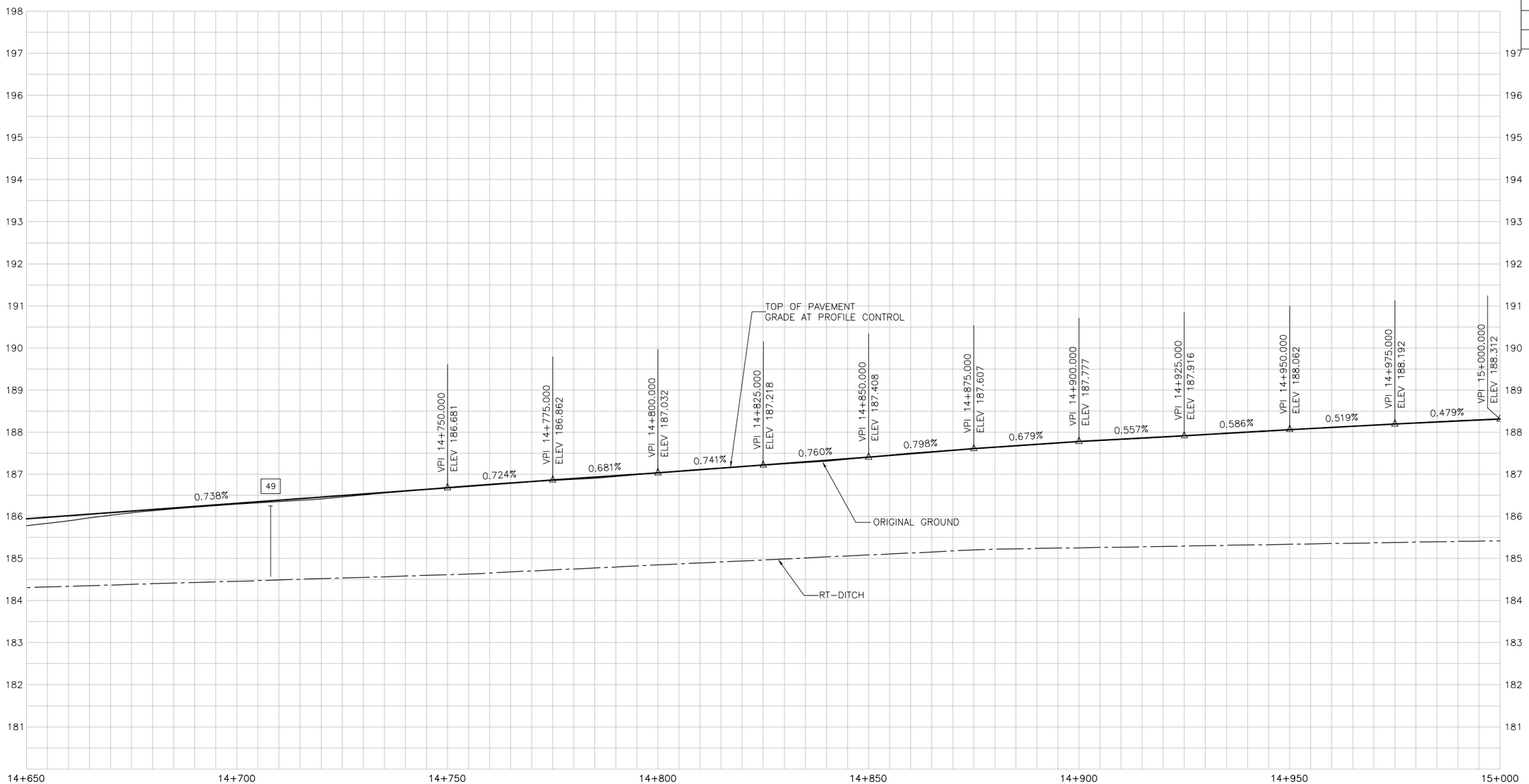
PLATE No
CONT 2019-2003
WP 2116-16-00

PROFILES
STA 14+650 TO STA 15+000
Survey _____ Revised _____

SHEET 125

AECOM

QEW FORT ERIE BOUND PROFILE



SCALE
5m 0 10m Horizontal
0.5m 0 1.0m Vertical

LICENSED PROFESSIONAL ENGINEER
R. NEWMAN
PROVINCE OF ONTARIO
LICENSED PROFESSIONAL ENGINEER
D. A. GRIGGS
100153451
PROVINCE OF ONTARIO

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
P:\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\Profiles\2019-01-30\60581660-C-CNCP-QEW-PROF-SB-15000.dwg (Model) Printed: Mar 18, 2019

METRIC

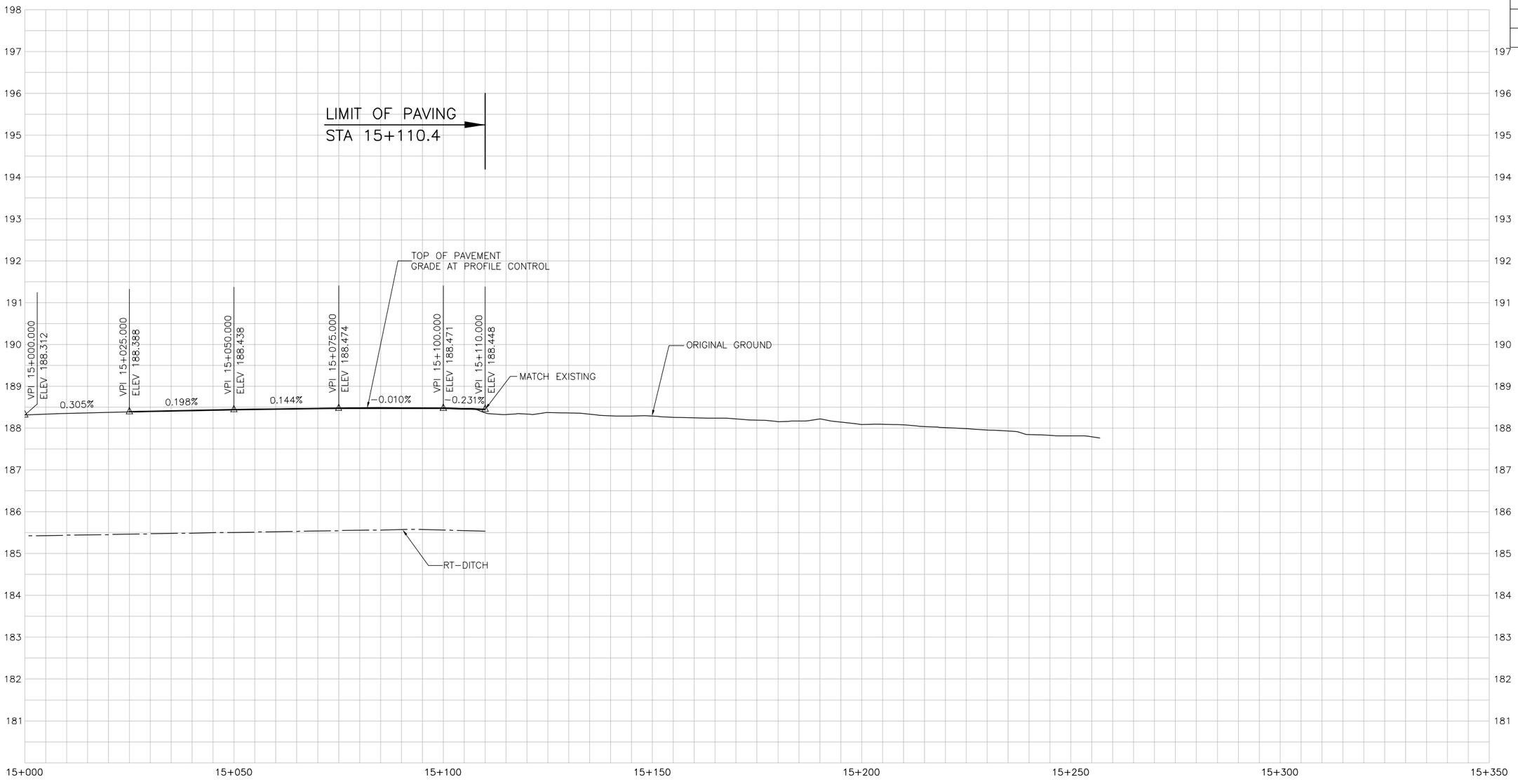
QEW FORT ERIE BOUND PROFILE

PLATE No
CONT 2019-2003
WP 2116-16-00

PROFILES
STA 15+000 TO STA 15+350
Survey _____ Revised _____

SHEET 126

AECOM



SCALE
5m 0 10m 0.5m 0 1.0m
Horizontal Vertical

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Printed: Mar 18, 2019
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METRIC

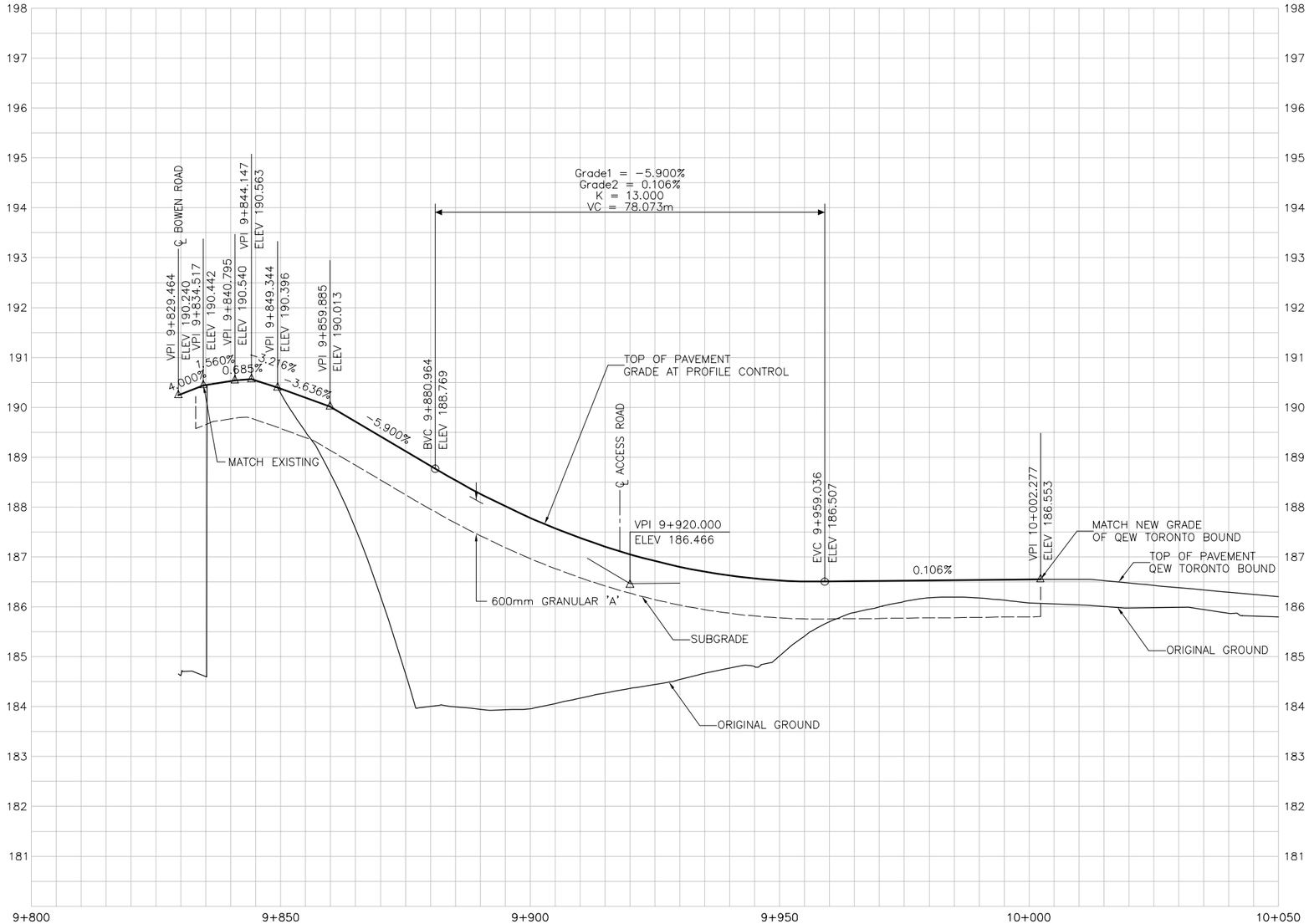
PLATE No
CONT 2019-2003
WP 2116-16-00

PROFILES
STA 9+800 TO STA 10+150
Survey _____ Revised _____

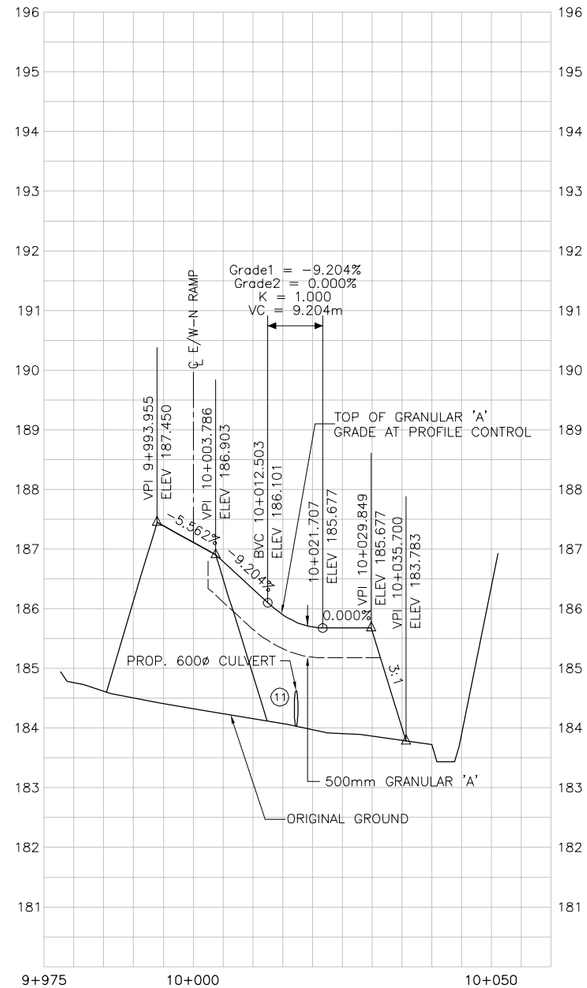
SHEET 127

AECOM

E/W-N RAMP PROFILE



ACCESS ROAD PROFILE AT E/W-N RAMP STA 9+918 RT



SCALE
5m 0 10m 0.5m 0 1.0m
Horizontal Vertical

LICENSED PROFESSIONAL ENGINEER
D. R. NEWMAN
PROVINCE OF ONTARIO
LICENSED PROFESSIONAL ENGINEER
D. A. GREEN
100150451
PROVINCE OF ONTARIO

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
Printed: Mar 18, 2019
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METRIC

N–E/W RAMP PROFILE

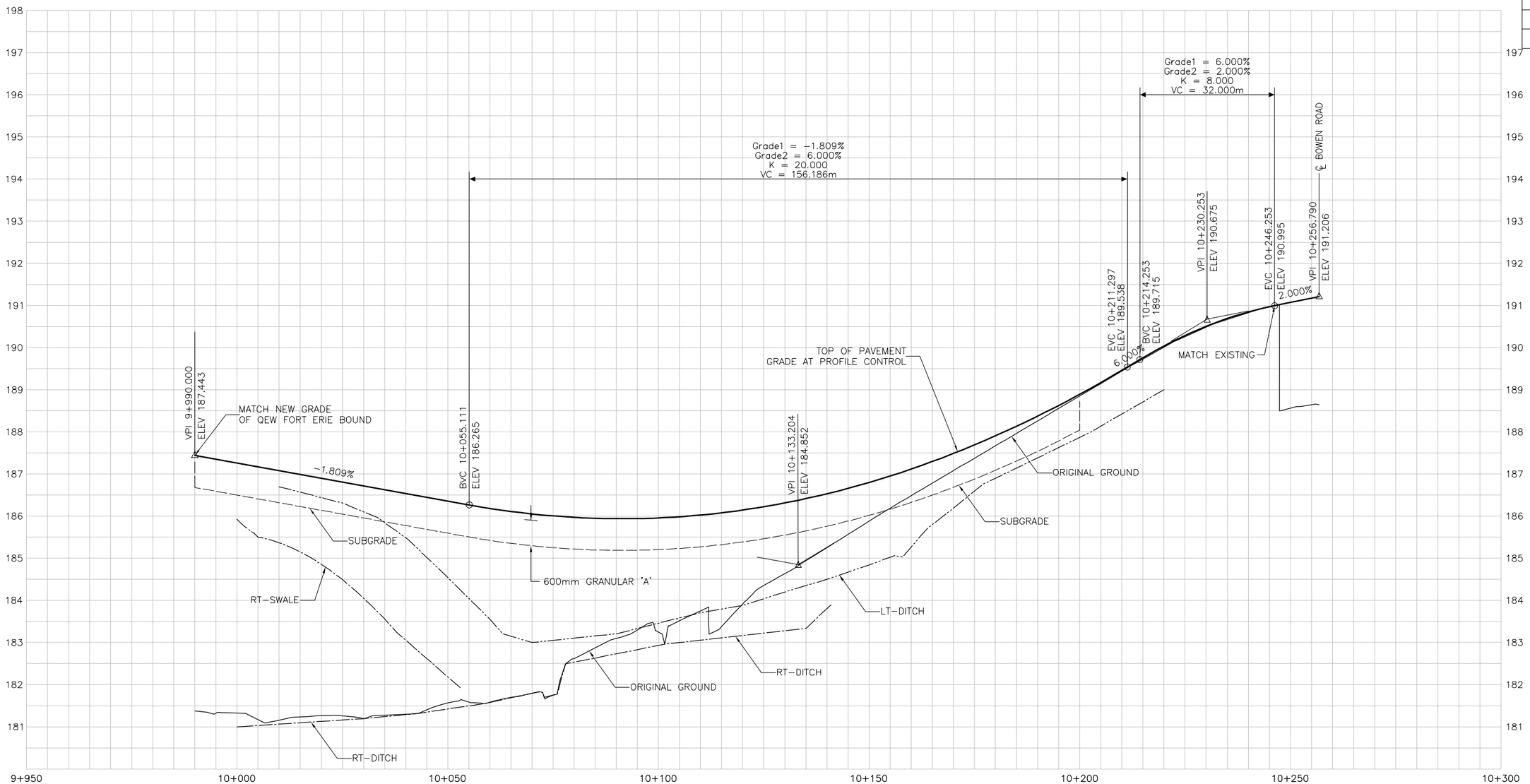


PLATE No
CONT 2019–2003
WP 2116–16–00

PROFILES
STA 9+950 TO STA 10+300
Survey _____ Revised _____

SHEET 128

AECOM



SCALE
5m 0 10m Horizontal
0.5m 0 1.0m Vertical

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
Printed: Mar 18, 2019
P:\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\Profiles\2019-01-30\60581660-C-CNCP-QEW-PROF-N-EW RAMP.dwg (Model)

METRIC

E/W–S RAMP PROFILE

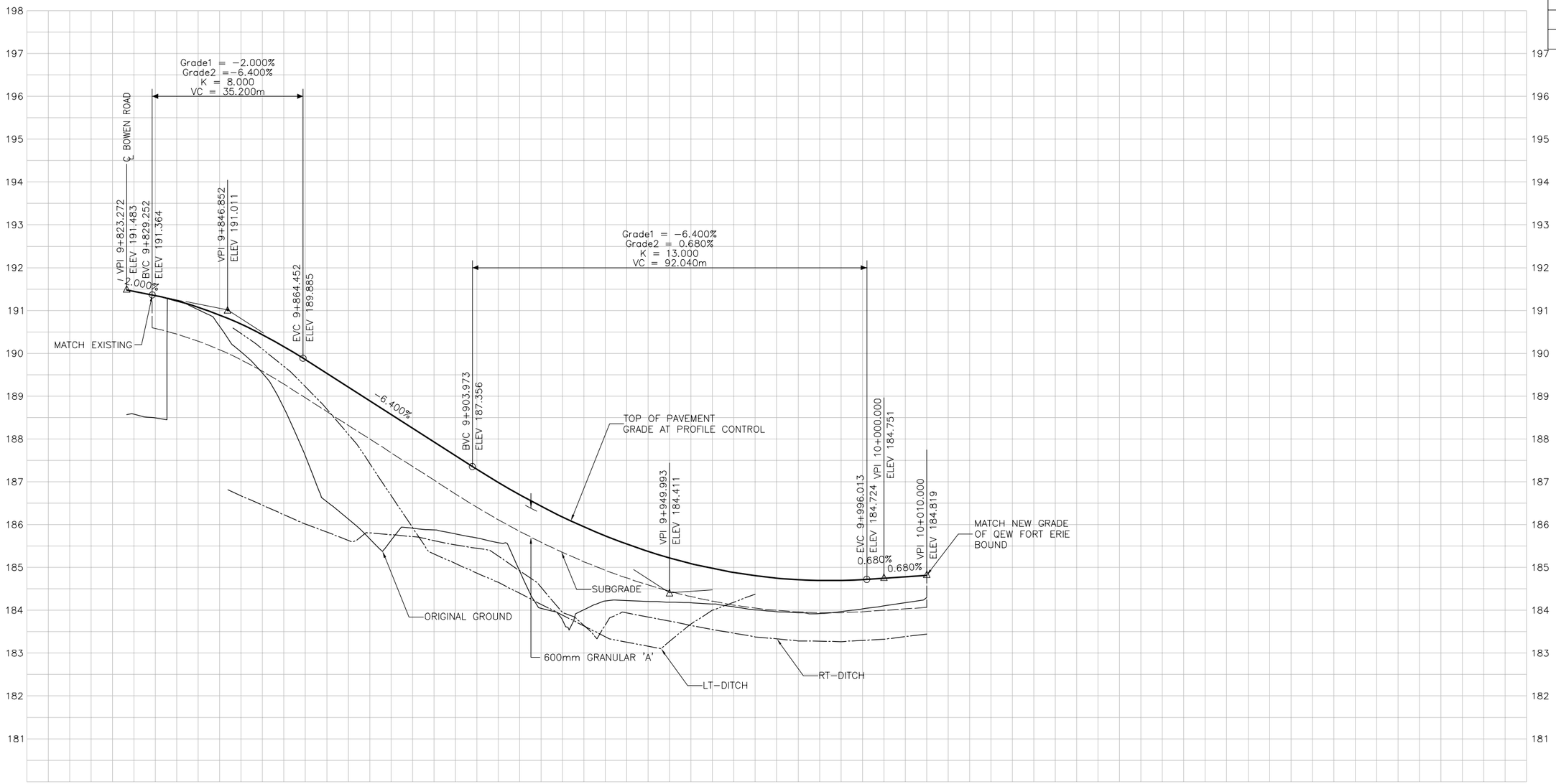


PLATE No
CONT 2019–2003
WP 2116–16–00

PROFILES
STA 9+800 TO STA 10+150
Survey _____ Revised _____

SHEET 129

AECOM



SCALE
5m 0 10m Horizontal
0.5m 0 1.0m Vertical

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
Printed: Mar 18, 2019
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METRIC

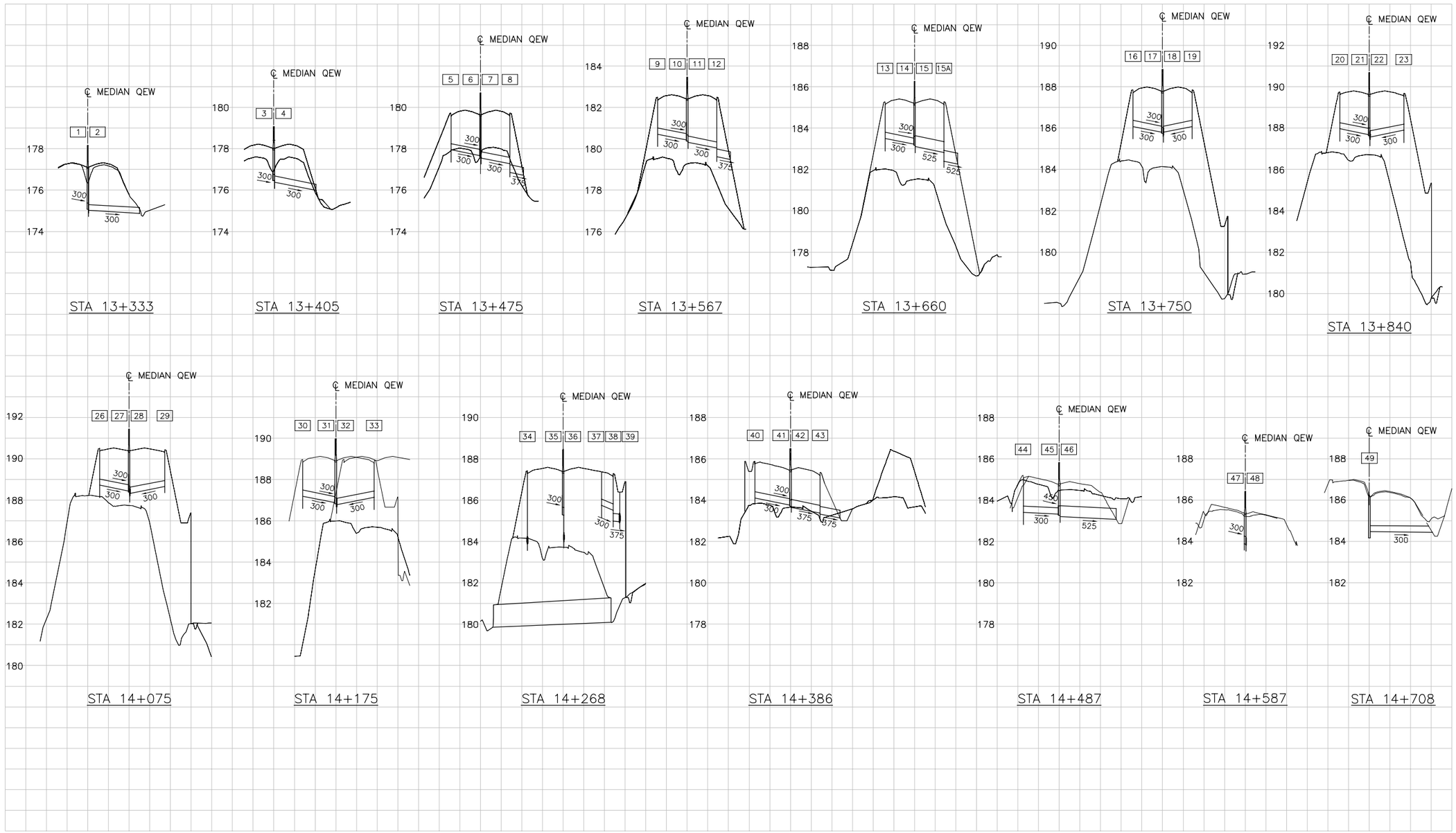
PLATE No
CONT 2019-2003
WP 2116-16-00

SHEET 130

PROFILES
STORM SEWER LATERALS
Survey _____ Revised _____

AECOM

QEW STORM SEWER LATERALS



SCALE
5m 0 10m Horizontal
0.5m 0 1.0m Vertical

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
P:\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\Profiles\60581660-C-CNCP-QEW-SEWER-LATERALS.dwg (Model) Printed: Mar 18, 2019

METRIC

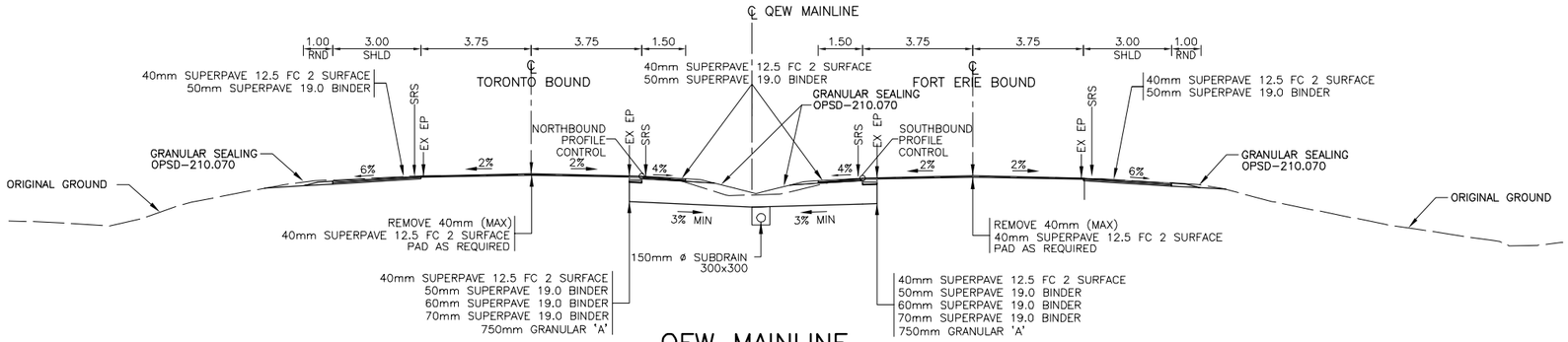
PLATE No
CONT 2019-2003
WP 2116-16-00

SHEET 131

TYPICAL SECTIONS

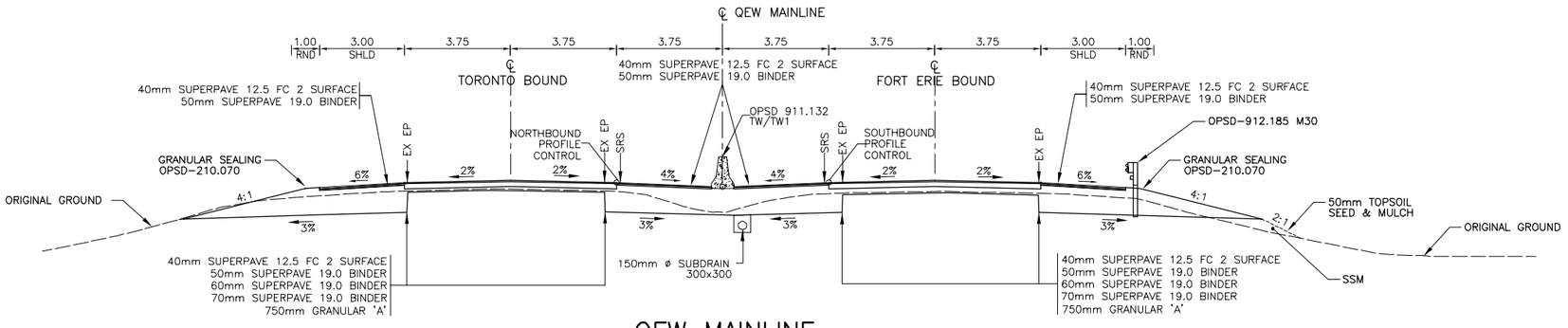
Survey _____ Revised _____

AECOM



QEW MAINLINE

STA 13+260 TO STA 13+326



QEW MAINLINE

STA 13+326 TO STA 13+440

1. SRS – SHOULDER RUMBLE STRIP
2. EXTEND TWO TOP ASPHALT LAYERS TO OUTSIDE AND MEDIAN SHOULDERS
3. PAVE TO UPBINDER WHERE REQUIRED TO ACCOMODATE STAGING
4. PLACE TACK COAT BETWEEN ASPHALT LIFTS
5. EROSION AND SEDIMENT CONTROL AS SHOWN ON NEW CONSTRUCTION DRAWINGS
6. SEED TYPE REFER TO LANDSCAPE PLANS
7. TYPICAL SECTIONS TO BE READ IN CONJUNTION WITH OPSD 200 SERIES

SCALE
N.T.S.

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
Printed: Mar 18, 2019
\\CAMBY1FPG01\Data\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\Typicals\60581660-C-TYPICALS-01.dwg (Model)

METRIC

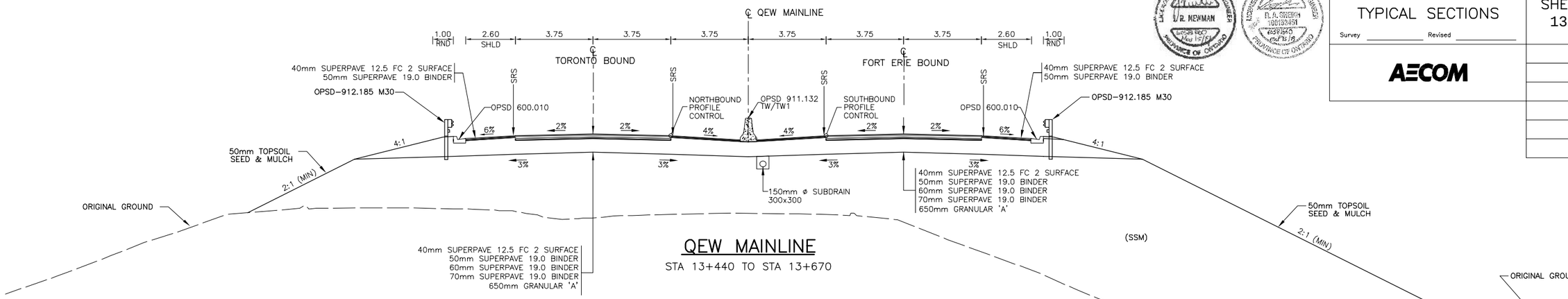
PLATE No
CONT 2019-2003
WP 2116-16-00

TYPICAL SECTIONS

SHEET 132

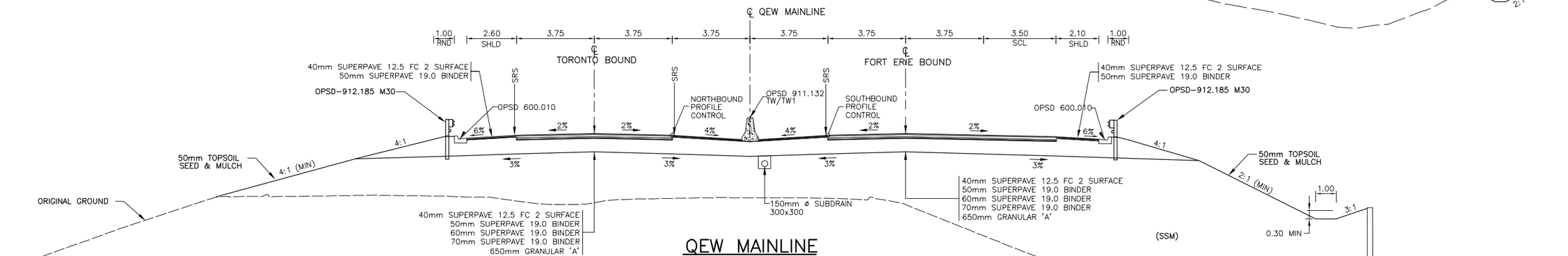
Survey _____ Revised _____

AECOM



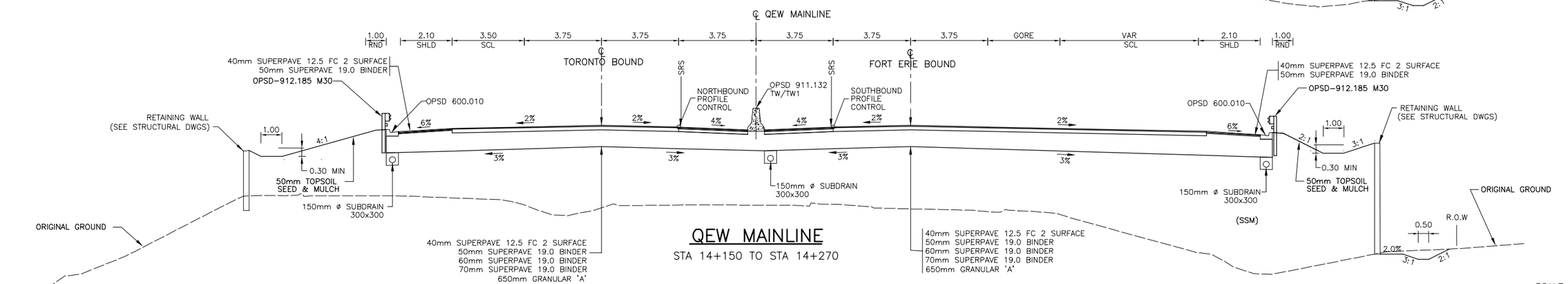
QEW MAINLINE

STA 13+440 TO STA 13+670



QEW MAINLINE

STA 13+800 TO STA 13+847
STA 14+023 TO STA 14+150



QEW MAINLINE

STA 14+150 TO STA 14+270

SRS – SHOULDER RUMBLE STRIP

SCALE
N.T.S.

\\CAWBY1FP001\Data\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\10-CAD\C\20-SHEETS\Typicals\60581660-C-TYPICALS-02.dwg (Model) Printed: Mar 18, 2019
MINISTRY OF TRANSPORTATION, ONTARIO RR-3-707 88-05

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

TYPICAL SECTIONS

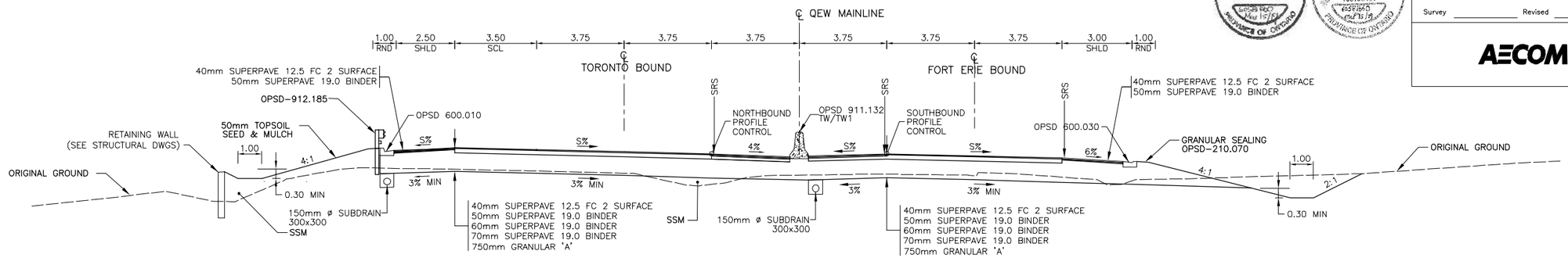
Survey _____ Revised _____

SHEET 133

AECOM



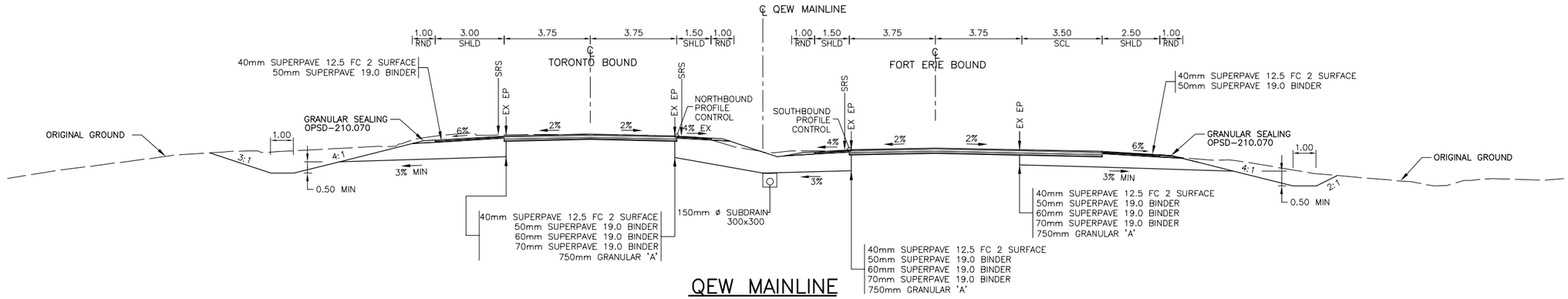




SHOULDER CROSSFALL/SUPERELEVATION TABLE													
Pavt	+6	+5	+4	+3	+2	+1	0	−1	−2	−3	−4	−5	−6
Sh	−2	−2	−2	−3	−3	−3	−4	−5	−6	−6	−6	−6	−6

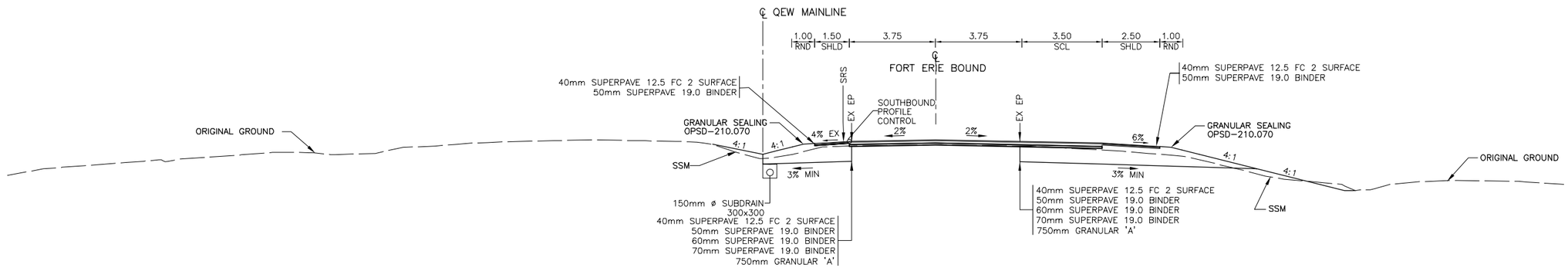
QEW MAINLINE

STA 14+400 TO STA 14+440



QEW MAINLINE

STA 14+700 TO STA 14+800



QEW MAINLINE

STA 14+800 TO STA 15+100

SRS – SHOULDER RUMBLE STRIP

SCALE
N.T.S.

\\CAMBY1FP001\Data\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\Typicals\60581660-C-TYPICALS-03.dwg (Model) Printed: Mar 18, 2019
MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

METRIC

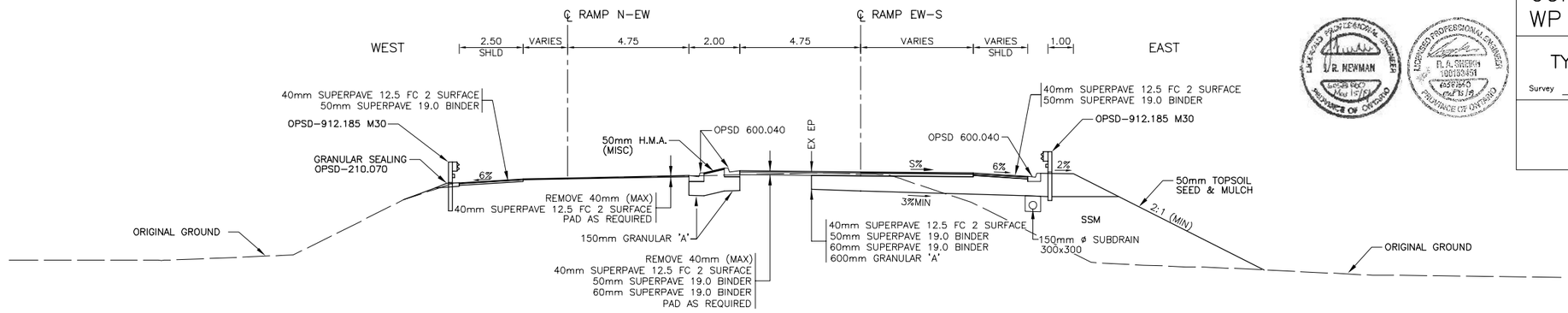
PLATE No
CONT 2019-2003
WP 2116-16-00

TYPICAL SECTIONS

Survey _____ Revised _____

SHEET 134

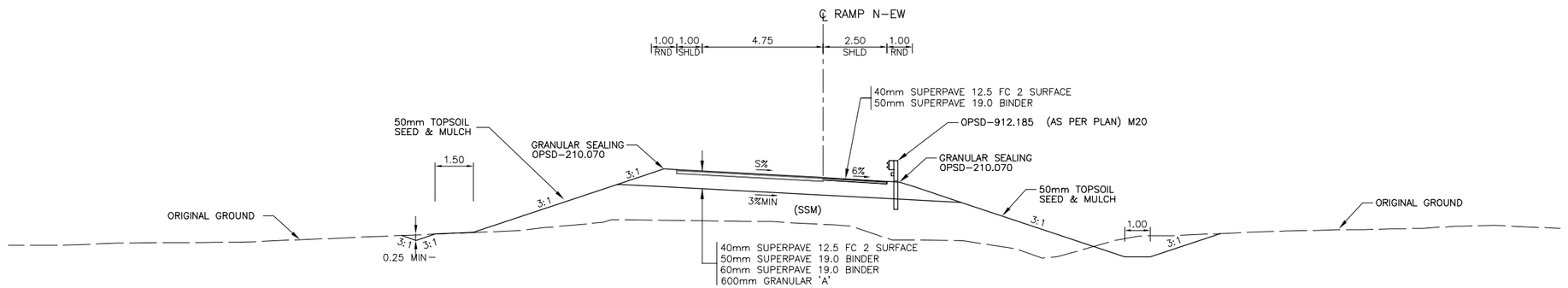
AECOM



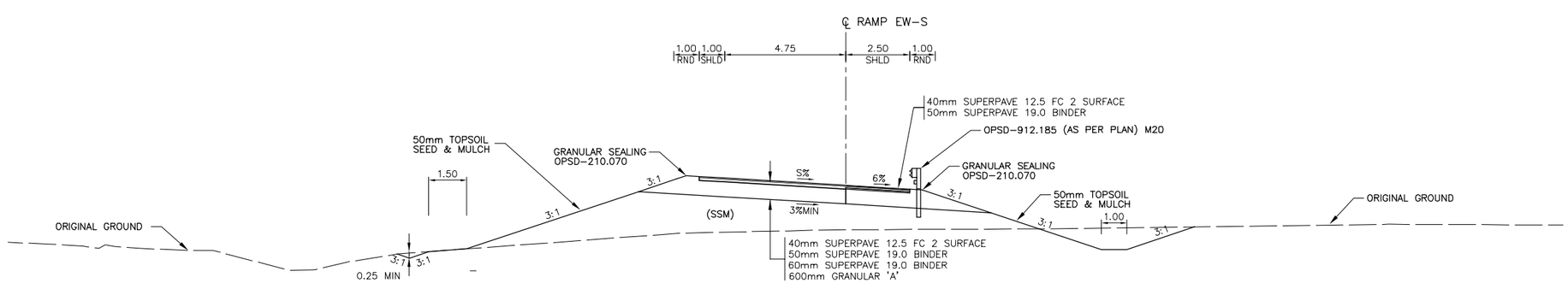
RAMP N-EW
STA 10+216 TO STA 10+262

RAMP EW-S
STA 9+822 TO STA 9+866

SHOULDER CROSSFALL/SUPERELEVATION TABLE												
Pavt	+6	+5	+4	+3	+2	+1	0	-1	-2	-3	-4	-5	-6
Sh	-2	-2	-2	-3	-3	-3	-4	-5	-6	-6	-6	-6	-6



RAMP N-EW
STA 10+000 TO STA 10+216



RAMP EW-S
STA 9+866 TO STA 10+000

SCALE
N.T.S.

\\CAMBY1FP001\Data\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\Typicals\60581660-C-TYPICALS-04.dwg (Model) Printed: Mar 18, 2019
MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

METRIC

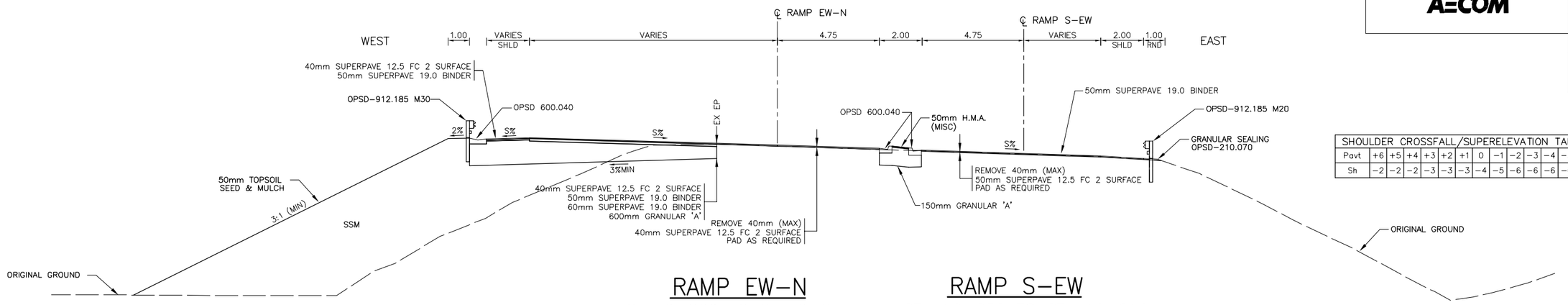
PLATE No
CONT 2019-2003
WP 2116-16-00

TYPICAL SECTIONS

Survey _____ Revised _____

SHEET 135

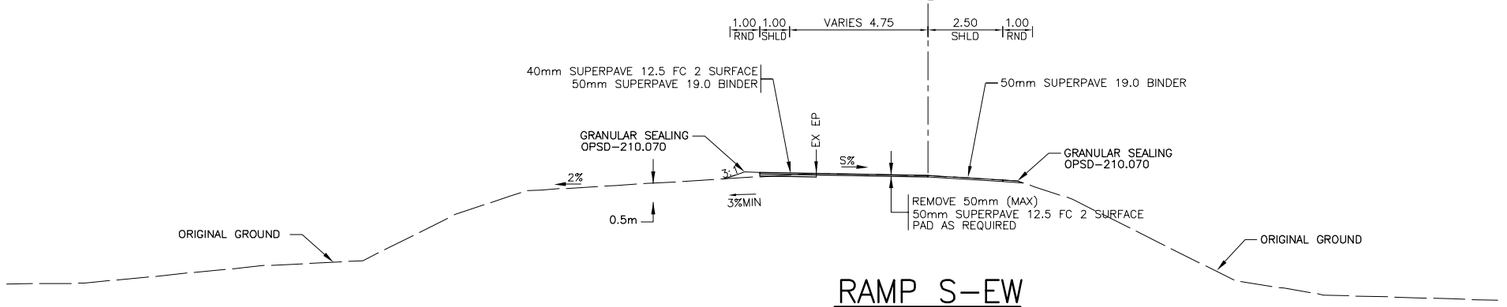
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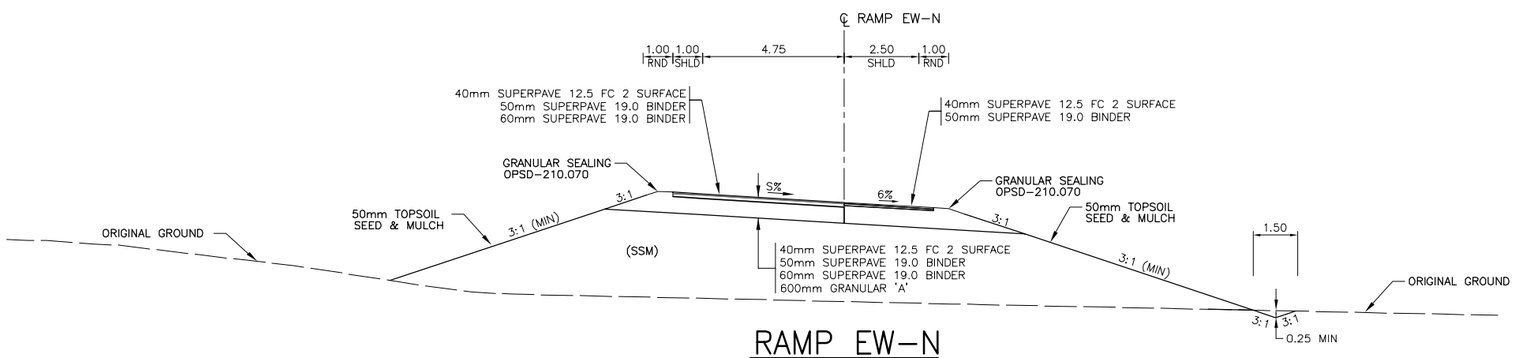
SHOULDER CROSSFALL/SUPERELEVATION TABLE												
Pavt	+6	+5	+4	+3	+2	+1	0	-1	-2	-3	-4	-5	-6
Sh	-2	-2	-2	-3	-3	-3	-4	-5	-6	-6	-6	-6	-6

RAMP EW-N
STA 9+829 TO STA 9+855

RAMP S-EW
STA 10+238 TO STA 10+210



RAMP S-EW
STA 10+210 TO STA 10+156.6



RAMP EW-N
STA 9+855 TO STA 10+000

SCALE
N.T.S.

\\CAMBY1FPD01\Data\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\Typicals\60581660-C-TYPICALS-05.dwg (Model) Printed: Mar 18, 2019
MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

METRIC

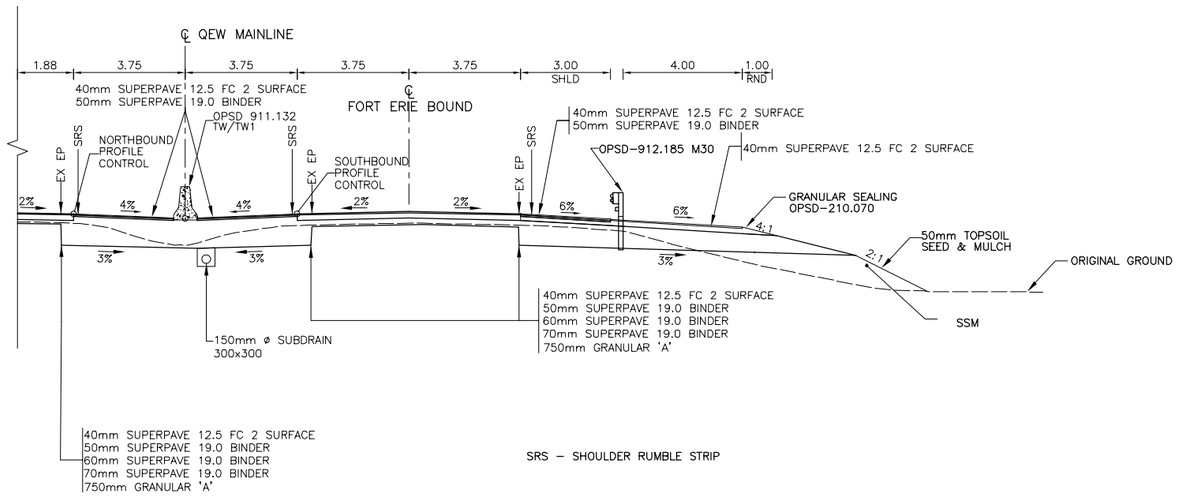
PLATE No
CONT 2019-2003
WP 2116-16-00

TYPICAL SECTIONS

Survey _____ Revised _____

SHEET 136

AECOM



TYPICAL SECTION AT ATMS MAINTENANCE SITE

STA 13+445

SCALE
N.T.S.

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

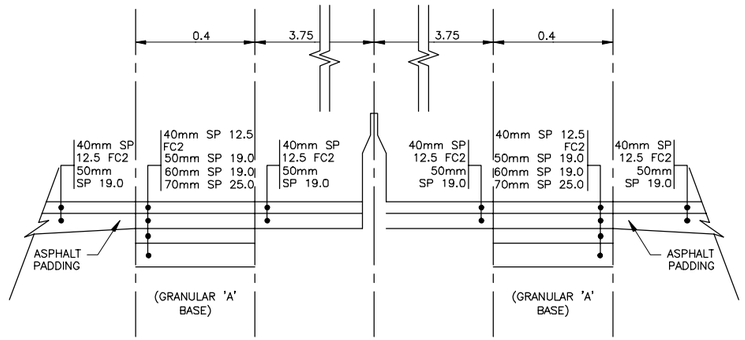
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PLATE No
CONT 2019-2003
WP 2116-16-00

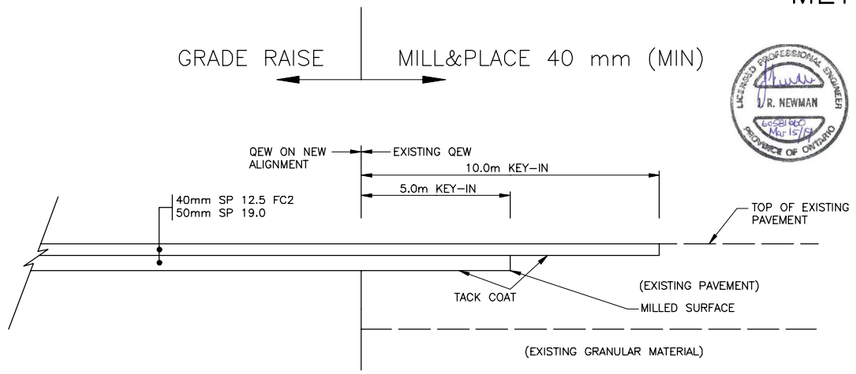
SHEET 137

TYPICAL SECTIONS
MISCELLANEOUS DETAILS
Survey _____ Revised _____

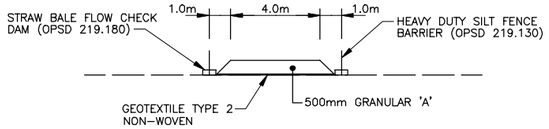
AECOM



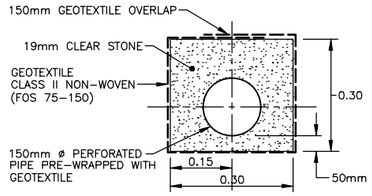
TRANSITION DETAIL
QEW MEDIAN AND OUTSIDE WIDENING



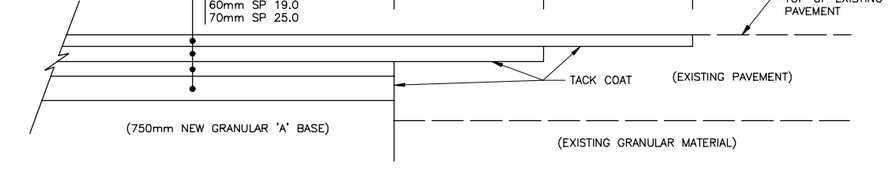
TRANSITION DETAIL
QEW AT PROJECT LIMIT



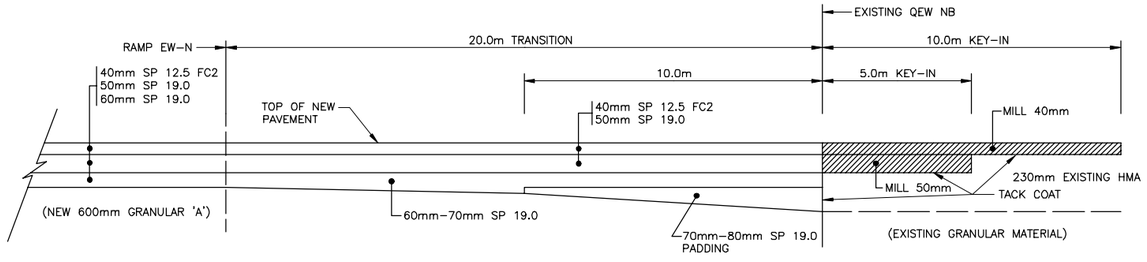
CONSTRUCTION ACCESS DETAIL



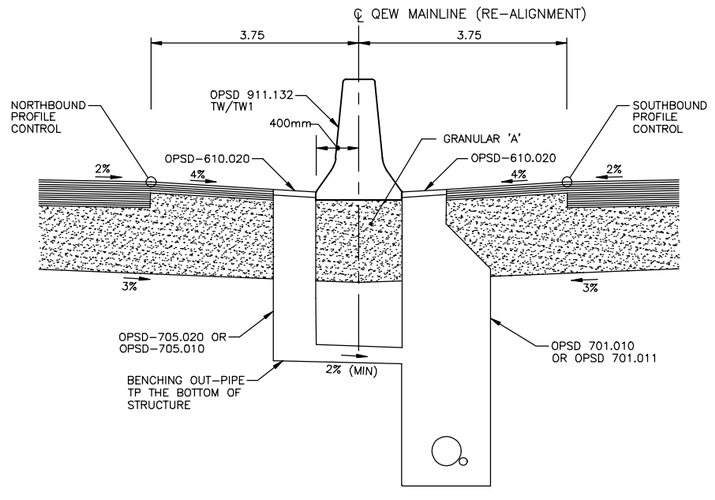
TYPICAL SUBDRAIN DETAIL – 150mm



TRANSITION DETAIL
QEW AT GRADE RAISE



TRANSITION DETAIL
BETWEEN RAMP EW-N AND QEW



QEW MAINLINE CONCRETE BARRIER DETAIL

SCALE
N.T.S.

\\CAMBY1FP001\Data\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\Typicals\60581660-C-TYPICALS-DETAILS-01.dwg (Model) Printed: Mar 18, 2019
MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

METRIC

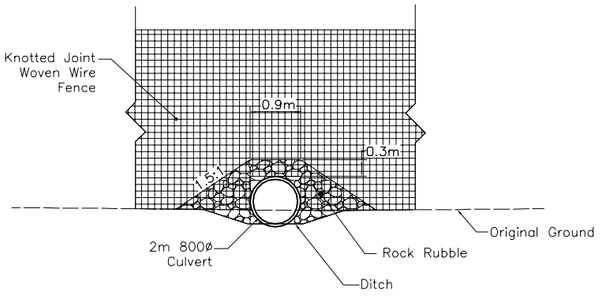
PLATE No
CONT 2019-2003
WP 2116-16-00

TYPICAL SECTIONS
MISCELLANEOUS DETAILS

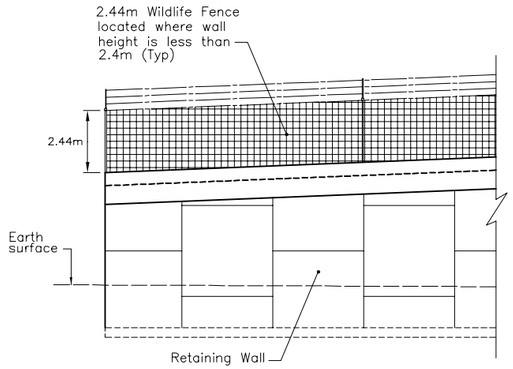
Survey _____ Revised _____

SHEET
138

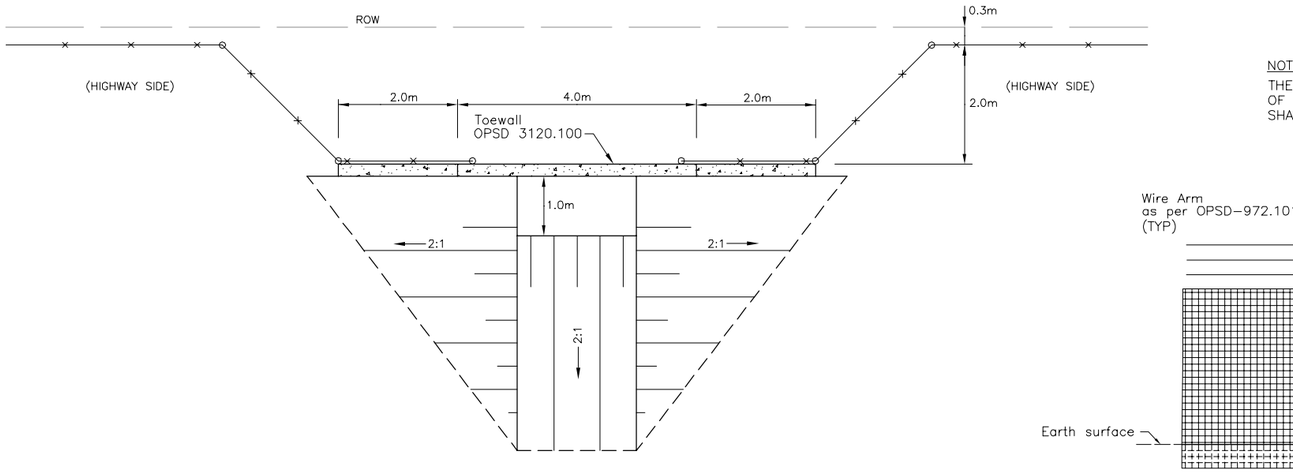
AECOM



WILDLIFE FENCE – UNGULATE AT DRAINAGE DITCH

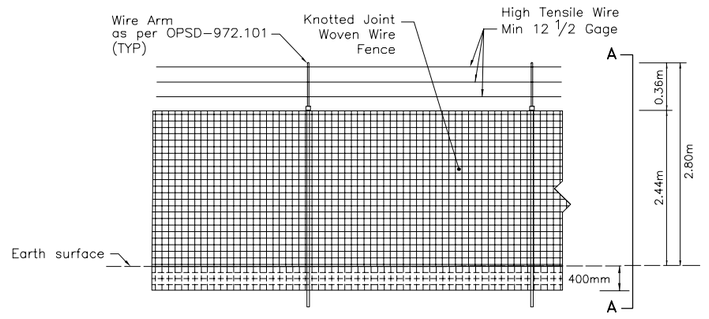


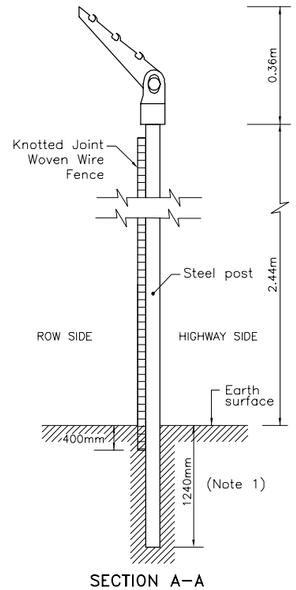
WILDLIFE FENCE – ON RETAINING WALL



WILDLIFE ANIMAL JUMP-OUT PAD

NOTE 1.
THE FOOTING DEPTH SHALL BE A MINIMUM OF 1240mm. ALL OTHER FOOTING DETAILS SHALL BE AS PER OPSD 972.130





SECTION A-A

WILDLIFE FENCE – UNGULATE IN EARTH

SCALE
N.T.S.

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

P:\60581660 - CNCP QEW (D)\900-CAD_GIS\910-CAD\C\20-SHEETS\Typicals\60581660-C-TYPICALS-DETAILS-02.dwg (Model) Printed: Mar 18, 2019

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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METRIC

PLATE No

CONT 2019-2003

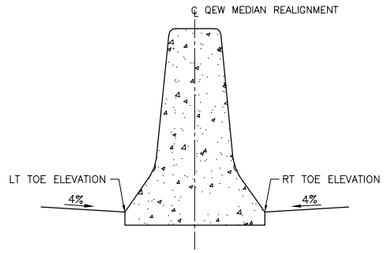
WP 2116-16-00

TYPICAL SECTIONS
MISCELLANEOUS DETAILS

Survey _____ Revised _____

SHEET 139

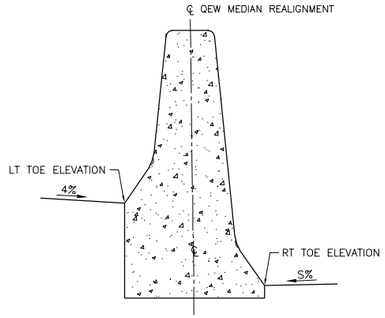
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OPSD – 911.132
TYPE TW

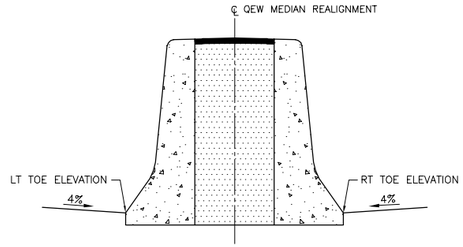
STATION	ELEVATION	
	LT	RT
13+330.000	177.070	177.070
13+333.000	177.115	177.115
13+345.000	177.211	177.211
13+350.000	177.255	177.255
13+355.000	177.307	177.307
13+365.000	177.419	177.419
13+375.000	177.543	177.543
13+400.000	177.927	177.927
13+405.000	178.015	178.015
13+425.000	178.408	178.409
13+450.000	178.982	178.982
13+475.000	179.654	179.654
13+480.980	179.829	179.829
13+481.000	179.830	179.830
13+500.000	180.400	180.400
13+525.000	181.150	181.150
13+550.000	181.900	181.900
13+567.000	182.410	182.410
13+575.000	182.650	182.650
13+600.000	183.400	183.400
13+625.000	184.150	184.150
13+650.000	184.900	184.900
13+660.000	185.200	185.200
13+670.000	185.500	185.500
13+674.600	185.638	185.638
13+675.000	185.650	185.650
13+700.000	186.400	186.400
13+725.000	187.120	187.120
13+733.000	187.339	187.339
13+750.000	187.778	187.778
13+775.000	188.367	188.367
13+786.123	188.609	188.609
13+789.424	188.679	188.679
13+800.000	188.893	188.893
13+818.000	189.229	189.229
13+825.000	189.351	189.351
13+830.000	189.435	189.435
13+837.000	189.572	189.572
13+837.480	189.581	189.581
13+845.000	189.721	189.721
13+846.950	189.757	189.757
13+847.000	189.758	189.758
13+850.000	189.811	189.811
13+857.000	189.910	189.910
13+857.800	189.920	189.920
13+865.000	190.015	190.015
13+870.000	190.078	190.078
13+875.000	190.138	190.138
13+884.487	190.245	190.245
13+885.000	190.251	190.251
13+900.000	190.400	190.400

STATION	ELEVATION	
	LT	RT
14+042.000	190.637	190.637
14+050.000	190.587	190.587
14+067.000	190.459	190.459
14+070.000	190.433	190.433
14+075.000	190.388	190.388
14+095.000	190.114	190.114
14+100.000	190.056	190.056
14+107.000	189.970	189.970
14+125.000	189.723	189.723
14+150.000	189.330	189.331
14+175.000	188.918	188.918
14+185.000	188.753	188.753
14+186.000	188.737	188.737
14+187.000	188.720	188.720
14+189.904	188.672	188.672
14+190.000	188.670	188.670
14+195.000	188.588	188.588
14+200.000	188.506	188.506
14+222.000	188.143	188.143
14+225.000	188.093	188.094
14+250.000	187.681	187.681
14+267.000	187.400	187.400
14+270.000	187.351	187.351
14+271.000	187.334	187.334
14+272.000	187.318	187.318
14+273.000	187.301	187.301
14+275.000	187.268	187.268
14+276.000	187.252	187.252
14+283.212	187.133	187.133
14+293.212	186.968	186.968
14+300.000	186.856	186.856
14+303.212	186.803	186.803
14+310.414	186.684	186.684
14+325.000	186.444	186.444



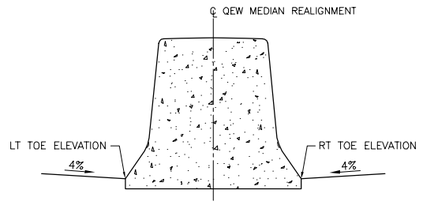
OPSD – 911.132
TYPE TW-1

STATION	ELEVATION	
	LT	RT
14+331.337	186.339	186.372
14+350.000	186.031	186.064
14+359.462	185.875	185.908
14+370.000	185.701	185.734
14+370.712	185.689	185.722
14+375.000	185.618	185.652
14+400.000	185.248	185.282
14+425.000	184.978	185.013
14+450.000	184.804	184.840
14+462.000	184.756	184.756
14+463.000	184.753	184.790
14+468.925	184.739	184.776
14+475.000	184.731	184.767
14+487.000	184.731	184.768
14+500.000	184.757	184.794
14+505.000	184.774	184.812
14+510.000	184.795	184.833
14+515.000	184.820	184.858
14+525.000	184.884	184.922
14+530.000	184.919	184.957
14+535.000	184.960	184.994
14+540.240	185.007	185.007
14+545.000	185.051	185.068
14+550.000	185.097	185.105
14+555.000	185.138	185.141
14+565.000	185.221	185.215
14+575.000	185.304	185.289
14+585.000	185.387	185.363
14+595.000	185.470	185.437
14+650.000	186.059	185.834
14+655.000	186.127	185.865
14+670.975	186.344	185.964
14+673.250	186.375	185.981
14+675.000	186.398	185.993
14+680.000	186.478	186.038



OPSD – 911.132
TYPE TW-2

STATION	ELEVATION	
	LT	RT
14+605.000	185.553	185.510
14+614.725	185.634	185.582
14+625.000	185.727	185.658
14+627.000	185.746	185.673



OPSD – 911.132
TYPE TW-3

STATION	ELEVATION	
	LT	RT
14+600.000	185.512	185.474
14+603.475	185.541	185.499
14+642.850	185.962	185.790

SCALE
N.T.S.

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

PAVEMENT MARKINGS & SIGNAGE
STA 12+200 TO STA 12+550
Survey _____ Revised _____

SHEET
140

AECOM

12+187.120
12+200
12+300
12+400
12+500
12+550
STA

℄ MEDIAN QEW

EXIST 8
EXIST 8
+460.0

LIMIT OF PAVEMENT MARKING
STA 12+460

1	SOLID YELLOW,10cm
2	SOLID DOUBLE YELLOW,10cm
3	363 BROKEN YELLOW,10cm
4	SOLID YELLOW,20cm
5	SOLID WHITE,10cm
6	333 BROKEN WHITE,10cm
7	363 BROKEN WHITE,10cm
8	393 BROKEN WHITE,10cm
9	SOLID WHITE,20cm
10	111 BROKEN WHITE,20cm
11	333 BROKEN WHITE,20cm
12	333 BROKEN WHITE,30cm
13	SOLID WHITE,30cm
14	SOLID WHITE,45cm
15	SOLID WHITE,60cm
16	111 BROKEN WHITE,10cm
18	SOLID YELLOW, 10cm & 363 BROKEN YELLOW, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING, TEMPORARY
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY – REMOVABLE
5. Use (1) to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

Printed: Mar 18, 2019

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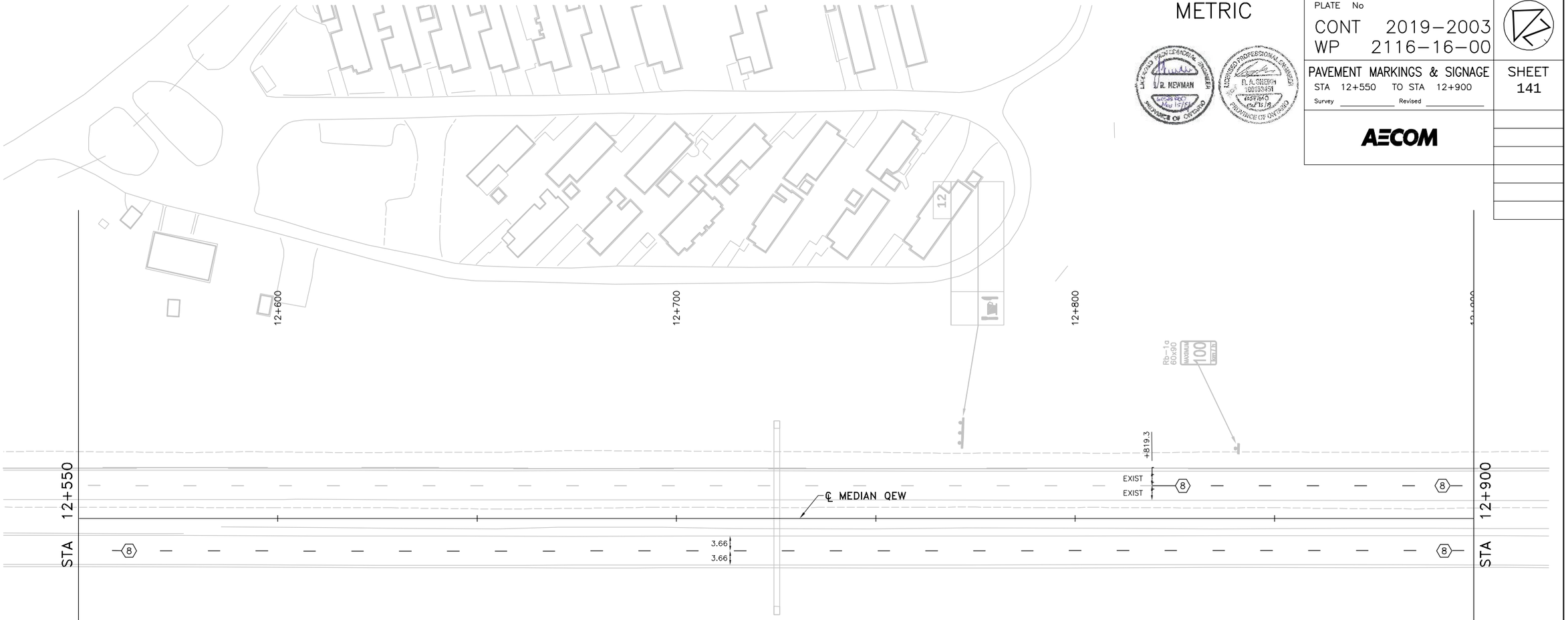
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

PAVEMENT MARKINGS & SIGNAGE
STA 12+550 TO STA 12+900
Survey _____ Revised _____

SHEET 141

AECOM



1	SOLID YELLOW,10cm
2	SOLID DOUBLE YELLOW,10cm
3	363 BROKEN YELLOW,10cm
4	SOLID YELLOW,20cm
5	SOLID WHITE,10cm
6	333 BROKEN WHITE,10cm
7	363 BROKEN WHITE,10cm
8	393 BROKEN WHITE,10cm
9	SOLID WHITE,20cm
10	111 BROKEN WHITE,20cm
11	333 BROKEN WHITE,20cm
12	333 BROKEN WHITE,30cm
13	SOLID WHITE,30cm
14	SOLID WHITE,45cm
15	SOLID WHITE,60cm
16	111 BROKEN WHITE,10cm
18	SOLID YELLOW, 10cm & 363 BROKEN YELLOW, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING, TEMPORARY
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY – REMOVABLE
5. Use (1) to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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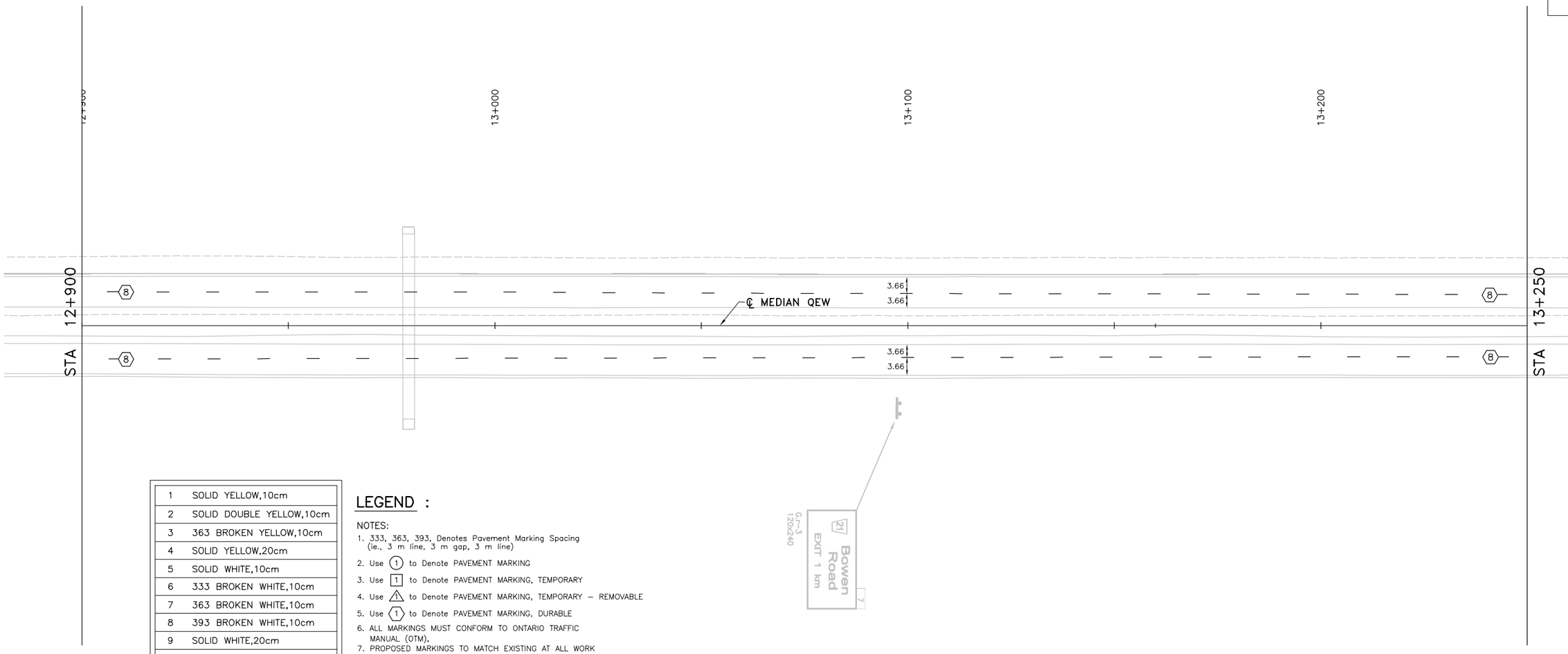
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

PAVEMENT MARKINGS & SIGNAGE
STA 12+900 TO STA 13+250
Survey _____ Revised _____

SHEET 142

AECOM



1	SOLID YELLOW,10cm
2	SOLID DOUBLE YELLOW,10cm
3	363 BROKEN YELLOW,10cm
4	SOLID YELLOW,20cm
5	SOLID WHITE,10cm
6	333 BROKEN WHITE,10cm
7	363 BROKEN WHITE,10cm
8	393 BROKEN WHITE,10cm
9	SOLID WHITE,20cm
10	111 BROKEN WHITE,20cm
11	333 BROKEN WHITE,20cm
12	333 BROKEN WHITE,30cm
13	SOLID WHITE,30cm
14	SOLID WHITE,45cm
15	SOLID WHITE,60cm
16	111 BROKEN WHITE,10cm
18	SOLID YELLOW, 10cm & 363 BROKEN YELLOW, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING, TEMPORARY
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY – REMOVABLE
5. Use (1) to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
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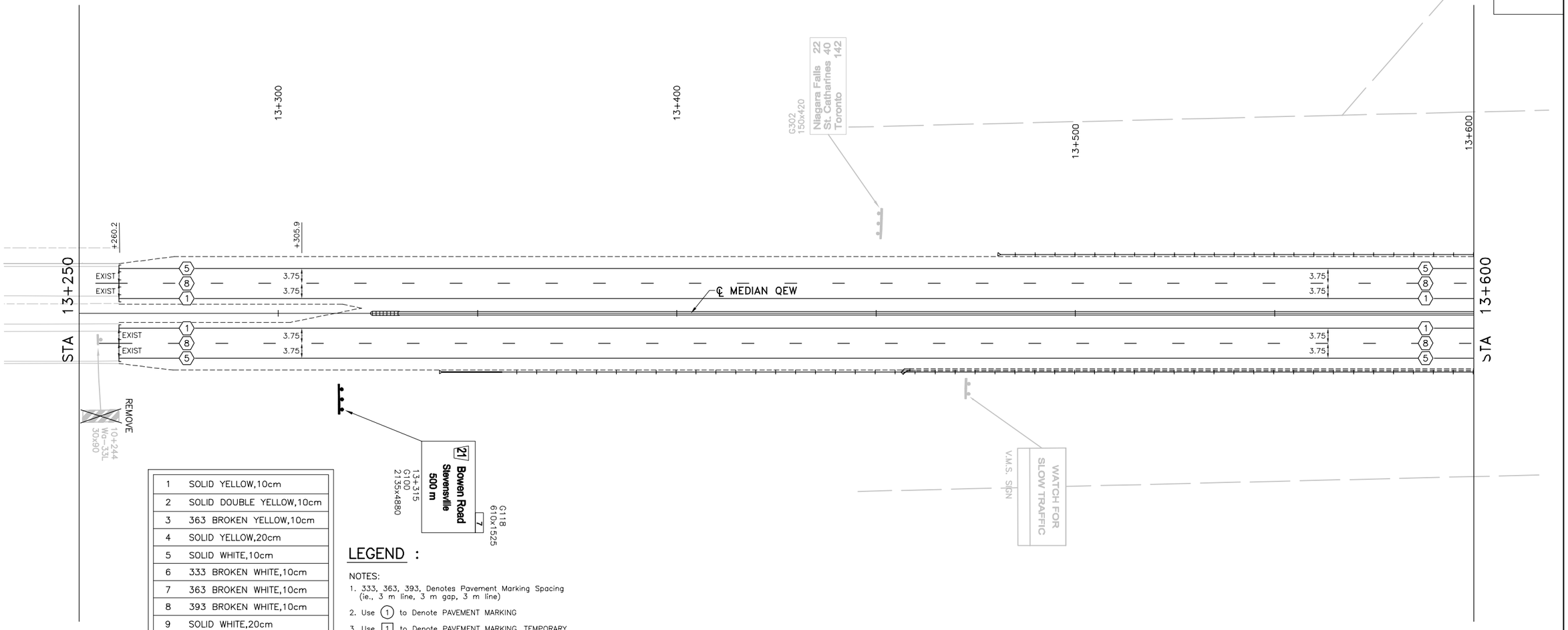
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

PAVEMENT MARKINGS & SIGNAGE
STA 13+250 TO STA 13+600
Survey _____ Revised _____

SHEET 143

AECOM



1	SOLID YELLOW,10cm
2	SOLID DOUBLE YELLOW,10cm
3	363 BROKEN YELLOW,10cm
4	SOLID YELLOW,20cm
5	SOLID WHITE,10cm
6	333 BROKEN WHITE,10cm
7	363 BROKEN WHITE,10cm
8	393 BROKEN WHITE,10cm
9	SOLID WHITE,20cm
10	111 BROKEN WHITE,20cm
11	333 BROKEN WHITE,20cm
12	333 BROKEN WHITE,30cm
13	SOLID WHITE,30cm
14	SOLID WHITE,45cm
15	SOLID WHITE,60cm
16	111 BROKEN WHITE,10cm
18	SOLID YELLOW, 10cm & 363 BROKEN YELLOW, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING, TEMPORARY
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY – REMOVABLE
5. Use ⟨1⟩ to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

PAVEMENT MARKINGS & SIGNAGE
STA 13+600 TO STA 13+950
Survey _____ Revised _____

SHEET 144

AECOM

13+700 BC: 13+733.473 13+800 13+900 EC: 13+901.897

STA 13+600 STA 13+950

℄ MEDIAN QEW 3.75 3.75 R=7000m

3.75 3.75 3.50

+605 9+518 +821.1 +830 9+600 +914.9

21 Bowen Road Stevensville 13+815 G101 2135x5490

PI: 9+613.71

CP RAILWAY

CN RAILWAY

SCALE 5m 0 10m Horizontal

1	SOLID YELLOW,10cm
2	SOLID DOUBLE YELLOW,10cm
3	363 BROKEN YELLOW,10cm
4	SOLID YELLOW,20cm
5	SOLID WHITE,10cm
6	333 BROKEN WHITE,10cm
7	363 BROKEN WHITE,10cm
8	393 BROKEN WHITE,10cm
9	SOLID WHITE,20cm
10	111 BROKEN WHITE,20cm
11	333 BROKEN WHITE,20cm
12	333 BROKEN WHITE,30cm
13	SOLID WHITE,30cm
14	SOLID WHITE,45cm
15	SOLID WHITE,60cm
16	111 BROKEN WHITE,10cm
18	SOLID YELLOW, 10cm & 363 BROKEN YELLOW, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING, TEMPORARY
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY – REMOVABLE
5. Use ⟨1⟩ to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
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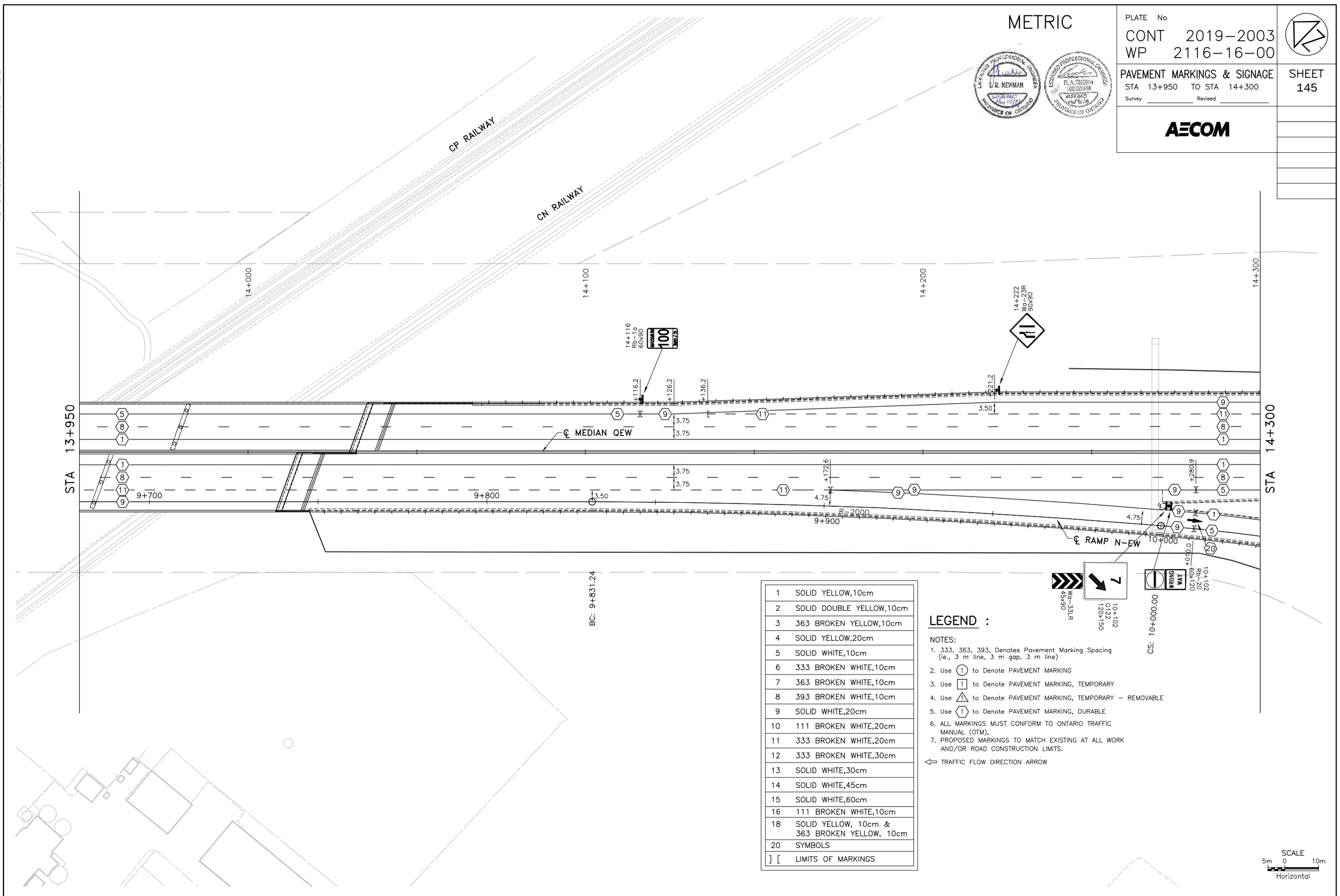
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

PAVEMENT MARKINGS & SIGNAGE
STA 13+950 TO STA 14+300
Survey _____ Revised _____

SHEET 145

AECOM



1	SOLID YELLOW,10cm
2	SOLID DOUBLE YELLOW,10cm
3	363 BROKEN YELLOW,10cm
4	SOLID YELLOW,20cm
5	SOLID WHITE,10cm
6	333 BROKEN WHITE,10cm
7	363 BROKEN WHITE,10cm
8	393 BROKEN WHITE,10cm
9	SOLID WHITE,20cm
10	111 BROKEN WHITE,20cm
11	333 BROKEN WHITE,20cm
12	333 BROKEN WHITE,30cm
13	SOLID WHITE,30cm
14	SOLID WHITE,45cm
15	SOLID WHITE,60cm
16	111 BROKEN WHITE,10cm
18	SOLID YELLOW, 10cm & 363 BROKEN YELLOW, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING, TEMPORARY
4. Use ⟨1⟩ to Denote PAVEMENT MARKING, TEMPORARY – REMOVABLE
5. Use (1) to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM).
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

PAVEMENT MARKINGS & SIGNAGE
STA 14+300 TO STA 14+650
Survey _____ Revised _____

SHEET 146

AECOM

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05

P:\60581660 - CNCP QEW (0)\900-CAD_GIS\910-CAD\C\20-SHEETS\PAVEMENT MARKING\60581660-C-CNCP-QEW-PMK-14650.dwg (Model) Printed: Mar 18, 2019

STA 14+300

STA 14+650

TS: 14+303.212

SC: 14+370.712

14+400

14+500

14+347 M101 73x46 QEW TORONTO

14+522 Wa-23L 90x90

Wa-23t 30x60 300 m

+494.2

10+394

3.75

3.75

℄ MEDIAN QEW

R=3000m

A=450

+540.3

4.75

10+100

10+000

+576.2

A=450

R=3000

10+100

10+000

10+052

6 DELINEATORS AT 10.0m SPACING

6-6W

A-110

10+037

Wa-9

50 km/h

SC: 10+057.63

Rb-19 60x60

10+102

R-190

10+100

℄ RAMP EW-S

9+950

A-50

Wa-9 9+965

CS: 9+955.38

SC: 10+000.00

9+900

℄ BOWEN ROAD

9 DELINEATORS AT 10.0m SPACING

9+900

R-55

Rb-68 60x60

Rc-4t 60x60

Rc-4 60x60

Wa-33R 30x90

BC: 9+846.13

Wa-9 9+855

+850.0

10+117

Wa-9

10+132

℄ RAMP N-EW

A-110

10+124.21

10+200

+870

4.75

4.75

ST: 10+151.89

Wa-33L 30x90

HOC 9+822.277 BOWEN RD =HOT 9+823.267 EW-S RAMP

HOC 9+810.778 BOWEN RD =HOT 10+256.788 N-EW RAMP

9+800

+790.9

+248.1

Rb-25 60x75

Wa-33L 30x90

HOC 9+816.527 BOWEN RD =HOT 10+000.000 SUNSET DRIVE

"CAUTION" UNDERGROUND HIGH PRESSURE PIPE

+837.4

+1008.6

BC: 10+017.73

EC: 10+081.38

+068.1

5.20

R-40

EXIST

EXIST

℄ SUNSET DRIVE

10+135

10+100

1	SOLID YELLOW,10cm
2	SOLID DOUBLE YELLOW,10cm
3	363 BROKEN YELLOW,10cm
4	SOLID YELLOW,20cm
5	SOLID WHITE,10cm
6	333 BROKEN WHITE,10cm
7	363 BROKEN WHITE,10cm
8	393 BROKEN WHITE,10cm
9	SOLID WHITE,20cm
10	111 BROKEN WHITE,20cm
11	333 BROKEN WHITE,20cm
12	333 BROKEN WHITE,30cm
13	SOLID WHITE,30cm
14	SOLID WHITE,45cm
15	SOLID WHITE,60cm
16	111 BROKEN WHITE,10cm
18	SOLID YELLOW, 10cm & 363 BROKEN YELLOW, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

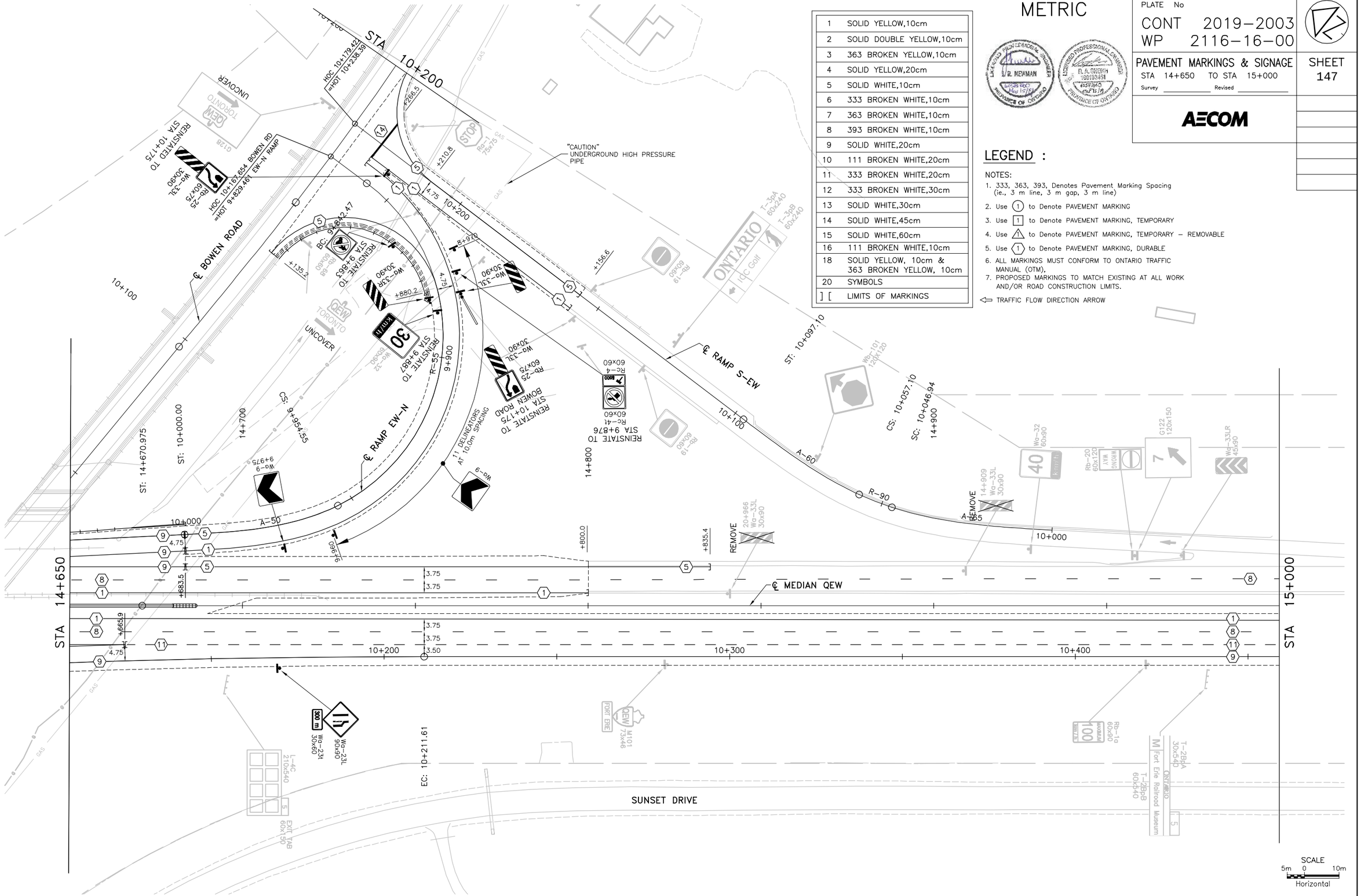
LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING, TEMPORARY
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5. Use {1} to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal



1	SOLID YELLOW,10cm
2	SOLID DOUBLE YELLOW,10cm
3	363 BROKEN YELLOW,10cm
4	SOLID YELLOW,20cm
5	SOLID WHITE,10cm
6	333 BROKEN WHITE,10cm
7	363 BROKEN WHITE,10cm
8	393 BROKEN WHITE,10cm
9	SOLID WHITE,20cm
10	111 BROKEN WHITE,20cm
11	333 BROKEN WHITE,20cm
12	333 BROKEN WHITE,30cm
13	SOLID WHITE,30cm
14	SOLID WHITE,45cm
15	SOLID WHITE,60cm
16	111 BROKEN WHITE,10cm
18	SOLID YELLOW, 10cm & 363 BROKEN YELLOW, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

PAVEMENT MARKINGS & SIGNAGE
STA 14+650 TO STA 15+000
Survey _____ Revised _____

SHEET 147

AECOM

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING, TEMPORARY
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY – REMOVABLE
5. Use ⬡1 to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM).
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
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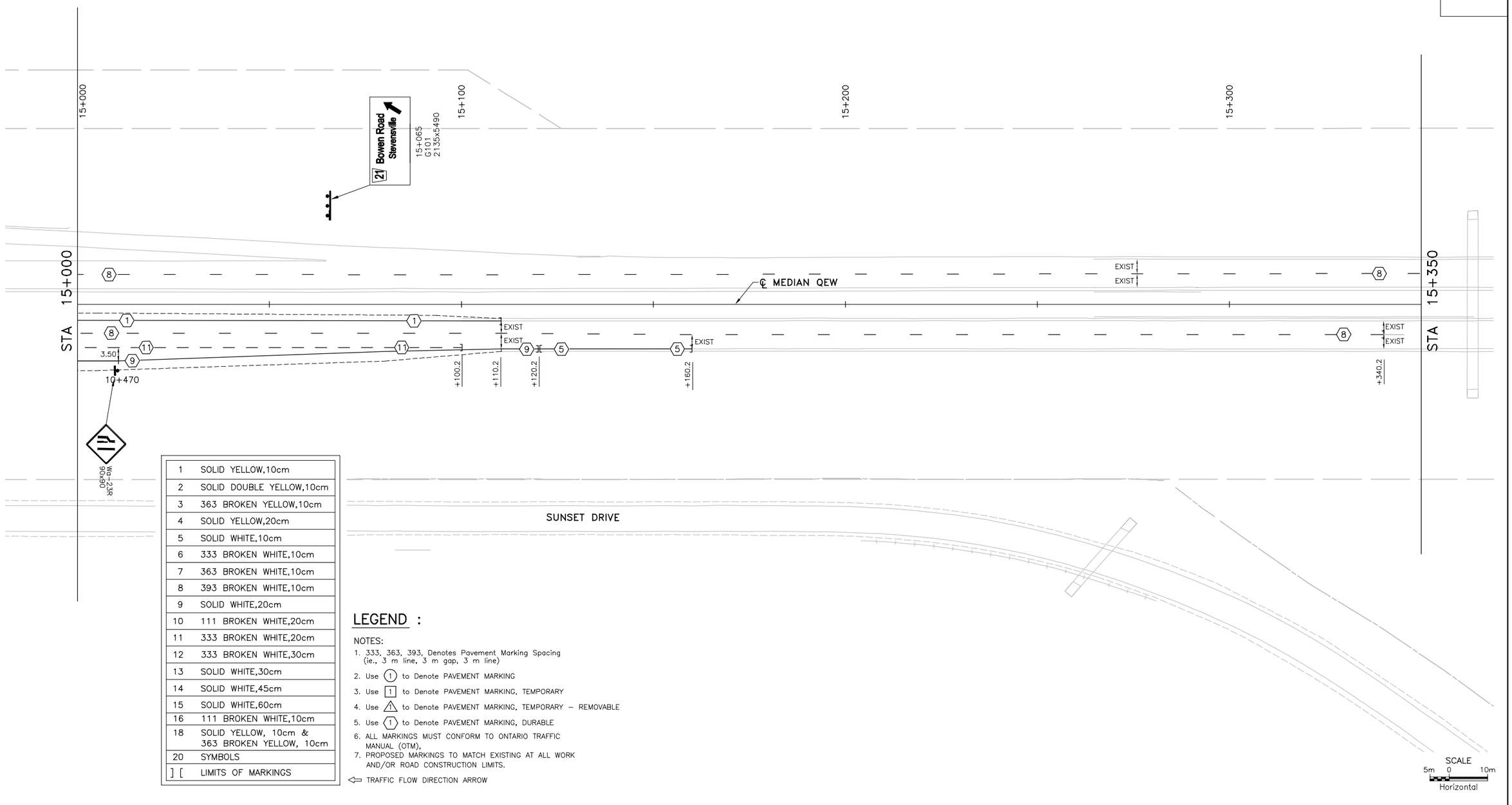
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

PAVEMENT MARKINGS & SIGNAGE
STA 15+000 TO STA 15+350
Survey _____ Revised _____

SHEET 148

AECOM



1	SOLID YELLOW,10cm
2	SOLID DOUBLE YELLOW,10cm
3	363 BROKEN YELLOW,10cm
4	SOLID YELLOW,20cm
5	SOLID WHITE,10cm
6	333 BROKEN WHITE,10cm
7	363 BROKEN WHITE,10cm
8	393 BROKEN WHITE,10cm
9	SOLID WHITE,20cm
10	111 BROKEN WHITE,20cm
11	333 BROKEN WHITE,20cm
12	333 BROKEN WHITE,30cm
13	SOLID WHITE,30cm
14	SOLID WHITE,45cm
15	SOLID WHITE,60cm
16	111 BROKEN WHITE,10cm
18	SOLID YELLOW, 10cm & 363 BROKEN YELLOW, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING, TEMPORARY
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY – REMOVABLE
5. Use ⟨1⟩ to Denote PAVEMENT MARKING, DURABLE
6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM),
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
Printed: Mar 18, 2019
P:\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\PAVEMENT MARKING\60581660-C-CNCP-QEW-PMK-15350.dwg (Model)

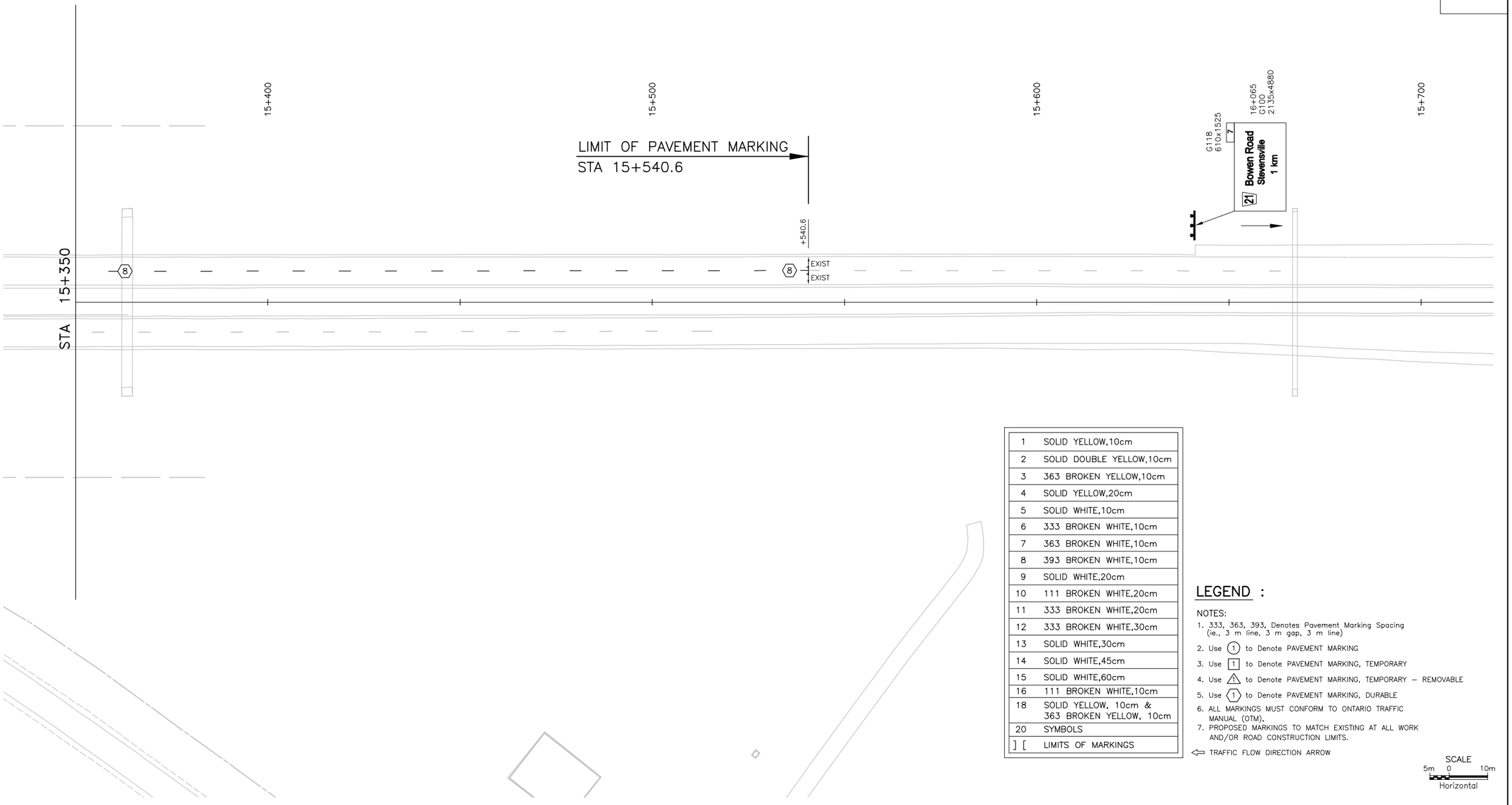
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

PAVEMENT MARKINGS & SIGNAGE
STA 15+350 TO STA 15+700
Survey _____ Revised _____

SHEET 149

AECOM



1	SOLID YELLOW,10cm
2	SOLID DOUBLE YELLOW,10cm
3	363 BROKEN YELLOW,10cm
4	SOLID YELLOW,20cm
5	SOLID WHITE,10cm
6	333 BROKEN WHITE,10cm
7	363 BROKEN WHITE,10cm
8	393 BROKEN WHITE,10cm
9	SOLID WHITE,20cm
10	111 BROKEN WHITE,20cm
11	333 BROKEN WHITE,20cm
12	333 BROKEN WHITE,30cm
13	SOLID WHITE,30cm
14	SOLID WHITE,45cm
15	SOLID WHITE,60cm
16	111 BROKEN WHITE,10cm
18	SOLID YELLOW, 10cm & 363 BROKEN YELLOW, 10cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

LEGEND :

NOTES:

1. 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use [1] to Denote PAVEMENT MARKING, TEMPORARY
4. Use ⚠1 to Denote PAVEMENT MARKING, TEMPORARY – REMOVABLE
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6. ALL MARKINGS MUST CONFORM TO ONTARIO TRAFFIC MANUAL (OTM).
7. PROPOSED MARKINGS TO MATCH EXISTING AT ALL WORK AND/OR ROAD CONSTRUCTION LIMITS.

⇦ TRAFFIC FLOW DIRECTION ARROW

SCALE
5m 0 10m
Horizontal

MINISTRY OF TRANSPORTATION, ONTARIO PR-3-707 88-05
P:\60581660 - CNCP QEW DD\300-CAD_GIS\910-CAD\C\20-SHEETS\PAVEMENT MARKING\60581660-C-CNCP-QEW-PMK-15700.dwg (Model) Printed: Mar 18, 2019

CONT 2019-2003
WP 2116-16-00

BOREHOLE DATA

SHEET 150

GOLDER

MINISTRY OF TRANSPORTATION, ONTARIO
RR-3-707 88-05

QEW / CN-CP
Fort Erie

E/W-N Ramp
Station 14+475 to 14+550, Referenced to Fut. C/L

14+475 16.50 Lt Fut. C/L D-0 SCL
0 - 300 Asph
300 - 1.25 Br Cr Gran*
1.25 - 1.50 Red Br Sa W Gr, Moist
*Sample Depth = 900 - 1.20
w = 3 %

14+550 15.00 Lt Fut. C/L D-0 Acc Lane
0 - 280 Asph
280 - 1.20 Br Cr Gran*
1.20 - 1.50 Red Br Sa W Si W Gr, Moist, Fr Wat @ 1.40
*Sample Depth = 900 - 1.20
w = 3 %

14+550 16.50 Lt Fut. C/L D-0 Out Shld
0 - 280 Asph
280 - 950 Br Cr Gran
950 - 1.50 Red Br Sa W Si W Gr, Moist, Fr Wat
@ 1.40

14+550 19.50 Lt Fut. C/L D-0 Ditch
0 - 200 Tps
200 - 1.50 Red Br Si Cl Tr Sa Tr Gr, Moist

E/W-S Ramp
Station 9+870 to 10+000, Referenced to Fut. C/L

9+870 Fut. C/L D+1.80
0 - 150 Tps
150 - 1.50 Red Br Si Cl W Sa Tr Gr, Moist
- 1.50 NFP BR *
*Sample Depth = 900 - 1.20
Passing 4.75 mm = 92 %
2.00 mm = 90 %
425 um = 86 %
75 um = 66 %
5 um = 33 %
2 um = 27 %
w = 7 %
Classification = ML
Frost Susc. = LSFH

9+900 Fut. C/L D+600
0 - 200 Tps
200 - 1.70 Red Br Si Cl, Moist
- 1.70 NFP BR

9+900 7.00 Lt Fut. C/L D+400
0 - 200 Tps
200 - 1.70 Red Br Si Cl W Sa Tr Gr, Moist
- 1.70 NFP BR *
*Sample Depth = 1.30 - 1.60
Passing 4.75 mm = 97 %
2.00 mm = 96 %
425 um = 93 %
75 um = 76 %
5 um = 40 %
2 um = 34 %
w = 18 %
WL = 32 % WP = 18 % IP = 14 %
Classification = CL
Frost Susc. = LSFH

9+900 7.00 Rt Fut. C/L D-1.50
0 - 300 Tps
300 - 1.70 Red Br Si Cl, Moist
- 1.70 NFP BR

9+950 Fut. C/L D-200
0 - 100 Tps
100 - 1.50 Red Br Sa & Si Tr Cl Tr Gr, Moist
to Wet, Fr
Wat @ 1.00*
*Sample Depth = 1.20 - 1.50
Passing 4.75 mm = 95 %
2.00 mm = 90 %
425 um = 81 %
75 um = 52 %
5 um = 11 %
2 um = 8 %
w = 16 %
Classification = ML
Frost Susc. = LSFH

10+000 Fut. C/L D-1.20
0 - 050 Tps
050 - 1.50 Red Br Si Cl, Moist

10+000 10.80 Rt Fut. C/L D-1.80
0 - 070 Tps
070 - 1.50 Red Br Si Cl So Sa, Moist*
*Sample Depth = 1.20 - 1.50
Passing 4.75 mm = 100 %
2.00 mm = 99 %
425 um = 97 %
75 um = 86 %
5 um = 57 %
2 um = 47 %
w = 21 %
Frost Susc. = LSFH

Existing Shoulders
Station 13+300 to 14+500, Referenced to Fut. C/L

13+300 14.00 Lt Fut. C/L D-0 Out Shld
0 - 080 Asph
080 - 880 Br Cr Gran
880 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist

13+300 4.20 Rt Fut. C/L D-0 In Shld
0 - 225 Asph
225 - 850 Br Cr Gran
850 - 1.40 Br Sa So Gr So Sa Tr Org M, Moist*
1.40 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist
*Sample Depth = 960 - 1.10
Passing 150 mm = 100 %
26.5 mm = 100 %
4.75 mm = 89 %
1.18 mm = 84 %
300 um = 74 %
75 um = 13 %
w = 15 %
Unaccep Gran B, Type I
(74% passing 0.3 mm, 13% passing 75 um)

13+400 14.00 Lt Fut. C/L D-0 Out Shld
0 - 080 Asph
080 - 870 Br Cr Gran
870 - 1.20 Br Si Cl Tr Sa Tr Gr, Moist
1.20 - 1.50 Br Si Cl Tr Sa Tr Gr Tr Org M, Moist

13+500 1.50 Rt Fut. C/L D-0 In Shld
0 - 210 Asph
210 - 880 Br Cr Gran
880 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist

13+700 3.00 Lt Fut. C/L D-0 In Shld
0 - 190 Asph
190 - 650 Br Cr Gran*
650 - 800 Br Sa W Si W Gr, Moist
800 - 1.50 Red Br Si Cl Tr Sa Tr Gr, Moist
*Sample Depth = 200 - 500
Passing 26.5 mm = 100 %
19.0 mm = 87 %
13.2 mm = 72 %
9.5 mm = 55 %
4.75 mm = 37 %
1.18 mm = 21 %
300 um = 13 %
75 um = 8 %
w = 5 %
Accep Gran A

13+800 12.00 Lt Fut. C/L D-0 In Shld
0 - 170 Asph
170 - 900 Br Cr Gran
900 - 1.50 Br Si Cl Tr Gr, Moist

13+800 4.50 Rt Fut. C/L D-0 Out Shld
0 - 240 Asph
240 - 1.05 Br Cr Gran
1.05 - 1.25 Red Br Sa W Si W Gr, Moist
1.25 - 1.50 Red Br Si Cl So Sa, Moist*
*Sample Depth = 1.25 - 1.50
Passing 4.75 mm = 100 %
2.00 mm = 99 %
425 um = 96 %
75 um = 78 %
5 um = 69 %
2 um = 57 %
w = 23 %
WL = 35 % WP = 16 % IP = 19 %
Classification = CL
Frost Susc. = LSFH

13+900 6.00 Lt Fut. C/L D-0 In Shld
0 - 205 Asph
205 - 460 Br Cr Gran
460 - 660 Br Sa W Si W Gr, Moist
660 - 1.50 Br Si Cl So Sa, Moist*
*Sample Depth = 1.00 - 1.30
Passing 4.75 mm = 100 %
2.00 mm = 99 %
425 um = 99 %
75 um = 86 %
5 um = 76 %
2 um = 63 %
w = 22 %
WL = 44 % WP = 20 % IP = 24 %
Classification = CL
Frost Susc. = LSFH

13+900 23.00 Lt Fut. C/L D-0 Out Shld
0 - 255 Asph
255 - 860 Br Cr Gran*
860 - 980 Br Sa W Si W Gr, Moist
980 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist
*Sample Depth = 300 - 600
Passing 26.5 mm = 100 %
19.0 mm = 98 %
13.2 mm = 88 %
9.5 mm = 67 %
4.75 mm = 38 %
1.18 mm = 17 %
300 um = 10 %
75 um = 7 %
w = 4 %
Accep Gran A

14+100 7.00 Lt Fut. C/L D-0 In Shld
0 - 155 Asph
155 - 650 Br Cr Gran*
650 - 940 Br Sa So Si Tr Gr, Moist**
940 - 1.50 Red Br Si Cl Tr Sa Tr Gr, Moist
*Sample Depth = 200 - 500
Passing 26.5 mm = 100 %
19.0 mm = 92 %
13.2 mm = 76 %
9.5 mm = 55 %
4.75 mm = 34 %
1.18 mm = 20 %
300 um = 12 %
75 um = 8 %
w = 4 %
Unaccep Gran A
(34% passing 4.75 mm)
Accep Gran B, Type I
**Sample Depth = 650 - 940
Passing 150 mm = 100 %
26.5 mm = 100 %
4.75 mm = 96 %
1.18 mm = 94 %
300 um = 70 %
75 um = 17 %
w = 12 %
Unaccep Gran B, Type I
(most sieve sizes too fine)

14+100 8.00 Lt Fut. C/L D-0 Lane 1
0 - 310 Asph
310 - 960 Br Cr Gran
960 - 1.10 Br F-Med Sa Tr Si Tr Gr, Moist
1.10 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist

14+100 23.00 Lt Fut. C/L D-0 Out Shld
0 - 290 Asph
290 - 900 Br Cr Gran
900 - 1.10 Red Br Sa W Gr, Moist
1.10 - 1.50 Br Si Cl So Sa Tr Gr Tr Org M, Moist*
*Sample Depth = 1.20 - 1.50
Passing 4.75 mm = 99 %
2.00 mm = 98 %
425 um = 96 %
75 um = 79 %
5 um = 55 %
2 um = 44 %
w = 22 %
WL = 36 % WP = 16 % IP = 20 %
Classification = CL
Frost Susc. = LSFH

14+200 3.00 Rt Fut. C/L D-0 N-E/W Gore
0 - 360 Asph
360 - 1.00 Br Cr Gran*
1.00 - 1.20 Br Sa W Si W Gr, Moist
1.20 - 1.50 Red Br Si Cl Tr Sa Tr Gr, Moist
*Sample Depth = 400 - 700
Passing 26.5 mm = 100 %
19.0 mm = 95 %
13.2 mm = 76 %
9.5 mm = 54 %
4.75 mm = 31 %
1.18 mm = 15 %
300 um = 8 %
75 um = 5 %
w = 3 %
Unaccep Gran A
(31% passing 4.75 mm, 21% passing 2.36 mm)
Accep Gran B, Type I

14+400 19.50 Lt Fut. C/L D-0 Out Shld
0 - 120 Asph
120 - 1.00 Br Cr Gran
1.00 - 1.50 Red Br Sa So Si Tr Gr, Moist, Fr Wat @ 1.10*
*Sample Depth = 1.20 - 1.50
Passing 150 mm = 100 %
26.5 mm = 100 %
4.75 mm = 94 %
1.18 mm = 88 %
300 um = 68 %
75 um = 18 %
w = 15 %
Accep Gran B, Type I
(most sieve sizes too fine)

14+500 1.00 Rt Fut. C/L D-0 In Shld
0 - 200 Asph
200 - 680 Br Cr Gran
680 - 800 Br Sa W Si W Gr, Moist
800 - 1.50 Red Br Si Cl Tr Sa Tr Gr, Moist

Fort Erie Bound Widening/Realignment
Station 13+300 to 15+100, Referenced to Fut. C/L

13+300 5.70 Rt Fut. C/L D-0 Lane 1
0 - 320 Asph
320 - 1.05 Br Cr Gran*
1.05 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist
*Sample Depth = 700 - 1.00
Passing 150 mm = 100 %
26.5 mm = 100 %
4.75 mm = 48 %
1.18 mm = 26 %
300 um = 15 %
75 um = 11 %
w = 3 %
Accep Gran A
Unaccep Gran B, Type I
(11% passing 75 um)

13+300 11.60 Rt Fut. C/L D-0 Lane 2
0 - 280 Asph
280 - 900 Br Cr Gran
900 - 1.10 Br F-Med Sa Tr Si Tr Gr, Moist
1.10 - 1.50 Br Si Cl W Sa Tr Org M, Moist*
*Sample Depth = 1.10 - 1.40
Passing 4.75 mm = 100 %
2.00 mm = 100 %
425 um = 99 %
75 um = 76 %
5 um = 56 %
2 um = 47 %
w = 25 %
WL = 43 % WP = 20 % IP = 24 %
Classification = CI
Frost Susc. = LSFH

13+350 11.00 Rt Fut. C/L D-0 Lane 2
0 - 280 Asph
280 - 940 Br Cr Gran
940 - 1.00 Br F-Med Sa So Si Tr Gr, Moist*
1.00 - 1.50 Br Si Cl Tr Gr Tr Org M, Moist
*Sample Depth = 940 - 1.00
Passing 150 mm = 100 %
26.5 mm = 100 %
4.75 mm = 96 %
1.18 mm = 87 %
300 um = 56 %
75 um = 12 %
w = 16 %
Unaccep Gran B, Type I
(12% passing 75 um)

13+350 14.00 Rt Fut. C/L D-0 Out Shld
0 - 160 Asph
160 - 890 Br Cr Gran*
890 - 1.10 Br F-Med Sa Tr Si Tr Gr, Moist
1.10 - 1.50 Br Si Cl Tr Gr, Moist
*Sample Depth = 300 - 600
Passing 26.5 mm = 100 %
19.0 mm = 93 %
13.2 mm = 71 %
9.5 mm = 55 %
4.75 mm = 30 %
1.18 mm = 12 %
300 um = 6 %
75 um = 4 %
w = 4 %
Unaccep Gran A
(most sieve sizes too coarse)
Accep Gran B, Type I

13+350 22.00 Rt Fut. C/L D-1.10 TOS
0 - 100 Tps
100 - 1.50 Red Br Si Cl, Moist to Wet*
*Sample Depth = 600 - 900
w = 32 %

13+350 26.00 Rt Fut. C/L D-1.50 Fut. TOS
0 - 100 Tps
100 - 1.50 Red Br Si Cl, Wet

13+400 11.00 Rt Fut. C/L D-0 Lane 2
0 - 340 Asph
340 - 1.10 Br Cr Gran
1.10 - 1.20 Br F-Med Sa Tr Si Tr Gr, Moist
1.20 - 1.50 Br Si Cl Tr Gr, Moist*
*Sample Depth = 1.20 - 1.50
w = 28 %

13+450 10.00 Rt Fut. C/L D-0 Lane 2
0 - 350 Asph
350 - 1.20 Br Cr Gran
1.20 - 1.30 Red Br F-Med Sa Tr Si Tr Gr, Moist
1.30 - 1.50 Br Si Cl Tr Gr, Moist

13+450 12.50 Rt Fut. C/L D-0 Out Shld
0 - 065 Asph
065 - 1.20 Br Cr Gran
1.20 - 1.30 Red Br F-Med Sa Tr Si Tr Gr, Moist
1.30 - 1.50 Br Si Cl Tr Gr, Moist

13+450 23.00 Rt Fut. C/L D-1.30
0 - 110 Tps
110 - 1.50 Gry Br Si Cl, Moist*
*Sample Depth = 1.00 - 1.30
w = 27 %

13+500 4.00 Rt Fut. C/L D-0 Lane 1
0 - 350 Asph
350 - 870 Br Cr Gran
870 - 1.00 Br Sa W Si W Gr, Moist
1.00 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist*
*Sample Depth = 1.30 - 1.50
w = 22 %

13+500 10.50 Rt Fut. C/L D-0 Lane 2
0 - 400 Asph
400 - 1.00 Br Cr Gran
1.00 - 1.20 Br F-Med Sa Tr Si Tr Gr, Moist
1.20 - 2.50 Br Si Cl Tr Gr, Moist

13+550 8.00 Rt Fut. C/L D-0 Lane 2
0 - 320 Asph
320 - 840 Br Cr Gran
840 - 1.10 Br F-Med Sa Tr Cl Tr Si Tr Gr, Moist
1.10 - 2.50 Br Si Cl Tr Gr, Moist

13+550 10.00 Rt Fut. C/L D-0 Out Shld
0 - 250 Asph
250 - 860 Br Cr Gran
860 - 1.10 Br F-Med Sa Tr Cl Tr Si Tr Gr, Moist
1.10 - 2.50 Br Si Cl Tr Gr, Moist*
*Sample Depth = 1.30 - 1.60
w = 25 %

13+550 22.00 Rt Fut. C/L D+1.50
0 - 150 Tps
150 - 2.00 Red Br Si Cl Tr Sa, Moist, Fr Wat
@ 700*
*Sample Depth = 400 - 700
w = 20 %

13+550 33.00 Rt Fut. C/L D+2.20
0 - 150 Tps
150 - 2.00 Red Br Si Cl Tr Sa, Wet, Fr Wat @
300

13+600 7.00 Rt Fut. C/L D-0 Lane 2
0 - 360 Asph
360 - 820 Br Cr Gran
820 - 1.00 Br F-Med Sa Tr Cl Tr Si Tr Gr, Moist
1.00 - 3.50 Gry Cl Si Tr Sa Tr Gr, Moist*
*Sample Depth = 3.10 - 3.40
w = 23 %

13+350 2.50 Rt Fut. C/L D-50.00 Lane 2
0 - 330 Asph
330 - 740 Br Cr Gran
740 - 900 Br Sa W Si W Gr, Moist, Fr Wat @
880
900 - 2.20 Red Br Si Cl W Sa Tr Gr, Moist
- 2.20 NFP BR *
*Sample Depth = 1.80 - 2.20
Passing 4.75 mm = 98 %
2.00 mm = 95 %
425 um = 92 %
75 um = 73 %
5 um = 34 %
2 um = 28 %
w = 18 %
Frost Susc. = LSFH

14+400 5.00 Rt Fut. C/L D-0 Lane 2
0 - 330 Asph
330 - 810 Br Cr Gran
810 - 1.00 Red Br Sa so Gr so Si, Moist
1.00 - 1.50 Red Br Si Cl Tr Sa Tr Gr, Wet, Fr Wat @ 1.00

14+400 11.00 Rt Fut. C/L D-1.60 TOS
0 - 100 Tps
100 - 1.50 Red Br Si Cl Tr Gr, Moist, Fr Wat
@ 400

14+400 16.00 Rt Fut. C/L D-2.00 Ditch Line
0 - 100 Tps
100 - 1.50 Red Br Si Cl Tr Gr, Moist, Fr Wat
@ 400*
*Sample Depth = 1.20 - 1.50
w = 21 %

14+450 7.00 Rt Fut. C/L D-0 Lane 2
0 - 300 Asph
300 - 880 Br Cr Gran
880 - 1.10 Red Br Sa W Si W Gr, Moist
1.10 - 1.50 Br Si Cl Tr Sa Tr Gr, Wet

14+500 4.00 Rt Fut. C/L D-0 Lane 1
0 - 250 Asph
250 - 690 Br Cr Gran
690 - 890 Br Sa W Si W Gr, Moist
890 - 1.50 Red Br Si Cl Tr Sa Tr Gr, Moist

14+500 8.00 Rt Fut. C/L D-0 Lane 2
0 - 270 Asph
270 - 840 Br Cr Gran
840 - 1.10 Br F-Med Sa Tr Si Tr Gr, Moist
1.10 - 1.50 Red Br Si Cl Tr Sa Tr Gr, Moist*
*Sample Depth = 1.10 - 1.40
w = 11 %

14+500 12.00 Rt Fut. C/L D-0 SCL
0 - 250 Asph
250 - 850 Br Cr Gran
850 - 1.20 Br F-Med Sa Tr Si Tr Gr, Moist, Fr Wat @ 950
1.20 - 1.50 Red Br Si Cl Tr Sa Tr Gr, Wet

14+525 13.00 Rt Fut. C/L D-0 SCL
0 - 200 Asph
200 - 850 Br Cr Gran
850 - 1.20 Br F-Med Sa Tr Si Tr Gr, Wet, Fr Wat @ 1.10
1.20 - 1.50 Red Br Si Cl Tr Sa Tr Gr, Moist*
*Sample Depth = 1.20 - 1.50
w = 18 %

14+600 12.50 Rt Fut. C/L D-0 SCL
0 - 170 Asph
170 - 820 Br Cr Gran, Fr Wat @ 700
820 - 1.10 Br F-Med Sa Tr Si Tr Gr, Wet
1.10 - 1.50 Red Br Si Cl Tr Sa Tr Gr, Moist

14+650 13.00 Rt Fut. C/L D-0 SCL
0 - 220 Asph
220 - 800 Br Cr Gran
800 - 970 Red Br F-Med Sa Tr Si Tr Gr, Moist
970 - 1.50 Red Br Si Cl Tr Sa Tr Gr, Moist

14+700 13.00 Rt Fut. C/L D-0 SCL
0 - 280 Asph
280 - 730 Br Cr Gran
730 - 890 Br F-Med Sa Tr Gr, Moist
890 - 1.50 Br Si Cl Tr Gr, Moist*
*Sample Depth = 900 - 1.20
w = 13 %

14+700 27.00 Rt Fut. C/L D-500
0 - 100 Tps
100 - 1.50 Br Si Cl Tr Gr, Moist

14+750 13.00 Rt Fut. C/L D-0 SCL
0 - 290 Asph
290 - 790 Br Cr Gran
790 - 1.00 Br F-Med Sa Tr Gr, Moist
1.00 - 1.50 Red Br Si Cl Tr Gr, Moist

14+820 26.00 Rt Fut. C/L D-1.70
0 - 200 Tps
200 - 1.50 Br Si Cl W Gr, Moist

14+850 10.40 Rt Fut. C/L D-0 Lane 2
0 - 300 Asph
300 - 650 Br Cr Gran
650 - 890 Br F-Med Sa Tr Si Tr Gr, Moist
890 - 1.50 Red Br Si Cl W Sa, Moist*
*Sample Depth = 900 - 1.20
Passing 4.75 mm = 100 %
2.00 mm = 98 %
425 um = 93 %
75 um = 72 %
5 um = 39 %
2 um = 32 %
w = 17 %
WL = 28 % WP = 14 % IP = 26 %
Classification = CL
Frost Susc. = LSFH

14+900 27.00 Rt Fut. C/L D-2.40
0 - 100 Tps
100 - 1.50 Red Br Si Cl W Gr Tr Sa, Moist

14+950 11.00 Rt Fut. C/L D-0 Lane 2
0 - 300 Asph
300 - 840 Br Cr Gran
840 - 1.10 Br F-Med Sa Tr Si Tr Gr, Moist
1.10 - 1.50 Red Br Si Cl Tr Sa Tr Gr, Moist

15+000 10.50 Rt Fut. C/L D-0 Lane 2
0 - 300 Asph
300 - 950 Br Cr Gran
950 - 1.10 Red Br F-Med Sa Tr Si Tr Gr, Moist
1.10 - 1.50 Dk Gry Si Cl So Sa Tr Gr W Org M, Moist*
*Sample Depth = 1.20 - 1.50
Passing 4.75 mm = 99 %
2.00 mm = 98 %
425 um = 96 %
75 um = 81 %
5 um = 51 %
2 um = 44 %
w = 24 %
Frost Susc. = LSFH

15+000 13.50 Rt Fut. C/L D-0 Out Shld
0 - 110 Asph
110 - 960 Br Cr Gran
960 - 1.50 Gry Si Cl Tr Gr, Moist

15+000 28.00 Rt Fut. C/L D-2.20 TOS
0 - 100 Tps
100 - 1.50 Red Br Si Cl W Gr Tr Sa, Moist*
*Sample Depth = 800 - 1.10
w = 14 %

15+050 10.50 Rt Fut. C/L D-0 Lane 2
0 - 360 Asph
360 - 950 Br Cr Gran
950 - 1.15 Br F-Med Sa Tr Si Tr Gr, Moist
1.15 - 1.50 Br Si Cl So Sa, Moist*
*Sample Depth = 1.20 - 1.50
Passing 4.75 mm = 98 %
2.00 mm = 96 %
425 um = 91 %
75 um = 82 %
5 um = 51 %
2 um = 42 %
w = 17 %
WL = 36 % WP = 18 % IP = 18 %
Classification = CI
Frost Susc. = LSFH

15+100 9.00 Rt Fut. C/L D-0 Lane 2
0 - 350 Asph
350 - 800 Br Cr Gran
800 - 1.00 Br F-Med Sa So Si Tr Gr, Moist*
1.00 - 1.50 Br Si Cl Tr Gr, Moist
*Sample Depth = 800 - 1.00
Passing 150 mm = 100 %
26.5 mm = 100 %
4.75 mm = 91 %
1.18 mm = 80 %
300 um = 53 %
75 um = 14 %
w = 12 %
Unaccep Gran B, Type I
(14% passing 75 um)

15+100 13.00 Rt Fut. C/L D-0 Out Shld
0 - 115 Asph
115 - 680 Br Cr Gran
680 - 1.50 Red Br Si Cl So Sa Tr Gr, Moist*
*Sample Depth = 1.20 - 1.50
Passing 4.75 mm = 98 %
2.00 mm = 96 %
425 um = 91 %
75 um = 82 %
5 um = 51 %
2 um = 42 %
w = 17 %
WL = 36 % WP = 18 % IP = 18 %
Classification = CL
Frost Susc. = LSFH

15+100 24.00 Rt Fut. C/L D-1.00 TOS
0 - 050 Tps
050 - 1.50 Red Br Si Cl W Gr, Moist

Frenchmans Creek Culvert Detours; (Gilmore W-N Ramp)
Station 9+850 to 10+070, Referenced to Rt E/P

9+850 4.00 Lt of Rt E/P D-0 Lane
0 - 270 Asph
270 - 560 Br Cr Gran*
560 - 1.50 Red Br Si Cl Tr Gr, Moist
*Sample Depth = 270 - 560
Passing 26.5 mm = 100 %
19.0 mm = 100 %
13.2 mm = 89 %
9.5 mm = 67 %
4.75 mm = 42 %
1.18 mm = 24 %
300 um = 16 %
75 um = 12 %
w = 6 %
Unaccep Gran A
(12% passing 75 um)
Accep Gran B, Type I

9+850 1.00 Rt of Rt E/P D-0 Rt Shld
0 - 210 Asph
210 - 540 Br Cr Gran
540 - 1.50 Gry Br Si Cl Tr Gr, Moist*
*Sample Depth = 1.00 - 1.30
Passing 4.75 mm = 100 %
2.00 mm = 100 %
425 um = 99 %
75 um = 95 %
5 um = 74 %
2 um = 62 %
w = 26 %
Frost Susc. = LSFH

9+900 5.50 Lt of Rt E/P D-0 Lt Shld
0 - 150 Asph
150 - 810 Br Cr Gran*
810 - 840 Br F-Med Sa & Si So Gr, Moist**
840 - 1.50 Red Br Si Cl So Sa Tr Gr, Moist***
*Sample Depth = 300 - 600
Passing 26.5 mm = 100 %
19.0 mm = 98 %
13.2 mm = 82 %
9.5 mm = 55 %
4.75 mm = 28 %
1.18 mm = 14 %
300 um = 8 %
75 um = 6 %
w = 4 %
Unaccep Gran A
(most sieve sizes too coarse)
Accep Gran B, Type I
**Sample Depth = 810 - 840
Passing 150 mm = 100 %
26.5 mm = 100 %
4.75 mm = 82 %
1.18 mm = 80 %
300 um = 78 %
75 um = 41 %
w = 17 %
Accep Gran B, Type I
(most sieve sizes too fine)
***Sample Depth = 900 - 1.20
Passing 4.75 mm = 94 %
2.00 mm = 89 %
425 um = 83 %
75 um = 67 %
5 um = 41 %
2 um = 33 %
w = 17 %
Frost Susc. = LSFH

9+900 0.50 Rt of Rt E/P D-0 Rt Shld
0 - 160 Asph
160 - 530 Br Cr Gran
530 - 1.50 Gry Br Si Cl Tr Sa Tr Gr, Moist

10+020 7.50 Lt of Rt E/P D-0 QEW W-N Gore
0 - 130 Asph
130 - 290 Conc
290 - 880 Br Cr Gran
880 - 1.50 Gry Br Si Cl Tr Sa, Moist*
*Sample Depth = 1.10 - 1.40
Passing 4.75 mm = 100 %
2.00 mm = 99 %
425 um = 98 %
75 um = 92 %
5 um = 92 %
2 um = 53 %
w = 24 %
Frost Susc. = LSFH

10+020 0.50 Rt of Rt E/P D-0 Rt Shld
0 - 170 Asph
170 - 500 Br Cr Gran
500 - 1.50 Gry Br Si Cl Tr Gr, Moist

10+070 4.00 Lt of Rt E/P D-0 Lane
0 - 260 Asph
260 - 480 RAP
480 - 890 Br Cr Gran
890 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist

10+070 1.30 Rt of Rt E/P D-0 Rt Shld
0 - 190 Asph
190 - 740 Br Cr Gran
740 - 1.50 Gry Si Cl Tr Gr, Moist

Frenchmans Creek Culvert Detours; (Gilmore W-S Ramp)
Station 9+800 to 10+000, Referenced to Rt E/P

9+800 2.75 Lt of Rt E/P D-0 Lane
0 - 210 Asph
210 - 520 Br Cr Gran
520 - 1.50 Red Br Si Cl So Sa Tr Gr, Moist to Wet*
*Sample Depth = 1.00 - 1.30
Passing 4.75 mm = 97 %
2.00 mm = 94 %
425 um = 87 %
75 um = 76 %
5 um = 47 %
2 um = 39 %
w = 15 %
Frost Susc. = LSFH

9+800 1.00 Rt of Rt E/P D-0 Rt Shld
0 - 190 Asph
190 - 570 Br Cr Gran*
570 - 1.50 Red Br Si Cl Tr Sa Tr Gr, Moist to Wet, Fr Wat @1.30
*Sample Depth = 200 - 500
Passing 26.5 mm = 100 %
19.0 mm = 95 %
13.2 mm = 82 %
9.5 mm = 66 %
4.75 mm = 46 %
1.18 mm = 26 %
300 um = 17 %
75 um = 14 %
w = 8 %
Accep Gran A
(14% passing 75 um)
Accep Gran B, Type I

9+850 1.00 Rt of Rt E/P D-0 Rt Shld
0 - 190 Asph
190 - 490 Br Cr Gran
490 - 1.50 Red Br Si Cl Tr Gr, Moist to Wet, Fr Wat @ 1.40

9+900 1.00 Rt of Rt E/P D-0 Rt Shld
0 - 190 Asph
190 - 230 RAP
230 - 450 Br Cr Gran
450 - 1.50 Red Br Si Cl Tr Sa Tr Gr, Moist, Fr Wat @ 1.20

10+000 4.00 Lt of Rt E/P D-0 Lane
0 - 230 Asph
230 - 880 Br Cr Gran
880 - 1.50 Gry Br Si Cl Tr Sa Tr Gr, Moist

10+000 1.00 Rt of Rt E/P D-0 Rt Shld
0 - 165 Asph
165 - 650 Br Cr Gran
650 - 1.50 Gry Br Si Cl Tr Sa Tr Gr, Moist, Fr Wat @ 1.00

Frenchmens Creek Culvert Detours; (Gilmore & Petit Inters
Station 1+004 to 1+004, Referenced to Rt E/P

1+004 1.30 Lt of Rt E/P D-0 Out Shld Gilmore
0 - 120 Asph
120 - 620 Br Cr Gran*
620 - 1.50 Br Si Cl Tr Gr, Moist
*Sample Depth = 200 - 500
Passing 26.5 mm = 100 %
19.0 mm = 100 %
13.2 mm = 97 %
9.5 mm = 93 %
4.75 mm = 82 %
1.18 mm = 56 %
300 um = 28 %
75 um = 12 %
w = 7 %
Unaccep Gran A
(most sieve sizes too fine)
Accep Gran B, Type I

1+004 0.80 Rt of Rt E/P D-0 Out Shld Petit
0 - 650 Br Cr Gran
650 - 1.50 Br Si Cl W Sa Tr Gr, Moist*
*Sample Depth = 1.20 - 1.50
Passing 4.75 mm = 94 %
2.00 mm = 88 %
425 um = 80 %
75 um = 68 %
5 um = 42 %
2 um = 33 %
w = 15 %
WL = 34 % WP = 17 % IP = 17 %
Classification = CL
Frost Susc. = MSFH

N-E/W Ramp
Station 10+050 to 10+250, Referenced to Fut. C/L

10+050 Fut. C/L D+1.30
0 - 200 Tps
200 - 300 Gry Br Si Cl W Gr Tr Sa
- 300 NFP BR *
*Sample Depth = 200 - 300
w = 8 %

10+050 5.70 Lt Fut. C/L D+900
0 - 120 Tps
120 - 2.00 Red Br Cl Si So Sa Tr Gr, Moist
- 2.00 NFP BR *
*Sample Depth = 500 - 800
Passing 4.75 mm = 98 %
2.00 mm = 96 %
425 um = 94 %
75 um = 78 %
5 um = 27 %
2 um = 21 %
w = 15 %
WL = 21 % WP = 14 % IP = 7 %
Classification = CL
Frost Susc. = MSFH

10+050 15.00 Rt Fut. C/L D+1.10
0 - 150 Tps
150 - 200 Red Br Si Cl Tr Sa, Moist
- 200 NFP BR *
* Sample Depth = 150 - 200
w = 33 %

W.P. 4073-14-00
HIGHWAY 401 UNDERPASS - COUNTRY ROAD 31

Bridge Rehabilitation
County Road 31 at Highway 401

E-N/S Off Ramp
Station 9+758 to 9+758, Referenced to C/L

9+758 25.00 Lt C/L D-0 PA
0 - 180 Asph
180 - 700 Br Cr Gran
700 - 1.50 Br Si Sa Tr Cl, Moist, Comp

N/S-E On Ramp
Station 10+187 to 10+200, Referenced to C/L

10+187 70.00 Rt C/L D-0 PA
0 - 210 Asph
210 - 630 Gry Cr Gran
630 - 1.20 Br Si Sa W Cl Tr Gr, Moist, Comp
1.20 - 1.50 Gry F Si Sa Tr Cl Tr Gr, Moist, Comp

10+200 41.00 Rt C/L D-0 PA
0 - 160 Asph
160 - 480 Gry Cr Gran
480 - 1.50 Br Gr(y) Sa W Si, Wet, Fr Wat @ 1.00, Loose*

Sample Depth = 480 - 1.50
Passing 150 mm = 100 %
26.5 mm = 100 %
4.75 mm = 49 %
1.18 mm = 34 %
300 um = 20 %
75 um = 13 %
Borderline Acce ptable Granular B, Type I

N/S-W On Ramp
Station 9+772 to 9+772, Referenced to C/L

9+772 26.00 Lt C/L D-0 PA
0 - 200 Asph
200 - 690 Br Cr Gran
690 - 1.50 Br Si Sa Tr Gr, Moist, Comp

W-N/S Off Ramp
Station 10+200 to 10+209, Referenced to C/L

10+200 70.00 Rt C/L D-0 PA
0 - 230 Asph
230 - 650 Gry Cr Gran
650 - 1.20 Br Si Sa Tr Gr, Moist, Comp
1.20 - 1.50 Br Si Sa Tr Gr, Wet, Loose

10+209 41.00 Rt C/L D-0 PA
0 - 220 Asph
220 - 750 Gry Cr Gran
750 - 1.50 Gry Si Sa Tr Cl, Moist, Comp*

Sample Depth = 750 - 1.50
Passing 4.75 mm = 80 %
2.00 mm = 67 %
425 um = 63 %
75 um = 44 %
Classification = SM
Frost Susc. = LSFH
'K' Factor = 0.23

County Road 31
Station 9+670 to 10+310, Referenced to C/L

9+670 2.50 Lt C/L D-0 PA
0 - 210 Asph
210 - 600 Br Cr Gran
600 - 800 Br Gr(y) Si Sa Tr Cl, Moist, Comp
800 - 1.50 Br Si Sa W Gr Tr Cl, Moist, Comp

9+720 5.30 Lt C/L D-0 PA
0 - 170 Asph
170 - 490 Br Cr Gran
490 - 800 Br Gr(y) Si Sa Tr Cl, Moist, Comp
800 - 1.50 Br Si Sa W Gr Tr Cl, Moist, Comp

9+720 8.40 Lt C/L D-100 PA
0 - 550 Br Cr Gran
550 - 700 Br Gr(y) Si Sa Tr Cl, Moist, Comp
700 - 1.20 Br Si Sa W Gr Tr Cl, Moist, Comp
1.20 - 1.50 Br Si Sa Tr Org M, Moist, Comp

9+825 22.00 Lt C/L D-3.50 HA
0 - 600 Br Si Tps W Gr
600 - 1.20 Gry Si Sa Tr Gr, Moist to Wet, Fr Wat 1.10, Comp
1.20 - 1.50 Gry Si Cl W Sa, Moist to Wet, Firm

9+870 5.50 Lt C/L D-0 PA
0 - 170 Asph
170 - 480 Br Cr Gran
480 - 2.50 Br Gr(y) Si Sa Tr Cl, Moist, Comp*
2.50 - 2.60 Br Si Sa W Gr Tr Cl, Moist, Comp**
2.60 NFP Blds

Sample Depth = 480 - 2.50
Passing 4.75 mm = 72 %
2.00 mm = 57 %
425 um = 53 %
75 um = 37 %
Classification = SM
Frost Susc. = LSFH
'K' Factor = 0.18

Sample Depth = 2.50 - 2.60
Passing 4.75 mm = 84 %
2.00 mm = 68 %
425 um = 58 %
75 um = 42 %
5 um = 15 %
2 um = 11 %
Plasticity = Non-plastic
Classification = SM
Frost Susc. = LSFH
'K' Factor = 0.20

9+870 12.00 Lt C/L D-3.00 HA
0 - 200 Br Si Tps
200 - 1.50 Gry Si Sa Tr Cl Tr Gr, Moist, Comp

9+870 24.00 Lt C/L D-4.50 HA
0 - 200 Blk Si Tps
200 - 1.10 Gry Si Sa Tr Cl Tr Gr, Moist, Comp
1.10 - 1.50 Gry Si Cl Tr Gr, Moist, Firm*

Sample Depth = 1.10 - 1.50
Passing 4.75 mm = 92 %
2.00 mm = 82 %
425 um = 77 %
75 um = 68 %
5 um = 47 %
2 um = 35 %
w = 24 %
WL = 35 % WP = 17 % IP = 18
Classification = CI
Frost Susc. = LSFH
'K' Factor = 0.30

9+920 23.00 Lt C/L D-5.00 HA
0 - 150 Blk Si Tps
150 - 250 Gry Si Sa Tr Cl Tr Gr, Moist, Comp
250 - 1.50 Gry Si Cl W Gr, Moist, Firm

10+087 5.50 Lt C/L D-0 PA
0 - 160 Asph
160 - 490 Br Cr Gran*
490 - 800 Br Gr(y) Si Sa, Moist, Comp**
800 - 3.00 Br Si Sa W Cl W Gr, Moist, Comp***

Sample Depth = 160 - 490
Passing 26.5 mm = 100 %
19.0 mm = 96 %
13.2 mm = 90 %
9.5 mm = 83 %
4.75 mm = 66 %
1.18 mm = 43 %
300 um = 24 %
75 um = 13 %
Flat & Elongated = 0 %
Unacceptable Granular A (Fine & Dirty)

Sample Depth = 490 - 800
Passing 150 mm = 100 %
26.5 mm = 100 %
4.75 mm = 71 %
1.18 mm = 60 %
300 um = 49 %
75 um = 29 %
Unacceptable Granular B, Type I (Dirty)

Sample Depth = 800 - 3.00
Passing 4.75 mm = 88 %
2.00 mm = 4 %
425 um = 64 %
75 um = 47 %
5 um = 17 %
2 um = 12 %
Plasticity = Non-plastic
Classification = SM
Frost Susc. = LSFH
'K' Factor = 0.22

10+087 26.00 Lt C/L D-5.00 HA
0 - 1.40 Blk Fib-F Org M W Si, Moist, Fr Wat @100, Soft to Firm
1.40 - 2.00 Gry F Si Sa, Wet, Loose
2.00 - 2.50 Gry Si Cl, Moist to Wet, Firm

10+130 6.00 Rt C/L D-0 PA
0 -180 Asph
180 - 350 Br Cr Gran
350 - 520 Br Sa Tr Gr, Moist, Comp
520 - 1.50 Br Gr(y) Si Sa Tr Cl Occ Cob, Moist, Comp

10+175 5.70 Lt C/L D-0 PA
0 - 150 Asph
150 - 700 Br Cr Gran
700 - 1.00 Br Gr(y) Si Sa, Moist, Comp
1.00 - 3.00 Br Si Sa W Cl W Gr, Moist, Comp

10+175 12.00 Lt C/L D-1.80 HA
0 - 200 Br Si Tps
200 - 1.50 Gry Si Sa Tr Cl Tr Gr, Moist, Comp

10+175 22.00 Lt C/L D-3.00 HA
0 - 1.40 Blk Fib-F Org M W Si, Moist to Wet, Fr Wat @ 500, Soft to Firm
1.40 - 2.00 Gry F Si Sa, Wet, Loose
2.00 - 2.50 Gry Si Cl Tr Gr, Moist, Firm

10+230 23.00 Lt C/L D-2.60 HA
0 - 1.50 Blk Fib-F Org M W Si, Moist to Wet, Fr Wat @ 600, Soft to Firm
1.50 - 1.80 Gry F Si Sa, Wet, Loose
1.80 - 2.10 Gry Si Cl Tr Gr, Moist, Firm

10+260 5.50 Lt C/L D-0 PA
0 - 150 Asph
150 - 400 Br Cr Gran
400 - 1.40 Br Gr(y) Si Sa, Moist, Comp
1.40 - 2.00 Gry Si Sa W Cl, Moist, Comp
2.00 - 3.00 Br Si Sa, Moist, Comp

10+260 8.30 Lt C/L D-100 PA
0 - 600 Br Cr Gran
600 - 3.00 Br Gr(y) Si Sa, Moist, Comp

10+310 4.10 Lt C/L D-0 PA
0 - 160 Asph
160 - 690 Br Cr Gran
690 - 1.40 Br Gr(y) Si Sa Tr Gr, Moist, Comp
1.40 - 3.00 Br Si Sa W Cl W Gr, Moist, Comp

CONT 2019-2003
WP 2116-16-00

BOREHOLE DATA

SHEET 151

GOLDER

CONT 2019-2003
WP 2116-16-00
BOREHOLE DATA
SHEET 152
GOLDER

MINISTRY OF TRANSPORTATION, ONTARIO
PR-3-707 88-05

QEW / CN-CP
Fort Erie

N-E/W Ramp
Station 10+050 to 10+250, Referenced to Fut. C/L

10+100 Fut. C/L D-1.00
0 - 120 Tps
120 - 1.50 Red Br Si Cl W Sa Tr Gr, Moist
- 1.50 NFP BR *
*Sample Depth = 1.10 - 1.40
Passing 4.75 mm = 87 %
2.00 mm = 95 %
425 um = 92 %
75 um = 76 %
5 um = 33 %
2 um = 25 %
w = 23 %
WL = 31 % WP = 18 % IP = 13 %
Classification = CI
Frost Susc. = MSFH

10+150 8.00 Rt Fut. C/L D-1.50
0 - 200 Tps
200 - 1.50 Red Br Sa Si So Cl, Moist
- 1.50 NFP BR *
*Sample Depth = 600 - 900
Passing 4.75 mm = 99 %
2.00 mm = 98 %
425 um = 97 %
75 um = 66 %
5 um = 18 %
2 um = 13 %
w = 19 %
Classification = ML
Frost Susc. = MSFH

10+200 10.00 Rt Fut. C/L D+2.10
0 - 200 Tps
200 - 1.50 Red Br Si Cl Tr Sa

10+240 9.00 Rt Fut. C/L D+4.00
0 - 220 Tps
220 - 1.20 Red Br Si Cl, Moist
- 1.20 NFP BR

10+250 3.50 Lt Fut. C/L D-0 Lane
0 - 170 Asph
170 - 850 Br Cr Gran*
850 - 1.50 Br Si Cl W Gr, Moist
*Sample Depth = 200 - 500
Passing 26.5 mm = 100 %
19.0 mm = 91 %
13.2 mm = 73 %
9.5 mm = 58 %
4.75 mm = 40 %
1.18 mm = 20 %
300 um = 11 %
75 um = 5 %
w = 5 %
Accep Gran A

10+250 0.50 Rt Fut. C/L D-0 Shld
0 - 190 Asph
190 - 900 Br Cr Gran*
900 - 1.50 Br Si Sa So Cl W Gr, Moist**
*Sample Depth = 600 - 900
Passing 26.5 mm = 100 %
19.0 mm = 98 %
13.2 mm = 85 %
9.5 mm = 68 %
4.75 mm = 40 %
1.18 mm = 21 %
300 um = 11 %
75 um = 6 %
w = 4 %
Accep Gran A
**Sample Depth = 1.20 - 1.50
Passing 4.75 mm = 79 %
2.00 mm = 67 %
425 um = 53 %
75 um = 37 %
5 um = 18 %
2 um = 14 %
w = 14 %
WL = 32 % WP = 24 % IP = 7 %
Classification = SM
Frost Susc. = LSFH

Removals
Station 9+900 to 10+100, Referenced to Rt E/P

9+900 4.00 Lt of Rt E/P D-0 Lane
0 - 170 Asph
170 - 900 Br Cr Gran*
900 - 1.20 Br F-Med Gr(y) Sa So Si, Moist**
1.20 - 1.50 Red Br Si Cl Tr Sa Tr Gr, Moist
*Sample Depth = 400 - 700
Passing 26.5 mm = 100 %
19.0 mm = 93 %
13.2 mm = 80 %
9.5 mm = 62 %
4.75 mm = 40 %
1.18 mm = 21 %
300 um = 12 %
75 um = 5 %
w = 5 %
Accep Gran A
**Sample Depth = 900 - 1.20
Passing 150 mm = 100 %
26.5 mm = 100 %
4.75 mm = 90 %
1.18 mm = 78 %
300 um = 42 %
75 um = 12 %
w = 10 %
Unaccep Gran B, Type I
(12% passing 75 um)

10+100 2.50 Lt of Rt E/P D-50.00 Off ramp
0 - 160 Asph
160 - 800 Br Cr Gran
800 - 1.20 Red Br Sa W Si W Gr, Moist*
1.20 - 1.50 Red Br Si Cl Tr Sa Tr Gr, Wet, Fr Wat @ 1.20
*Sample Depth = 900 - 1.20
Passing 150 mm = 100 %
26.5 mm = 100 %
4.75 mm = 63 %
1.18 mm = 55 %
300 um = 41 %
75 um = 10 %
w = 11 %
Unaccep Gran B, Type I
(10% passing 75 um)

Toronto Bound Widening/Realignment
Station 13+300 to 14+800, Referenced to Fut. C/L

13+300 Fut. C/L D-200 Median
0 - 180 Tps
180 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist

13+300 4.00 Lt Fut. C/L D-0 In Shld
0 - 260 Asph
260 - 1.15 Br Cr Gran, Fr Wat @ 1.05
1.15 - 1.50 Br Si Cl Tr Sa Tr Gr Tr Org M, Moist*
*Sample Depth = 1.20 - 1.50
w = 24 %

13+300 6.00 Lt Fut. C/L D-0 Lane 1
0 - 380 Asph
380 - 1.10 Br Cr Gran, Fr Wat @ 1.05*
1.10 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist
*Sample Depth = 500 - 800
Passing 26.5 mm = 100 %
19.0 mm = 97 %
13.2 mm = 88 %
9.5 mm = 72 %
4.75 mm = 49 %
1.18 mm = 24 %
300 um = 12 %
75 um = 8 %
w = 3 %
Accep Gran A

13+300 10.00 Lt Fut. C/L D-0 Lane 2
0 - 350 Asph
350 - 1.05 Br Cr Gran, Moist, Fr Wat @ 960*
1.05 - 1.50 Br Si Cl Tr Sa Tr Gr, Wet
*Sample Depth = 400 - 700
Passing 26.5 mm = 100 %
19.0 mm = 98 %
13.2 mm = 86 %
9.5 mm = 70 %
4.75 mm = 42 %
1.18 mm = 19 %
300 um = 10 %
75 um = 7 %
w = 3 %
Accep Gran A

13+300 20.40 Lt Fut. C/L D-1.00
0 - 200 Tps
200 - 2.00 Red Br Si Cl Tr Sa, Moist*
*Sample Depth = 800 - 1.10
w = 32 %

13+350 5.50 Lt Fut. C/L D-0 Lane 1
0 - 360 Asph
360 - 1.20 Br Cr Gran
1.20 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist

13+400 Fut. C/L D-200 Median
0 - 150 Tps
150 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist

13+400 4.00 Lt Fut. C/L D-0 In Shld
0 - 250 Asph
250 - 1.10 Br Cr Gran
1.10 - 1.50 Br Si Cl Tr Sa Tr Gr Tr Org M, Moist

13+400 6.00 Lt Fut. C/L D-0 Lane 1
0 - 350 Asph
350 - 1.20 Br Cr Gran
1.20 - 1.50 Br Si Cl Tr Sa Tr Gr Tr Org M, Moist

13+400 21.70 Lt Fut. C/L D-1.00
0 - 200 Tps
200 - 2.00 Red Br Si Cl Tr Sa, Moist*
*Sample Depth = 1.30 - 1.60
w = 28 %

13+450 6.00 Lt Fut. C/L D-0 Lane 1
0 - 380 Asph
380 - 1.20 Br Cr Gran
1.20 - 1.50 Br Si Cl Tr Sa Tr Gr Tr Org M, Wet, Fr Wat @ 1.30

13+450 10.00 Lt Fut. C/L D-0 Lane 2
0 - 350 Asph
350 - 1.20 Br Cr Gran
1.20 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist

13+500 1.50 Lt Fut. C/L D-500 Median
0 - 150 Tps
150 - 1.50 Br Si Cl Tr Gr, Moist

13+500 6.00 Lt Fut. C/L D-0 In Shld
0 - 100 Asph
100 - 800 Br Cr Gran
800 - 1.50 Br Si Cl Tr Gr, Moist*
*Sample Depth = 800 - 1.10
w = 26 %

13+500 8.00 Lt Fut. C/L D-0 Lane 1
0 - 300 Asph
300 - 1.10 Br Cr Gran
1.10 - 1.50 Br Si Cl Tr Gr, Moist to Wet, Fr Wat @ 1.40

13+500 21.00 Lt Fut. C/L D+1.20
0 - 200 Tps
200 - 1.50 Red Br Si Cl, Moist

13+600 Fut. C/L D-300 Median
0 - 100 Tps
100 - 1.50 Br Si Cl Tr Gr, Moist*
*Sample Depth = 600 - 900
w = 25 %

13+600 8.00 Lt Fut. C/L D-0 In Shld
0 - 230 Asph
230 - 750 Br Cr Gran
750 - 2.00 Br Si Cl Tr Gr, Moist
2.00 - 2.50 Dk Br Blk Si Cl Tr Gr, Moist

13+600 10.00 Lt Fut. C/L D-0 Lane 1
0 - 290 Asph
290 - 1.30 Br Cr Gran
1.30 - 2.00 Br Si Cl Tr Gr, Moist
2.00 - 2.50 Dk Br Blk Si Cl Tr Gr Tr Org M, Moist

13+600 25.50 Lt Fut. C/L D+1.80
0 - 250 Tps
250 - 1.50 Red Br Si Cl Tr Gr, Moist

14+300 0.10 Lt Fut. C/L D-500 Median
0 - 150 Tps
150 - 1.50 Br Si Cl Tr Gr, Moist

14+300 13.50 Lt Fut. C/L D-0 Lane 1
0 - 320 Asph
320 - 1.40 Br Cr Gran, Fr Wat @ 1.10
1.40 - 2.00 Br Cl Si W Gr Tr Sa, Wet
2.00 - 2.50 Br Si Sa Tr Cl Tr Gr, Moist

14+300 18.00 Lt Fut. C/L D-0 Lane 2
0 - 320 Asph
320 - 930 Br Cr Gran
930 - 3.75 Br Si Cl W Gr Tr Sa, Moist*
*Sample Depth = 2.70 - 3.00
w = 16 %

14+350 11.50 Lt Fut. C/L D-0 Lane 1
0 - 290 Asph
290 - 1.20 Br Cr Gran
1.20 - 2.00 Br Cl Si So Sa Tr Gr, Wet, Fr Wat @ 1.50*
2.00 - 2.50 Br Sa & Si So Cl Tr Gr, Moist**
*Sample Depth = 1.20 - 1.50
Passing 4.75 mm = 92 %
2.00 mm = 90 %
425 um = 85 %
75 um = 73 %
5 um = 27 %
2 um = 23 %
w = 23 %
Frost Susc. = MSFH
**Sample Depth = 2.00 - 2.30
Passing 4.75 mm = 96 %
2.00 mm = 94 %
425 um = 92 %
75 um = 50 %
5 um = 17 %
2 um = 15 %
w = 14 %
Frost Susc. = LSFH

14+400 0.10 Lt Fut. C/L D+200 Median
0 - 100 Tps
100 - 1.50 Br Si Cl So Gr W Sa, Moist to Wet*
*Sample Depth = 1.20 - 1.50
Passing 4.75 mm = 79 %
2.00 mm = 72 %
425 um = 62 %
75 um = 50 %
5 um = 32 %
2 um = 25 %
w = 20 %
WL = 35 % WP = 17 % IP = 18 %
Classification = CL
Frost Susc. = LSFH

14+400 7.00 Lt Fut. C/L D-0 Lane 1
0 - 320 Asph
320 - 1.10 Br Cr Gran
1.10 - 1.50 Br Si Cl W Gr Tr Sa, Moist

14+450 8.50 Lt Fut. C/L D-0 Lane 1
0 - 260 Asph
260 - 1.10 Br Cr Gran
1.10 - 1.50 Red Br Si Cl Tr Gr, Moist

14+500 0.10 Lt Fut. C/L D+200 Median
0 - 100 Tps
100 - 1.50 Br Si Cl Tr Gr, Moist

14+500 7.00 Lt Fut. C/L D-0 Lane 1
0 - 280 Asph
280 - 1.00 Br Cr Gran
1.00 - 1.50 Br Si Cl Tr Gr, Moist

14+550 6.00 Lt Fut. C/L D-0 Lane 1
0 - 260 Asph
260 - 1.10 Br Cr Gran
1.10 - 1.50 Br Si Cl Tr Gr, Moist*
*Sample Depth = 1.10 - 1.40
w = 24 %

14+600 0.10 Lt Fut. C/L D-0 Median
0 - 050 Tps
050 - 1.50 Red Br Si Cl Tr Sa Tr Gr, Moist*
*Sample Depth = 1.10 - 1.40
w = 23 %

14+600 5.00 Lt Fut. C/L D-0 Lane 1
0 - 230 Asph
230 - 800 Br Cr Gran
800 - 1.50 Red Br Si Cl Tr Sa Tr Gr, Moist

14+650 4.50 Lt Fut. C/L D-0 Lane 1
0 - 220 Asph
220 - 880 Br Cr Gran
880 - 1.50 Red Br Si Cl Tr Sa Tr Gr, Moist*
*Sample Depth = 1.10 - 1.40
w = 16 %

14+700 3.00 Lt Fut. C/L D-0 In Shld
0 - 200 Asph
200 - 950 Br Cr Gran
950 - 1.50 Red Br Si Cl W Gr, Moist*
*Sample Depth = 1.10 - 1.40
w = 13 %

14+700 5.00 Lt Fut. C/L D-0 Lane 1
0 - 250 Asph
250 - 1.10 Br Cr Gran
1.10 - 1.50 Red Br Si Cl Tr Gr, Moist

14+750 5.00 Lt Fut. C/L D-0 Lane 1
0 - 280 Asph
280 - 1.10 Br Cr Gran*
1.10 - 1.50 Red Br Si Cl Tr Gr, Moist
*Sample Depth = 600 - 900
Passing 26.5 mm = 100 %
19.0 mm = 98 %
13.2 mm = 89 %
9.5 mm = 75 %
4.75 mm = 54 %
1.18 mm = 30 %
300 um = 18 %
75 um = 13 %
w = 3 %
Unaccep Gran A
(75% passing 9.5 mm, 13% passing 75um)
Accep Gran B, Type I

14+800 5.00 Lt Fut. C/L D-0 Lane 1
0 - 230 Asph
230 - 1.00 Br Cr Gran
1.00 - 1.50 Br Si Cl Tr Gr, Moist*
*Sample Depth = 1.20 - 1.50
Passing 4.75 mm = 99 %
2.00 mm = 98 %
425 um = 97 %
75 um = 88 %
5 um = 58 %
2 um = 50 %
w = 23 %
Classification = CI
Frost Susc. = LSFH

14+800 9.50 Lt Fut. C/L D-0 Lane 2
0 - 200 Asph
200 - 960 Br Cr Gran
960 - 1.10 Br Si Cl So Sa Tr Gr Tr Org M, Moist*
1.10 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist
*Sample Depth = 960 - 1.10
Passing 4.75 mm = 98 %
2.00 mm = 97 %
425 um = 95 %
75 um = 86 %
5 um = 48 %
2 um = 2 %
w = 25 %
WL = 39 % WP = 21 % IP = 18 %
Classification = CI
Frost Susc. = LSFH

Wildlife Fence
Station 13+350 to 14+280, Referenced to Fut. C/L

13+350 25.00 Lt Fut. C/L D-2.00 Wildlife Fence
0 - 170 Tps
170 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist

13+400 30.00 Rt Fut. C/L D-2.00 Wildlife Fence
0 - 250 Tps
250 - 1.50 Br Si Cl Tr Sa, Moist*
*Sample Depth = 500 - 800
Passing 4.75 mm = 100 %
2.00 mm = 99 %
425 um = 98 %
75 um = 92 %
5 um = 86 %
2 um = 74 %
w = 29 %
Frost Susc. = LSFH

13+450 29.50 Lt Fut. C/L D-2.50 Wildlife Fence
0 - 130 Tps
130 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist

13+500 32.00 Rt Fut. C/L D-2.50 Wildlife Fence
0 - 180 Tps
180 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist

13+550 27.00 Lt Fut. C/L D-3.50 Wildlife Fence
0 - 180 Tps
180 - 850 Br F-Med Si Cl W Sa, Moist*
850 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist
*Sample Depth = 750 - 850
Passing 4.75 mm = 100 %
2.00 mm = 100 %
425 um = 96 %
75 um = 56 %
5 um = 36 %
2 um = 32 %
w = 21 %
Frost Susc. = LSFH

13+600 31.50 Rt Fut. C/L D-3.50 Wildlife Fence
0 - 150 Tps
150 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist, Fr Wat @150

13+650 31.50 Lt Fut. C/L D-5.00 Wildlife Fence
0 - 200 Tps
200 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist

13+650 33.50 Rt Fut. C/L D-4.00 Wildlife Fence
0 - 100 Tps
100 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist

13+700 32.00 Lt Fut. C/L D-3.50 Wildlife Fence
0 - 200 Tps
200 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist

13+700 36.00 Rt Fut. C/L D-5.00 Wildlife Fence
0 - 080 Tps
080 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist*
*Sample Depth = 600 - 900
w = 27 %

13+750 33.00 Lt Fut. C/L D-3.00 Wildlife Fence
0 - 200 Tps
200 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist

13+750 35.00 Rt Fut. C/L D-6.50 Wildlife Fence
0 - 100 Tps
100 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist

13+800 33.50 Lt Fut. C/L D-3.00 Wildlife Fence
0 - 170 Tps
170 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist

13+800 34.50 Rt Fut. C/L D-7.00 Wildlife Fence
0 - 100 Tps
100 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist

13+850 33.00 Lt Fut. C/L D-2.50 Wildlife Fence
0 - 180 Tps
180 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist

13+900 32.50 Lt Fut. C/L D-1.30 Wildlife Fence
0 - 150 Tps
150 - 1.50 Br Si Cl W Sa Tr Gr, Moist*
*Sample Depth = 500 - 800
Passing 4.75 mm = 99 %
2.00 mm = 96 %
425 um = 88 %
75 um = 72 %
5 um = 42 %
2 um = 34 %
w = 19 %
WL = 38 % WP = 19 % IP = 19 %
Classification = CI
Frost Susc. = LSFH

14+030 34.00 Rt Fut. C/L D-7.50 Wildlife Fence
0 - 120 Tps
120 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist*
*Sample Depth = 700 - 1.00
w = 31 %

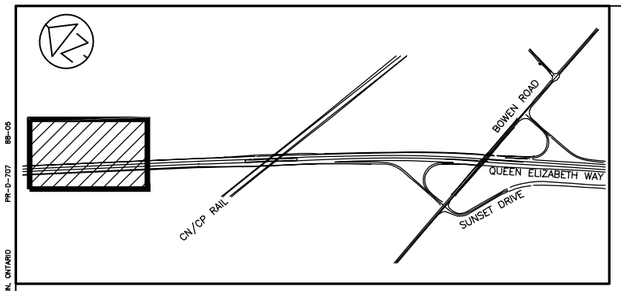
14+080 33.50 Rt Fut. C/L D-7.00 Wildlife Fence
0 - 150 Tps
150 - 1.50 Br Si Cl W Sa Tr Gr, Moist

14+130 34.00 Rt Fut. C/L D-5.00 Wildlife Fence
0 - 150 Tps
150 - 1.50 Br Si Cl Tr Sa Tr Gr, Moist

14+180 34.00 Rt Fut. C/L D-4.00 Wildlife Fence
0 - 130 Tps
130 - 1.50 Br Sa Si So Cl, Moist*
*Sample Depth = 700 - 1.00
Passing 4.75 mm = 99 %
2.00 mm = 99 %
425 um = 98 %
75 um = 70 %
5 um = 22 %
2 um = 16 %
w = 18 %
Classification = ML
Frost Susc. = MSFH

14+230 35.00 Rt Fut. C/L D-3.50 Wildlife Fence
0 - 150 Tps
150 - 400 Br Si Cl Tr Sa, Moist
- 400 NFP BR

14+280 37.00 Rt Fut. C/L D-2.00 Wildlife Fence
0 - 200 Tps
200 - 300 Br Si Cl Tr Sa, Moist
- 300 NFP BR



METRIC

PLATE No CONT 2019–2003 WP 2116–16–00	
ADVANCED TRAFFIC MANAGEMENT SYSTEM FIELD PROVISION LAYOUT STA 13+155 TO STA 13+535	SHEET 153
IBI	

MINISTRY OF TRANSPORTATION, ONTARIO FR-0-707 88-05

GNMENT

LIMIT OF CONSTRUCTION
STA 13+260

STA 13+155

STA 13+535

TORONTO BOUND

FORT ERIE BOUND

℄ MEDIAN QEW

QEWDS1000DES

MH1

REF 1

HH1

MAINTENANCE PAD
SEE DRAWING D–2

QEWDS1010DES

HH1B

QEWCS0900SES

MH2

CP1

QEW0900LES

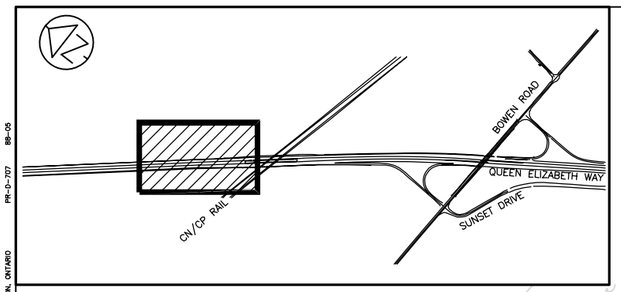
REGISTERED PROFESSIONAL ENGINEER
A. DYBKA
Mar 14,2019
PROVINCE OF ONTARIO

SCALE	DRAWING NO.
5m 0 10m	L–1

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CREATED: MODIFIED: 2019/03/14 12:24:15 PM

METRIC

PLATE No	
CONT	2019-2003
WP	2116-16-00
ADVANCED TRAFFIC MANAGEMENT SYSTEM FIELD PROVISION LAYOUT STA 13+535 TO STA 13+915	SHEET 154
IBI	



STA 13+535

STA 13+915

TORONTO BOUND

FORT ERIE BOUND

℄ MEDIAN QEW

QEWDS1020DES

HH2

MH3

HH3

MH4

REF 2

EMBEDDED DUCTS IN STRUCTURE

1.0x6.3 RIP-RAP

1.0x17.4 RIP-RAP

CP RAILWAY

CN RAILWAY

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Mar 14,2019
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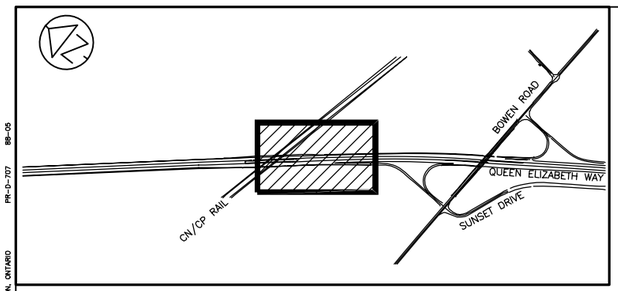
SCALE	DRAWING NO.
5m 0 10m	L-2

MINISTRY OF TRANSPORTATION, ONTARIO FR-0-707 88-05

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METRIC

PLATE No	
CONT	2019-2003
WP	2116-16-00
ADVANCED TRAFFIC MANAGEMENT SYSTEM FIELD PROVISION LAYOUT STA 13+915 TO STA 14+295	SHEET 155
IBI	

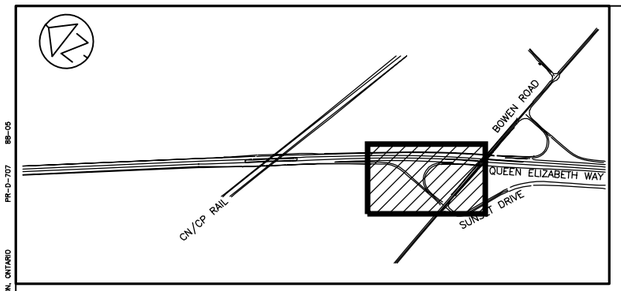


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A. DYBKA
Mar 14,2019
PROVINCE OF ONTARIO

SCALE	DRAWING NO.
5m 0 10m	L-3

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FR-0-707 88-05

DRAWING NAME: J:\113324_CR_MegaRet\5.0 Drawings\50electrical\layout\TWL-113324.dwg (L-3)
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METRIC

PLATE No	
CONT	2019-2003
WP	2116-16-00
ADVANCED TRAFFIC MANAGEMENT SYSTEM FIELD PROVISION LAYOUT STA 14+295 TO STA 14+675	SHEET 156
IBI	

STA 14+295

STA 14+675

TORONTO BOUND

FORT ERIE BOUND

℄ MEDIAN QEW

RAMP N-E/W

℄ RAMP N-EW

℄ RAMP EW-S

BOWEN ROAD

℄ BOWEN ROAD

℄ SUNSET DRIVE

CP1A

P1

MH5A

MH5B

MH6A

MH6B

HH6A

HH6B

MH7

CP1

P10

P2

P3

P4

QEWTS0080TES

QEWCS0905TES

PCU-CCU

UPC 1D

UPC 3D

EXISTING SUPPLY 'A'
CABINET TYPE 2
600V, 3ø, 3W

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A. DYBKA
Mar 14,2019
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SCALE	DRAWING NO.
5m 0 10m	L-4

MINISTRY OF TRANSPORTATION, ONTARIO FR-0-707 88-05

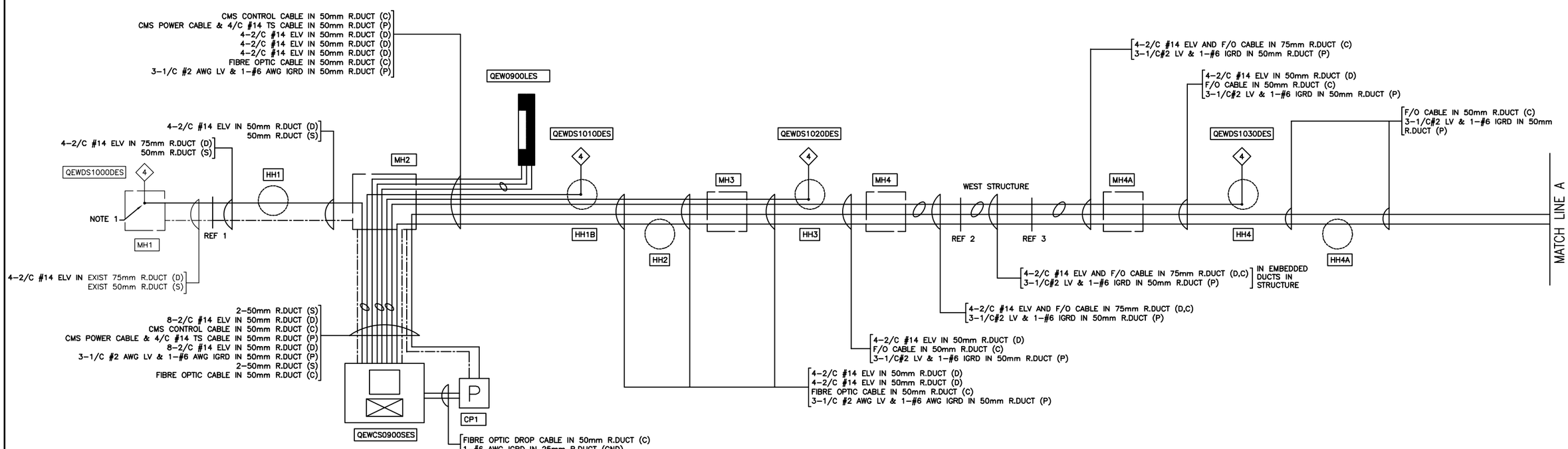
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CREATED: MODIFIED: 2019/03/14 12:24:32 PM

MINISTRY OF TRANSPORTATION, ONTARIO PR-0-707 88-05

NOTE:

1. THE CONTRACTOR SHALL SPLICE THE EXISTING LOOP LEAD WIRES TO THE NEW ELV HOME RUN CABLES.

PLATE No CONT 2019-2003 WP 2116-16-00	
ADVANCED TRAFFIC MANAGEMENT SYSTEM WIRING DIAGRAM	SHEET 157
IBI	



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PROVINCE OF ONTARIO

SCALE	DRAWING NO.
N.T.S.	WD-1

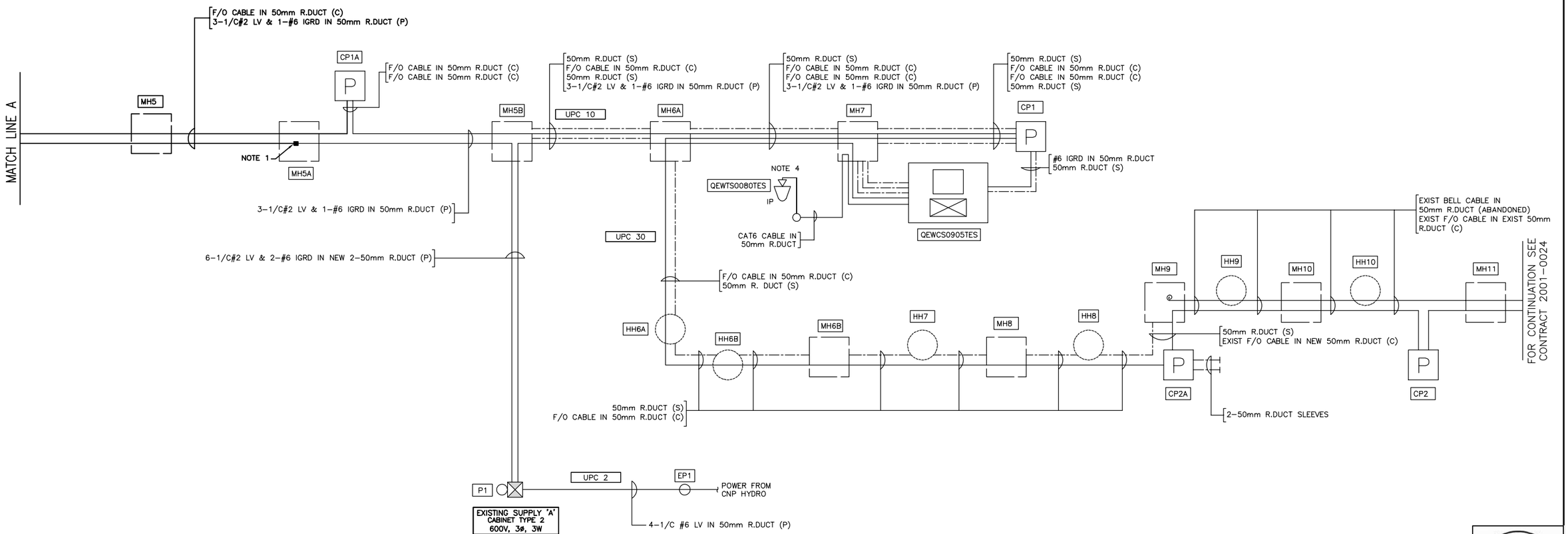
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MODIFIED: 2019/03/14 12:24:35 PM
CREATED:

MINISTRY OF TRANSPORTATION, ONTARIO FR-0-707 88-05

NOTE:

1. THE CONTRACTOR SHALL SPLICE EXISTING POWER CABLES TO NEW POWER CABLES IN MAINTENANCE HOLE. CONTRACTOR TO USE 1000 VOLT RATED UNDERGROUND SPLICING KIT TO PROVIDE PROTECTION AGAINST MOISTURE AND CORROSION TO THE FINISHED SPLICES. THE SPLICE SHALL BE SECURED AND SUPPORTED AS HIGH AS POSSIBLE INSIDE THE MAINTENANCE HOLE TO AVOID BEING SUBMERGED IN WATER IN CASE OF FLOODING INSIDE THE CHAMBER.

PLATE No CONT 2019–2003 WP 2116–16–00	
ADVANCED TRAFFIC MANAGEMENT SYSTEM WIRING DIAGRAM	SHEET 158
IBI	



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Mar 14,2019
PROVINCE OF ONTARIO

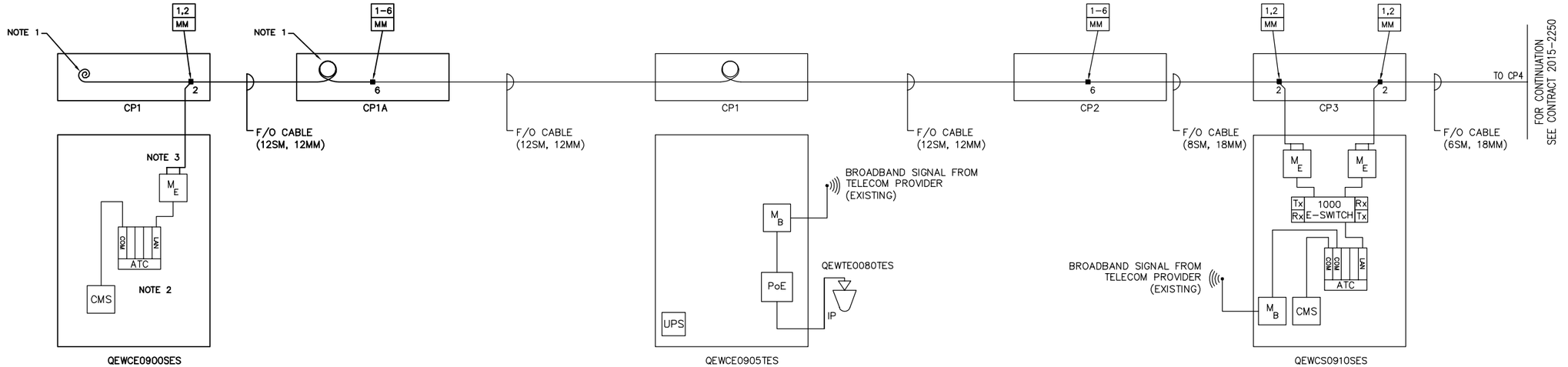
SCALE	DRAWING NO.
N.T.S.	WD–2

DRAWING NAME: J:\113324_CR_MegaRet\5.9 Drawings\59electrical\wiring\TWW-TM113324.dwg (WD-2)
CREATED:
MODIFIED: 2019/03/14 12:24:35 PM

NOTES:

1. PROVIDE 12m OF FIBRE OPTIC CABLE SLACK INSIDE THE COMMUNICATION PEDESTAL.
2. REINSTALL AND CONNECT THE SALVAGED ATC, CMS CONTROLLER AND FIBRE OPTIC MODEM IN THE NEW CONTROLLER CABINET.
3. NEW MULTIMODE DROP CABLE AND FIBRE INTERCONNECT MODULE.

PLATE No	
CONT 2019-2003	
WP 2116-16-00	
ADVANCED TRAFFIC MANAGEMENT SYSTEM COMMUNICATION SCHEMATIC	SHEET 159
IBI	



REGISTERED PROFESSIONAL ENGINEER
A. DYBKA
Mar 14,2019
PROVINCE OF ONTARIO

SCALE	DRAWING NO.
N.T.S.	CS-1

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DRAWING NAME: i:\113324_CR_MegaRet\5.9 Drawings\59electrical\comm\TMC-TM113324.dwg (CS-1)
CREATED:
MODIFIED: 2019/03/14 12:24:42 PM

PLATE No	
CONT 2019–2003	
WP 2116–16–00	
ADVANCED TRAFFIC MANAGEMENT SYSTEM DETAIL I	SHEET 160
IBI	

Cabinet Data			Field Equipment Connected to Cabinet					Ducts required (notes 1&2)																														
Identifier	Use	Type	VDS loops	QWS stations	VMS stations	CCTV poles	Other (specify)	At cabinet																											At power supply					
								A	B	B1	C1	C2	C3	C4	C5	C6	D	E	F	G	R	S1	S2	S3	T	U	V	W	A	G1	H	J	M	N					
QEWCS0900SES	QWS+VDS	401–D	Y	Y	Y			X	X	X	X	X	X							X	X	X	X	S			X		X	X	S	S	X					

NOTES:

1. For ducts entering pads, see MTOD 2920.020
2. X=duct connection required S=spare sleeve
3. Conduits entering the power supply opening shall be placed towards the front of the side edges of the opening for ease of pulling and routing of power cables.

MINISTRY OF TRANSPORTATION ONTARIO DRAWING	Date	Sept. 2007	Rev	0
ADVANCED TRAFFIC MANAGEMENT SYSTEM CABINET CONNECTION DATA	MODIFIED			
	MTOD – 2940.030			

CABINET IDENTIFIER	QEWCS0900SES											
TRAVEL DIRECTION	MAINLINE VDS – EXPRESS ☐ EB ☒ NB ☐											
VDS IDENTIFIER	QEWDS1000DES				QEWDS1020DES				QEWDS1030DES			
LOOP #	1	2	3	4	1	2	3	4	1	2	3	4
INPUT FILE TERMINAL	1U	2L	2U	1L	3U	4L	4U	3L	5U	6L	6U	5L
TRAVEL DIRECTION	MAINLINE VDS – COLLECTOR ☐ WB ☐ SB ☐											
VDS IDENTIFIER												
LOOP #	1	2	3	4	5	6	7	8	9	0	A	B
INPUT FILE TERMINAL												
TRAVEL DIRECTION	RAMP, TRANSFER, HOV, OTHER ROADWAY VDS											
VDS IDENTIFIER												
LOOP #												
INPUT FILE TERMINAL												

NOTES:

A. For input files I and J terminal board number assignment, refer to MTOD 2950.010.
B. For corresponding loop numbers, refer to layout drawings

MINISTRY OF TRANSPORTATION ONTARIO DRAWING	Date	Sept. 2007	Rev	0
ADVANCED TRAFFIC MANAGEMENT SYSTEM FIELD CONNECTION INPUT DATA				
	MTOD – 2950.013			

REGISTERED PROFESSIONAL ENGINEER A. DYBKA Mar 14,2019 PROVINCE OF ONTARIO

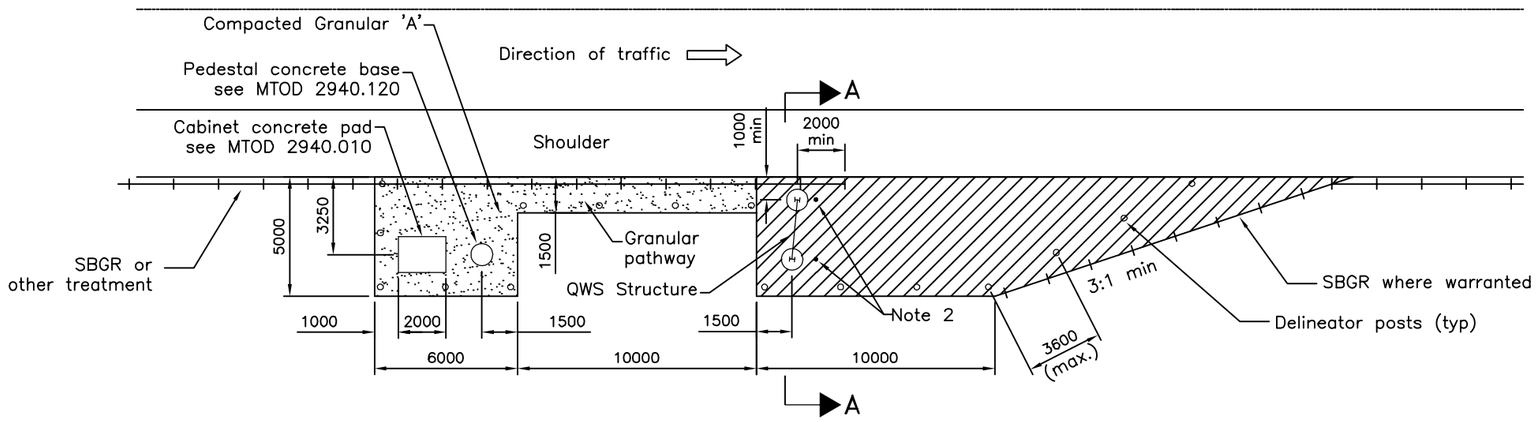
SCALE	DRAWING NO.
N.T.S.	D–1

MINISTRY OF TRANSPORTATION, ONTARIO PR-D-707 88-05

DRAWING NAME: J:\113324_CR_MegaRet\5.9 Drawings\59electrical\details\TWD-TM113324.dwg (D-1)
CREATED:
MODIFIED: 2019/03/15 5:00:35 PM

MINISTRY OF TRANSPORTATION, ONTARIO
PR-0-707 88-05

PLATE No	
CONT 2019–2003	
WP 2116–16–00	
ADVANCED TRAFFIC MANAGEMENT SYSTEM DETAIL II	SHEET 161
IBI	



NOTES:

A. All dimensions are in millimetres unless otherwise shown.

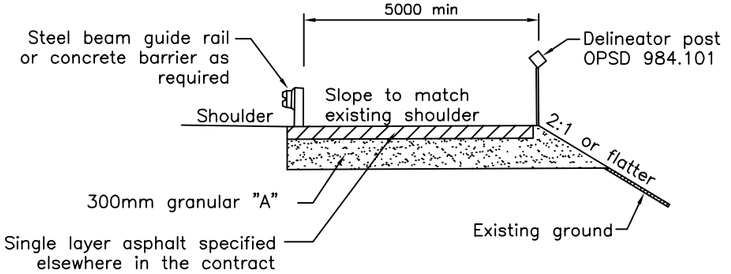
B. Pad dimensions and roadside barrier design may need to be adjusted to suit site conditions.

C. Existing topsoil to be stripped, where granular 'a' is to be overlayed.

1. Where barrier is not warranted, delineator posts shall be used to mark the limits of the site. Taper shall be 2:1.

2. Install two concrete bollards, see MTOD 2940.210.

3. At locations where the slope of existing ground is 4:1 or flatter, the width of the site may be reduced to 4000 min.



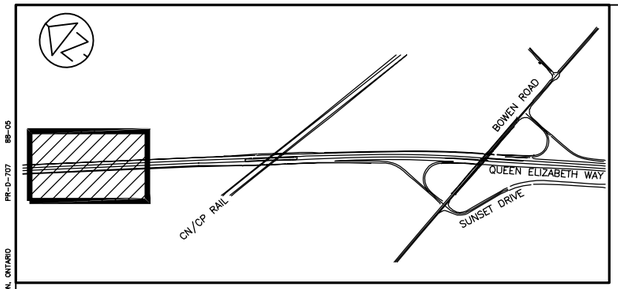
SECTION A–A

MINISTRY OF TRANSPORTATION ONTARIO DRAWING	Date	Dec. 2017	Rev 1
ADVANCED TRAFFIC MANAGEMENT SYSTEM FIELD EQUIPMENT SITE WITH GUIDE RAIL PROTECTION	MODIFIED		
	MTOD – 2940.220		

REGISTERED PROFESSIONAL ENGINEER A. DYBKA Mar 14,2019 PROVINCE OF ONTARIO

SCALE	DRAWING NO.
N.T.S.	D–2

DRAWING NAME: J:\113324_CR_MegaRet\5.9 Drawings\5.9electrical\details\TMD-TM113324.dwg (D-2)
CREATED:
MODIFIED: 2019/03/14 12:24:47 PM



NOTES:

1. THE CONTRACTOR SHALL DISCONNECT THE FIBRE OPTIC CABLE FROM THE SPLICE ENCLOSURE AND THE POWER CABLES FROM THE POWER SUPPLY CABINET BEFORE REMOVING THE CABINET, POWER SUPPLY AND PEDESTAL.
2. THE CONTRACTOR SHALL DISCONNECT THE TERMINATION OF ALL HOMERUN CABLES FROM THE QWS LOOPS PRIOR TO PAVEMENT CONSTRUCTION.
3. THE CONTRACTOR SHALL DE-ENERGIZE THE CMS AND FLASHERS PRIOR TO REMOVAL OF THE SIGN AND STRUCTURE. ALL WIRING BETWEEN THE SIGN AND THE CABINET SHALL BE REMOVED.

METRIC

PLATE No CONT 2019-2003 WP 2116-16-00	
ADVANCED TRAFFIC MANAGEMENT SYSTEM REMOVAL STA 13+155 TO STA 13+535	SHEET 162
IBI	

STA 13+155

STA 13+535

QEW TORONTO BOUND

QEW FORT ERIE BOUND

MH1 — REF 1 — HH1 R1 — CP1 R2 — QEWCS0900SES R3 — QEW0900LES R4 NOTES 1 & 2 — MH2 R5 NOTE 3

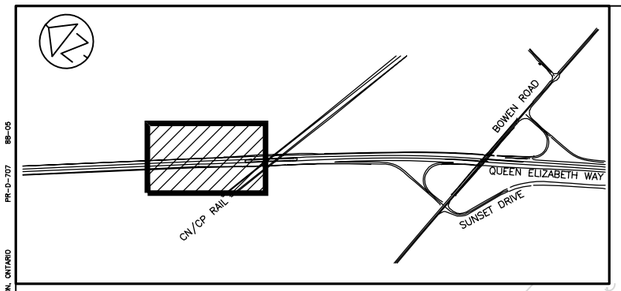
PCU - CCU

REGISTERED PROFESSIONAL ENGINEER
A. DYBKA
Mar 14,2019
PROVINCE OF ONTARIO

SCALE	DRAWING NO.
5m 0 10m	R-1

MINISTRY OF TRANSPORTATION, ONTARIO FR-0-707 88-05

DRAWING NAME: J:\11332A_CR_MegaRet\5.9 Drawings\59electrical\removal\TWR-113324.dwg (R-1)
CREATED: MODIFIED: 2019/03/14 12:24:56 PM



NOTES:

1. FOLLOWING THE REMOVAL OF THE CABLES IN THE EXISTING SURFACE–MOUTED DUCTS, THE CONTRACTOR SHALL REMOVE ALL SURFACE–MOUNTED DUCTS INCLUDING ALL THE BRACKETS AND FASTENERS.

METRIC

PLATE No CONT 2019–2003 WP 2116–16–00	
ADVANCED TRAFFIC MANAGEMENT SYSTEM REMOVAL STA 13+535 TO STA 13+915	SHEET 163
IBI	

STA 13+535

QEW TORONTO BOUND

QEW FORT ERIE BOUND

PCU – CCU

HH2 HH3 MH3 MH4

R6 R7 R8 R9

NOTE 1

REF 2

CCS – CCS

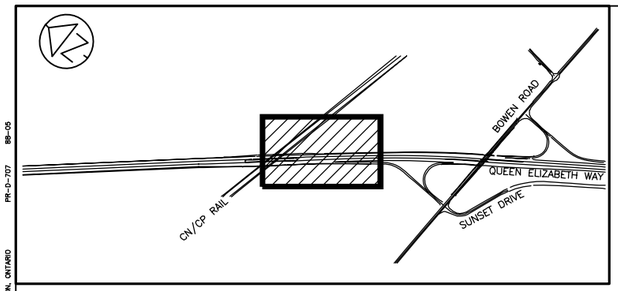
STA 13+915

REGISTERED PROFESSIONAL ENGINEER
A. DYBKA
Mar 14,2019
PROVINCE OF ONTARIO

SCALE	DRAWING NO.
5m 0 10m	R–2

MINISTRY OF TRANSPORTATION, ONTARIO FR-0-707 88-05

DRAWING NAME: J:\113324_CR_MegaRet\5.9 Drawings\59electrical\removal\TWR-113324.dwg (R-2)
CREATED: MODIFIED: 2019/03/14 12:24:57 PM



NOTES:

1. FOLLOWING THE REMOVAL OF THE CABLES IN THE EXISTING SURFACE-MOUTED DUCTS, THE CONTRACTOR SHALL REMOVE ALL SURFACE-MOUNTED DUCTS INCLUDING ALL THE BRACKETS AND FASTENERS.

METRIC

PLATE No CONT 2019-2003 WP 2116-16-00	
ADVANCED TRAFFIC MANAGEMENT SYSTEM REMOVAL STA 13+915 TO STA 14+295	SHEET 164
IBI	

STA 13+915

STA 14+295

QEW TORONTO BOUND

QEW FORT ERIE BOUND

PCS-CCS PCS-CCS PCS-CCS PCS-CCS PCS-CCS PCU-CCU PCU-CCU PCU-CCU PCU-CCU PCU-CCU PCU-CCU PCU-CCU PCU-CCU PCU-CCU PCU-CCU PCU-CCU PCU-CCU

NOTE 1

REF 3

MH5

R10

HH4

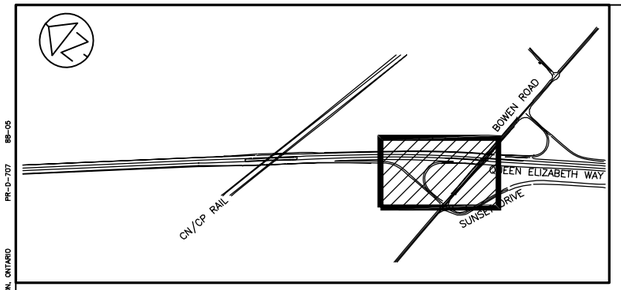
R11

REGISTERED PROFESSIONAL ENGINEER
A. DYBKA
Mar 14,2019
PROVINCE OF ONTARIO

SCALE	DRAWING NO.
5m 0 10m	R-3

MINISTRY OF TRANSPORTATION, ONTARIO FR-0-707 88-05

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CREATED: MODIFIED: 2019/03/14 12:24:59 PM



NOTES:

1. THE CONTRACTOR SHALL DISCONNECT THE FIBRE OPTIC CABLE FROM THE SPLICE ENCLOSURE CP1A BEFORE REMOVING THE CABLE FROM THE DUCTS.

METRIC

PLATE No CONT 2019–2003 WP 2116–16–00	
ADVANCED TRAFFIC MANAGEMENT SYSTEM REMOVAL STA 14+295 TO STA 14+675	SHEET 165
IBI	

MINISTRY OF TRANSPORTATION, ONTARIO FR-0-707 88-05

STA 14+295

QEW TORONTO BOUND

QEW FORT ERIE BOUND

RAMP N-E/W

PCU-CCU

R12 HH5 CP1A P1 MH5A

NOTE 1

MH5B

UPC 10

EXISTING SUPPLY 'A'
CABINET TYPE 2
600V, 3φ, 3W

MH6A

UPC 30

BOWEN ROAD

HH6A

HH6B

P2 P3 P4

MH6B

QEWTS0080TES MH7

MH7 P CP1 P10 QEWCS0905TES

STA 14+675

REGISTERED PROFESSIONAL ENGINEER
A. DYBKA
Mar 14,2019
PROVINCE OF ONTARIO

SCALE	DRAWING NO.
5m 0 10m	R–4

DRAWING NAME: J:\113324_CR_MegaRet\5.0 Drawings\50electrical\removal\TWR-113324.dwg (R-4)
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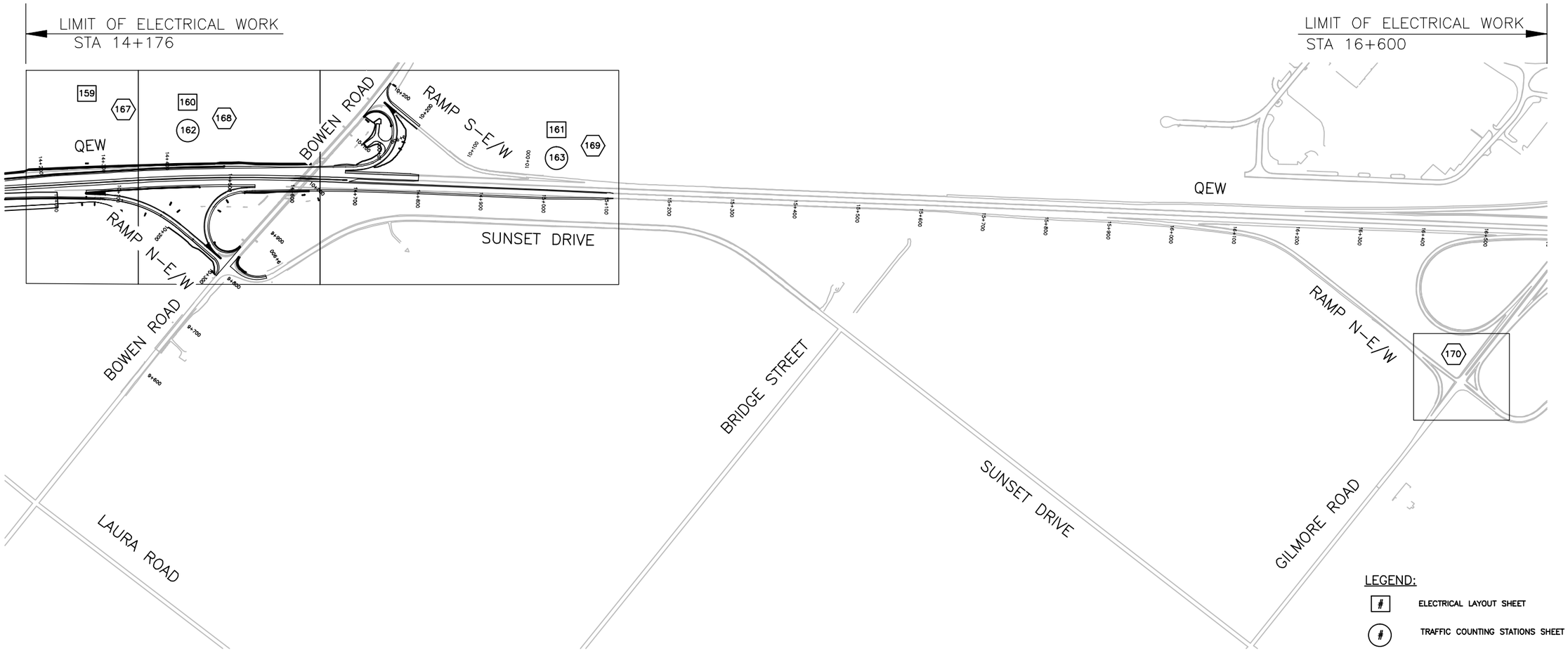
METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

ELECTRICAL KEY PLAN - MTO
QEW AND BOWEN ROAD
STA 14+176 TO STA 16+600

SHEET
166

AECOM



LEGEND:

- [#] ELECTRICAL LAYOUT SHEET
- (#) TRAFFIC COUNTING STATIONS SHEET
- <#> ELECTRICAL REMOVALS SHEET

N.T.S

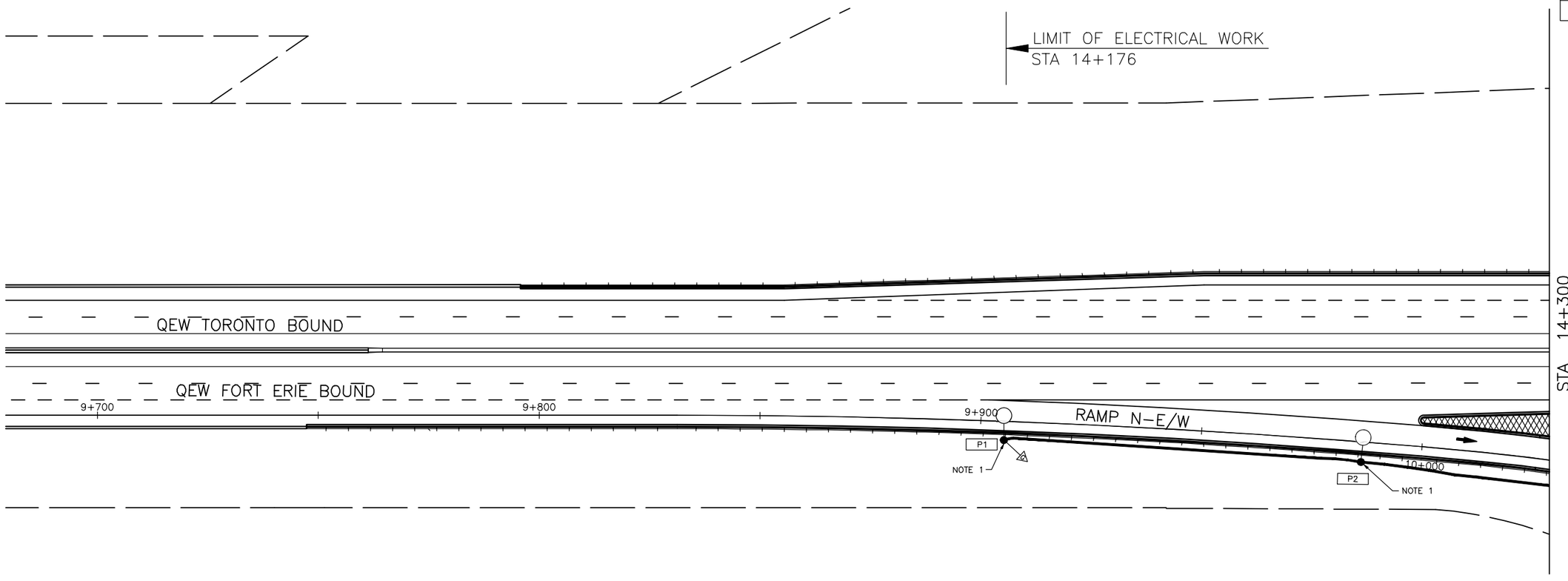
MINISTRY OF TRANSPORTATION, ONTARIO PR-D-707 88-05

G:\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\E\20-SHEETS\60581660-E-QEW & BERTIE-KeyPlan.dwg (E1) Printed: Mar 14, 2019

METRIC

NOTE:
1. EXISTING POLE, LUMINAIRE AND BRACKET TO BE RELOCATED ON NEW POLE FOOTING. NEW POLE SHALL BE MINIMUM 1m BEHIND GUIDERAIL.

PLATE No	
CONT 2019-2003	
WP 2116-16-00	
ELECTRICAL LAYOUT-MTO QEW AND BOWEN ROAD STA 13+950 TO STA 14+300	SHEET 167
AECOM	



SCALE
5m 0 10m

MINISTRY OF TRANSPORTATION, ONTARIO PH-D-707 88-05

G:\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\E\20-SHEETS\60581660-E-CNCP-QEW-LTG-DESIGN.dwg (E2) Printed: Mar 14, 2019

METRIC

NOTES:

1. EXISTING POLE, LUMINAIRE AND BRACKET TO BE RELOCATED ON NEW POLE FOOTING.
2. NEW HANDHOLE SHALL BE INSTALLED A MINIMUM 1m BEHIND GUIDERAIL.

PLATE No
CONT 2019-2003
WP 2116-16-00

ELECTRICAL LAYOUT-MTO
QEW AND BOWEN ROAD
STA 14+300 TO STA 14+650

SHEET
168

AECOM

STA 14+300

STA 14+650

STA 10+039

QEW TORONTO BOUND

QEW FORT ERIE BOUND

10+194

10+100

10+000

9+900

RAMP E/W-S

RAMP N-E/W

BOWEN ROAD

SUNSET DRIVE

10+200

10+100

9+823

10+000

10+257

10+135

P3

NOTE 1

2

1

HH1

NOTE 2

HH2

EHH1

EP1

EHH2

EH1

EP2

EH2

EP3

EXISTING SUPPLY 'A' 120/240V,1Ø,3W (METERED)

LCU

OH

HCA

RS

SCALE
5m 0 10m

MINISTRY OF TRANSPORTATION, ONTARIO PR-D-707 88-05

G:\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\E\20-SHEETS\60581660-E-CNCP-QEW-LTG-DESIGN.dwg (E3) Printed: Mar 14, 2019

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

ELECTRICAL LAYOUT-MTO
QEW AND BOWEN ROAD
STA 14+650 TO STA 15+010

SHEET
169

AECOM

EHH4
EP5
EP6
EHH3
EH6
EP4
EXISTING SUPPLY 'B' 120/240V,1Φ,3W (METERED)
EHH5
EHH6
EP8
EP7
BOWEN ROAD
RAMP S-E/W
RAMP E/W-N
QEW TORONTO BOUND
QEW FORT ERIE BOUND
SUNSET DRIVE
LCU
PCU
OH
10+039
10+000
10+100
10+200
10+300
10+400
9+900
STA 14+650
STA 15+010

SCALE
5m 0 10m

MINISTRY OF TRANSPORTATION, ONTARIO PR-D-707 88-05

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

TRAFFIC COUNTING STATIONS-MTO
QEW AND BOWEN ROAD
STA 14+300 TO STA 14+650

SHEET
170

AECOM

STA 14+300

STA 14+650

STA 10+039

QEW TORONTO BOUND

QEW FORT ERIE BOUND

10+194

10+100

10+100

10+000

RAMP E/W-S

9+900

10+100

RAMP N-E/W

P4

10.8m

NID2

MD1

MD2

10.3m

NID1

10+200

+790.9

BOWEN ROAD

9+823

10+000

10+257

10+135

SUNSET DRIVE

10+100

SUPPLEMENTARY LEGEND:

REMOTE NON-INTRUSIVE TRAFFIC SENSOR (RNITS) UNIT

GENERAL NOTE:

A. A REMOTE NON-INTRUSIVE TRAFFIC SENSOR (RNITS) SYSTEM SHALL BE INSTALLED AT THIS LOCATION, INSTALLATION SHALL BE AS PER THE MANUFACTURER'S RECOMMENDATION.

SCALE
5m 0 10m

MINISTRY OF TRANSPORTATION, ONTARIO PR-D-707 88-05

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METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

TRAFFIC COUNTING STATIONS-MTO
QEW AND BOWEN ROAD
STA 14+650 TO STA 15+010

SHEET
171

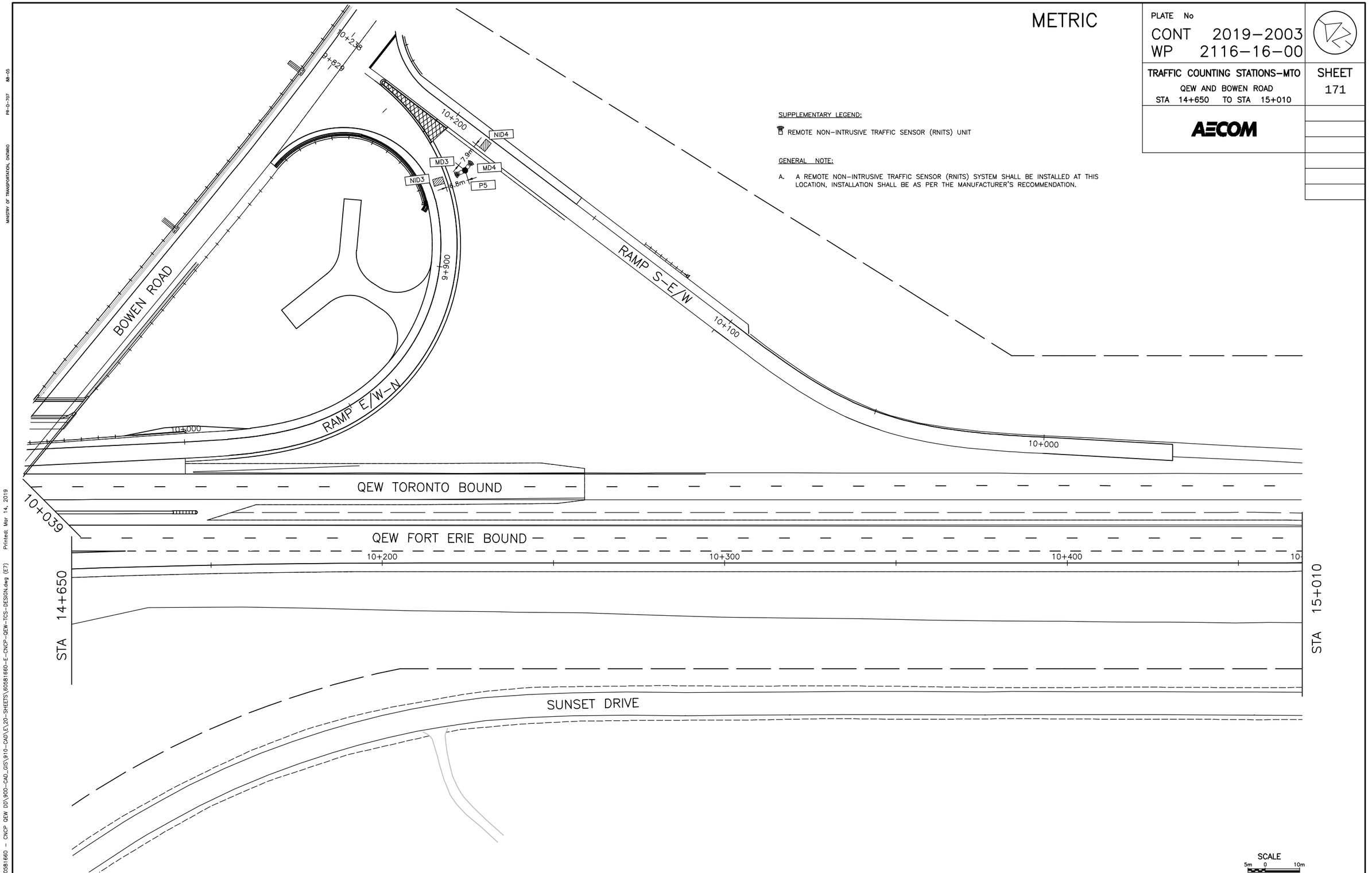
AECOM

SUPPLEMENTARY LEGEND:

REMOTE NON-INTRUSIVE TRAFFIC SENSOR (RNITS) UNIT

GENERAL NOTE:

A. A REMOTE NON-INTRUSIVE TRAFFIC SENSOR (RNITS) SYSTEM SHALL BE INSTALLED AT THIS LOCATION, INSTALLATION SHALL BE AS PER THE MANUFACTURER'S RECOMMENDATION.



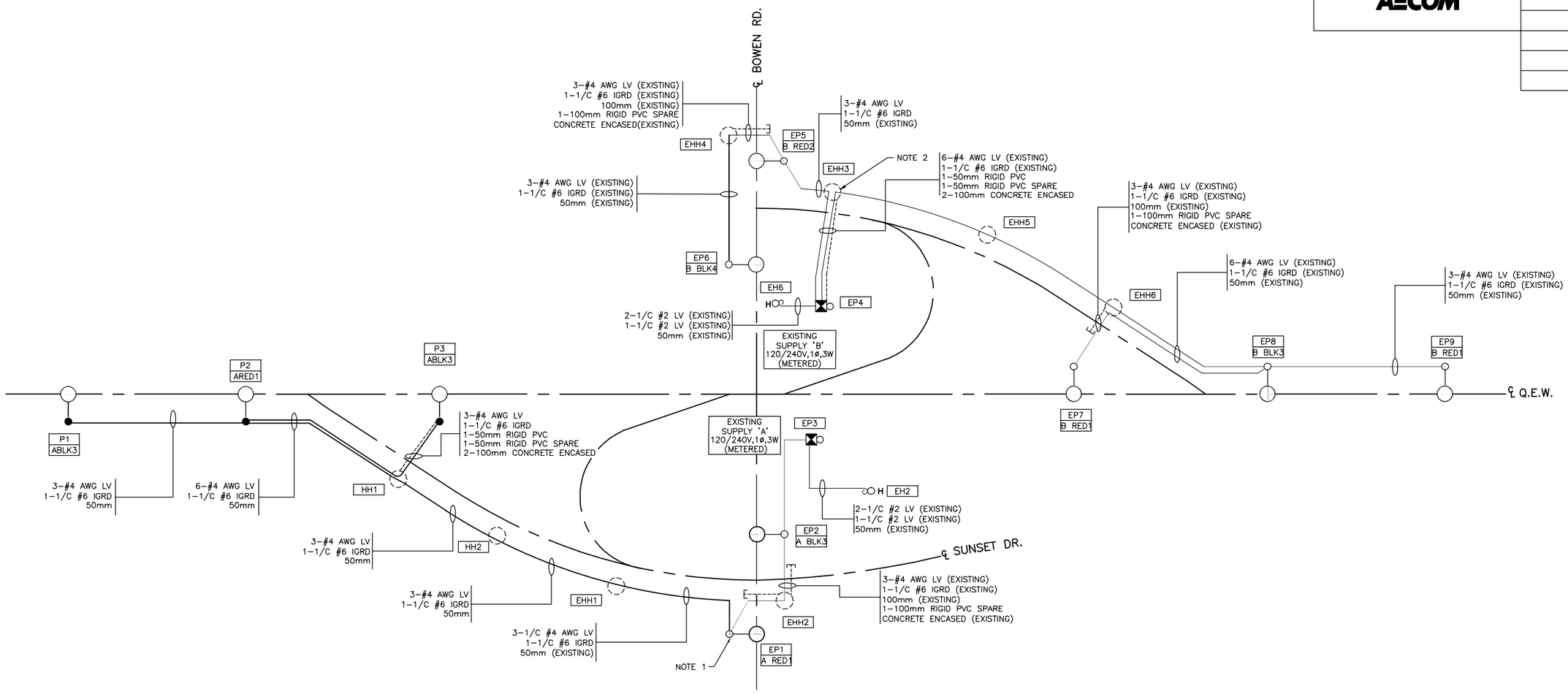
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MINISTRY OF TRANSPORTATION, ONTARIO PH-D-707 88-05

METRIC

PLATE No	
CONT 2019-2003	
WP 2116-16-00	
WIRING DIAGRAM – MTO QEW AND BOWEN ROAD	SHEET 172
AECOM	

NOTES:

1. CONNECT NEW CABLE TO EXISTING FEEDERS IN POLE HANDHOLE AND ROUTE NEW CABLE THROUGH NEW DUCT SYSTEM.
2. REROUTE EXISTING CABLES THROUGH NEW DUCT SYSTEM TO EP4 AND RE-CONNECT TO EXISTING SUPPLY "B".



LOADING TABLE FOR EXISTING SUPPLY "A"			
CIRCUIT NO.	LOAD DESCRIPTION	LOAD	TOTAL LOAD
A RED1	EP1, P2	2X219W	438W
A BLK3	EP2, P3, P1	3X219W	657W
A RED2	SPARE	–	–
A BLK4	SPARE	–	–
		TOTAL (RED)	438W
		TOTAL (BLACK)	657W
		TOTAL LOAD	1095W

*LED DRIVER LOSSES INCLUDED IN LOAD TABLE

LOADING TABLE FOR EXISTING SUPPLY "B"			
CIRCUIT NO.	LOAD DESCRIPTION	LOAD	TOTAL LOAD
B RED1	EP7, EP9	2X219W	438W
B BLK3	EP8	1X219W	219W
B RED2	EP5	1X219W	219W
B BLK4	EP6	1X219W	219W
		TOTAL (RED)	657W
		TOTAL (BLACK)	438W
		TOTAL LOAD	1095W

*LED DRIVER LOSSES INCLUDED IN LOAD TABLE

N.T.S

MINISTRY OF TRANSPORTATION, ONTARIO PH-D-707 88-05
G:\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\EX\20-SHEETS\60581660-E-QEW & BERTIE-Wiring diagram.dwg (E9) Printed: Mar 14, 2019

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

NON STANDARD ELECTRICAL DETAILS I
MTO
QEW AND BOWEN ROAD

SHEET
173

AECOM

GENERAL NOTES:

A. DEBAR AND COAT ALL THE FIELD CUTS, THREADS AND HOLES WITH ZINC RICH PAINT.

B. EQUIPMENT TO BE WIRED AS PER MANUFACTURER'S WIRING DIAGRAM.

C. ONE GROUND ROD SHALL BE INSTALLED AS PER RNITS MANUFACTURER'S RECOMMENDATION.

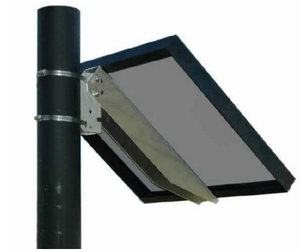
D. TO MOUNT REMOTE NON-INTRUSIVE TRAFFIC SENSOR ON THE POLE, THE BRACKET PROVIDED BY THE MANUFACTURER SHALL BE USED.

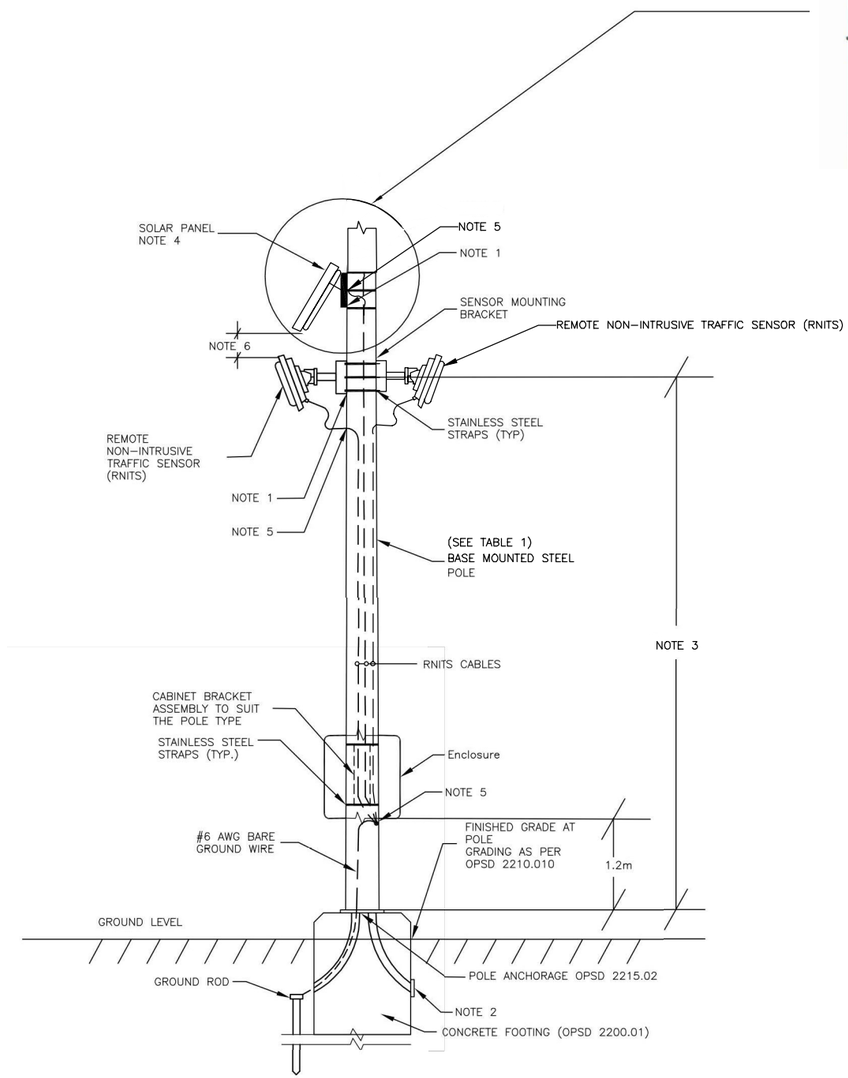
E. REFER TO ELECTRICAL LAYOUT DRAWING AND QUANTITY SHEET FOR THE OFFSET DISTANCE FROM POLE TO EDGE OF THE PAVEMENT.

NOTES:

1. TO SUIT THE EQUIPMENT BRACKET LOCATION DRILL IN DIAMETER OF 25mm AND INSTALL A RUBBER GROMMET.
2. CAP SPARE SLEEVE.
3. TO PROVIDE OPTIMUM VEHICLE DETECTION, THE CONTRACTOR SHALL CONSULT THE MANUFACTURER FOR THE MOUNTING HEIGHT OF THE RADAR SENSOR UNIT.
4. SOLAR PANEL SHALL BE INSTALLED AND ORIENTED AS RECOMMENDED BY RNITS MANUFACTURER. MINIMUM HEIGHT OF 5.3m ABOVE ROAD SURFACE SHALL BE MAINTAINED.
5. APERTURE SHALL BE DRILLED BY THE CONTRACTOR TO SUIT THE SIZE OF CABLE AND A RUBBER GROMMET SHALL ALSO BE INSTALLED.
6. MAINTAIN MINIMUM VERTICAL CLEARANCE OF 1.0m, FROM THE BOTTOM EDGE OF THE SOLAR PANEL TO THE TOP OF THE RNITS UNIT.

TABLE 1	
POLE	POLE HEIGHT (m)
P4	12.0
P5	10.5





RADAR COUNTING STATION POLE MOUNTING DETAIL

N.T.S

G:\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\EV_20-SHEETS\60581660-E-QEW & BERTIE-Wiring details 1.dwg (E9) Printed: Mar 14, 2019
MINISTRY OF TRANSPORTATION, ONTARIO PH-D-707 88-05

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

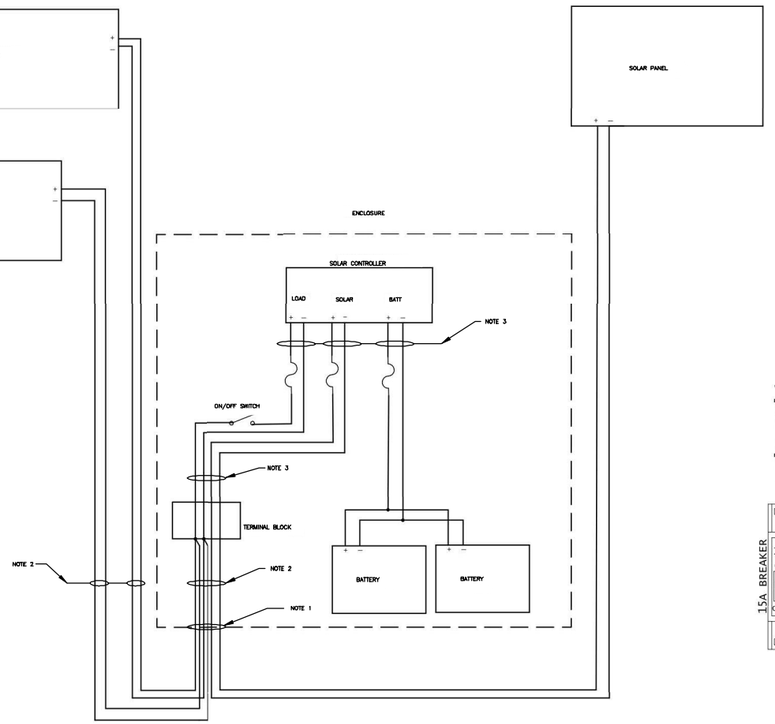
NON STANDARD ELECTRICAL DETAILS II
MTO
QEW AND BOWEN ROAD

AECOM

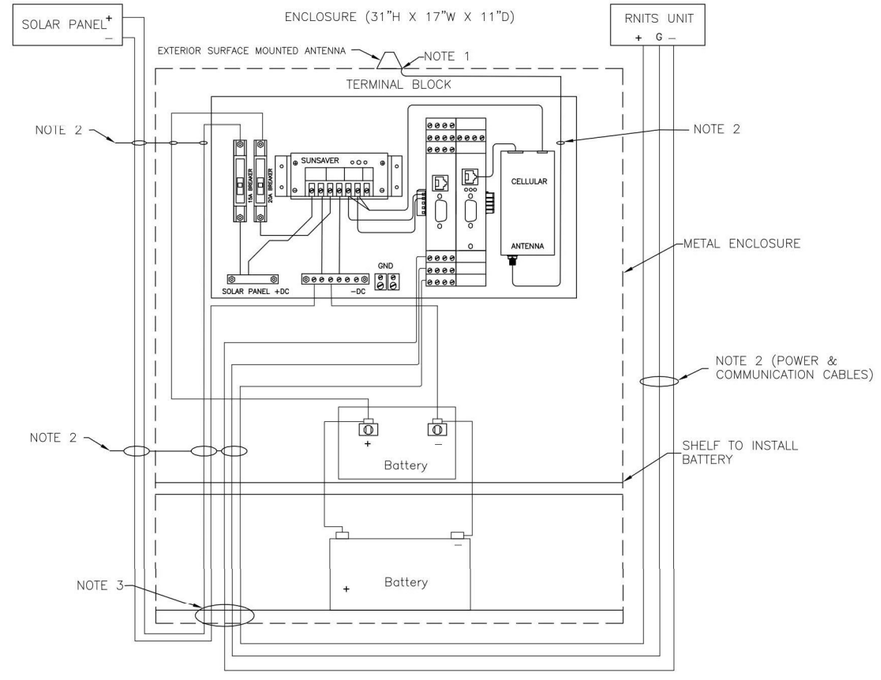
SHEET
174

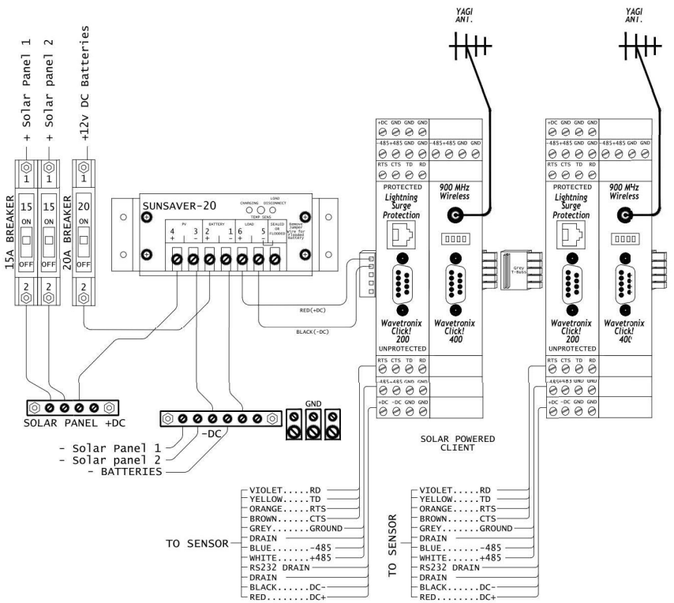
NOTES:

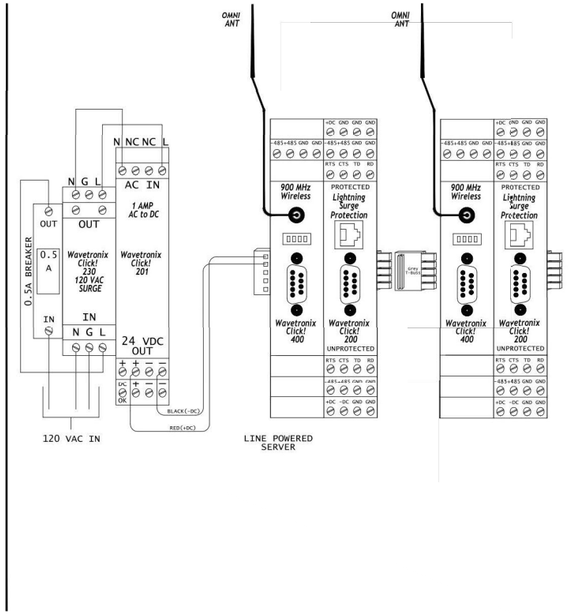
1. THE ENCLOSURE IS SUPPLIED WITH PRE DRILLED APERTURE FOR CABLE RUN AND THE CONTRACTOR SHALL ASSURE THE INSTALLATION OF RUBBER GROMMET TO SECURE THE HOLE.
2. CONNECTION OF CABLES FROM TERMINAL BLOCK TO RNITS UNIT AND SOLAR PANEL SHALL BE PERFORMED BY THE CONTRACTOR.
3. THE ENCLOSURE WILL BE SUPPLIED WITH PRE-WIRED CABLES AND THE CONTRACTOR SHALL CONFIRM MOUNTING DETAILS II WITH MANUFACTURER.



CABINET ARRANGEMENT FOR HOUSTON RNITS







CABINET ARRANGEMENT FOR WAVETRONIX RNITS

N.T.S

MINISTRY OF TRANSPORTATION, ONTARIO PR-D-707 88-05
G:\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\E\20-SHEETS\60581660-E-QEW & ESCTE-Wiring Details Hwy (E10) Saved: Mar 14, 2019

METRIC

PLATE No
CONT 2019-2003
WP 2116-16-00

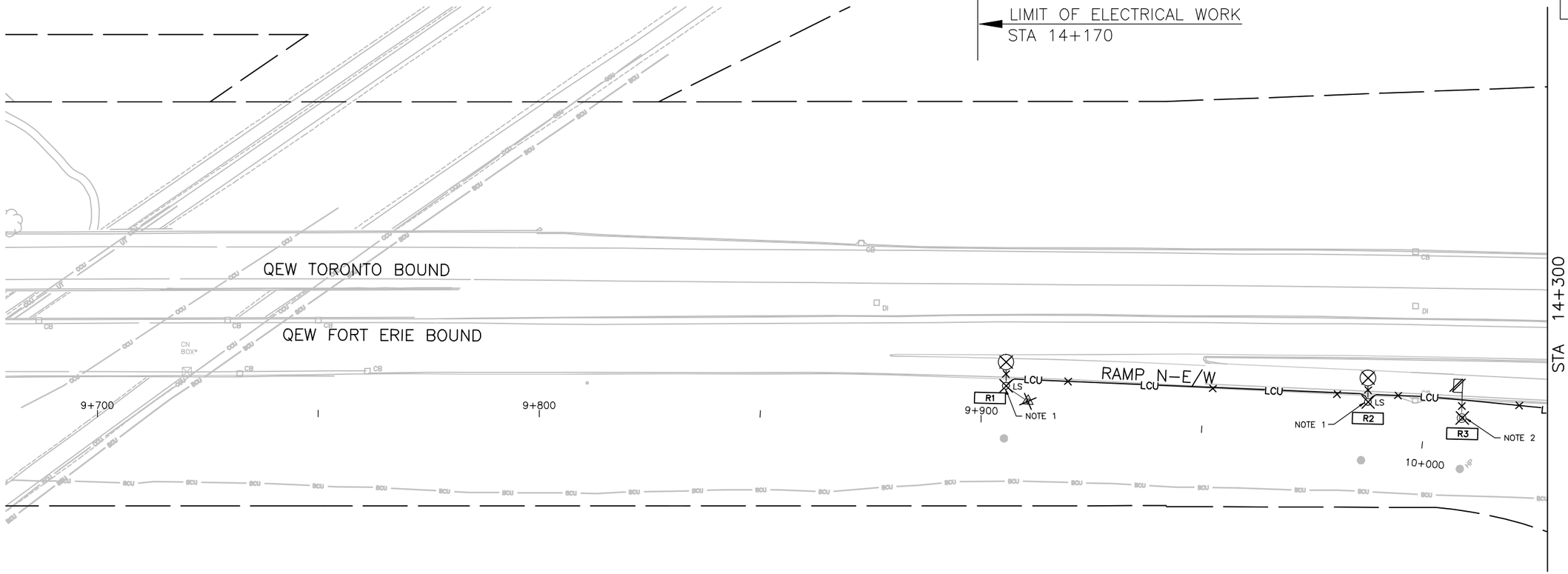
ELECTRICAL REMOVALS - MTO
QEW AND BOWEN ROAD
STA 13+950 TO STA 14+300

SHEET
175

AECOM

NOTE:

1. THE POLE, BRACKET AND LUMINAIRE SHALL BE SALVAGED AND RELOCATED DURING CLOSURE OF RAMP.
2. DISCONNECT LOOP LEAD FROM HANDHOLE PRIOR TO REMOVAL OF HANDHOLE.



SCALE
5m 0 10m

MINISTRY OF TRANSPORTATION, ONTARIO PR-D-707 88-05

G:\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\C\20-SHEETS\60581660-E-CNCP-QEW-REMOVALS.dwg (E11) Printed: Mar 14, 2019

METRIC

NOTES:

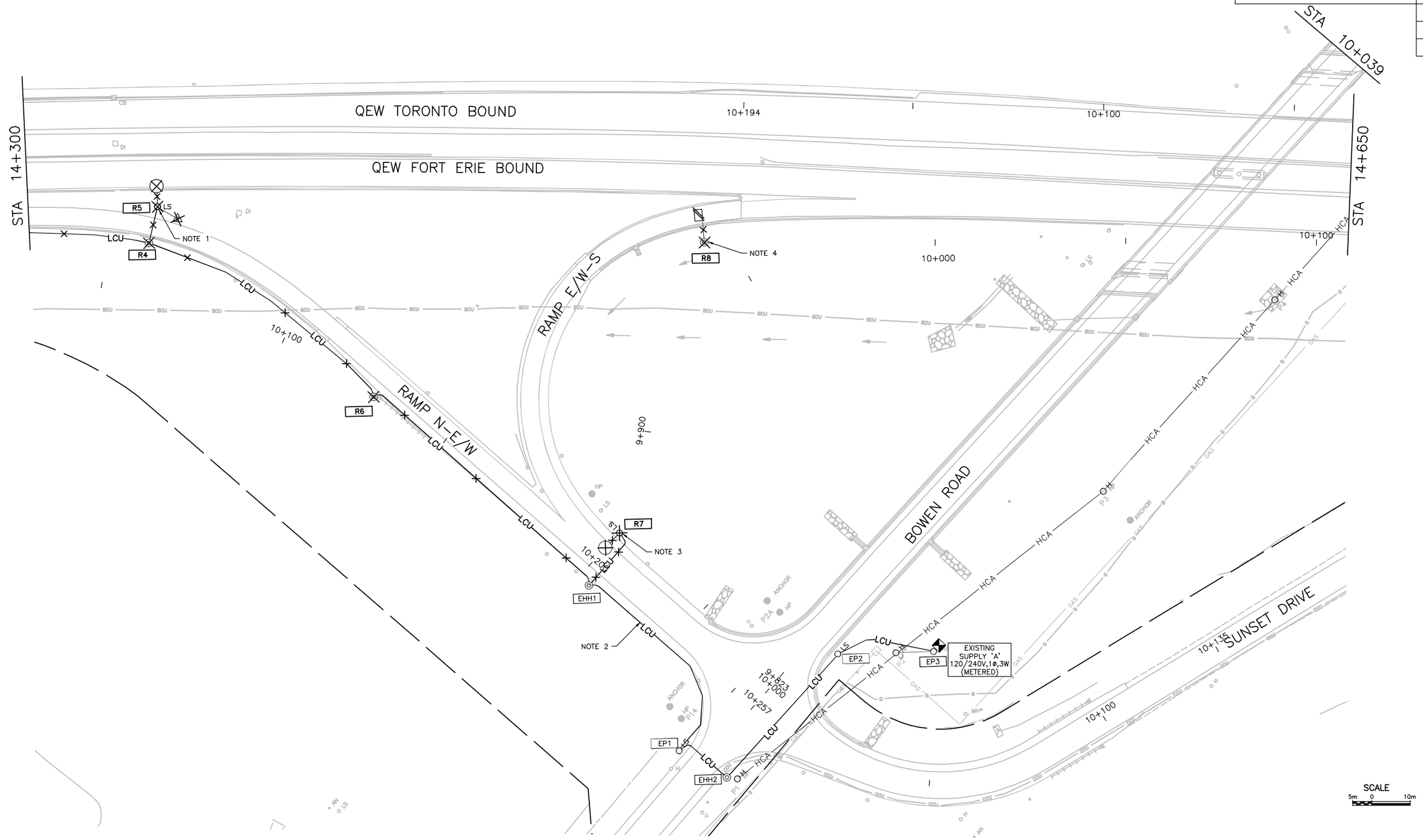
1. THE POLE, BRACKET AND LUMINAIRE SHALL BE SALVAGED AND RELOCATED DURING CLOSURE OF RAMP.
2. REMOVE EXISTING CABLE FROM EHH1 TO EP1.
3. THE POLE, BRACKET AND LUMINAIRE SHALL BE SALVAGED AND RETURNED TO MTO.
4. DISCONNECT LOOP LEAD FROM HANDHOLE PRIOR TO REMOVAL OF HANDHOLE.

PLATE No
CONT 2019-2003
WP 2116-16-00

ELECTRICAL REMOVALS - MTO
QEW AND BOWEN ROAD
STA 14+300 TO STA 14+650

SHEET
176

AECOM



MINISTRY OF TRANSPORTATION, ONTARIO PR-D-707 88-05
G:\Projects\60581660 - CNCP QEW DD\900-CAD_GIS\910-CAD\E\20-SHEETS\60581660-E-CNCP-QEW-REMOVALS.dwg (E12) Printed: Mar 14, 2019

METRIC

NOTES:

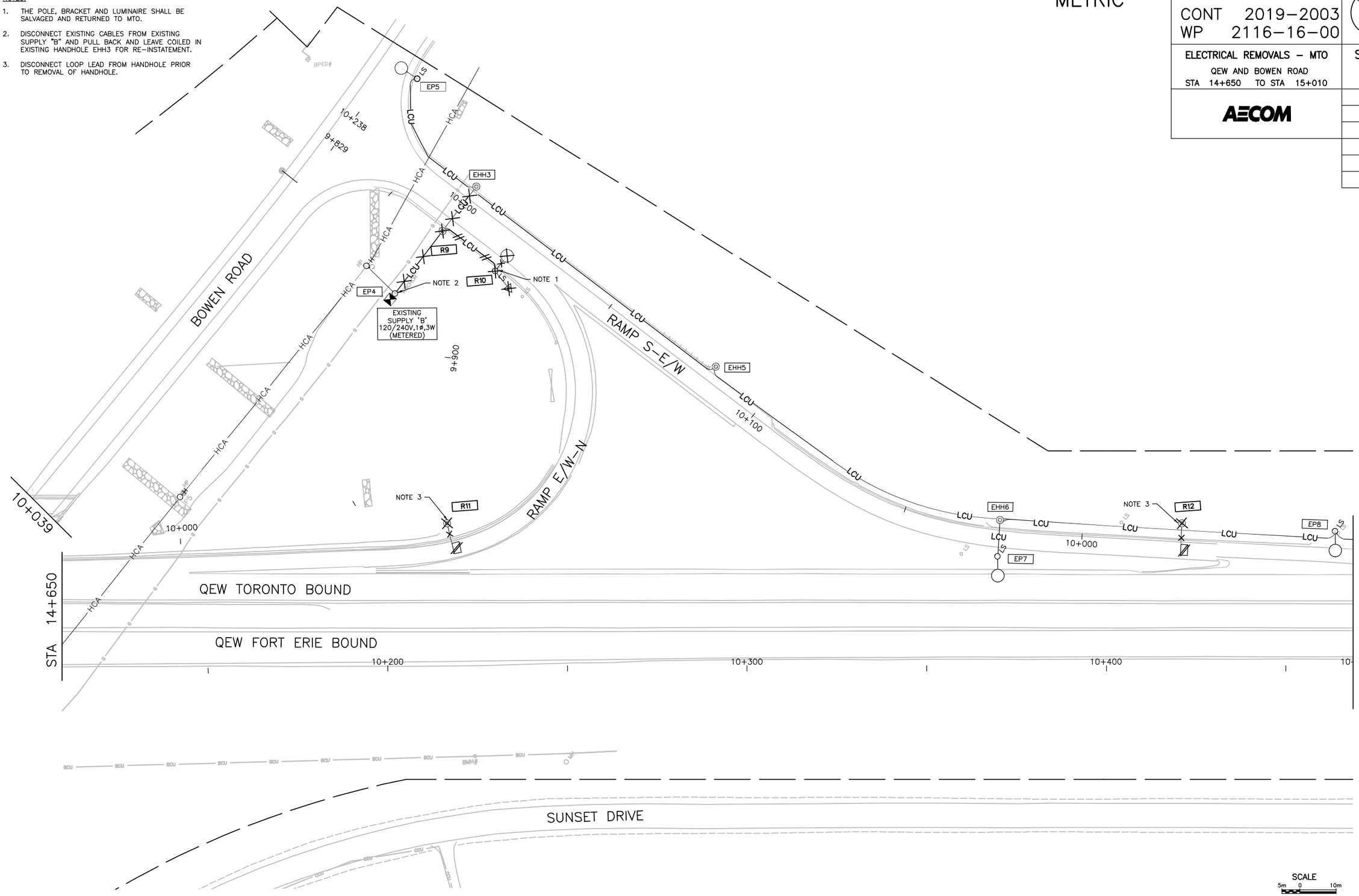
1. THE POLE, BRACKET AND LUMINAIRE SHALL BE SALVAGED AND RETURNED TO MTO.
2. DISCONNECT EXISTING CABLES FROM EXISTING SUPPLY "B" AND PULL BACK AND LEAVE COILED IN EXISTING HANDHOLE EHH3 FOR RE-INSTATEMENT.
3. DISCONNECT LOOP LEAD FROM HANDHOLE PRIOR TO REMOVAL OF HANDHOLE.

PLATE No
CONT 2019-2003
WP 2116-16-00

ELECTRICAL REMOVALS - MTO
QEW AND BOWEN ROAD
STA 14+650 TO STA 15+010

AECOM

SHEET
177



MINISTRY OF TRANSPORTATION, ONTARIO PR-D-707 88-05
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METRIC

GENERAL NOTE:

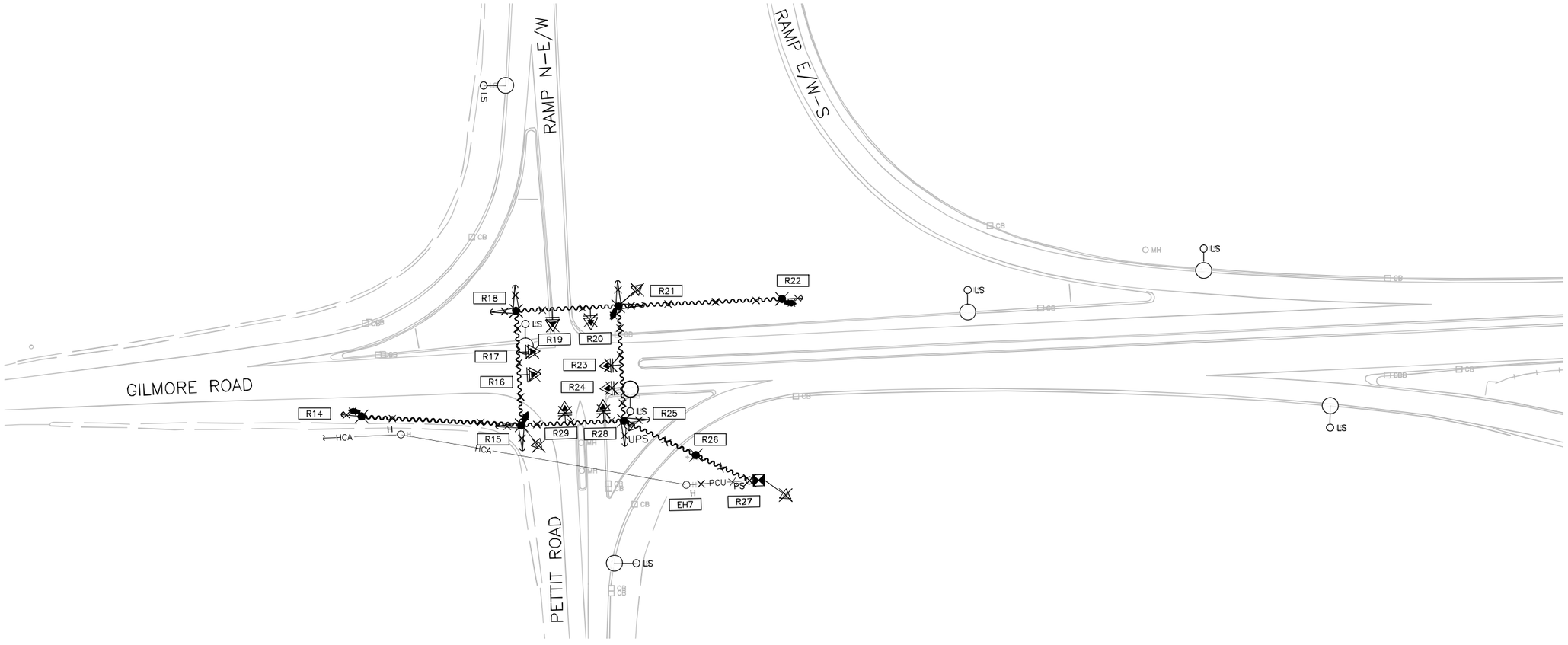
A. EXISTING TEMPORARY SIGNAL SYSTEM TO BE REMOVED AFTER THE COMPLETION OF THE QEW/BOWEN ROAD INTERCHANGE WORK.

PLATE No
CONT 2019-2003
WP 2116-16-00

ELECTRICAL REMOVALS
PETTIT ROAD AND GILMORE ROAD

SHEET
178

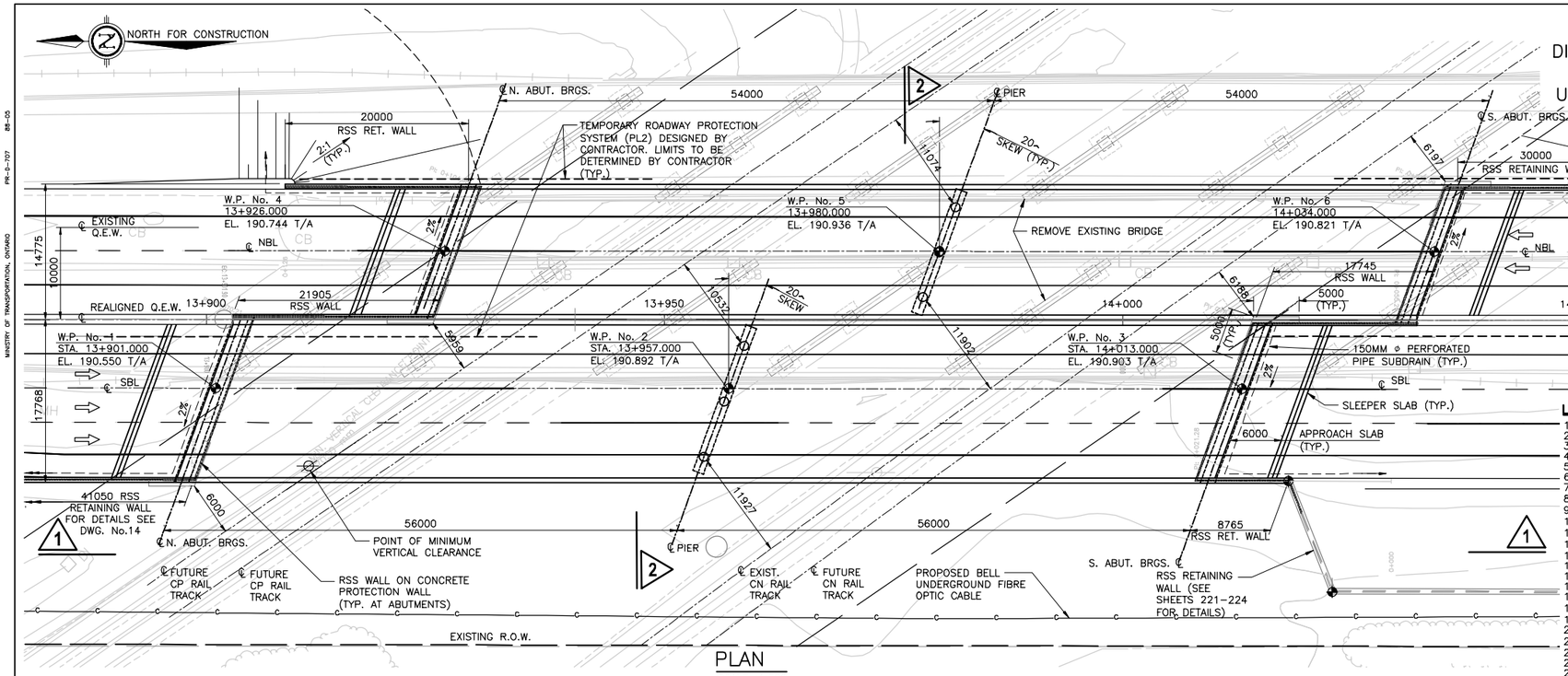
AECOM



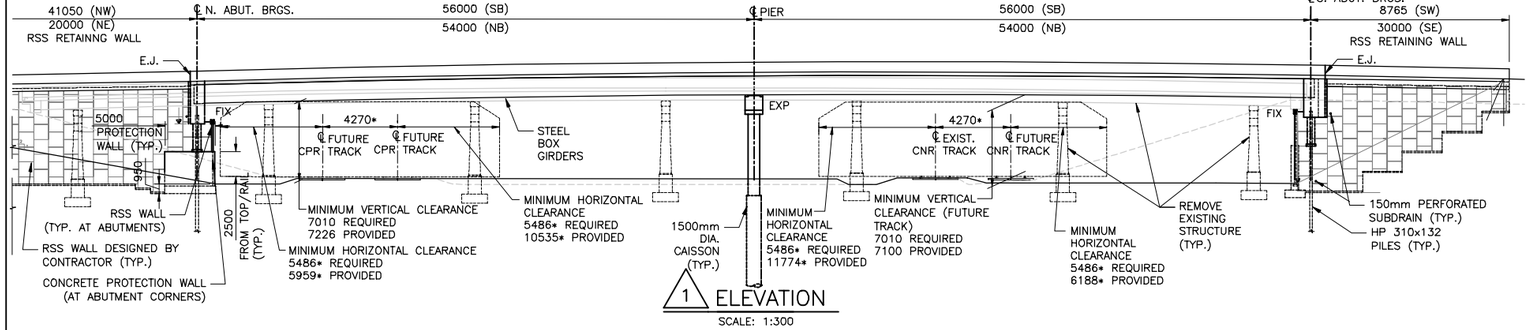
SCALE
5m 0 10m

MINISTRY OF TRANSPORTATION, ONTARIO PR-D-707 88-05

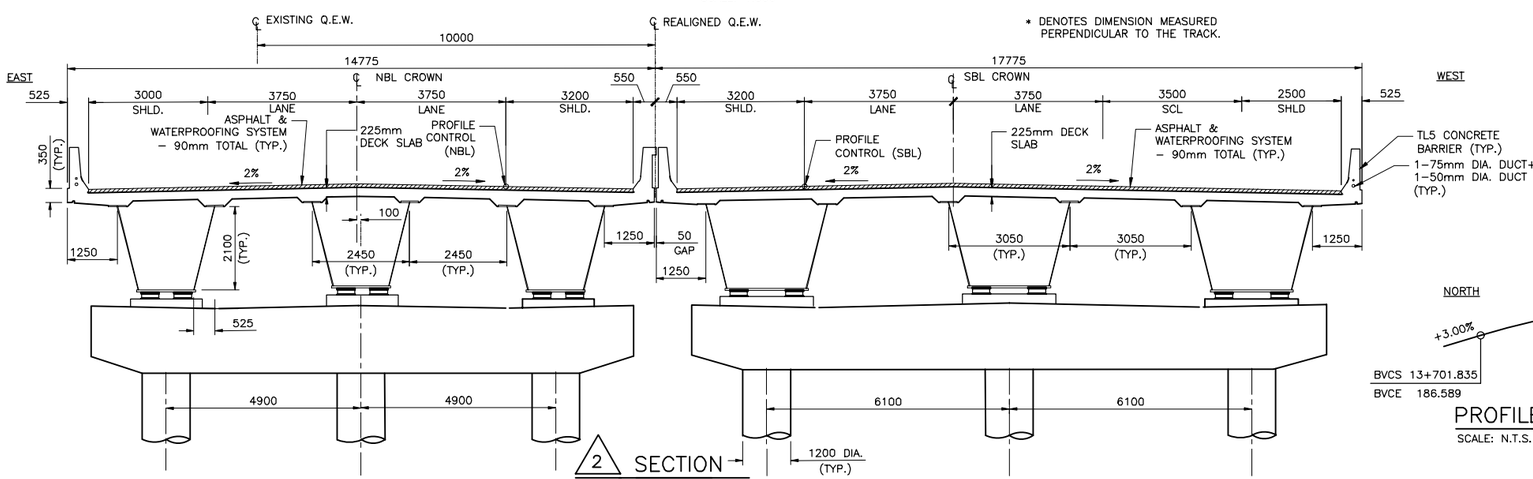
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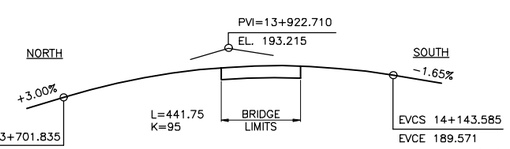
PLAN
SCALE: 1:300



1 ELEVATION
SCALE: 1:300



2 SECTION
SCALE: 1:75



PROFILE CONTROL–SBL & NBL QEW
SCALE: N.T.S.

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

METRIC
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN

LIST OF ABBREVIATIONS

ABUT.	ABUTMENT
BRG'S.	BEARINGS
N.	NORTH
NBL	NORTHBOUND LANES
N.T.S.	NOT TO SCALE
RSS	RETAINED SOIL SYSTEM
S.	SOUTH
SBL	SOUTHBOUND LANES
T/A	TOP OF ASPHALT
TYP.	TYPICAL
W.P.	WORKING POINT

LIST OF DRAWINGS:

1. GENERAL ARRANGEMENT
2. BOREHOLE LOCATIONS AND SOIL STRATA
3. SOIL STRATA
4. CONSTRUCTION STAGING –STAGE 1b
5. CONSTRUCTION STAGING –STAGE 2a & 2b
6. CONSTRUCTION STAGING –STAGE 2c & 3
7. REMOVALS PLAN
8. PILE AND FOUNDATION LAYOUT (SBL)
9. PILE AND FOUNDATION LAYOUT (NBL)
10. NORTH ABUTMENT (SBL)
11. SOUTH ABUTMENT (SBL)
12. NORTH ABUTMENT (NBL)
13. SOUTH ABUTMENT (NBL)
14. SBL RETAINING WALLS
15. SBL RETAINING WALLS ELEVATIONS
16. NBL RETAINING WALLS
17. NBL RETAINING WALLS ELEVATIONS
18. PIER DETAILS (SBL)
19. PIER DETAILS (NBL)
20. BEARING DETAILS
21. STEEL BOX GIRDER DETAILS 1 (SBL)
22. STEEL BOX GIRDER DETAILS 2 (NBL)
23. STEEL BOX GIRDER DETAILS 3
24. STEEL BOX GIRDER DETAILS 4
25. STEEL BOX GIRDER DETAILS 5
26. STEEL BOX GIRDER DETAILS 6
27. STEEL BOX GIRDER DETAILS 7
28. DECK DETAILS (SBL)
29. DECK REINFORCEMENT (SBL)
30. DECK DETAILS (NBL)
31. DECK REINFORCEMENT (NBL)
32. BARRIER WALL WITHOUT RAILING TL–5 (SBL)
33. BARRIER WALL WITHOUT RAILING TL–5 (NBL)
34. BARRIER WALL WITHOUT RAILING ON RSS WALL, TL–5
35. 6000mm APPROACH SLABS (SBL)
36. 6000mm APPROACH SLABS (NBL)
37. TYPE 'C' STRIP SEAL AND SLEEPER SLAB
38. STRIP SEAL EXP. JT. TYPE 'C' DETAILS
39. SEQUENCE OF EXPANSION JOINT INSTALLATION
40. STRUCTURAL STANDARDS
41. ELECTRICAL EMBEDDED WORK

HWY	Q.E.W.	
CONT	2019–2003	
WP	2116–16–00	
Q.E.W. – CNR/CPR OVERHEAD		SHEET 179
GENERAL ARRANGEMENT		

AECOM

GENERAL NOTES

CLASS OF CONCRETE

- ALL CONCRETE UNLESS OTHERWISE NOTED — 30MPa

CLEAR COVER TO REINFORCING STEEL

- CAISSONS — 100 ± 25mm
- DECK — TOP 70 ± 20mm; BOTTOM 40 ± 10mm
- REMAINDER UNLESS OTHERWISE NOTED — 70 ± 20mm

REINFORCING STEEL

- REINFORCING STEEL SHALL BE GRADE 400W UNLESS OTHERWISE SPECIFIED.
- STAINLESS REINFORCING STEEL SHALL BE TYPE 316LN OR DUPLEX 2205 AND HAVE A MINIMUM YIELD STRENGTH OF 500 MPa.
- BAR MARKED WITH PREFIX 'S' DENOTE STAINLESS STEEL BARS.
- UNLESS SHOWN OTHERWISE, TENSION LAP SPLICES SHALL BE CLASS B.
- BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWING SS12–1, UNLESS NOTED OTHERWISE.

CONSTRUCTION NOTES

- NO BACKFILL SHALL BE PLACED BEHIND THE ABUTMENTS UNTIL DECK CONCRETE HAS REACHED 75% OF ITS SPECIFIED STRENGTH.
- BACKFILL SHALL BE PLACED SIMULTANEOUSLY BEHIND BOTH ABUTMENTS KEEPING THE HEIGHT OF THE BACKFILL APPROXIMATELY THE SAME. AT NO TIME SHALL THE DIFFERENCE IN ELEVATION BE GREATER THAN 0.5m.
- STABILITY OF PILES TO BE MAINTAINED AT ALL TIMES.
- THE CONTRACTOR SHALL ESTABLISH THE BEARING SEAT ELEVATIONS BY DEDUCTING THE ACTUAL BEARING THICKNESS FROM THE TOP OF THE BEARING ELEVATIONS. IF THE ACTUAL BEARING THICKNESSES ARE DIFFERENT FROM THOSE GIVEN WITH THE BEARING DESIGN DATA, THE CONTRACTOR SHALL ADJUST THE REINFORCING STEEL TO SUIT.

APPLICABLE STANDARD DRAWINGS

OPSD 911.164	GUIDE RAIL SYSTEM, CONCRETE BARRIER TYPE M CONNECTION, INSTALLATION – TEMPORARY RESTRAINT SYSTEM STRAPPED TO CONCRETE WITH ASPHALT SURFACE.
OPSD 2302.040	EMBEDDED WORK IN STRUCTURE, NEW JERSEY TYPE CONCRETE BARRIER WALL.
OPSD 3101.150	WALLS, ABUTMENT, BACKFILL, MINIMUM GRANULAR REQUIREMENT.
OPSD 3102.100	WALLS, ABUTMENT, BACKFILL DRAIN
OPSD 3311.900	DECK, GIRDERS, STEEL BOX ACCESS HATCH.
OPSD 3370.100	DECK, WATERPROOFING, HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD.
OPSD 3370.101	DECK, WATERPROOFING, HOT APPLIED ASPHALT MEMBRANE AT ACTIVE CRACKS GREATER THAN 2mm WIDE AND CONSTRUCTION JOINTS.
OPSD 3390.100	DECK, DRIP CHANNEL.
OPSD 3419.100	BARRIERS AND RAILINGS, STEEL, GUIDE RAIL AND CHANNEL ANCHORAGES.
OPSD 3950.100	JOINTS, CONCRETE EXPANSION AND CONSTRUCTION, ON STRUCTURE.
MTOD 3941.210	FIGURES IN CONCRETE, SITE NUMBER AND DATE, LAYOUT.

C. W. HSIEH 100199333 March 14, 2019 PROVINCE OF ONTARIO

J. VLOTOTIC 100126457 PROVINCE OF ONTARIO

REVISIONS		
DATE	BY	DESCRIPTION

DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT	DATE JAN., 19	
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2		DWG 1	

MINISTRY OF TRANSPORTATION, ONTARIO PR–D–707 88–05

DRAWING NAME: 01_60581660 QEW Bertie CNR_CPR_GA.dwg 8:08 AM
CREATED: 2019–03–13 MODIFIED: 2019–03–18

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD	SHEET 180
BOREHOLE LOCATIONS AND SOIL STRATA	
AECOM	

MINISTRY OF TRANSPORTATION, ONTARIO PR–D–707 88–05

RESERVE FOR GEOTECHNICAL

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS			
	DATE	BY	DESCRIPTION

DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT	DATE JAN., 19	
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2		DWG 2	

DRAWING NAME: 02–60581660–BOREHOLE LOCATIONS AND SOIL STRATA.dwg
CREATED: 2019–01–31 MODIFIED: 2019–03–05 2:06 PM

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD	SHEET 181
SOIL STRATA	
AECOM	

RESERVE FOR GEOTECHNICAL

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS			
DATE	BY	DESCRIPTION	
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DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2	DWG 3

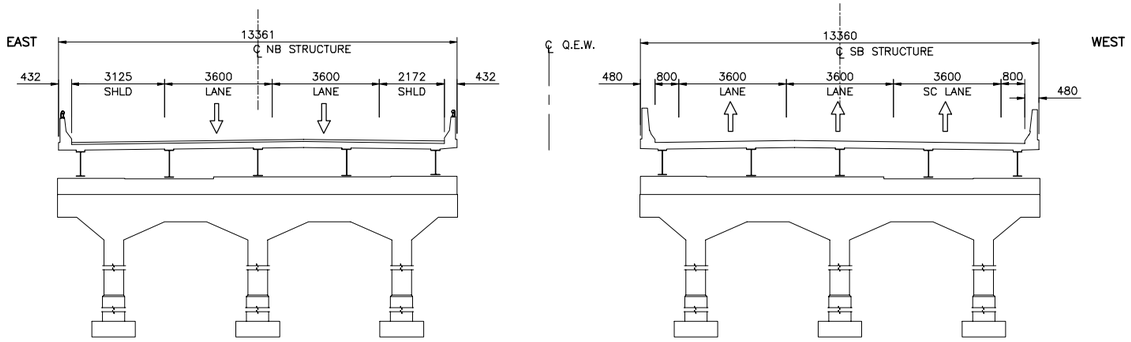
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CREATED: 2019–01–31 MODIFIED: 2019–03–05 2:07 PM

MINISTRY OF TRANSPORTATION, ONTARIO PR–D–707 88–05

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

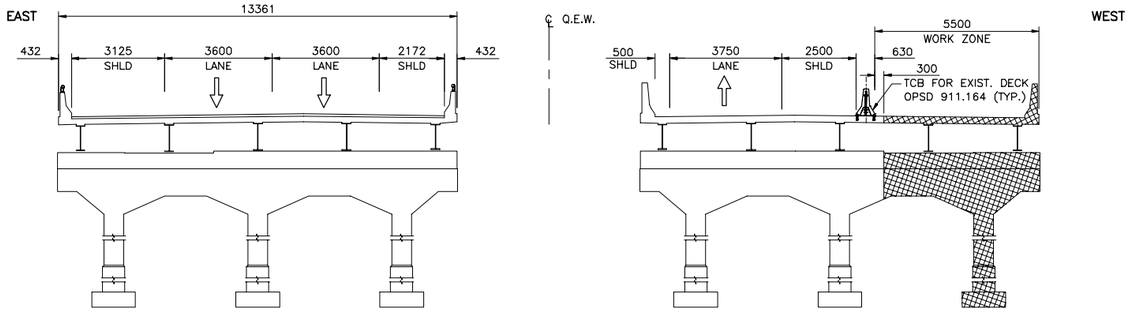
HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD CONSTRUCTION STAGING STAGE 1b	SHEET 182

AECOM



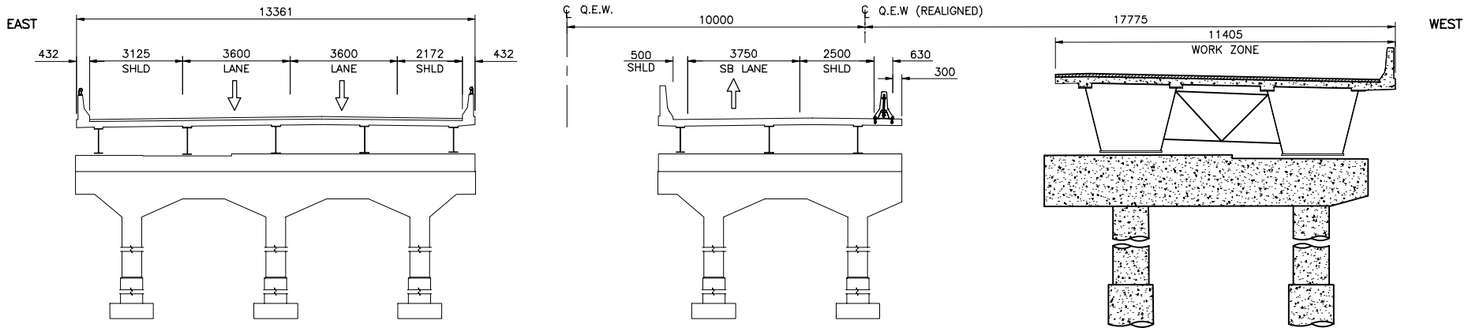
EXISTING DECK SECTION

SCALE 1:100



STAGE 1b – REMOVAL

SCALE 1:100



STAGE 1b – NEW CONSTRUCTION

SCALE 1:100

LEGEND

REMOVAL

NEW CONSTRUCTION

SEQUENCE OF CONSTRUCTION

STAGE 1b

1. INSTALL TEMPORARY TRAFFIC CONTROL.
2. REMOVE THE WEST PORTION OF EXISTING SB SUPERSTRUCTURE.
3. INSTALL TEMPORARY ROADWAY PROTECTION AT THE EXISTING SB ABUTMENTS.
4. EXCAVATE WEST EMBANKMENT BESIDE THE EXISTING SB STRUCTURE.
5. REMOVE WEST PORTION OF THE EXISTING SB SUBSTRUCTURE.
6. CONSTRUCT WEST PORTION OF NEW SB SUBSTRUCTURES AND RSS WALLS.
7. CONSTRUCT WEST PORTION OF NEW SB SUPERSTRUCTURE AND APPROACH SLABS.
8. CONSTRUCT CONCRETE BARRIER WALL.
9. WATERPROOF AND PAVE.

STAGE 2a

1. INSTALL TEMPORARY TRAFFIC CONTROL AND DIVERT TRAFFIC.
2. REMOVE THE REMAINING PORTION OF EXISTING SB STRUCTURE.

STAGE 2b

1. INSTALL TEMPORARY TRAFFIC CONTROL AND DIVERT TRAFFIC.
2. REMOVE THE WEST PORTION OF EXISTING NB SUPERSTRUCTURE.
3. EXCAVATE EMBANKMENT BEHIND WEST PORTION OF EXISTING NB ABUTMENTS.
4. REMOVE THE WEST PORTION OF EXISTING NB SUBSTRUCTURE.
5. CONSTRUCT NEW EAST PORTION OF NEW SB ABUTMENTS AND PIER.
6. CONSTRUCT NEW NB SUPERSTRUCTURE AND EAST PORTION OF NEW SB SUPERSTRUCTURE, INCLUDING APPROACH SLABS AND BARRIER WALL, EXCEPT THE CLOSURE STRIP.
7. WATERPROOF AND PAVE NB STRUCTURE.

STAGE 2c

1. INSTALL TEMPORARY TRAFFIC CONTROL AND DIVERT TRAFFIC.
2. INSTALL CROSS–BRACING BETWEEN G2 AND G3
3. CONSTRUCT THE CLOSURE STRIP.
4. WATERPROOF AND PAVE SB STRUCTURE.

STAGE 3

1. DIVERT TRAFFIC TO NEW STRUCTURES.
2. REMOVE THE REMAINING PORTION OF EXISTING NB STRUCTURE.

CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, DETAILS AND ELEVATIONS OF THE EXISTING STRUCTURE THAT ARE RELEVANT TO THE WORK SHOWN ON THE DRAWING PRIOR TO COMMENCEMENT OF THE WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE CONTRACT ADMINISTRATOR AND THE PROPOSED ADJUSTMENT OF THE WORK REQUIRED TO MATCH THE EXISTING STRUCTURE SHALL BE SUBMITTED FOR APPROVAL.
2. THE CONTRACTOR SHALL ENSURE THE STABILITY OF EXISTING STRUCTURES DURING ALL PHASES OF WORK. THE EXISTING BRIDGE SHALL BE REMOVED IN A SAFE AND CONTROLLED MANNER THAT WILL NOT RESULT IN STRUCTURAL INSTABILITY OR UNCONTROLLED FAILURE.
3. PRIOR TO THE BEGINNING OF THE REMOVALS, THE CONTRACTOR SHALL SUBMIT TO THE CONTRACT ADMINISTRATOR FOR REVIEW A DETAILED BRIDGE REMOVAL PLAN PREPARED AND STAMPED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE PROVINCE OF ONTARIO WHO HAS EXPERIENCE IN THE DEMOLITION OF STRUCTURES. THE BRIDGE REMOVAL PLAN SHALL INCLUDE SCHEDULE AND SKETCHES INDICATING THE METHOD OF REMOVAL, SEQUENCE OF OPERATIONS AND ALL EQUIPMENT, RESOURCES AND SPECIFICATIONS FOR SAME TO BE USED THEREIN.
4. THE CONTRACTOR IS FULLY RESPONSIBLE FOR THE ADEQUATE PROTECTION OF UTILITIES, SERVICES, STRUCTURES, ROADWAYS, ETC. DURING CONSTRUCTION OPERATIONS.
5. THE CONTRACTOR SHALL ADVISE ALL UTILITY COMPANIES AND RAILWAY AUTHORITIES IN WRITING OF HIS PROPOSED WORK. THE CONTRACTOR SHALL BE RESPONSIBLE AT HIS OWN EXPENSE FOR ANY DAMAGE TO UTILITIES AND RAIL STRUCTURES BY THE CONTRACTOR.
6. CONTRACTOR'S METHODS OF PROTECTION TO BE SUBMITTED TO THE CONTRACT ADMINISTRATOR FOR INFORMATION BEFORE PROCEEDING WITH THE WORK.
7. FOR CONTROL OF TRAFFIC SEE STAGING, DETOUR ROUTES AND SIGNING DRAWINGS.

LICENSED PROFESSIONAL ENGINEER C. W. HSIEH 100199333 March 14, 2019 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER D.BA ADAMSON 100122079 March 14, 2019 PROVINCE OF ONTARIO

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

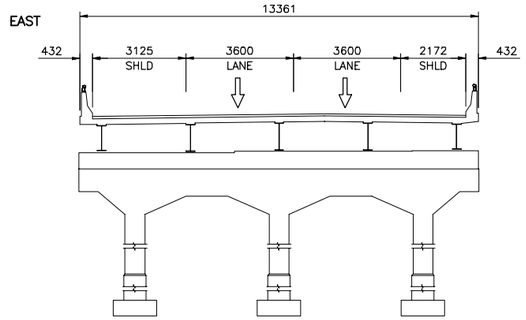
REVISIONS			
	DATE	BY	DESCRIPTION

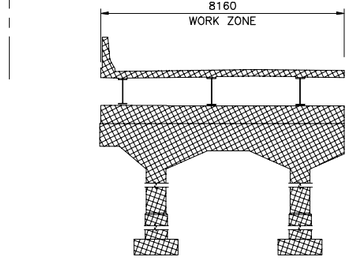
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DRAWN	PSH	CHK JV	SITE 34X–0129/B1/B2		DWG 4

DRAWING NAME: 04-60581660 QEW Berlie CNR_CPR - STG1_SECTION.dwg
CREATED: 2018-12-18 MODIFIED: 2019-03-15 3:06 PM

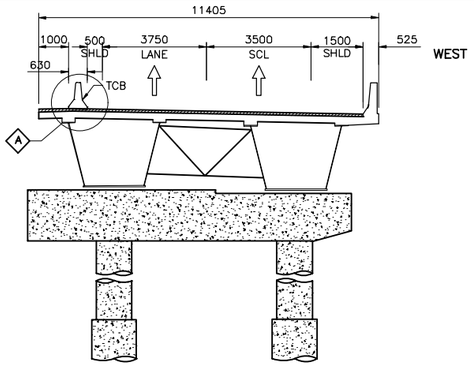
MINISTRY OF TRANSPORTATION, ONTARIO PR-13-707 88-05

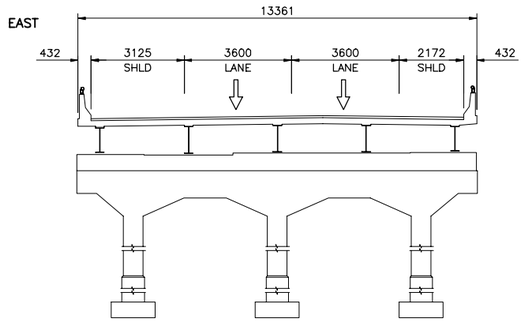
MINISTRY OF TRANSPORTATION, ONTARIO
PR-13-707 88-05



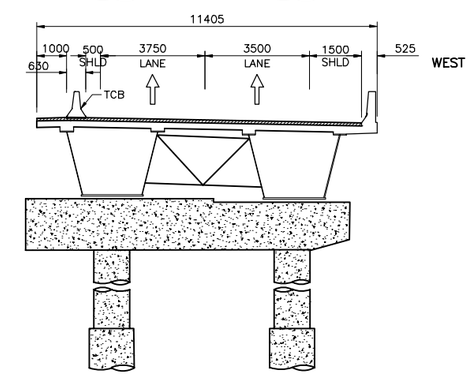


STAGE 2a – REMOVAL
SCALE 1:100

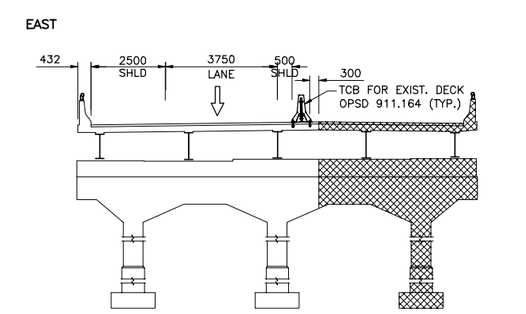




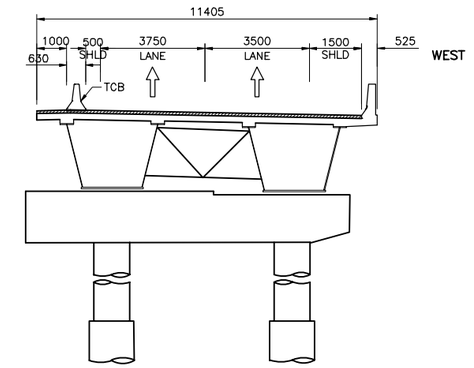




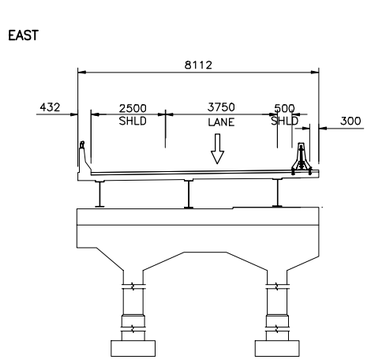
WINTER SHUTDOWN
SCALE 1:100

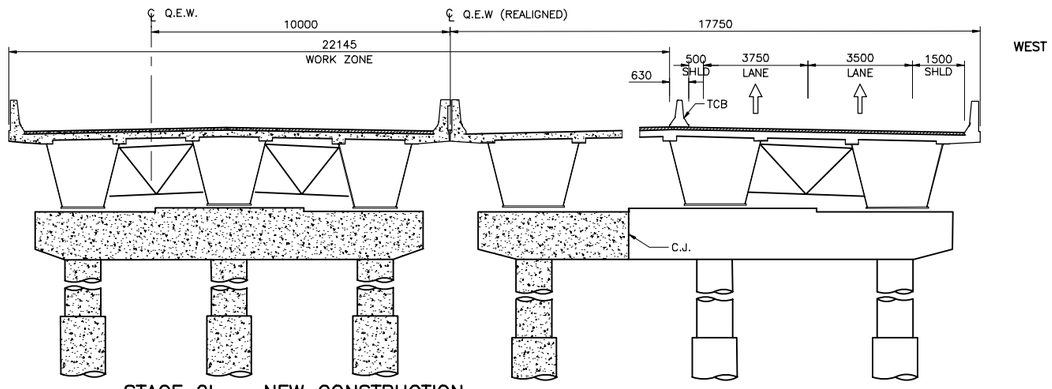






STAGE 2b – REMOVAL
SCALE 1:100





STAGE 2b – NEW CONSTRUCTION
SCALE 1:100

DETAIL 'A'
NTS

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

LEGEND

REMOVAL

NEW CONSTRUCTION

HWY	
CONT	2019–2003
WP	2116–16–00

Q.E.W. – CNR/CPR OVERHEAD
CONSTRUCTION STAGING
STAGE 2a AND 2b

SHEET 183

AECOM

NOTES:

1. FOR STAGING SEQUENCE AND CONSTRUCTION NOTES SEE DWG. No. 4.





DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS		
DATE	BY	DESCRIPTION

DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT	DATE JAN., 19	
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2		DWG 5	

DRAWING NAME: 05-60581660 QEW Bertie CNR_CPR - STG2a_2b_SECTIONS.dwg
CREATED: 2018-12-18 MODIFIED: 2019-03-15 3:06 PM

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

LEGEND

REMOVAL

NEW CONSTRUCTION

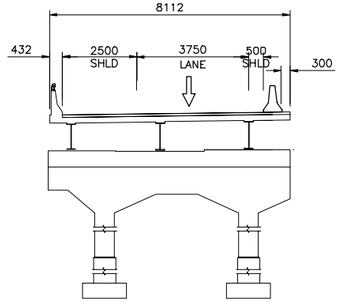
HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD CONSTRUCTION STAGING STAGE 2c AND 3	SHEET 184

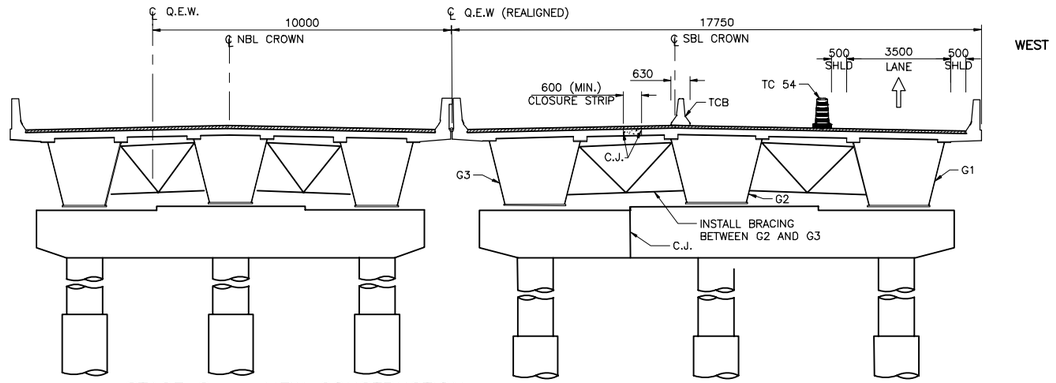
AECOM

NOTES:

1. FOR STAGING SEQUENCE AND CONSTRUCTION NOTES SEE DWG. No. 4.

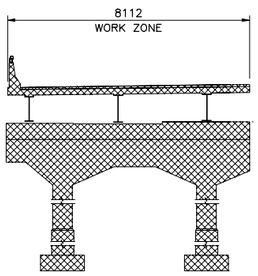
EAST

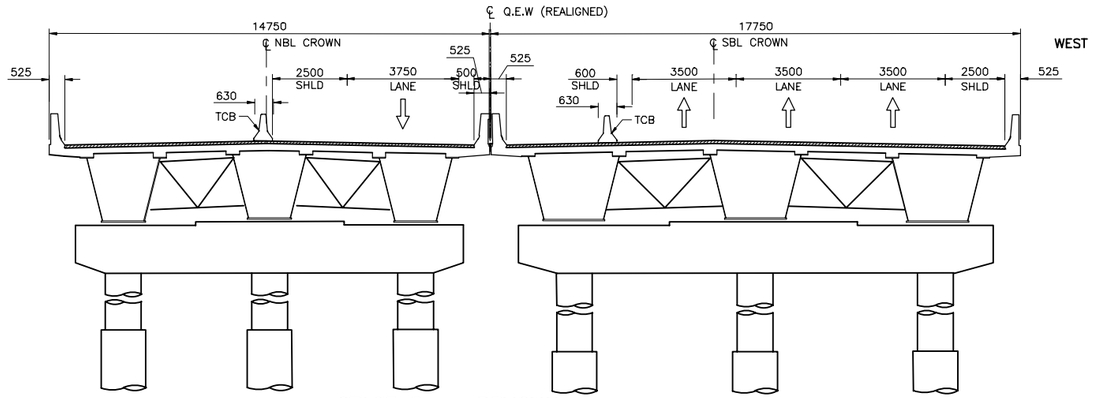




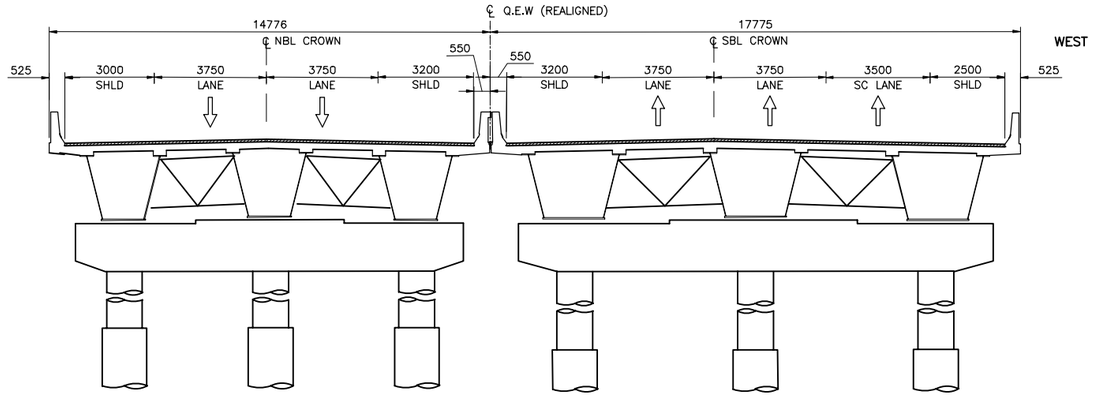
STAGE 2c – NEW CONSTRUCTION
SCALE 1:100

EAST





STAGE 3a – REMOVAL
SCALE 1:100



FINAL
SCALE 1:100

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

C. W. HSIEH
100199333
March 14, 2019
PROVINCE OF ONTARIO

D.S. ADAMSON
100123076
March 14, 2019
PROVINCE OF ONTARIO

REVISIONS		
DATE	BY	DESCRIPTION

DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT	DATE JAN., 19	
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2		DWG 6	

DRAWING NAME: 06-60581660 QEW Barlie CNR_CPR - ST02c_3_SECTION.dwg
CREATED: 2018-12-18 MODIFIED: 2019-03-15 3:07 PM

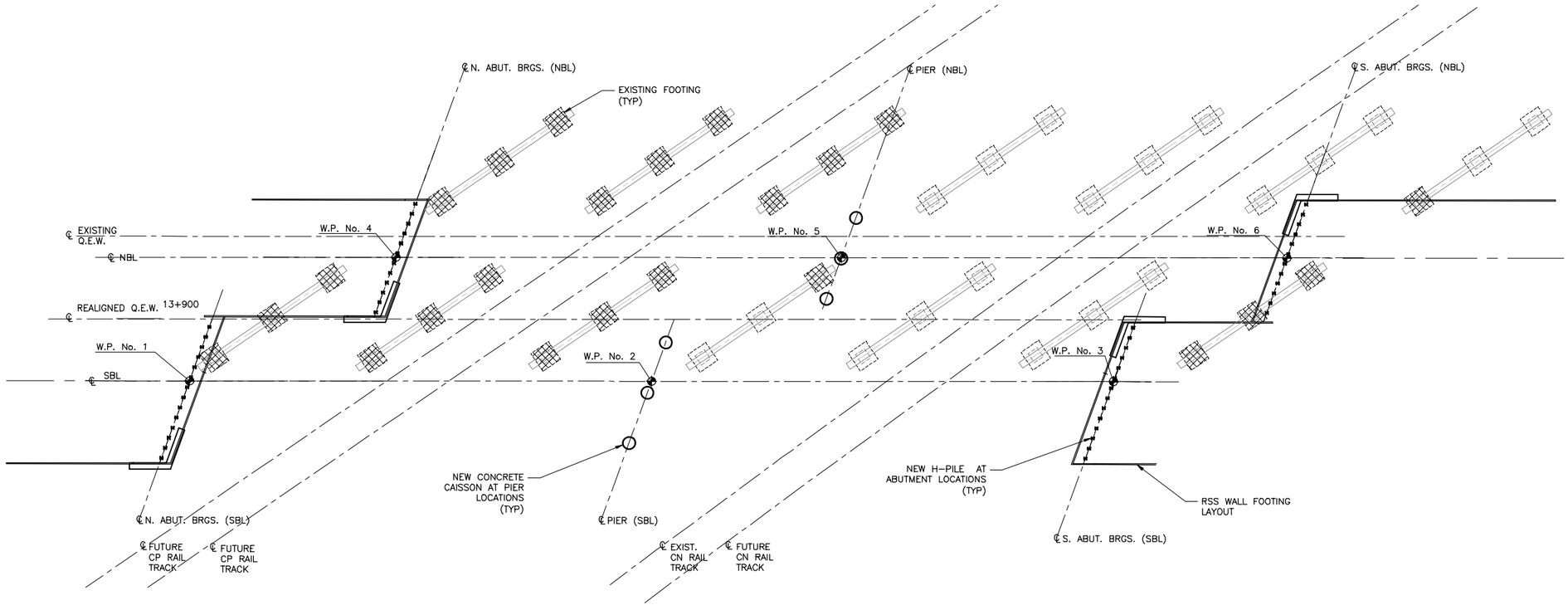
MINISTRY OF TRANSPORTATION, ONTARIO PR-0-707 88-05

NORTH FOR CONSTRUCTION

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

HWY	Q.E.W.
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD	SHEET 185
REMOVALS PLAN	

AECOM



PLAN
SCALE: 1:300

REMOVAL NOTES

1. CONTRACTOR SHALL REMOVE THE EXISTING STRUCTURES TO THE TOP OF EXISTING FOOTINGS UNLESS NOTED OTHERWISE.
2. CONTRACTOR SHALL REMOVE THE EXISTING FOOTINGS COMPLETELY AT THE LOCATIONS SHOWN ON THE DRAWING.

LEGEND:

REMOVAL OF FOOTING

LICENSED PROFESSIONAL ENGINEER
C. W. HSIEH
100199333
March 14, 2019
PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER
D.B. ADAMSON
100120079
March 14, 2019
PROVINCE OF ONTARIO

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS			
DATE	BY	DESCRIPTION	
DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT DATE JAN., 19
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2	DWG 7

MINISTRY OF TRANSPORTATION, ONTARIO PR–0–707 88–05

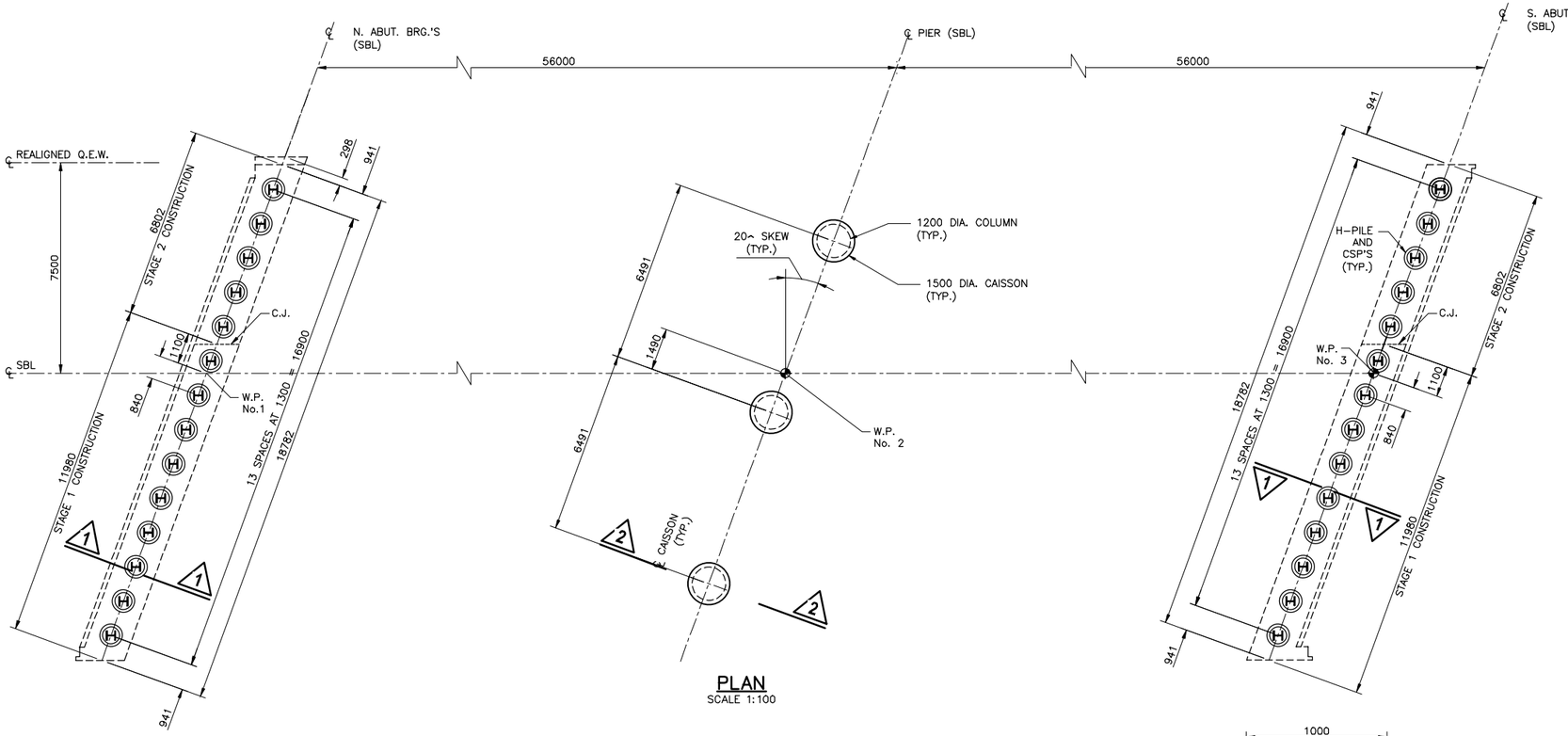
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NORTH FOR CONSTRUCTION

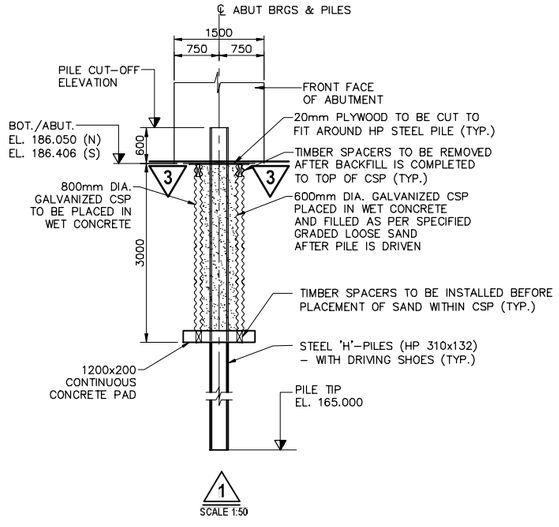
METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD	SHEET 186
PILE AND FOUNDATION LAYOUT (SBL)	

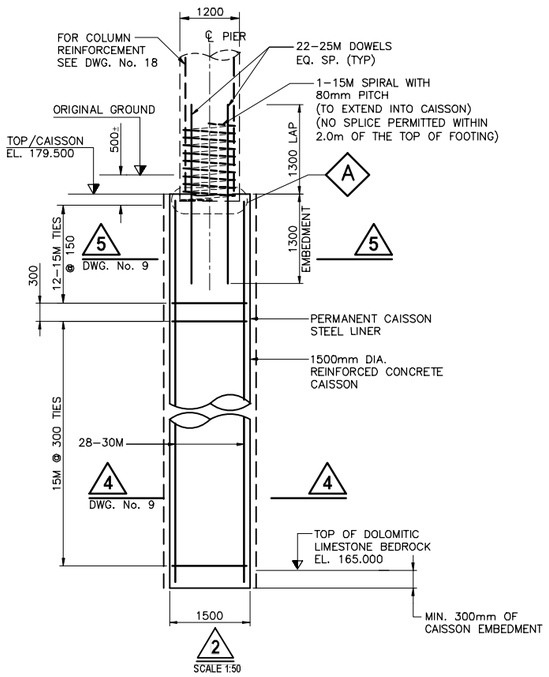
AECOM



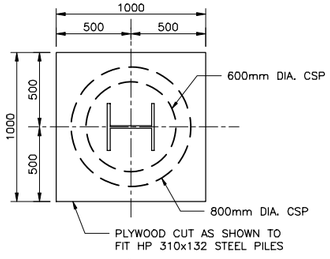
PLAN
SCALE 1:100



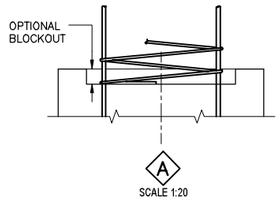
1
SCALE 1:50



2
SCALE 1:50



3
SCALE 1:20



A
SCALE 1:20

ABUTMENT PILE NOTES

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DWG. No. 9 AND ABUTMENT AND PIER DRAWINGS.
2. PILE SPACING IS MEASURED AT UNDERSIDE OF ABUTMENTS.
3. ALL PILES ARE HP 310x132 STEEL 'H PILES'.
4. PILES TO BE DRIVEN TO BEDROCK.
5. PILE LENGTHS SHOWN ARE THEORETICAL LENGTHS BELOW CUT–OFF ELEVATIONS.
6. ESTIMATED PILE TIP ELEVATIONS ARE BASED ON BOREHOLE DATA.
7. ALL PILES SHALL HAVE DRIVING SHOES AS APPROVED.
8. PILE SPLICE SHALL BE AS PER OPSD 3000.150 AND IN ACCORDANCE WITH OPSS 903.

ABUTMENT PILE GEOTECHNICAL RESISTANCE

FACTORED BEARING RESISTANCE AT:
ULTIMATE LIMIT STATES (ULS)_____ 1850 kN
SERVICABILITY LIMIT STATES (SLS)_____ 1850 kN

ABUTMENT PILE DATA		
H–PILE 310x132	NORTH ABUTMENT	SOUTH ABUTMENT
NUMBER REQUIRED	14	14
ESTIMATED PILE TIP ELEVATION (m)	165.000	165.000
ESTIMATED PILE CUT–OFF ELEVATION (m)	186.650	187.006
ESTIMATED PILE LENGTH TOTAL (m)	21.65	22.006
BATTER	VERTICAL	VERTICAL

CAISSON NOTES

1. CAISSONS SHALL BE INSTALLED USING TEMPORARY LINERS.
2. CAISSON SPACING IS MEASURED AT THE UNDERISDE OF THE COLUMNS.

PIER CAISSON GEOTECHNICAL RESISTANCE

PIER CAISSON DATA		
1500ø CAISSON		PIER
NUMBER REQUIRED		3
FACTORED BEARING RESISTANCE	SLS	9500 kN
	ULS	9500 kN

WORKING POINT DATA			
W.P.	STATION	COORDINATES	
		EASTING	NORTHING
1	13+901.000	346 471.405	4 755 505.708
2	13+957.000	346 510.441	4 755 465.554
3	14+013.000	346 549.477	4 755 425.402

APPLICABLE STANDARD DRAWINGS

OPSD 3000.100FOUNDATION, PILES, STEEL H–PILE DRIVING SHOE
OPSD 3000.150FOUNDATION, PILES, STEEL H–PILE SPLICE

LICENSED PROFESSIONAL ENGINEER
C. W. HSIEH
100199333
March 14, 19
PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER
D. S. ADAMSON
100132076
March 14, 19
PROVINCE OF ONTARIO

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS		
DATE	BY	DESCRIPTION

DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT	DATE JAN., 19	
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2		DWG 8	

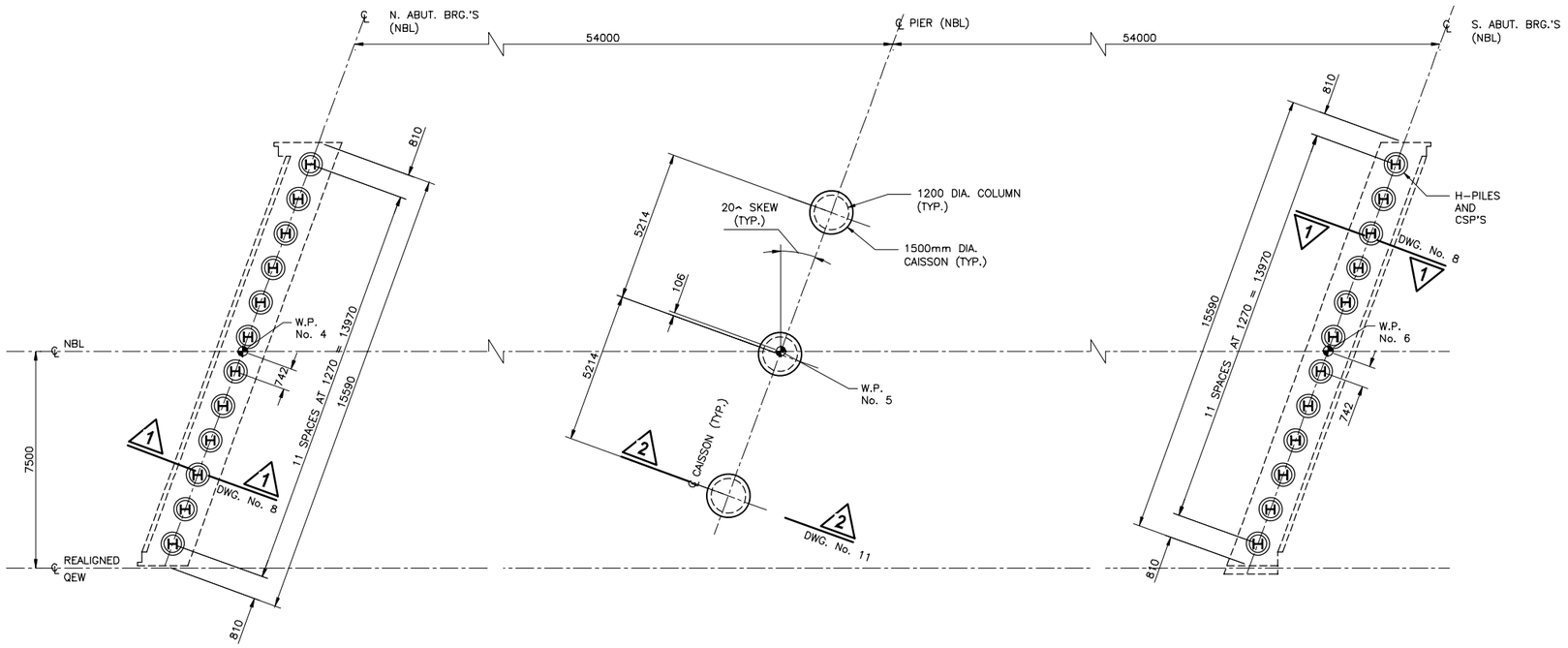
MINISTRY OF TRANSPORTATION, ONTARIO 88–05
PR–13–707
DRAWING NAME: 08–60581660–SBL–PILE_FOUNDATION.dwg
CREATED: 2018–09–17 MODIFIED: 2019–03–18 8:21 AM

NORTH FOR CONSTRUCTION

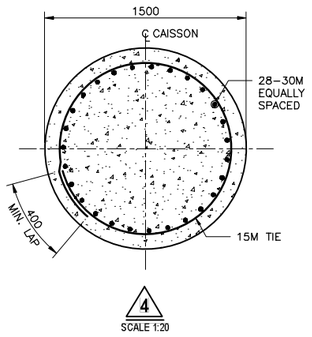
METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD	SHEET 187
PILE AND FOUNDATION LAYOUT (NBL)	

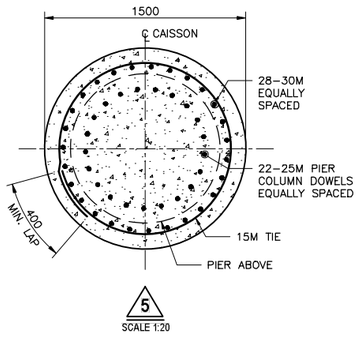
AECOM



PLAN
SCALE 1:100



4
SCALE 1:20



5
SCALE 1:20

ABUTMENT PILE NOTES

1. FOR GENERAL NOTES SEE DWG. No. 1.
2. FOR PILING AND FOUNDATION NOTES SEE DWG. No. 8.
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH ABUTMENTS AND PIER DRAWINGS.

ABUTMENT PILE GEOTECHNICAL RESISTANCE

FACTORED BEARING RESISTANCE AT:
ULTIMATE LIMIT STATES (ULS)_____ 1850 kN
SERVICABILITY LIMIT STATES (SLS)_____ 1850 kN

ABUTMENT PILE DATA		
H–PILE 310x132	NORTH ABUTMENT	SOUTH ABUTMENT
NUMBER REQUIRED	12	12
ESTIMATED PILE TIP ELEVATION (m)	165.000	165.000
ESTIMATED PILE CUT–OFF ELEVATION (m)	186.844	186.925
ESTIMATED PILE LENGTH TOTAL (m)	21.844	21.925

NOTES:
1. PILE LENGTHS SHOWN IN PILE DATA TABLE ABOVE ARE THEORETICAL LENGHTS BELOW CUT–OFF ELEVATION.
2. ESTIMATED PILE TIP ELEVATION ARE BASED ON BOREHOLE DATA.

WORKING POINT DATA			
W.P.	STATION	COORDINATES	
		EASTING	NORTHING
4	13+926.000	346 499.585	4 755 498.235
5	13+980.000	346 537.228	4 755 459.519
6	14+034.000	346 574.868	4 755 420.799

PIER CAISSON GEOTECHNICAL RESISTANCE

PIER CAISSON DATA		
1500ø CAISSON		PIER
NUMBER REQUIRED		3
FACTORED BEARING RESISTANCE	SLS	9500 kN
	ULS	9500 kN

APPLICABLE STANDARD DRAWINGS

OPSD 3000.100FOUNDATION, PILES, STEEL H–PILE DRIVING SHOE
OPSD 3000.150FOUNDATION, PILES, STEEL H–PILE SPLICE

LICENSED PROFESSIONAL ENGINEER C. W. HSIEH 100199333 March 14, 2019 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER D. DA ASSUNCAO 100122076 March 14, 2019 PROVINCE OF ONTARIO

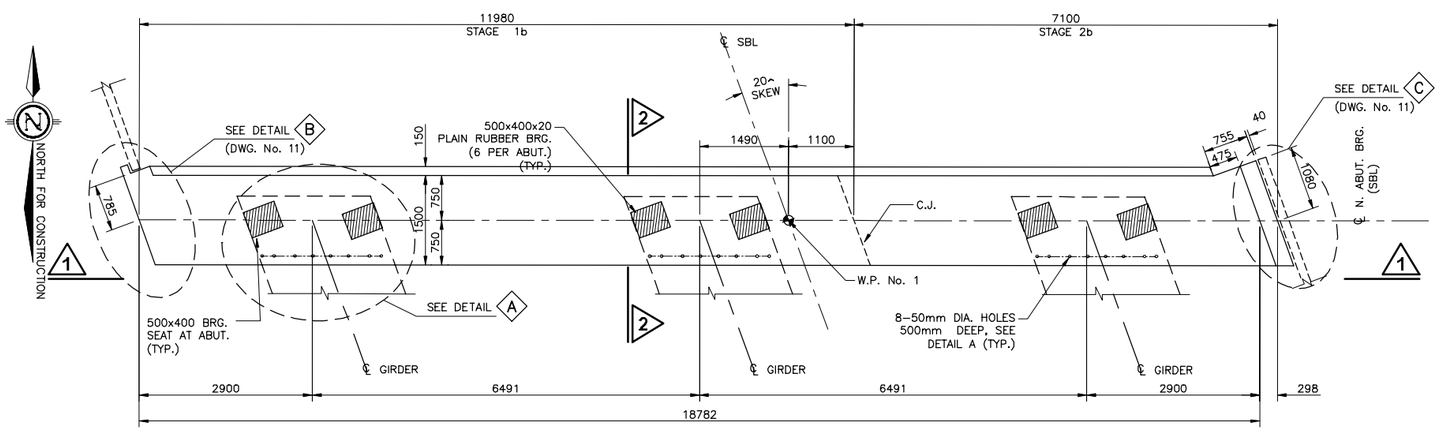
DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS			
DATE	BY	DESCRIPTION	
DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2	

DATE JAN., 19
DWG 9

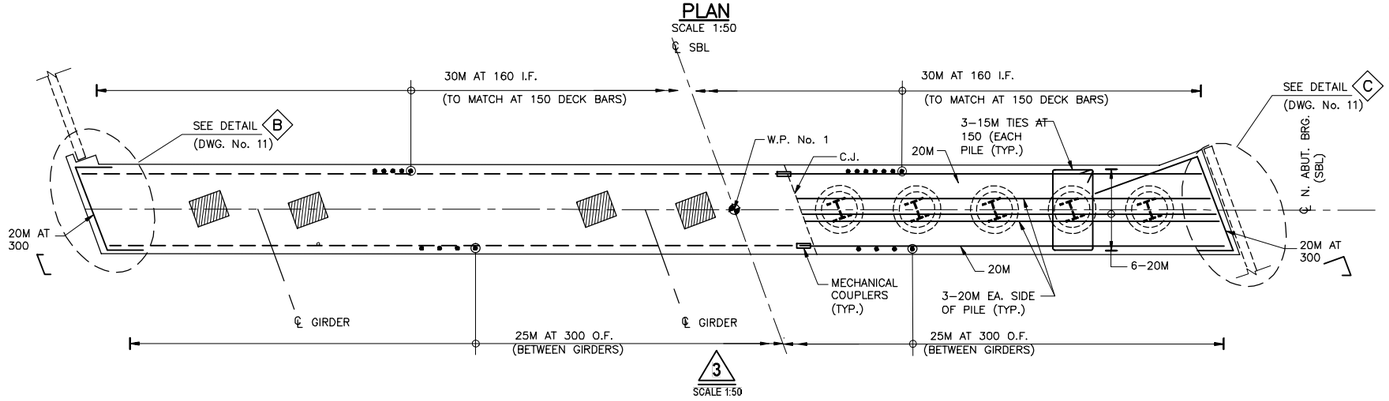
MINISTRY OF TRANSPORTATION, ONTARIO PR–D–707 88–05

DRAWING NAME: 09–60581660–NBL–PILE_FOUNDATION.dwg
CREATED: 2018–09–17 MODIFIED: 2019–03–15 3:08 PM



PLAN

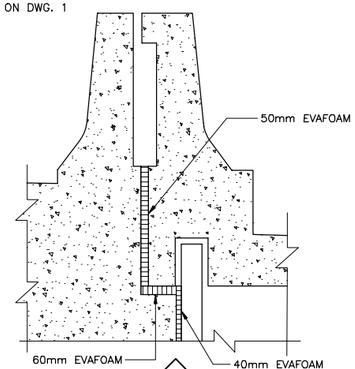
SCALE 1:50



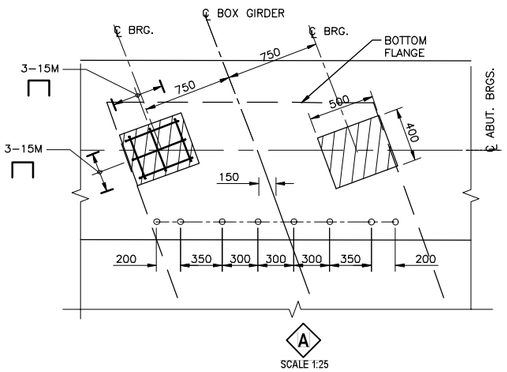
3
SCALE 1:50

ELEVATIONS		
	GRID	NORTH ABUT.
TOP OF CONCRETE	An	187.648
	Bn	187.891
	Cn	187.874
	Dn	187.762
TOP OF BEARING **	G1w	187.818
	G1e	187.818
	G2w	187.961
	G2e	187.961
	G3w	187.920
	G3e	187.920

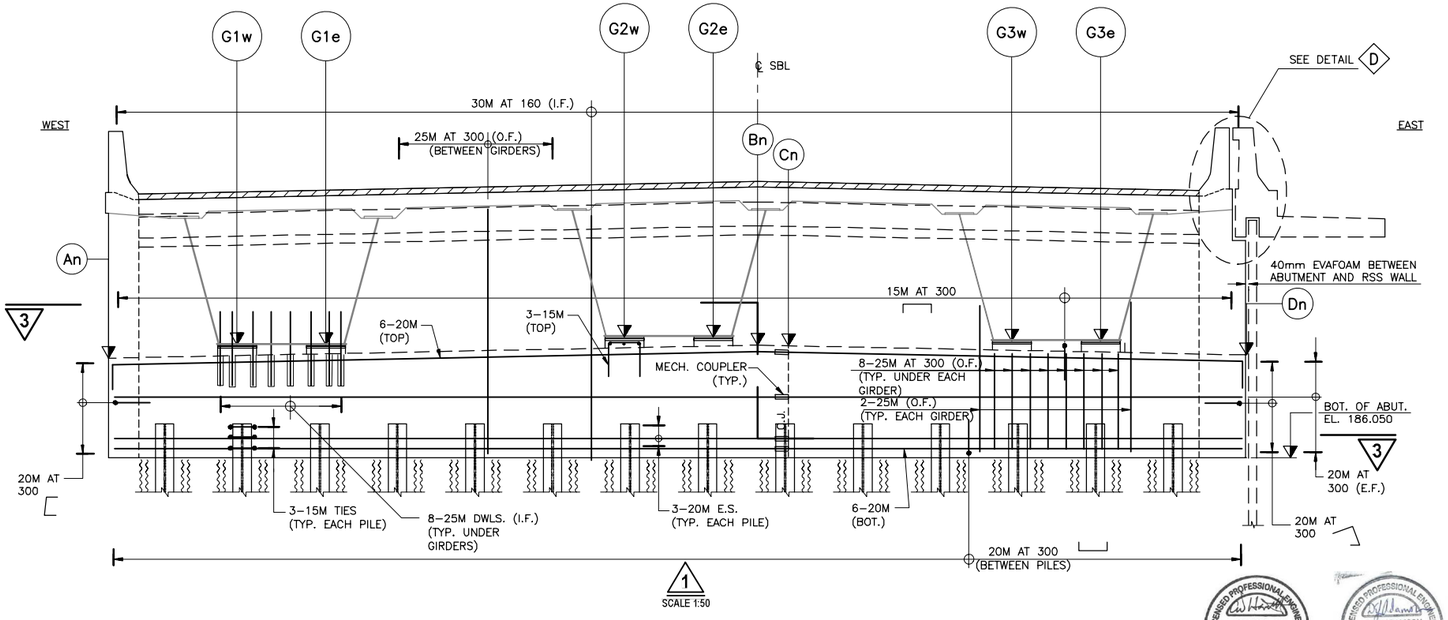
** TOP OF BEARING ELEVATIONS SEE CONSTRUCTION NOTES ON DWG. 1



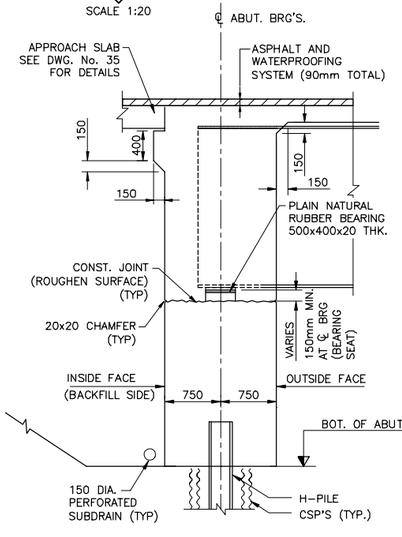
D
SCALE 1:20



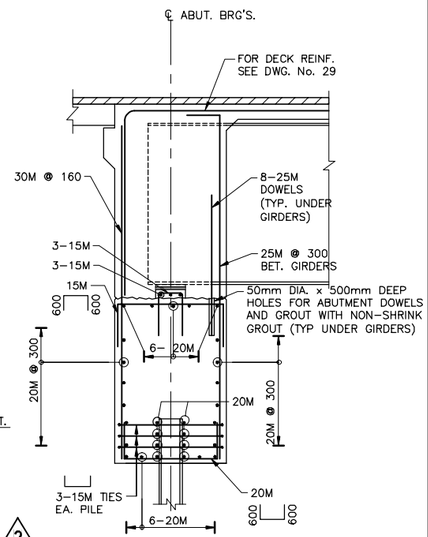
A
SCALE 1:25



1
SCALE 1:50



DIMENSIONS



2
SCALE 1:40

REINFORCEMENT

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

HWY
CONT 2019-2003
WP 2116-16-00

Q.E.W. – CNR/CPR OVERHEAD

NORTH ABUTMENT (SBL)

SHEET 188

AECOM

NOTES:

1. CAST BEARING SEATS LEVEL.
2. THE TOP SECTION OF THE ABUTMENTS ABOVE THE BEARING SEAT ELEVATION SHALL BE CAST IN THE SAME POUR AS CONCRETE DECK AND SHALL BE VIBRATED THOROUGHLY.
3. STABILITY AND THE INTEGRITY OF THE ABUTMENTS SHALL BE MAINTAINED AT ALL STAGES OF CONSTRUCTION.
4. THIS DRAWING TO BE READ IN CONJUNCTION WITH DWG. Nos. 1 & 11.

LICENSED PROFESSIONAL ENGINEER
C. W. HSIEH
100199333
March 14, 2019
PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER
D.B.O ADAMSON
100120076
March 14, 2019
PROVINCE OF ONTARIO

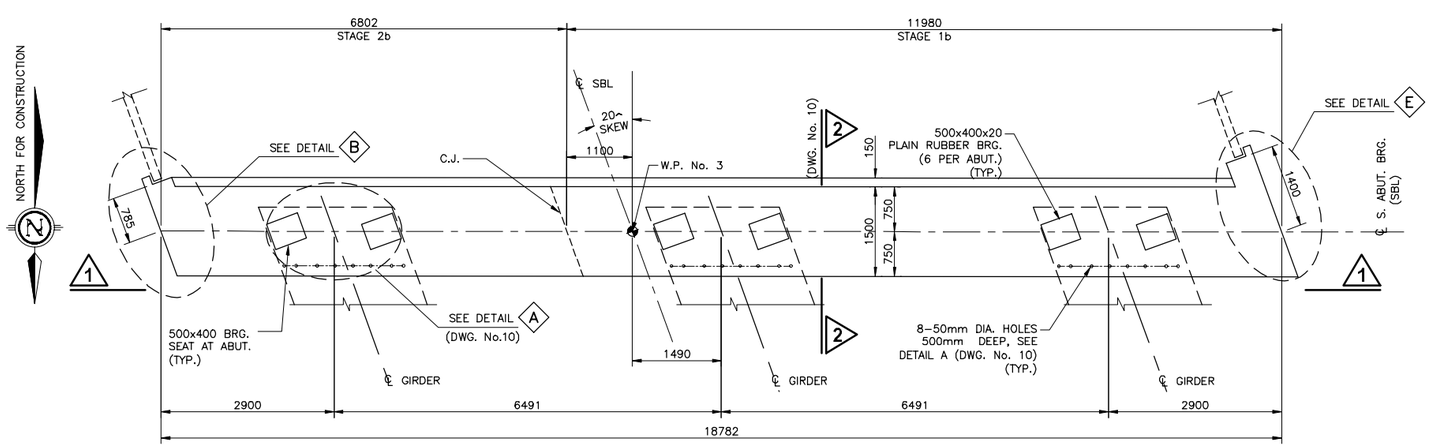
DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS		
DATE	BY	DESCRIPTION

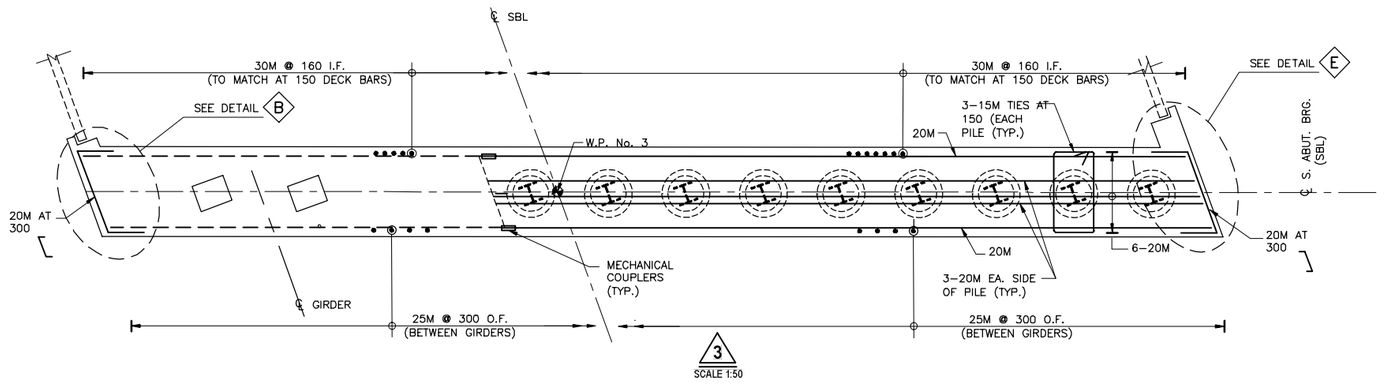
DESIGN CWH	CHK DA	CODE CHBDC-14	LOAD CL-625-ONT	DATE JAN., 19	
DRAWN PSH	CHK JV	SITE 34X-0129/B1/B2		DWG 10	

DRAWING NAME: 10-60581660-SBL-NORTH_ABUT.dwg
CREATED: 2018-09-18 MODIFIED: 2019-03-18 8:24 AM

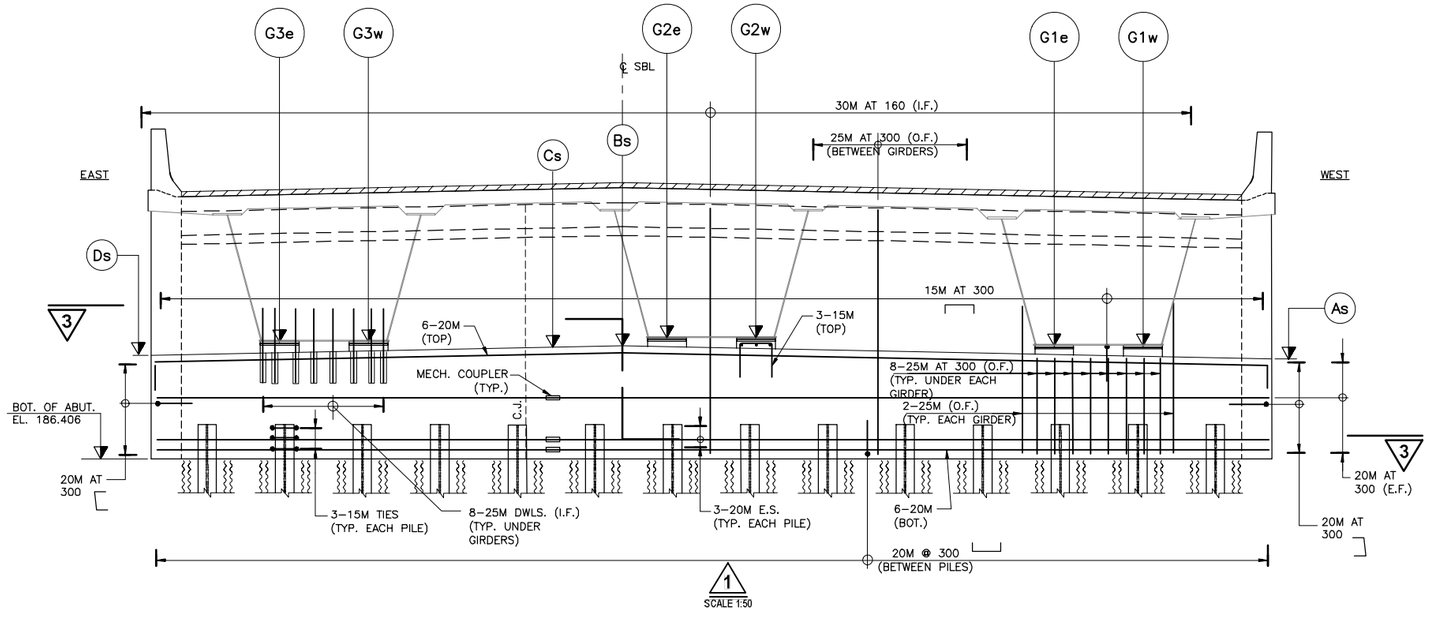
MINISTRY OF TRANSPORTATION, ONTARIO PR-D-707 88-05



PLAN
SCALE 1:50



3
SCALE 1:50



1
SCALE 1:50

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

ELEVATIONS			
	GRID	NORTH ABUT.
TOP OF CONCRETE	As	188.049
	Bs	188.243
	Cs	188.221
	Ds	188.081
TOP OF BEARING **	G1w	188.206
	G1e	188.206
	G2w	188.322
	G2e	188.322
	G3w	188.248
	G3e	188.248

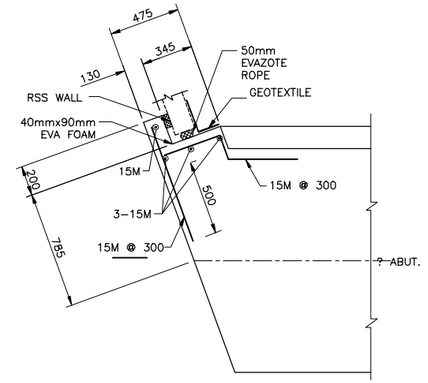
** TOP OF BEARING ELEVATIONS SEE CONSTRUCTION NOTES ON DWG. 1

HWY	
CONT	2019-2003
WP	2116-16-00
Q.E.W. - CNR/CPR OVERHEAD	SHEET 189
SOUTH ABUTMENT (SBL)	

AECOM

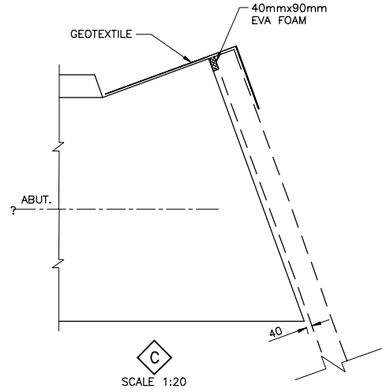
NOTES:

1. FOR GENERAL NOTES SEE DWG. NO. 1.
2. FOR ABUTMENT NOTES SEE DWG No. 10.

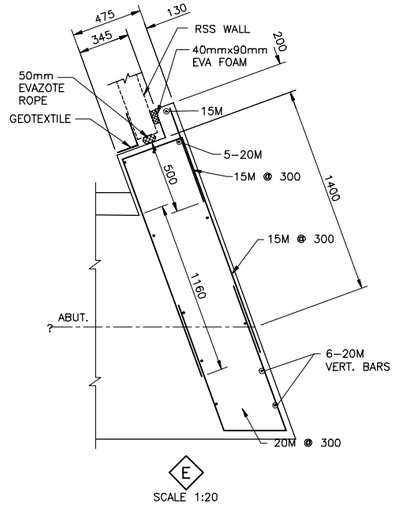


B
SCALE 1:20





C
SCALE 1:20



E
SCALE 1:20

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

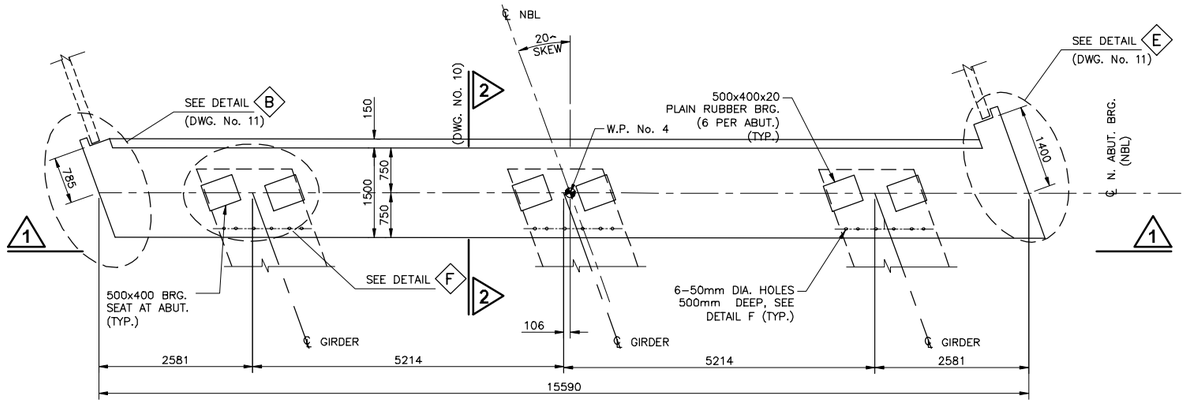
REVISIONS			
	DATE	BY	DESCRIPTION

DESIGN CWH	CHK DA	CODE CHBDC-14	LOAD CL-625-ONT	DATE JAN., 19	
DRAWN PSH	CHK JV	SITE 34X-0129/B1/B2		DWG 11	

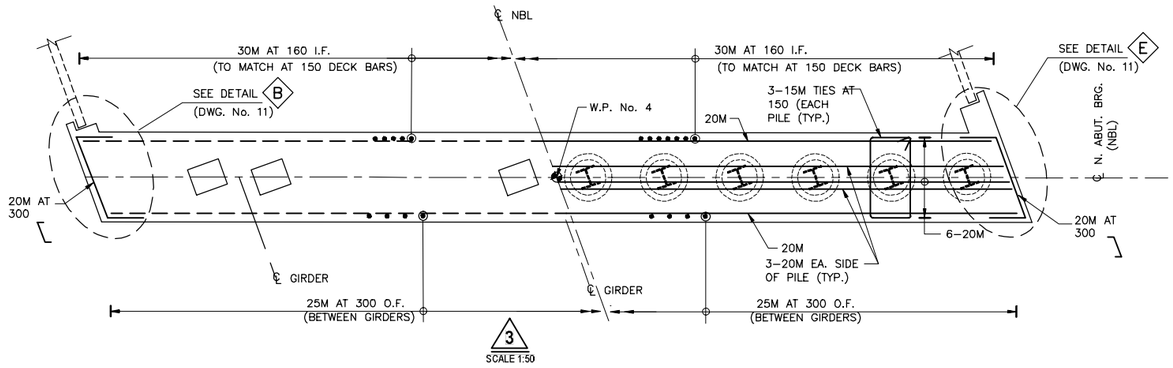
DRAWING NAME: 11-60581660-SBL-SOUTH_ABUT.dwg
CREATED: 2018-09-20 MODIFIED: 2019-03-18 8:26 AM
MINISTRY OF TRANSPORTATION, ONTARIO PR-13-707 88-05

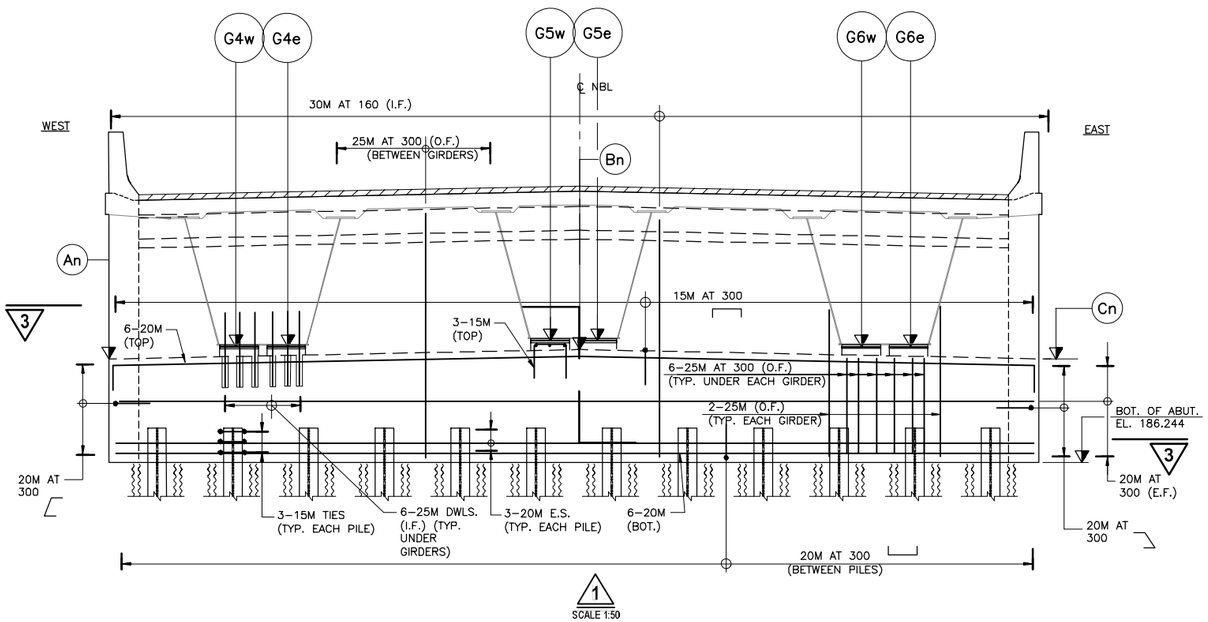
MINISTRY OF TRANSPORTATION, ONTARIO
RR-13-707 88-05

NORTH FOR CONSTRUCTION



PLAN
SCALE 1:50

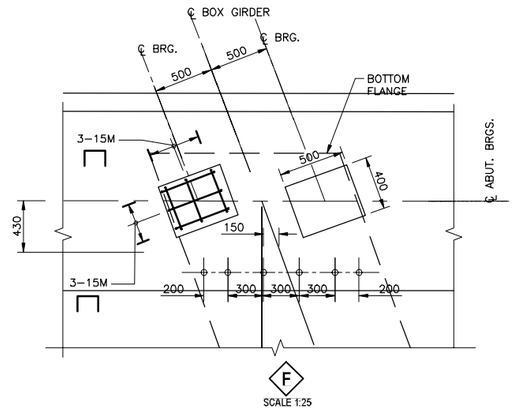




ELEVATIONS		
	GRID	NORTH ABUT.
TOP OF CONCRETE	An	187.918
	Bn	188.084
	Cn	187.956
TOP OF BEARING **	G4w	188.066
	G4e	188.066
	G5w	188.172
	G5e	188.172
	G6w	188.096
	G6e	188.096

** TOP OF BEARING ELEVATIONS SEE CONSTRUCTION NOTES ON DWG. 1

METRIC
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN



HWY	
CONT	2019-2003
WP	2116-16-00
Q.E.W. - CNR/CPR OVERHEAD	SHEET 190
NORTH ABUTMENT (NBL)	

AECOM

NOTES:

1. FOR GENERAL NOTES SEE DWG. NO. 1.
2. FOR ABUTMENT NOTES SEE DWG No. 10.

C. W. HSIEH 100199333 March 14, 2019 PROVINCE OF ONTARIO

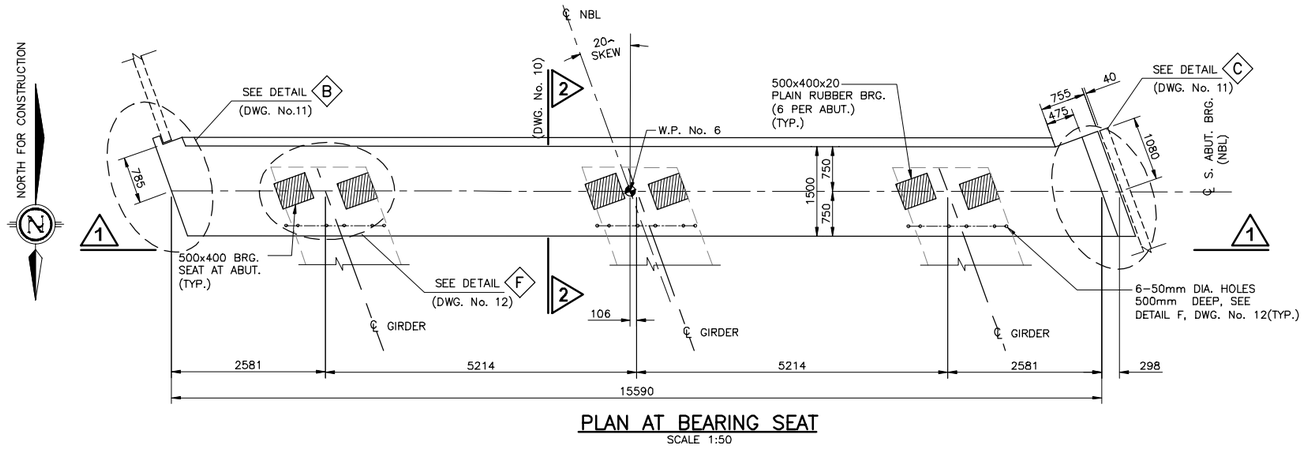
D.B.M. ADAMSON 100102070 March 14, 2019 PROVINCE OF ONTARIO

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

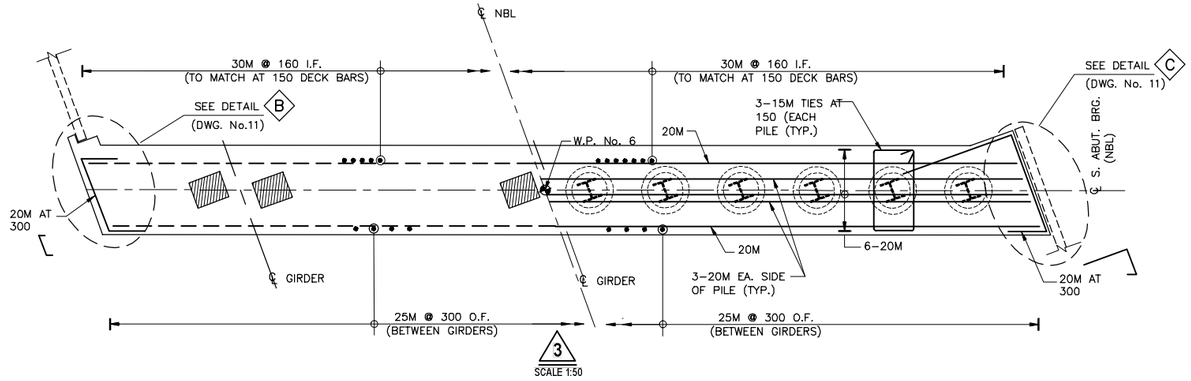
REVISIONS		
DATE	BY	DESCRIPTION

DESIGN CWH	CHK DA	CODE CHBDC-14	LOAD CL-625-ONT	DATE JAN., 19	
DRAWN PSH	CHK JV	SITE 34X-0129/B1/B2		DWG 12	

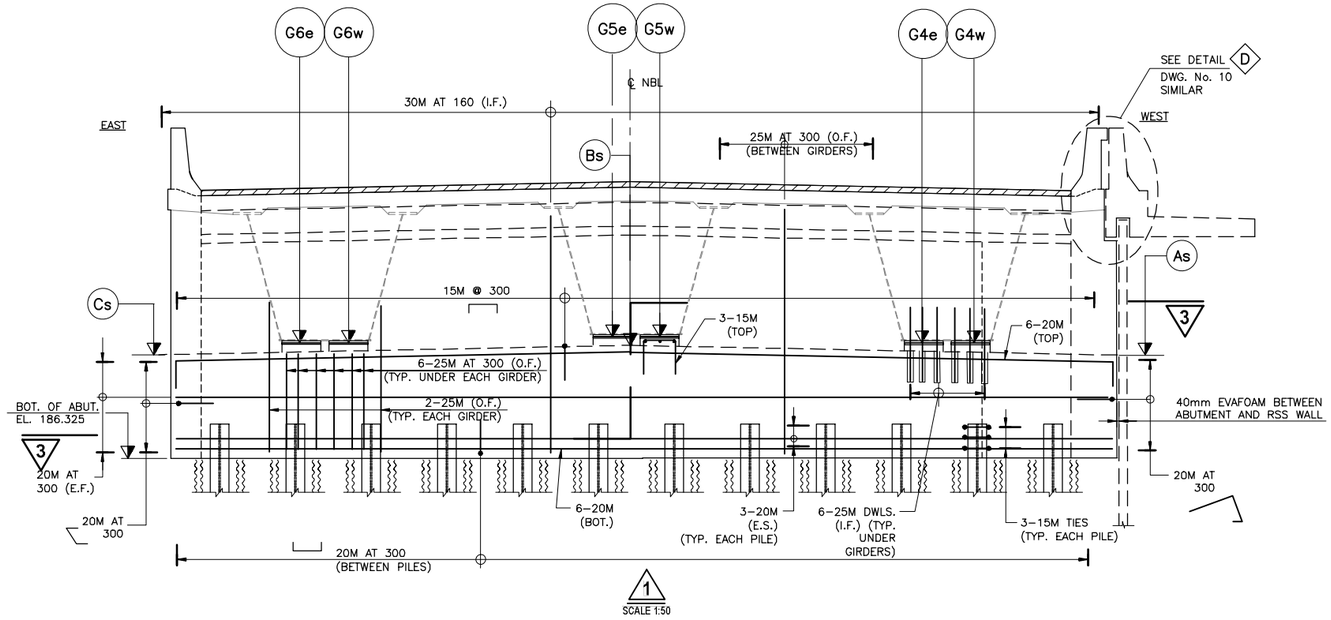
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CREATED: 2018-09-24 MODIFIED: 2019-03-18 8:28 AM



PLAN AT BEARING SEAT
SCALE 1:50



3
SCALE 1:50



1
SCALE 1:50

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

ELEVATIONS		
	GRID	NORTH ABUT.
TOP OF CONCRETE	As	188.021
	Bs	188.162
	Cs	188.004
TOP OF BEARING **	G4w	188.167
	G4e	188.167
	G5w	188.256
	G5e	188.256
	G6w	188.151
	G6e	188.151

** TOP OF BEARING ELEVATIONS SEE CONSTRUCTION NOTES ON DWG. 1

HWY
CONT 2019-2003
WP 2116-16-00

Q.E.W. – CNR/CPR OVERHEAD

SOUTH ABUTMENT (NBL)

SHEET 191

AECOM

NOTES:

1. FOR GENERAL NOTES SEE DWG. NO. 1.
2. FOR ABUTMENT NOTES SEE DWG No. 10

C. W. HSIEH
100199333
March 14, 2019
PROVINCE OF ONTARIO

D. S. ADAMSON
100120379
March 14, 2019
PROVINCE OF ONTARIO

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS		
DATE	BY	DESCRIPTION

DESIGN CWH	CHK DA	CODE CHBDC-14	LOAD CL-625-ONT	DATE JAN., 19	
DRAWN PSH	CHK JV	SITE 34X-0129/B1/B2		DWG 13	

MINISTRY OF TRANSPORTATION, ONTARIO
PR-D-707 88-05

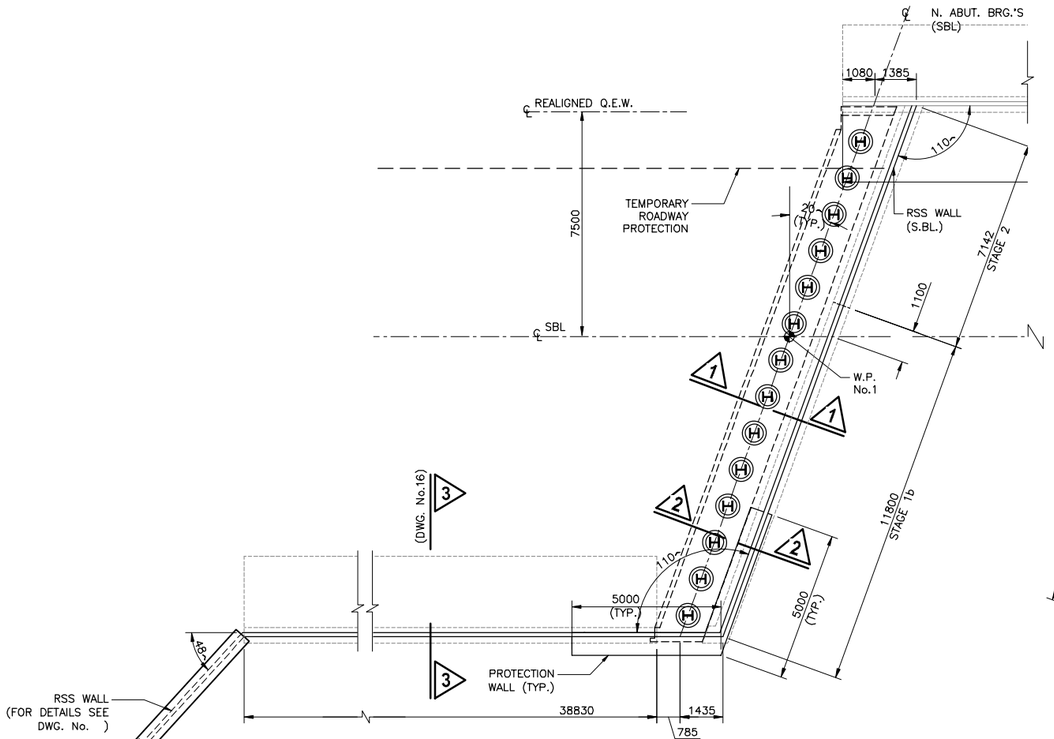
DRAWING NAME: 13-60581660-NBL-SOUTH_ABUT.dwg
CREATED: 2018-09-24 MODIFIED: 2019-03-18 8:30 AM

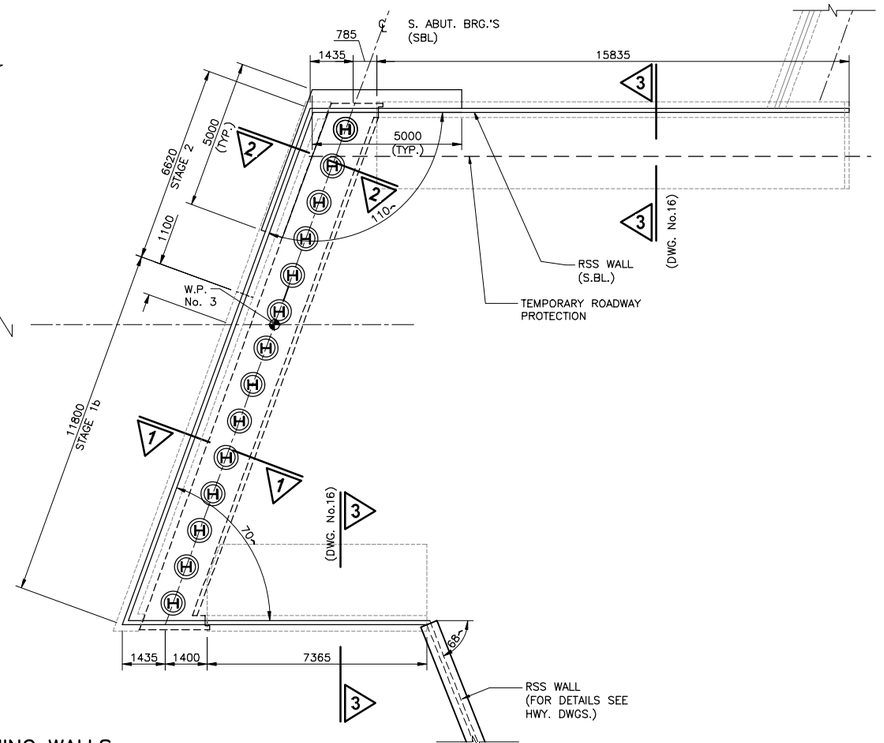
NORTH FOR CONSTRUCTION

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD	SHEET 192
SBL RETAINING WALLS	

AECOM





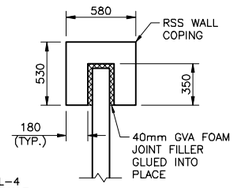
PLAN – SBL RETAINING WALLS
SCALE 1:100

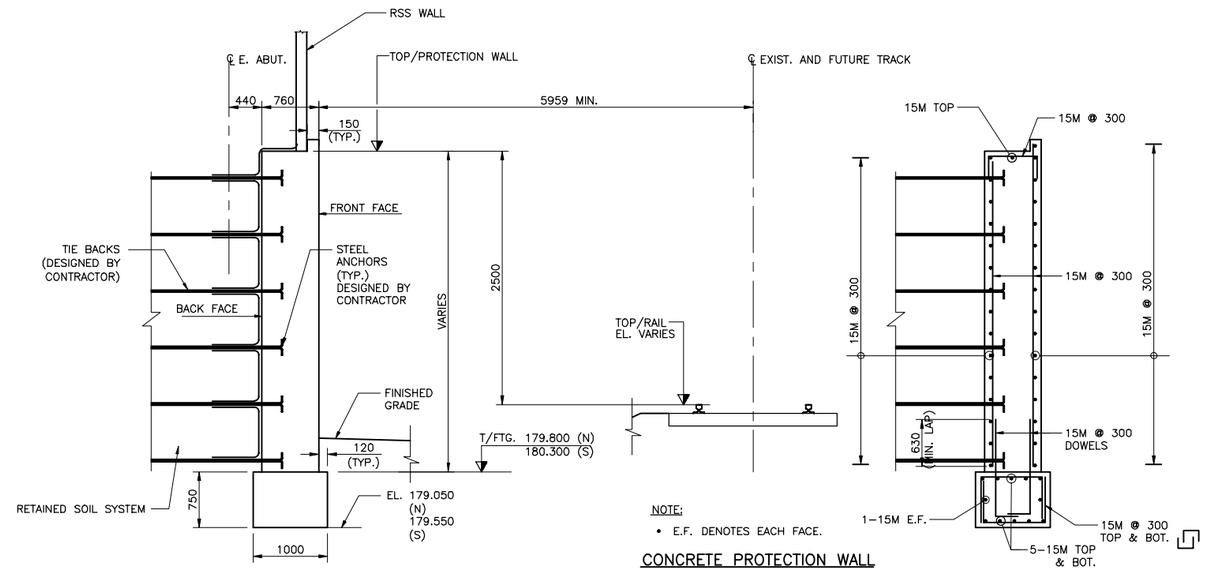
NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DWG. No.'s 15, 16 & 17.
2. CONTRACTOR SHALL ESTABLISH/REVISE THE PRECAST RSS CAP DIMENSIONS TO SUIT THE GEOMETRIC REQUIREMENTS OF THE SPECIFIC PROPRIETY SYSTEM TO BE UTILIZED. ALL DIMENSION CHANGES ARE SUBJECT TO REVIEW BY THE CONTRACT ADMINISTRATOR.
3. RETAINED SOIL SYSTEM SHALL BE ACCORDING TO DESIGNATED SOURCES FOR MATERIAL (DSM) 9.70.56 AND 9.70.52.
4. RSS WALL LENGTHS SHOWN ARE MEASURED ALONG OUTSIDE LENGTH OF RSS WALL.
5. RETAINED SOIL SYSTEM HAVE THE FOLLOWING ATTRIBUTES:
   –APPLICATION: FALSE ABUTMENT, WALL/SLOPE
   –PERFORMANCE: HIGH
   –APPEARANCE: HIGH
   –GEOMETRY: VERTICAL
6. SHOP DRAWINGS FOR RETAINED SOIL SYSTEM SHALL BE SUBMITTED TO THE CONTRACT ADMINISTRATOR IN ACCORDANCE WITH THE CONTRACT SPECIFICATION.
7. THE ASSOCIATED DETAILS SHOWN OF THE DRAWINGS INCLUDING THE FOUNDATION MATERIAL BELOW THE CONCRETE PAD IS CONCEPTUAL DESIGN ONLY. THE CONTRACTOR SHALL PROVIDE A DETAILED DESIGN AS NECESSARY TO COMPLEMENT THE DESIGN OF THE RETAINED SOIL SYSTEM.

LIST OF ABBREVIATIONS:

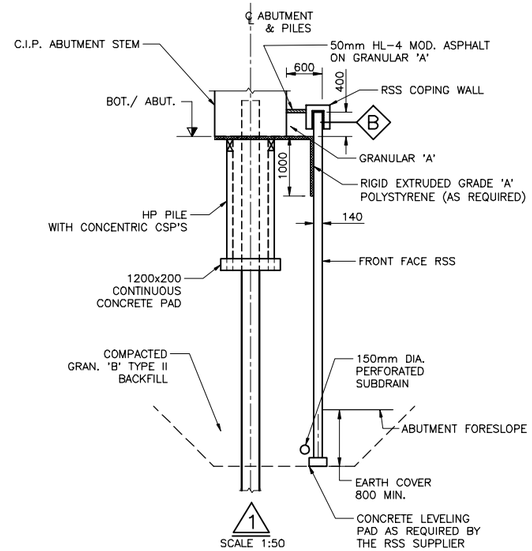
W.P. DENOTES WORKING POINT
C.I.P. DENOTES CAST–IN–PLACE

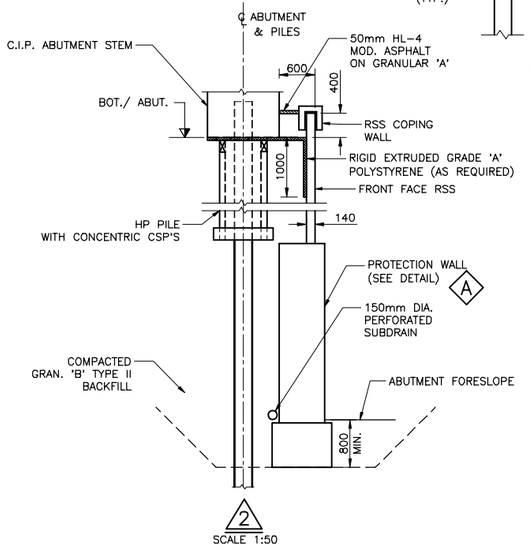




NOTE:
- E.F. DENOTES EACH FACE.

DIMENSIONS
CONCRETE PROTECTION WALL
A
SCALE 1:40
REINFORCEMENT





DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS		
DATE	BY	DESCRIPTION

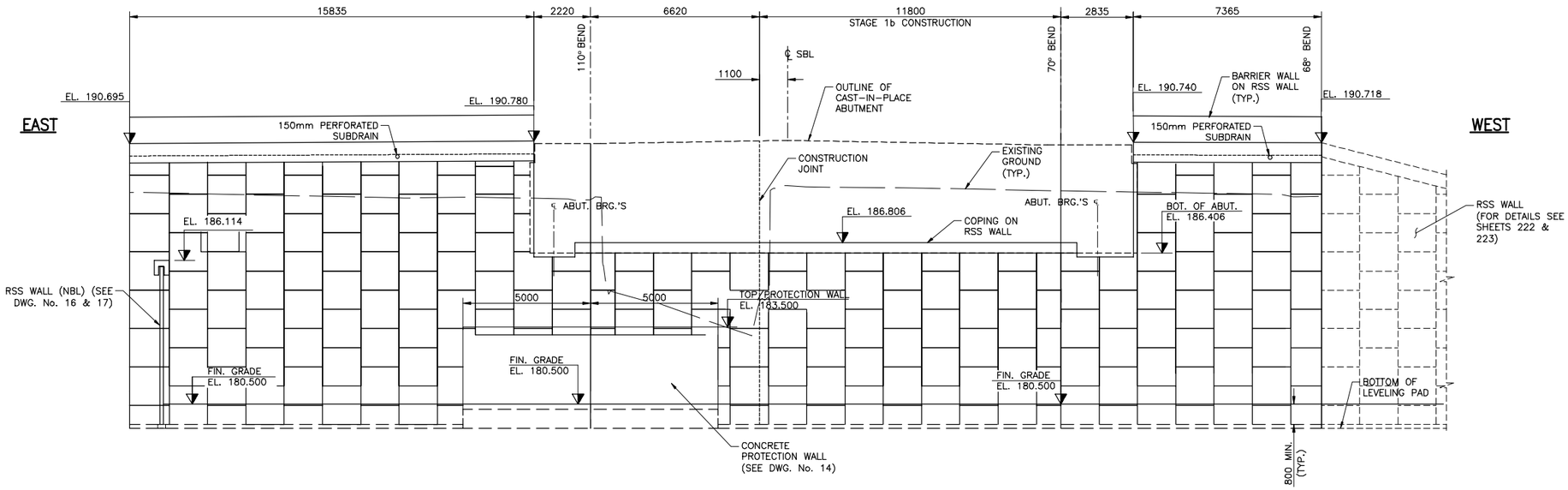
DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT	DATE	JAN., 19
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2		DWG	14

MINISTRY OF TRANSPORTATION, ONTARIO PR–D–707 88–05
DRAWING NAME: 14–60581660–SBL–RETAINING WALLS.dwg
CREATED: 2018–09–24 MODIFIED: 2019–03–18 8:58 AM

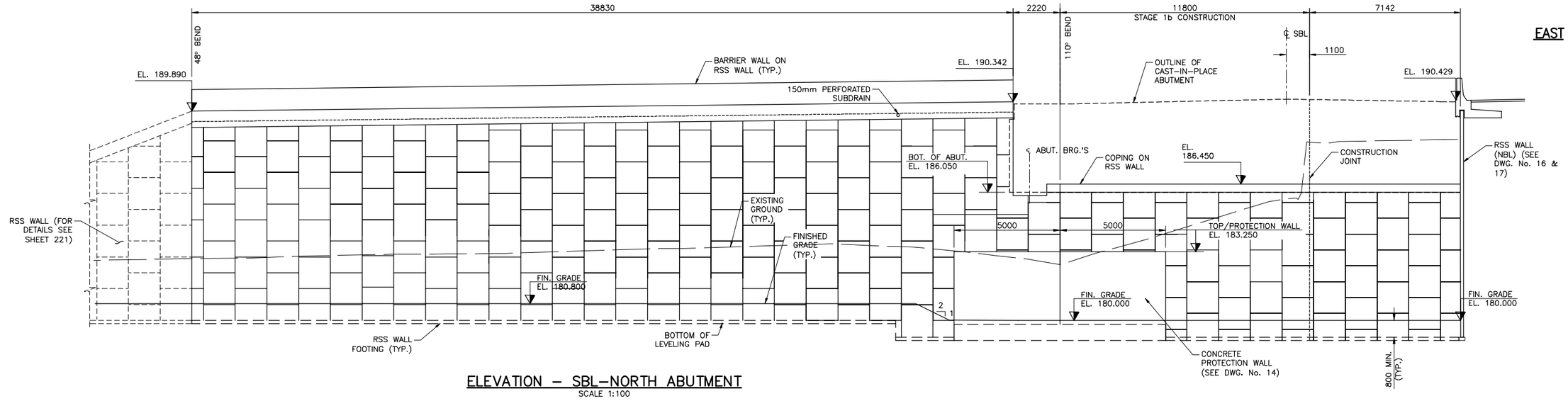
METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD SBL RETAINING WALLS ELEVATIONS	SHEET 193

AECOM



ELEVATION – SBL–SOUTH ABUTMENT
SCALE 1:100



ELEVATION – SBL–NORTH ABUTMENT
SCALE 1:100

NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DWG. No.'s 14, 16 & 17.

LICENSED PROFESSIONAL ENGINEER C. W. HSIEH 100199333 March 14, 2019 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER D. BRIAN ADAMSON 100120376 March 14, 2019 PROVINCE OF ONTARIO

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS			
	DATE	BY	DESCRIPTION

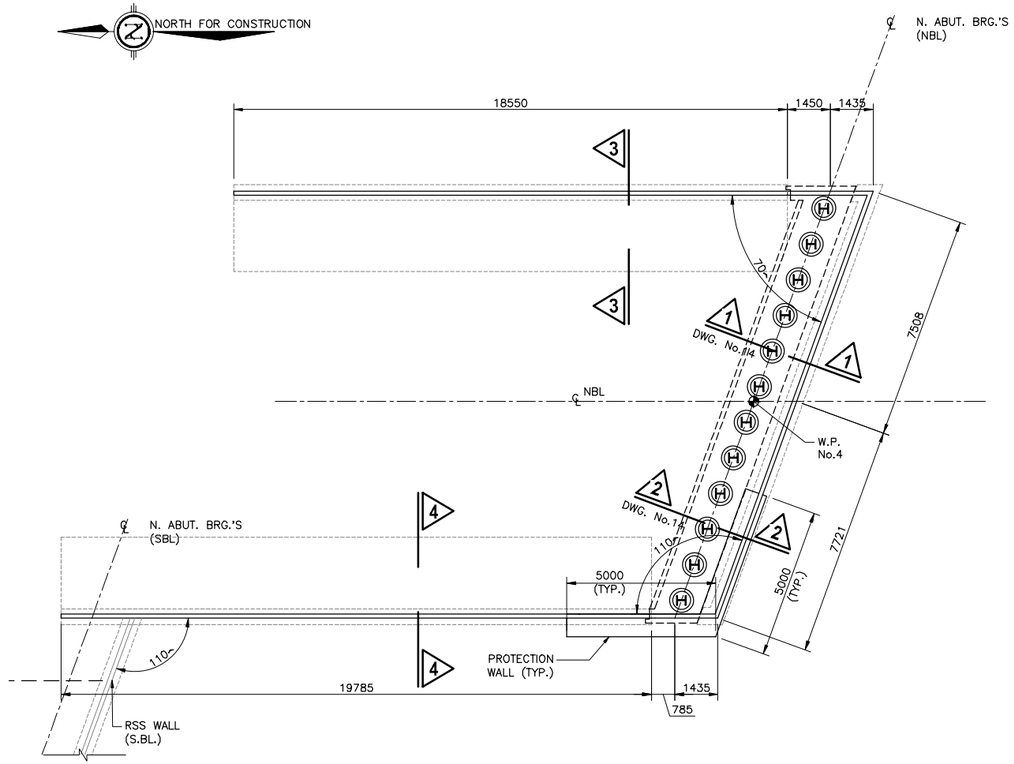
DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT	DATE JAN., 19	
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2		DWG 15	

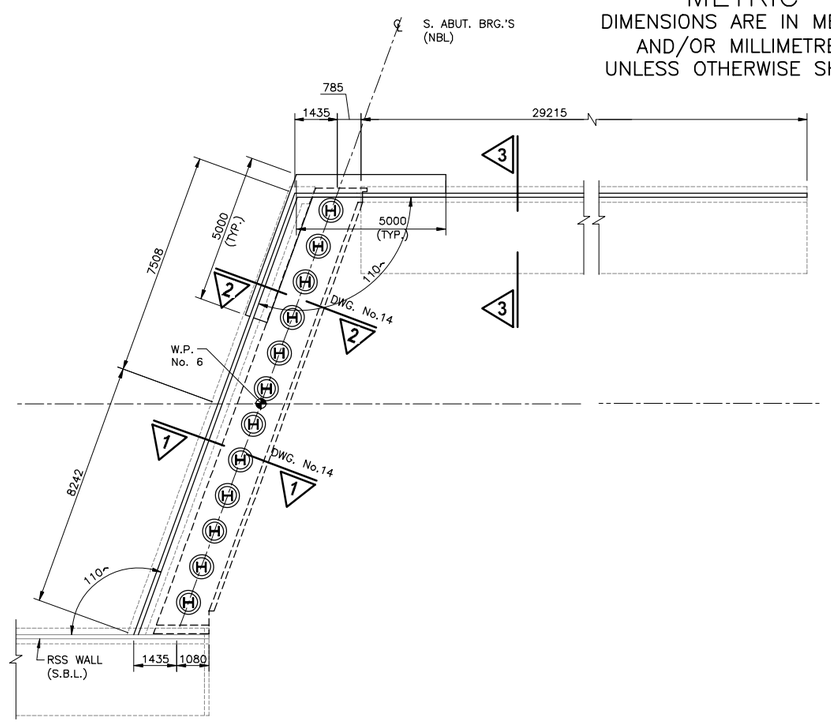
MINISTRY OF TRANSPORTATION, ONTARIO PR–13–707 88–05

DRAWING NAME: 15–60581660–SBL–RETAINING WALLS ELEVATIONS.dwg
CREATED: 2018–09–17 MODIFIED: 2019–03–18 8:59 AM

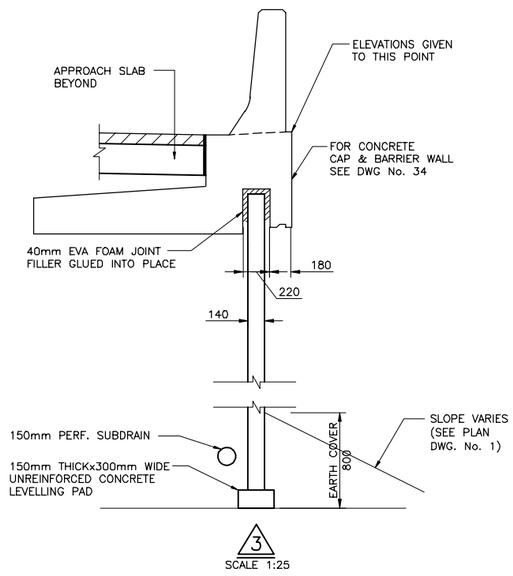
MINISTRY OF TRANSPORTATION, ONTARIO
PR-3-707 88-05

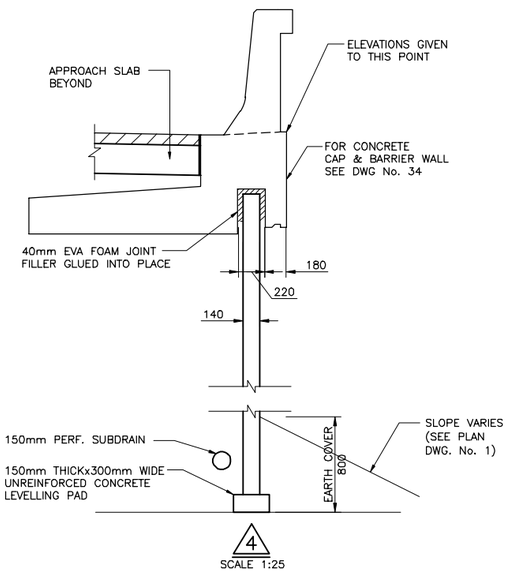
NORTH FOR CONSTRUCTION





PLAN – NBL RETAINING WALLS
SCALE 1:100





METRIC
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN

HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD	SHEET 194
NBL RETAINING WALLS	

AECOM

NOTES:
1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DWG. No.'s 14, 15 & 17.





DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS			
DATE	BY	DESCRIPTION	
DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2	DWG 16

DATE JAN., 19

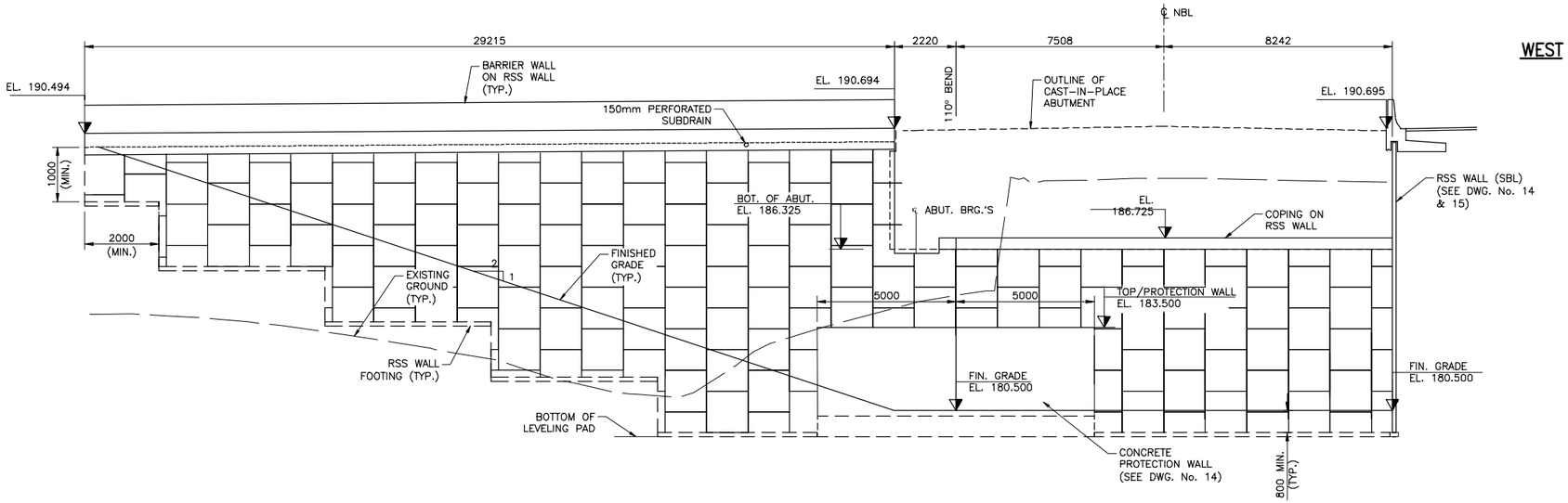
DRAWING NAME: 16-60581660-NBL-RETAINING WALLS.dwg
CREATED: 2018-09-27 MODIFIED: 2019-03-15 3:13 PM

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD NBL RETAINING WALLS ELEVATIONS	SHEET 195

AECOM

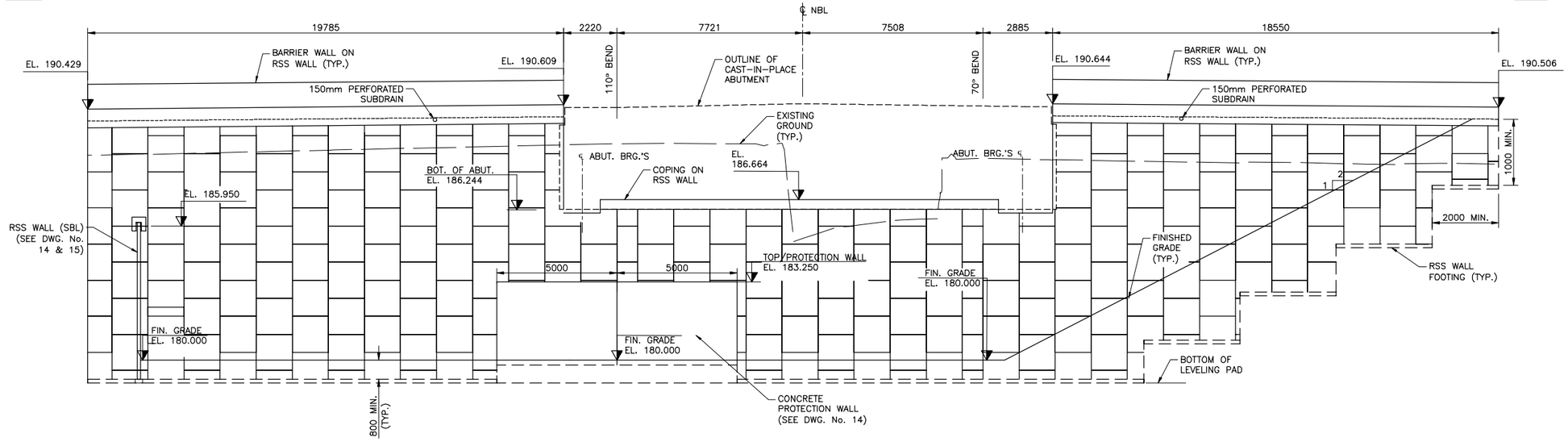
EAST



ELEVATION – NBL–SOUTH ABUTMENT
SCALE 1:100

WEST

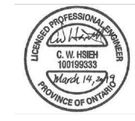
EAST



ELEVATION – NBL–NORTH ABUTMENT
SCALE 1:100

NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DWG. No.'s 14, 15 & 16.





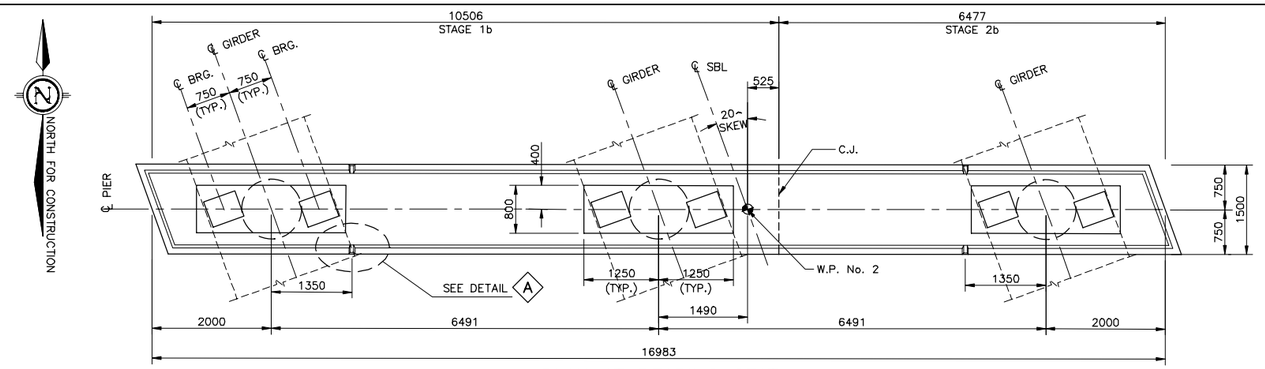
DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS			
	DATE	BY	DESCRIPTION

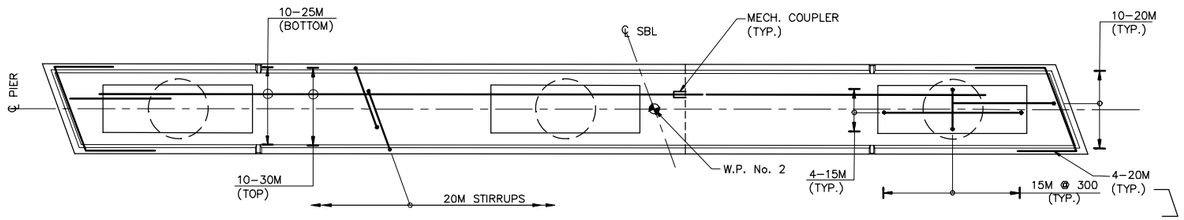
DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT	DATE JAN., 19	
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2		DWG 17	

MINISTRY OF TRANSPORTATION, ONTARIO FR–0–707 88–05

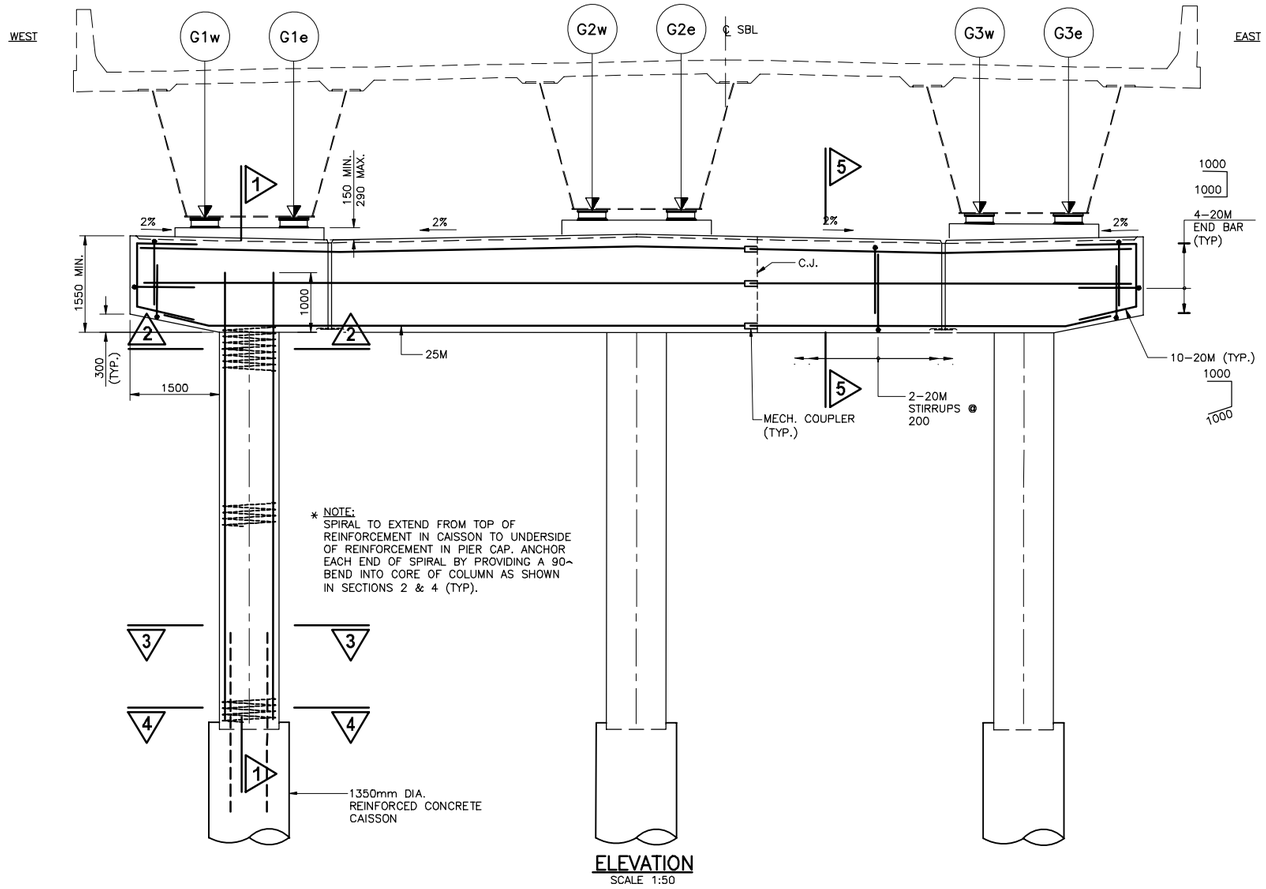
DRAWING NAME: 17–60581660–NBL–RETAINING WALLS ELEVATIONS.dwg
CREATED: 2018–09–27 MODIFIED: 2019–03–15 3:13 PM



PLAN AT BEARING SEAT
SCALE 1:50



PIER CAP REINFORCEMENT
SCALE 1:50



* NOTE:
SPIRAL TO EXTEND FROM TOP OF REINFORCEMENT IN CAISSON TO UNDERSIDE OF REINFORCEMENT IN PIER CAP. ANCHOR EACH END OF SPIRAL BY PROVIDING A 90~ BEND INTO CORE OF COLUMN AS SHOWN IN SECTIONS 2 & 4 (TYP).

ELEVATION
SCALE 1:50

ELEVATIONS		
TOP OF BEARING	G1w	188.172
	G1e	188.172
	G2w	188.301
	G2e	188.301
	G3w	188.244
	G3e	188.244

METRIC
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN

HWY
CONT 2019–2003
WP 2116–16–00

Q.E.W. – CNR/CPR OVERHEAD

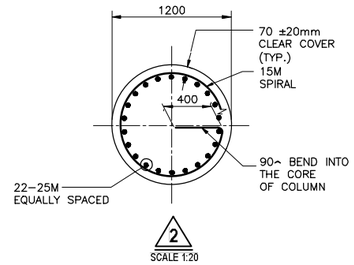
PIER DETAILS (SBL)

SHEET 196

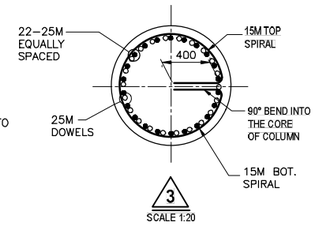
AECOM

LIST OF ABBREVIATIONS
C.J. DENOTES CONSTRUCTION JOINT
E.W. DENOTES EACH WAY
EL. DENOTES ELEVATION
TYP. DENOTES TYPICAL
W.P. DENOTES WORKING POINT

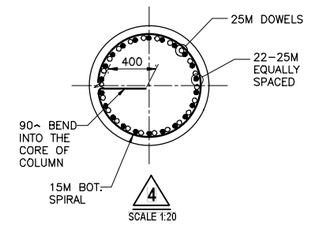
NOTES:
1. THIS DRAWING TO BE READ IN CONJUNCTION WITH PILE AND FOUNDATION LAYOUT ON DWG No. 8.



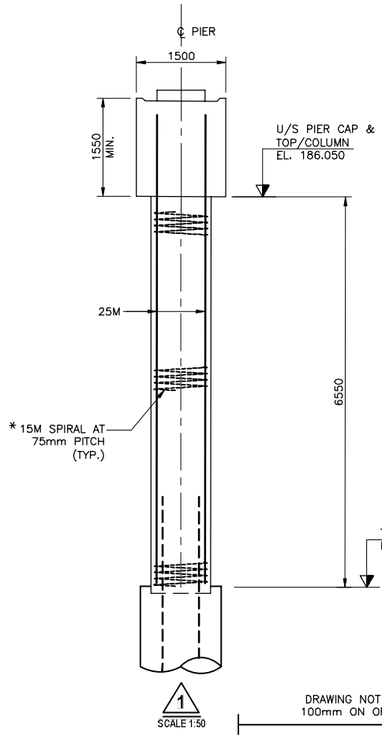
2 SCALE 1:20



3 SCALE 1:20

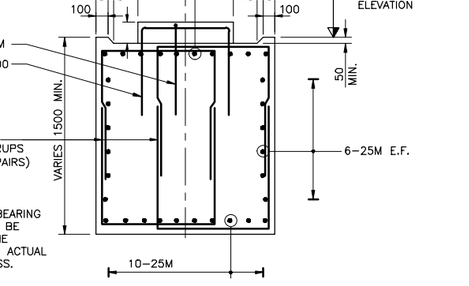


4 SCALE 1:20



1 SCALE 1:50

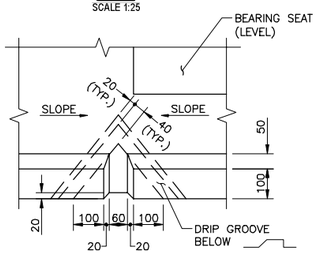
DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING



NOTE:

** THE HEIGHT OF BEARING PEDESTALS SHALL BE CONFIRMED BY THE CONTRACTOR WITH ACTUAL BEARING THICKNESS.

5 SCALE 1:25



A SCALE 1:10





REVISIONS		
DATE	BY	DESCRIPTION

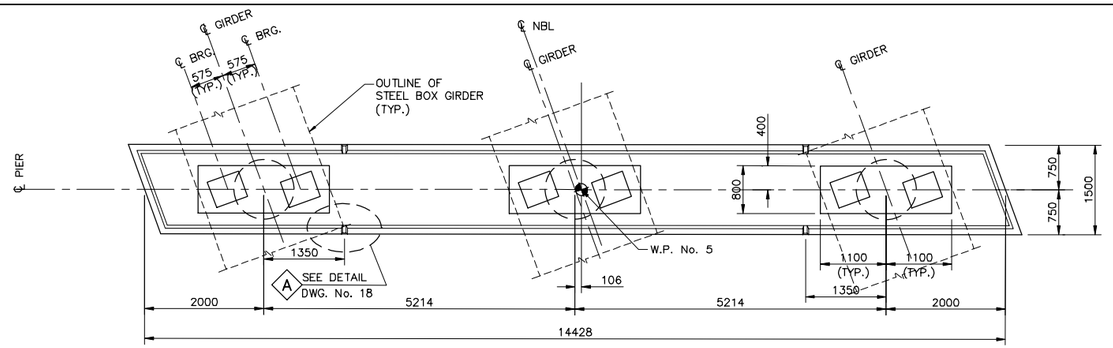
DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT	DATE JAN., 19	
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2		DWG 18	

MINISTRY OF TRANSPORTATION, ONTARIO
PR–D–707 88–05

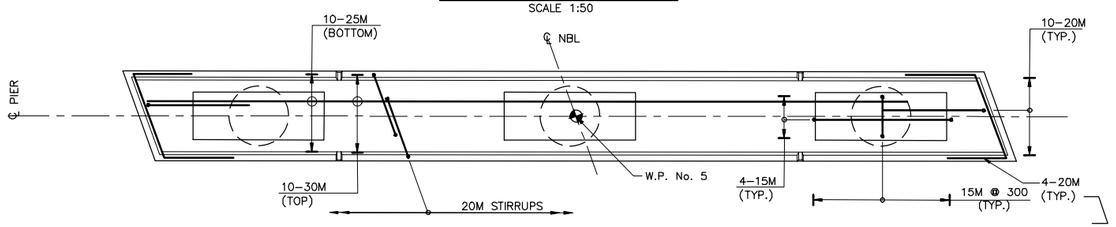
DRAWING NAME: 18–60581660–SBL–PIER.dwg
CREATED: 2018–10–02 MODIFIED: 2019–03–18 9:07 AM

MINISTRY OF TRANSPORTATION, ONTARIO
PR-D-707 88-05

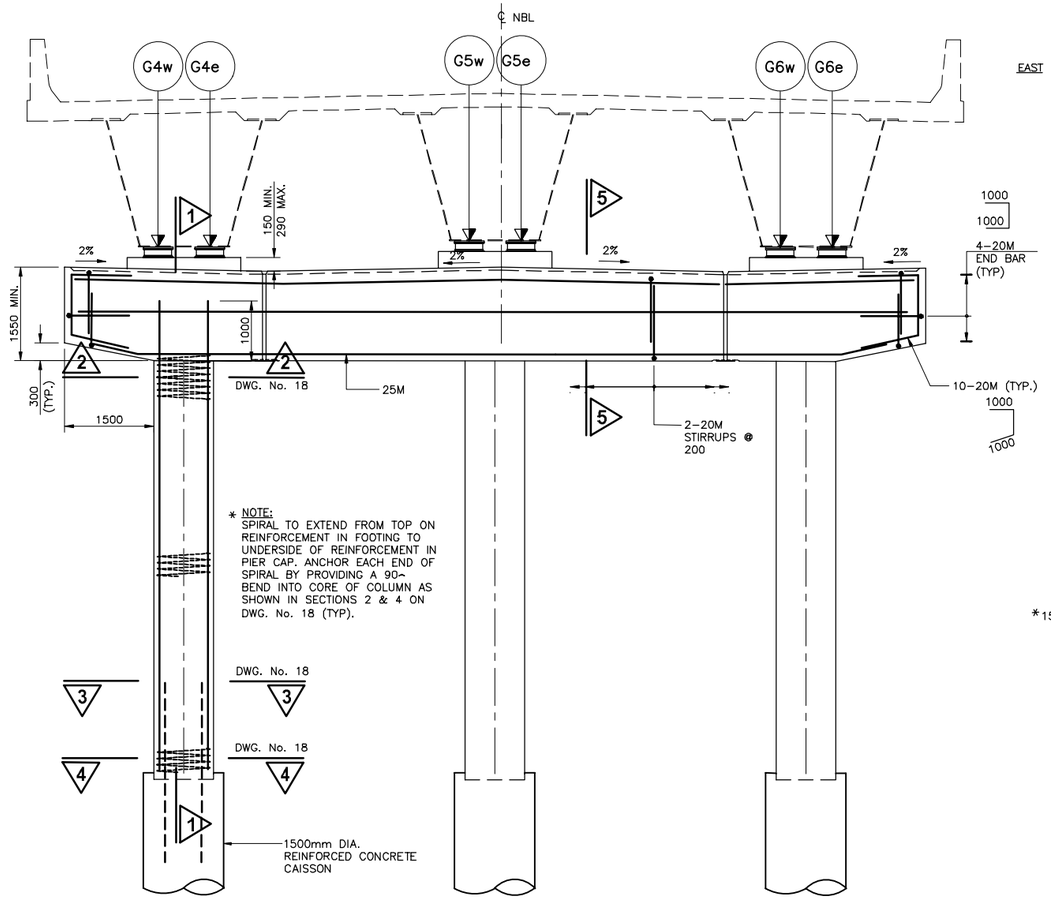
NORTH FOR CONSTRUCTION



PLAN AT BEARING SEAT
SCALE 1:50



PIER CAP REINFORCEMENT
SCALE 1:50



ELEVATION
SCALE 1:50

ELEVATIONS		
TOP OF BEARING	G4w	188.265
	G4e	188.265
	G5w	188.365
	G5e	188.365
	G6w	188.272
	G6e	188.272

METRIC
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN

HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD	SHEET 197
PIER DETAILS (NBL)	

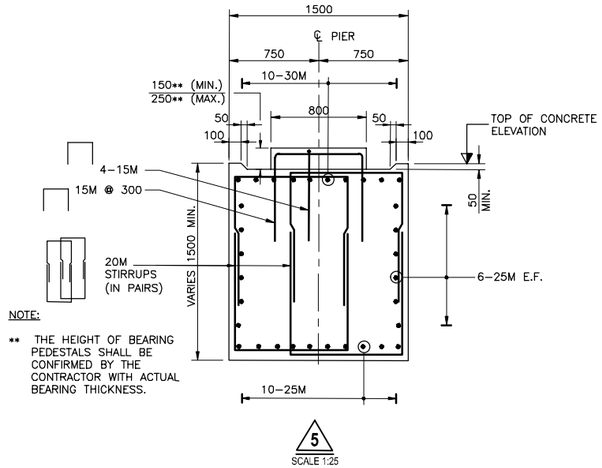
AECOM

LIST OF ABBREVIATIONS

C.J. DENOTES CONSTRUCTION JOINT
E.W. DENOTES EACH WAY
EL. DENOTES ELEVATION
TYP. DENOTES TYPICAL
W.P. DENOTES WORKING POINT

NOTES:

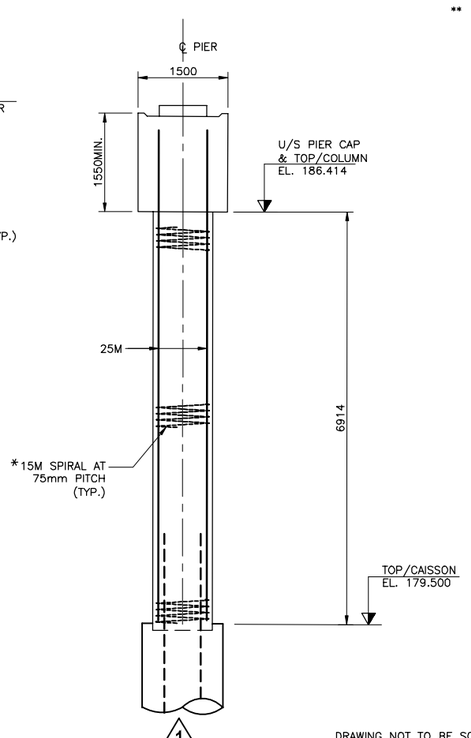
1. THIS DRAWING TO BE READ IN CONJUNCTION WITH PILE AND FOUNDATION LAYOUT ON DWG Nos. 8 AND 9.



NOTE:

** THE HEIGHT OF BEARING PEDESTALS SHALL BE CONFIRMED BY THE CONTRACTOR WITH ACTUAL BEARING THICKNESS.

5
SCALE 1:25



1
SCALE 1:50

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

LICENSED PROFESSIONAL ENGINEER
C. W. HSIEH
100199333
March 14, 2019
PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER
D.G.LADOUCEUR
100122070
March 14, 2019
PROVINCE OF ONTARIO

REVISIONS			
	DATE	BY	DESCRIPTION

DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT	DATE JAN., 19
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2		DWG 19

DRAWING NAME: 19–60581660–NBL–PIER.dwg
CREATED: 2018–10–02 MODIFIED: 2019–03–18 9:09 AM

MINISTRY OF TRANSPORTATION, ONTARIO
RR-13-707 88-05
DRAWING NAME: 20-60581660-BEARINGS.dwg
CREATED: 2018-09-18 MODIFIED: 2019-03-15 3:16 PM

NORTH FOR CONSTRUCTION

METRIC
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN

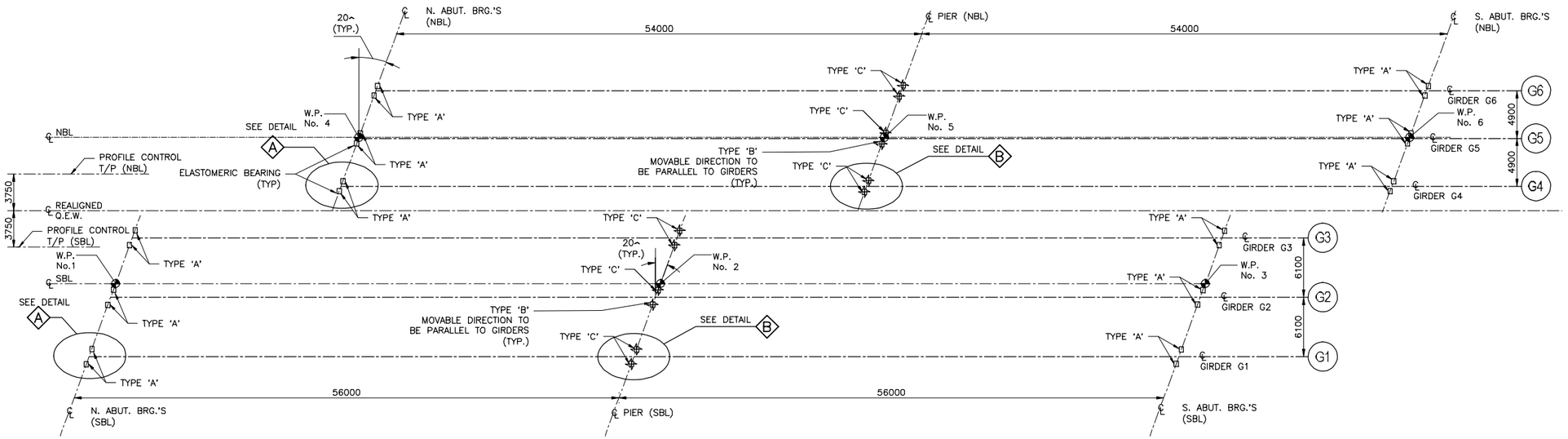
HWY
CONT 2019-2003
WP 2116-16-00

Q.E.W. – CNR/CPR OVERHEAD

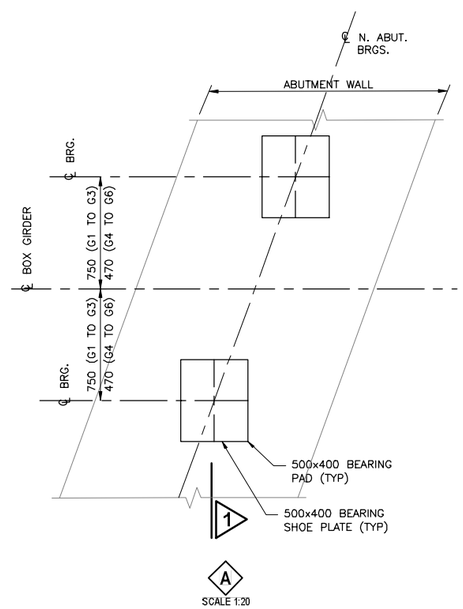
BEARING DETAILS

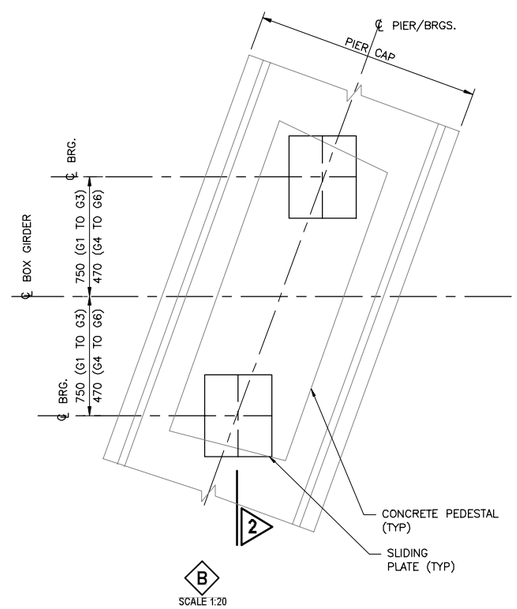
SHEET 198

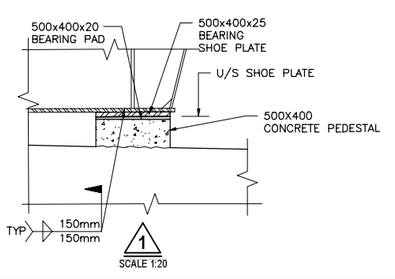
AECOM

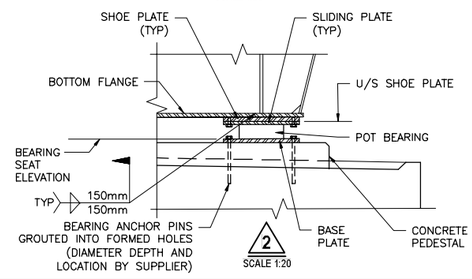


LAYOUT PLAN
SCALE 1:250



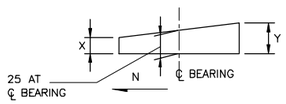






BEVELLED SHOE PLATE THICKNESS

LOCATION	NORTH ABUTMENT		PIER		SOUTH ABUTMENT	
GIRDER	X	Y	X	Y	X	Y
G1 TO G3	22	28	24	26	27	23
G4 TO G6	22	28	24	26	27	23



SHOE PLATE DIMENSIONS (mm)

LOCATION	LENGTH	WIDTH	THICKNESS
NORTH ABUTMENT BEARINGS	400	500	25
SOUTH ABUTMENT BEARINGS	400	500	25
PIER (UNI–DIR)	435	635	25
PIER (MULTI–DIR)	435	545	25

THE THICKNESS OF THE SHOE PLATES SHOWN IN THE TABLE INDICATES THE MINIMUM THICKNESS AT THE CENTERLINE OF THE BEARINGS.

LEGEND

TYPE 'A' – PLAIN ELASTOMERIC BEARING (SUPPORT CONSTRUCTION DEAD LOADS ONLY)

TYPE 'B' – UNI–DIRECTIONAL POT BEARING

TYPE 'C' – MULTI–DIRECTIONAL POT BEARING

LICENSED PROFESSIONAL ENGINEER C. W. HSIEH 100199333 March 14, 2019 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER D. E. M. ADAMSON 100182079 March 14, 2019 PROVINCE OF ONTARIO

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

BEARING DATA AT PIER

LOCATION	LIMIT STATE	COMBINATION	AXIAL LOAD (kN)	MAX. HORIZONTAL LOAD (kN)		MAX. ROTATION ABOUT		MAX. TRANSLATION (mm)	
				LONGIT.	TRANS.	HORIZ. AXIS	VERT. AXIS	LONGIT.	TRANS.
PIER (UNI–DIR) TYPE B	SLS	PERMANENT	2100	–	35	?1~	?1~	23	–
		PERMANENT+TRANS. MAX	2600	–	300				
		PERMANENT+TRANS. MIN	2100	–	150				
	ULS	PERMANENT	2800	–	50	?1~	?1~	–	–
		PERMANENT+TRANS. MAX	3700	–	600				
		PERMANENT+TRANS. MIN	2800	–	450				
PIER (MULTI–DIR) TYPE C	SLS	PERMANENT	2100	–	–	?1~	?1~	23	–
		PERMANENT+TRANS. MAX	2600	–	–				
		PERMANENT+TRANS. MIN	2100	–	–				
	ULS	PERMANENT	2800	–	–	?1~	?1~	–	–
		PERMANENT+TRANS. MAX	3700	–	–				
		PERMANENT+TRANS. MIN	2800	–	–				

BEARING DATA	REQUIREMENTS AT SERVICEABILITY LIMIT STATES LOADING	
	NORTH ABUTMENT	SOUTH ABUTMENT
TOTAL LOAD (kN)	300 kN	300 kN
MOVEMENT (mm)	±10 mm	±10 mm
MAXIMUM SHEAR RATE (kN/mm)	8.10	8.10
BEARING SIZE (mm)	500x400x20	500x400x20
NUMBER REQUIRED	12	12
BEARING TYPE	PLAIN ELASTOMERIC	

NOTE:
CALCULATED BASED ON UNRESTRICTED THERMAL EXPANSION MOVEMENTS PRIOR TO CASTING OF INTEGRAL BACKWALL AT ABUTMENTS. EFFECTIVE CONSTRUCTION TEMPERATURE 15~ C WAS USED IN ACCORDANCE WITH CAN/CSA–S6–14.

NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING Nos. 21 TO 27.
2. THE CONTRACTOR SHALL ADJUST BEARING SEAT ELEVATIONS AND REINFORCING STEEL TO SUIT ACTUAL HEIGHTS OF BEARINGS.
3. STEEL TO CONFORM TO CAN/CSA–G40.21, GRADE 300W OR 350W, GALVANIZED OR METALIZED UNLESS NOTED OTHERWISE.
4. ROTATIONAL BEARINGS SHALL BE CLASS/CLASSES LISTED IN DSM 9.15.71, 9.15.75, AND 9.15.80 UNDER HEADING "BEARING BRIDGE (ROTATIONAL)".
5. THE CONTRACTOR SHALL ESTABLISH THE BEARING SIZE SUCH THAT CONTACT PRESSURE UNDER PERMANENT LOADS AT SLS IS NOT LESS THAN 25MPa.
6. BEARING SUPPLIERS ARE REQUIRED TO PROVIDE ADDITIONAL ROTATIONAL CAPACITY OF 1.2 DEGREE ABOUT THE HORIZONTAL AXIS IN ACCORDANCE WITH OPSS 1203 AND AS REQUIRED BY CHBDC.
7. GIRDER SHOE PLATE DIMENSION SHALL BE ADJUSTED TO SUIT FINAL PIER BEARING DESIGN.

REVISIONS

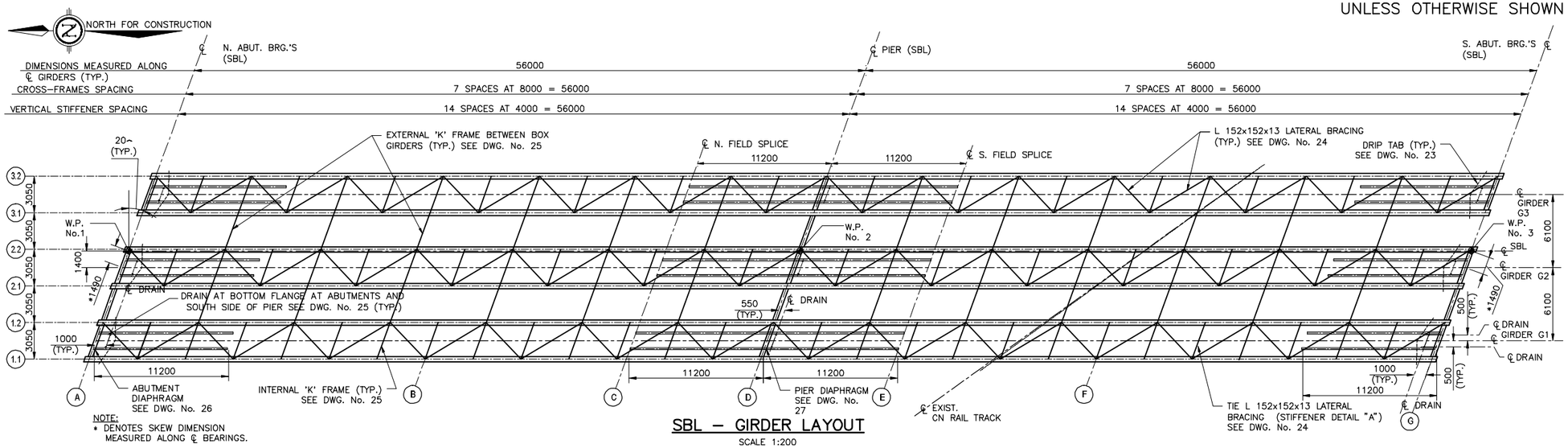
DATE	BY	DESCRIPTION

DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT	DATE JAN., 19	
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2		DWG 20	

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

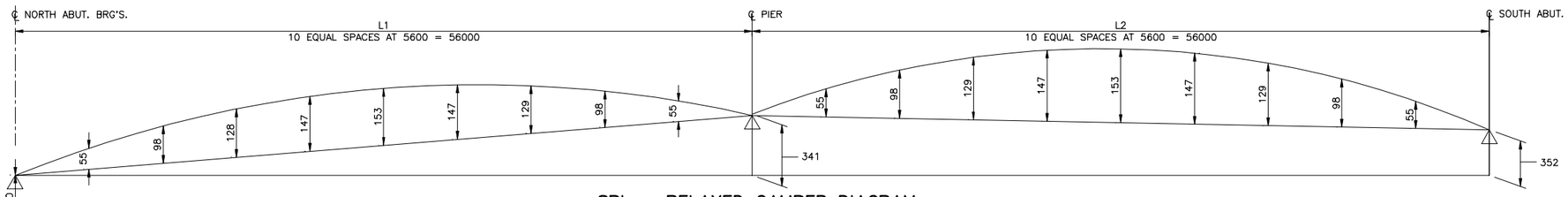
HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD	SHEET 199
STEEL BOX GIRDER DETAILS 1 (SBL)	

AECOM



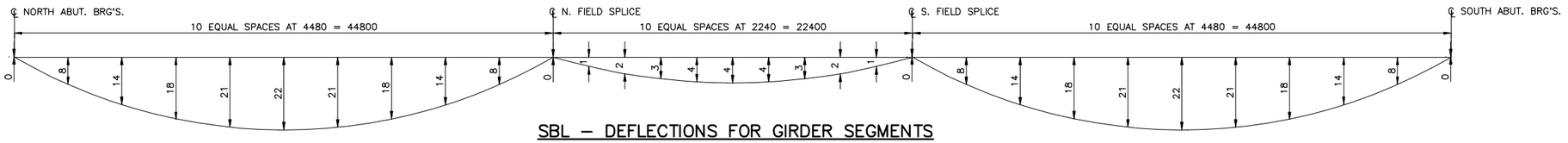
SBL – GIRDER LAYOUT

SCALE 1:200



SBL – RELAXED CAMBER DIAGRAM

N.T.S.



SBL – DEFLECTIONS FOR GIRDER SEGMENTS

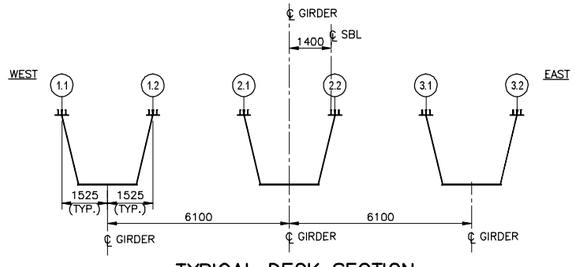
N.T.S.

GIRDER ERECTION ELEVATIONS

LOCATION	1.1	1.2	2.1	2.2	3.1	3.2
A ℄ N. ABUT. BRG'S.	189.975	189.975	190.118	190.118	190.082	190.082
B ℄ NORTH SPAN	190.327	190.327	190.463	190.463	190.417	190.417
C ℄ N. FIELD SPLICE	190.395	190.395	190.527	190.527	190.475	190.475
D ℄ PIER	190.361	190.361	190.490	190.490	190.434	190.434
E ℄ S. FIELD SPLICE	190.473	190.473	190.600	190.600	190.540	190.540
F ℄ SOUTH SPAN	190.522	190.522	190.645	190.645	190.579	190.579
G ℄ S. ABUT. BRG'S.	190.366	190.366	190.482	190.482	190.407	190.407

NOTE:

GIRDER ELEVATIONS ARE GIVEN AT THE TOP SURFACE OF THE TOP FLANGE OR THE TOP SURFACE OF THE TOP FLANGE SPLICE PLATE AT CENTRE LINE OF FIELD SPLICE AND INCLUDE DEFLECTIONS DUE TO SELF–WEIGHT OF THE STRUCTURAL STEEL.



TYPICAL DECK SECTION

SCALE 1:100

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING Nos. 22 TO 27.
2. FOR SHEAR CONNECTORS SEE DRAWING No. 24.

STRUCTURAL STEEL NOTES

1. ALL STRUCTURAL STEEL SHALL CONFORM TO CSA STANDARD G40.20/G40.21 GRADE 350AT. THE CHARPY IMPACT ENERGY REQUIREMENTS SHALL BE 27 JOULES AND THE TEST TEMPERATURE SHALL BE –30–C. ROLLED SECTIONS SHALL CONFORM TO CSA STANDARD G40.20/G40.21 OR ASTM SPECIFICATION A588.
2. BOLTS ON ATMOSPHERIC CORROSION RESISTANT STEEL SHALL BE ASTM A325 TYPE 3, M22. BOLTS ON COATED STEEL SHALL BE GALVANIZED ASTM A325M TYPE 1, M22. BOLT THREADS SHALL BE EXCLUDED FROM THE SHEAR PLANES.
3. STUD SHEAR CONNECTORS SHALL BE 22mm DIA. AND CONFORM TO ASTM STANDARD A108 AND CSA W59.
4. ALL LENGTHS SHOWN ARE IN THE HORIZONTAL PLANE AND MEASURED AT 20°C.
5. GIRDERS SHALL BE CAMBERED TO VALUES SHOWN IN THE RELAXED CAMBER DIAGRAM.
6. RELAXED CAMBER ORDINATES INCLUDE AN ALLOWANCE FOR GIRDER SELF–WEIGHT, CONCRETE DECK, SUPERIMPOSED DEAD LOADS AND PROFILE OF HIGHWAY. ADJUSTMENTS SHALL BE MADE TO THE RELAXED CAMBER DIAGRAM TO COMPENSATE FOR THE DEFLECTION OF THE INDIVIDUAL GIRDER SEGMENTS.
7. THE ENDS OF GIRDERS AND BEARING STIFFENERS SHALL BE TRULY VERTICAL UNDER FULL DEAD LOAD.
8. ALL BUTT WELDS IN FLANGE AND WEB SHOP SPLICES SHALL BE FINISHED FLUSH OR SMOOTH AS INDICATED, BY GRINDING WHERE NECESSARY IN THE DIRECTION OF APPLIED STRESSES. IF SHOP SPLICES ARE REQUIRED IN LOCATIONS OTHER THAN THOSE WHERE PLATE SIZES HAVE TRANSITIONS, THEIR LOCATION SHALL BE APPROVED BY THE ENGINEER.
9. UNLESS OTHERWISE NOTED THE MINIMUM FILLET WELD SHALL BE AS FOLLOWS:

MATERIAL THICKNESS OF THICKER PART JOINED (mm)	MINIMUM SIZE OF SINGLE PASS FILLET WELD (mm)
TO 12 INCLUSIVE	5
OVER 12 TO 20	6
OVER 20 TO 40	8
OVER 40 TO 60	10
OVER 60 TO 120	12

10. UNLESS OTHERWISE NOTED, LONGITUDINAL WEB STIFFENERS SHALL BE CUT 25mm SHORT OF THE TRANSVERSE WEB STIFFENERS.
11. BOLT HEADS IN FIELD SPLICES FOR BOX GIRDERS SHALL BE LOCATED ON THE EXTERIOR SURFACES.
12. ALL STRUCTURAL STEEL SURFACES SHALL BE COATED FOR A DISTANCE OF 700mm AS FOLLOWS: FROM THE FRONT FACE OF THE ABUTMENT 100mm TOWARD THE ENDS OF GIRDERS AND 600mm TOWARDS THE CENTRE OF GIRDERS. THE COLOUR OF THE TOPCOAT SHALL BE 10045 BROWN.
13. CONTRACTOR SHALL ENSURE THE STABILITY OF ALL COMPONENTS DURING HANDLING, TRANSPORTATION AND ERECTION AND UNTIL THE STRUCTURAL STEEL IS IN ITS FINAL LOCATION WITH ALL PERMANENT BRACING, CONNECTIONS AND SUPPORTS IN PLACE AND THE CONCRETE IN THE DECK HAS REACHED 75% OF ITS SPECIFIED STRENGTH.
14. ALL STRUCTURAL STEEL SURFACES OF EXTERIOR BOX GIRDERS, INCLUDING SPLICE PLATES, BUT EXCLUDING SURFACES IN CONTACT WITH CONCRETE AND THE CONTACT SURFACES OF BOLT JOINTS, SHALL BE COATED FOR A DISTANCE OF 2000mm EITHER SIDE OF THE CENTRELINE OF A FIELD SPLICE.

LICENSED PROFESSIONAL ENGINEER C. V. HSIEH 100169333 March 14, 2019 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER D.S.A. ADAMSON 100122076 March 14, 2019 PROVINCE OF ONTARIO

REVISIONS			
DATE	BY	DESCRIPTION	
DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT DATE JAN., 19
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2	DWG 21

MINISTRY OF TRANSPORTATION, ONTARIO
RR–15–707 88–05

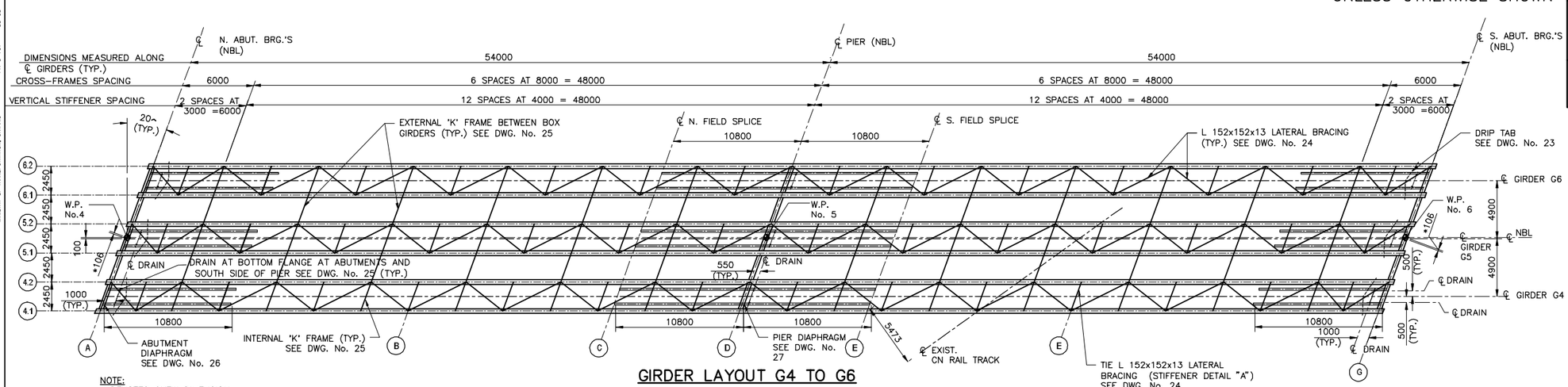
DRAWING NAME: 21–60581660–STEEL BOX – 1 – SBL.dwg
CREATED: 2018–09–19 MODIFIED: 2019–03–18 9:14 AM

NORTH FOR CONSTRUCTION

METRIC
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN

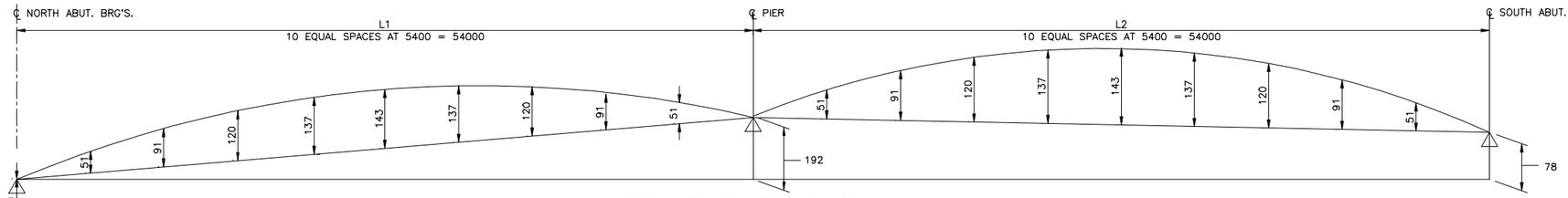
HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD	SHEET 200
STEEL BOX GIRDER DETAILS 2 (NBL)	

AECOM

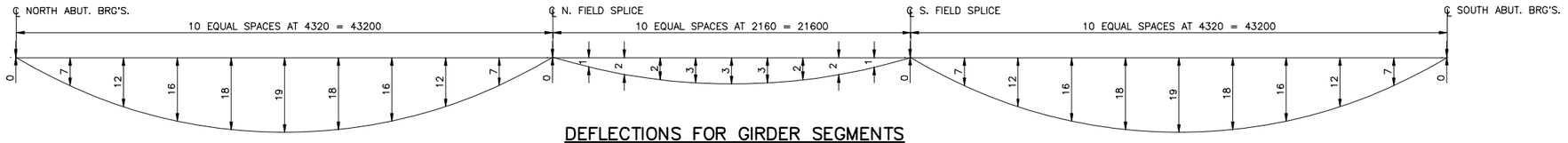


NOTE:
* DENOTES SKEW DIMENSION MEASURED ALONG ℄ BEARINGS.

GIRDER LAYOUT G4 TO G6
SCALE 1:200



RELAXED CAMBER DIAGRAM
N.T.S.



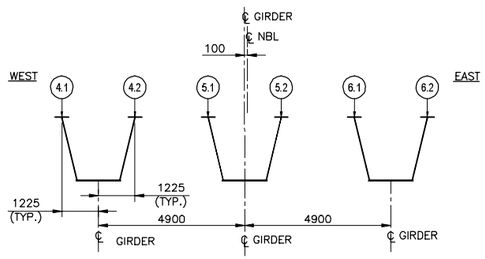
DEFLECTIONS FOR GIRDER SEGMENTS
N.T.S.

GIRDER ERECTION ELEVATIONS

LOCATION	4.1	4.2	5.1	5.2	6.1	6.2
A ℄ N. ABUT. BRG'S.	190.240	190.240	190.349	190.349	190.272	190.272
B ℄ NORTH SPAN	190.502	190.502	190.606	190.606	190.522	190.522
C ℄ N. FIELD SPLICE	190.527	190.527	190.629	190.629	190.540	190.540
D ℄ PIER	190.470	190.470	190.569	190.569	190.477	190.477
E ℄ S. FIELD SPLICE	190.548	190.548	190.646	190.646	190.550	190.550
F ℄ SOUTH SPAN	190.553	190.553	190.648	190.648	190.548	190.548
G ℄ S. ABUT. BRG'S.	190.343	190.343	190.433	190.433	190.325	190.325

NOTE:

GIRDER ELEVATIONS ARE GIVEN AT THE TOP SURFACE OF THE TOP FLANGE OR THE TOP SURFACE OF THE TOP FLANGE SPLICE PLATE AT CENTRE LINE OF FIELD SPLICE AND INCLUDE DEFLECTIONS DUE TO SELF–WEIGHT OF THE STRUCTURAL STEEL.



TYPICAL DECK SECTION
SCALE 1:100

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

NOTES:
1. FOR GENERAL NOTES SEE DWG. No. 1.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH DWG. No.s 21, AND 23 TO 27.
3. FOR STRUCTURAL STEEL NOTES SEE DWG. No. 21.

LICENSED PROFESSIONAL ENGINEER C. W. HSIEH 100199333 March 14, 2019 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER D.B.M. ADAMSON 100120075 March 14, 2019 PROVINCE OF ONTARIO

REVISIONS			
	DATE	BY	DESCRIPTION

DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT	DATE JAN., 19	
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2		DWG 22	

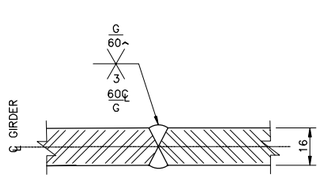
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CREATED: 2018–09–19 MODIFIED: 2019–03–18 9:18 AM

MINISTRY OF TRANSPORTATION, ONTARIO PR–D–707 88–05

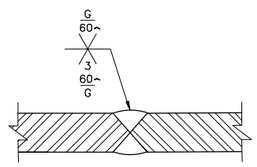
METRIC
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN

HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD	SHEET 201
STEEL BOX GIRDER DETAILS 3	

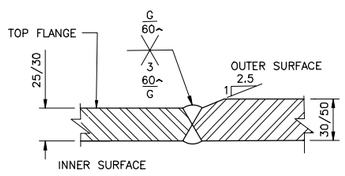
AECOM



WEB SPLICE
SCALE 1:2

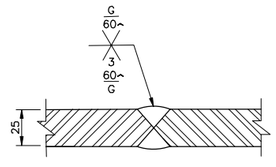


(SIMILAR THICKNESS)

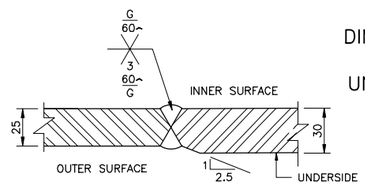


(DIFFERENT THICKNESS)

TOP FLANGE SPLICE
SCALE 1:2

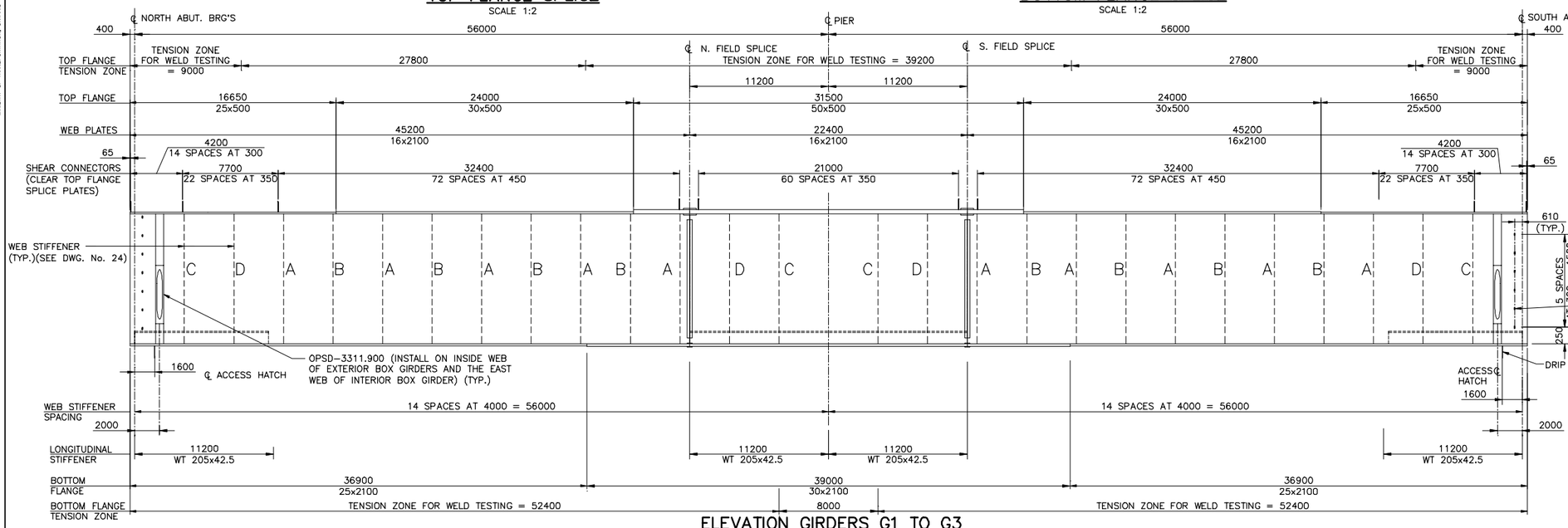


(SIMILAR THICKNESS)

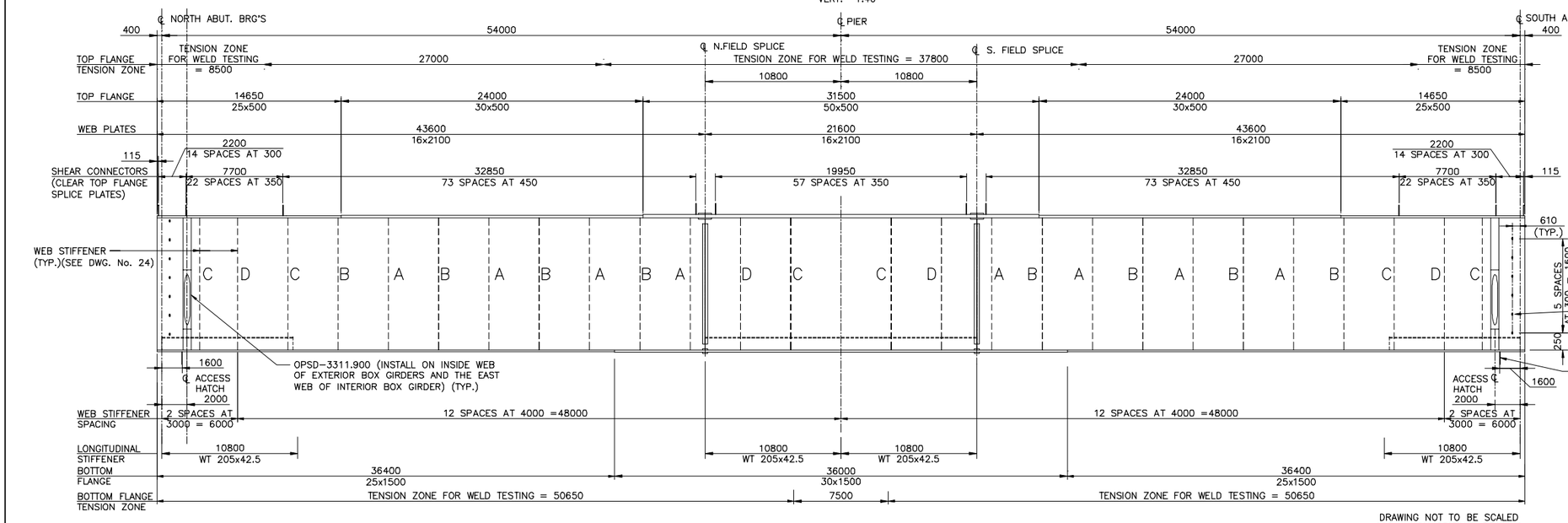


(DIFFERENT THICKNESS)

BOTTOM FLANGE SPLICE
SCALE 1:2



ELEVATION GIRDERS G1 TO G3
SCALE HORIZ. 1:200
VERT. 1:40

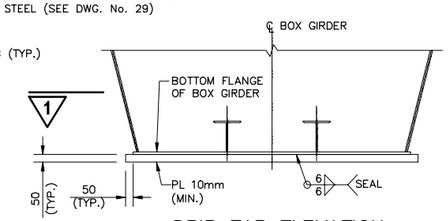


ELEVATION GIRDERS G4 TO G6
SCALE HORIZ. 1:200
VERT. 1:40

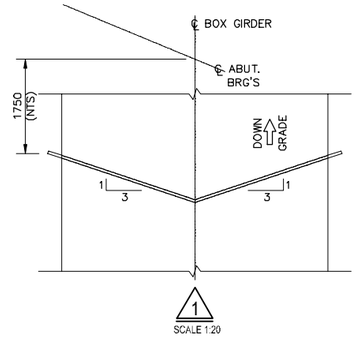
DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING Nos. 21, 22 AND 24 TO 27.
2. FOR SHEAR CONNECTORS SEE DRAWING No. 24.



DRIP TAB ELEVATION
SCALE 1:20



TYPICAL DRIP TAB DETAILS

C. W. HSIEH 100199333 March 14, 20 PROVINCE OF ONTARIO

D.B.J. ADAMSON 100122076 March 14, 20 PROVINCE OF ONTARIO

REVISIONS			
DATE	BY	DESCRIPTION	
DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT DATE JAN., 19
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2	DWG 23

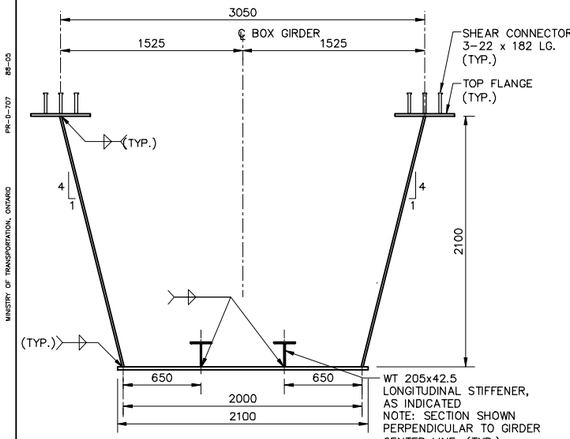
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CREATED: 2018–10–16 MODIFIED: 2019–03–18 9:19 AM

MINISTRY OF TRANSPORTATION, ONTARIO PR–13–707 88–05

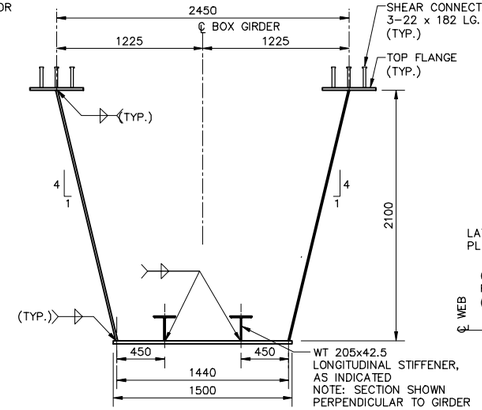
METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD STEEL BOX GIRDER DETAILS 4	SHEET 202

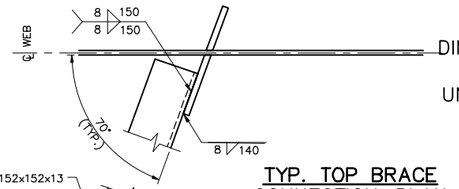
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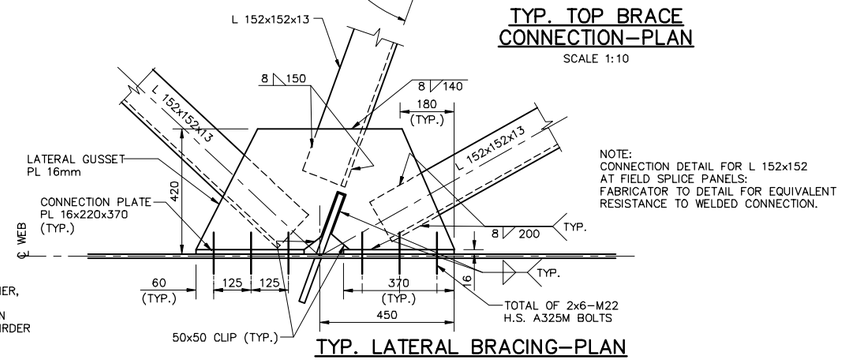
TYPICAL SECTION
(GIRDERS G1 TO G3)
SCALE 1:25



TYPICAL SECTION
(GIRDERS G4 TO G6)
SCALE 1:25



TYP. TOP BRACE CONNECTION–PLAN
SCALE 1:10

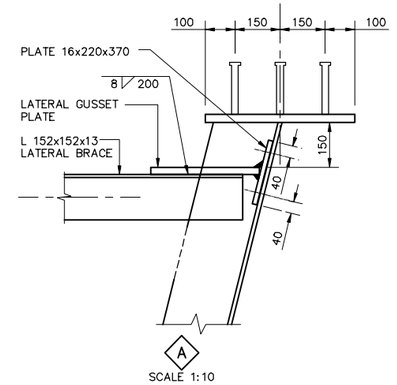


NOTE:
CONNECTION DETAIL FOR L 152x152 AT FIELD SPLICE PANELS:
FABRICATOR TO DETAIL FOR EQUIVALENT RESISTANCE TO WELDED CONNECTION.

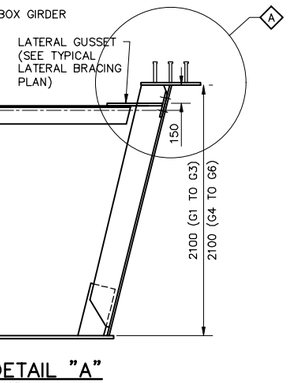
TYP. LATERAL BRACING–PLAN
SCALE 1:10

NOTES:

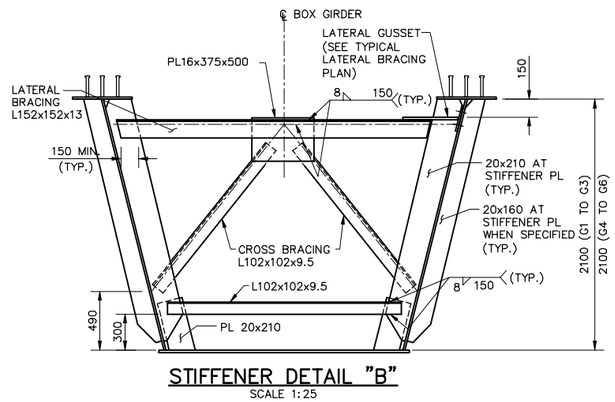
1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING No. 21, 22, 23, 25, 26, AND 27.



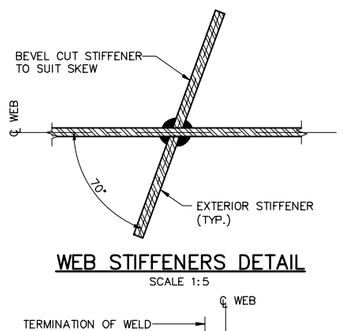
SCALE 1:10



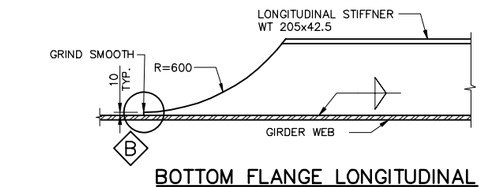
STIFFENER DETAIL "A"
SCALE 1:25



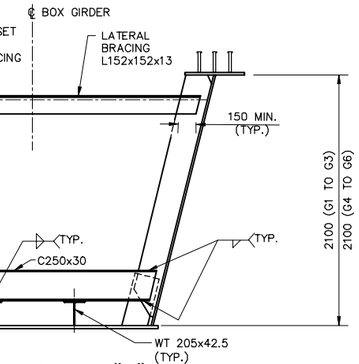
STIFFENER DETAIL "B"
SCALE 1:25



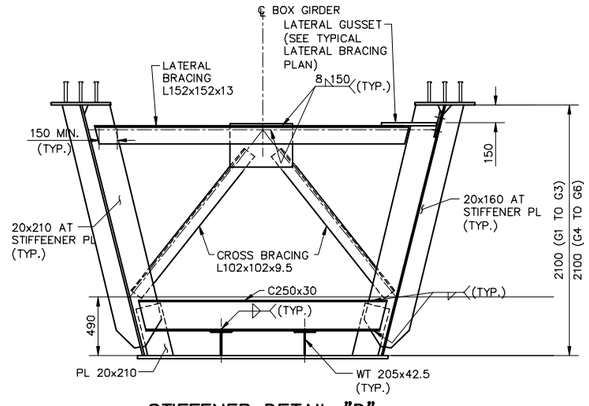
WEB STIFFENERS DETAIL
SCALE 1:5



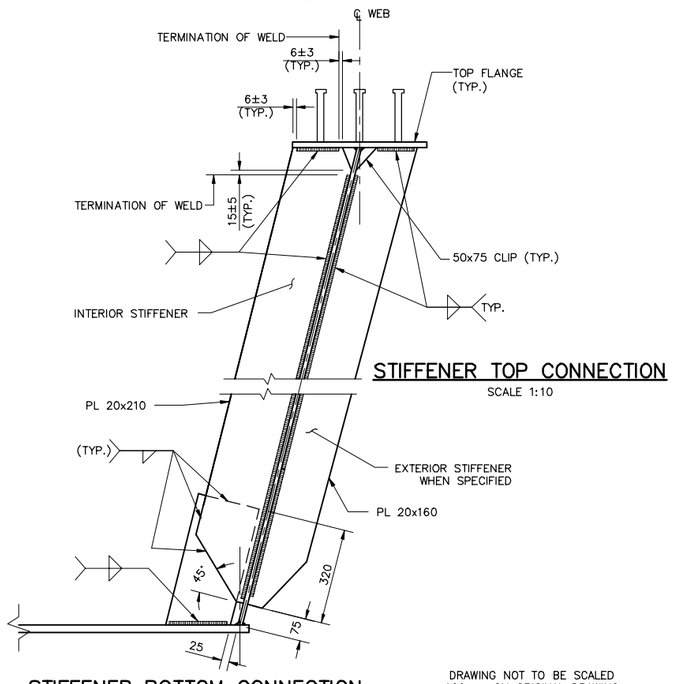
BOTTOM FLANGE LONGITUDINAL STIFFENER END DETAIL
SCALE 1:10



STIFFENER DETAIL "C"
SCALE 1:25

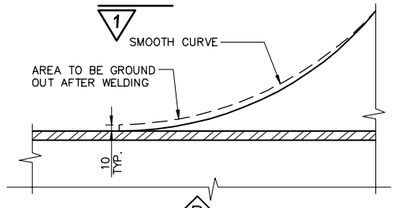


STIFFENER DETAIL "D"
SCALE 1:25

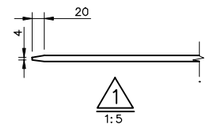


STIFFENER TOP CONNECTION
SCALE 1:10

STIFFENER BOTTOM CONNECTION
SCALE 1:10



SCALE 1:5



1:5

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING





REVISIONS		
DATE	BY	DESCRIPTION

DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT	DATE JAN., 19	
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2		DWG 24	

DRAWING NAME: 24–60581660–STRUCTURAL DETAILS 4.dwg
CREATED: 2018–10–11 MODIFIED: 2019–03–18 9:21 AM

MINISTRY OF TRANSPORTATION, ONTARIO PR–13–707 88–05

MINISTRY OF TRANSPORTATION, ONTARIO
FR-13-707 88-05

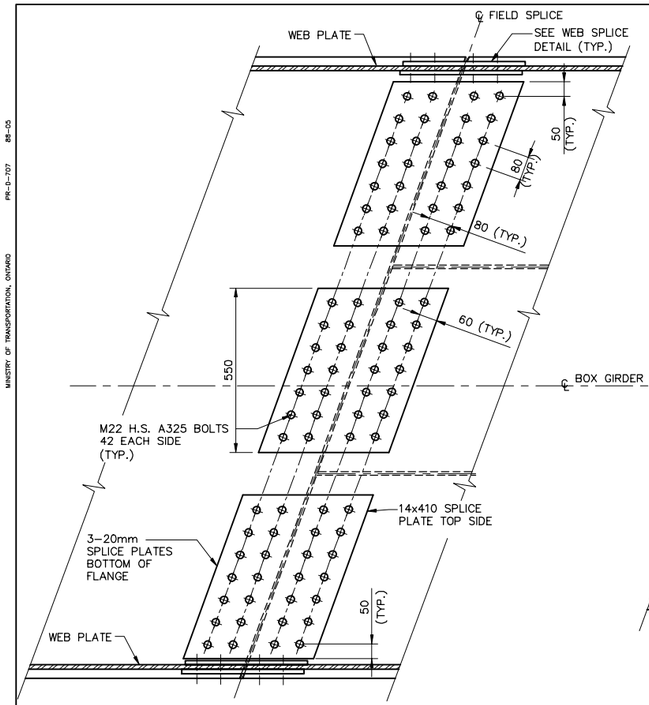
METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD STEEL BOX GIRDER DETAILS 5	SHEET 203

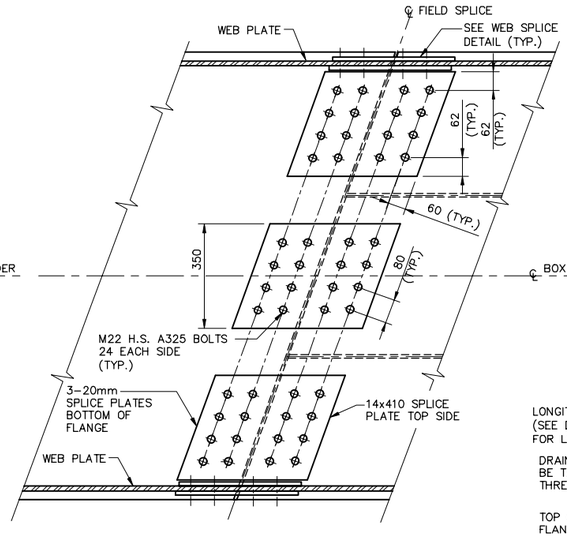
AECOM

NOTES:

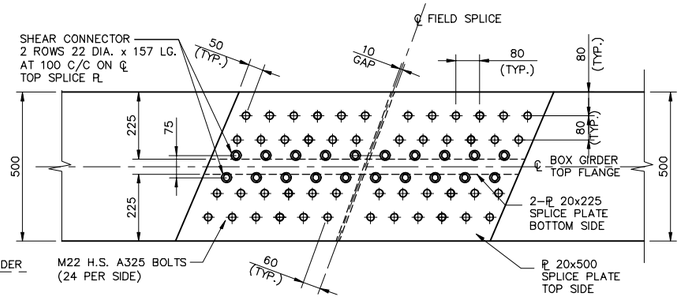
1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING Nos. 21, 22, 23, 24, 26, AND 27.



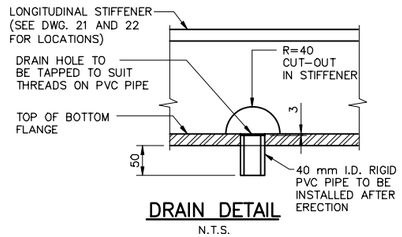
FIELD SPLICE–BOTTOM FLANGE
(GIRDERS G1 TO G3)
SCALE 1:10



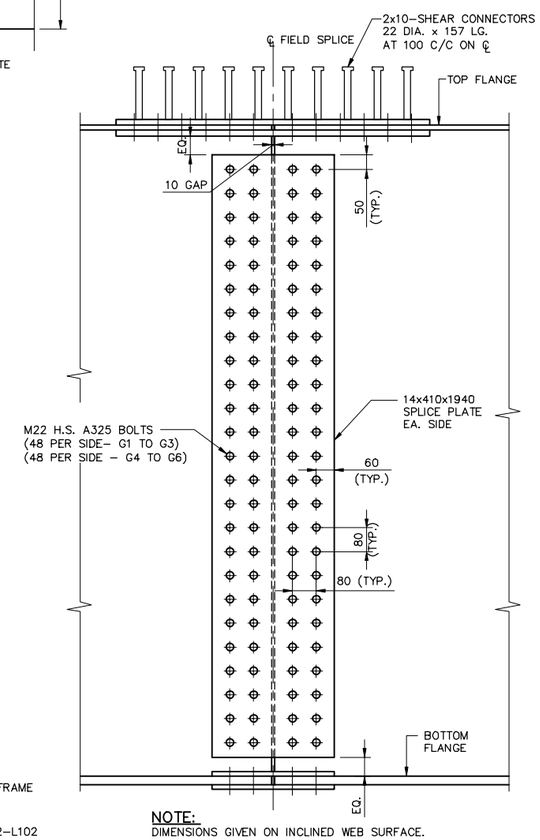
FIELD SPLICE–BOTTOM FLANGE
(GIRDERS G4 TO G6)
SCALE 1:10



FIELD SPLICE 1 & 2–TOP FLANGE
SCALE 1:10

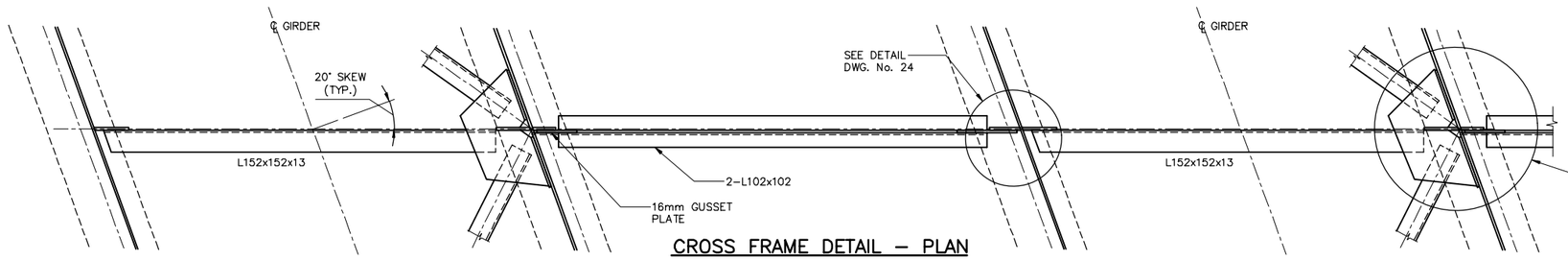


DRAIN DETAIL
N.T.S.

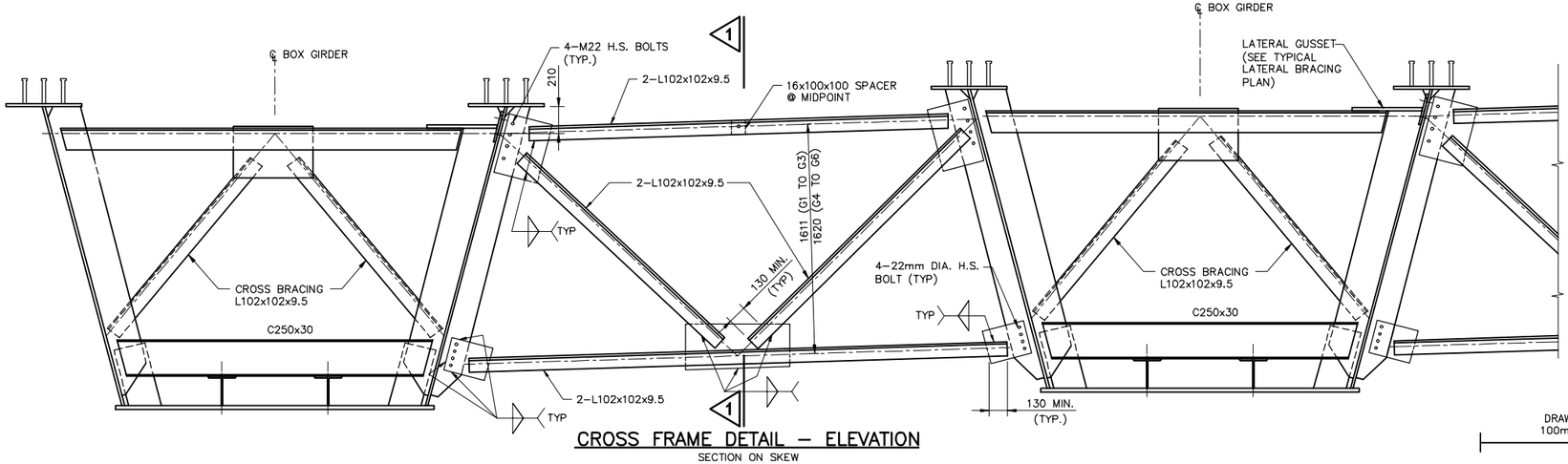


NOTE:
DIMENSIONS GIVEN ON INCLINED WEB SURFACE.

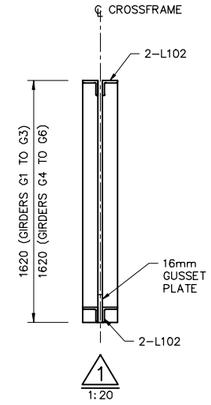
FIELD SPLICE–WEB PLATE
SCALE 1:10



CROSS FRAME DETAIL – PLAN
SCALE 1:20



CROSS FRAME DETAIL – ELEVATION
SECTION ON SKEW
SCALE 1:20



DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

LICENSED PROFESSIONAL ENGINEER C. W. HSIEH 100189333 March 14, 2019 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER D. B. A. ARMSON 100126276 March 14, 2019 PROVINCE OF ONTARIO

REVISIONS		
DATE	BY	DESCRIPTION

DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT	DATE JAN., 19	
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2		DWG 25	

DRAWING NAME: 25-60581660-STRUCTURAL DETAILS 5.dwg
CREATED: 2018-10-12 MODIFIED: 2019-03-18 9:23 AM

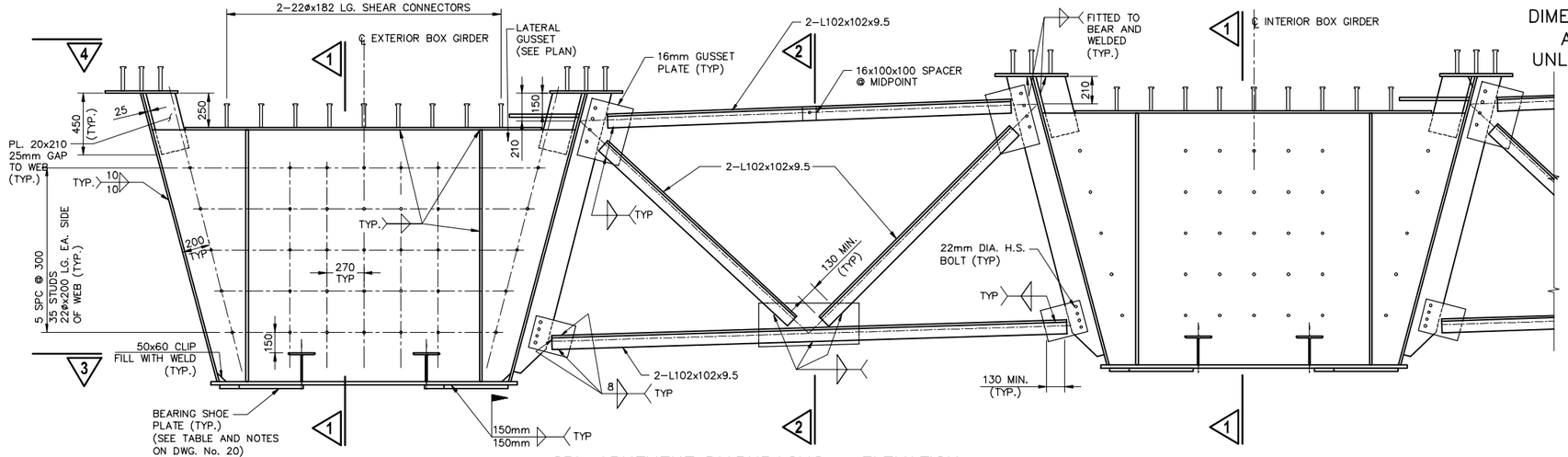
METRIC
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN

HWY	
CONT	2019-2003
WP	2116-16-00
Q.E.W. – CNR/CPR OVERHEAD STEEL BOX GIRDER DETAILS 6	SHEET 204

AECOM

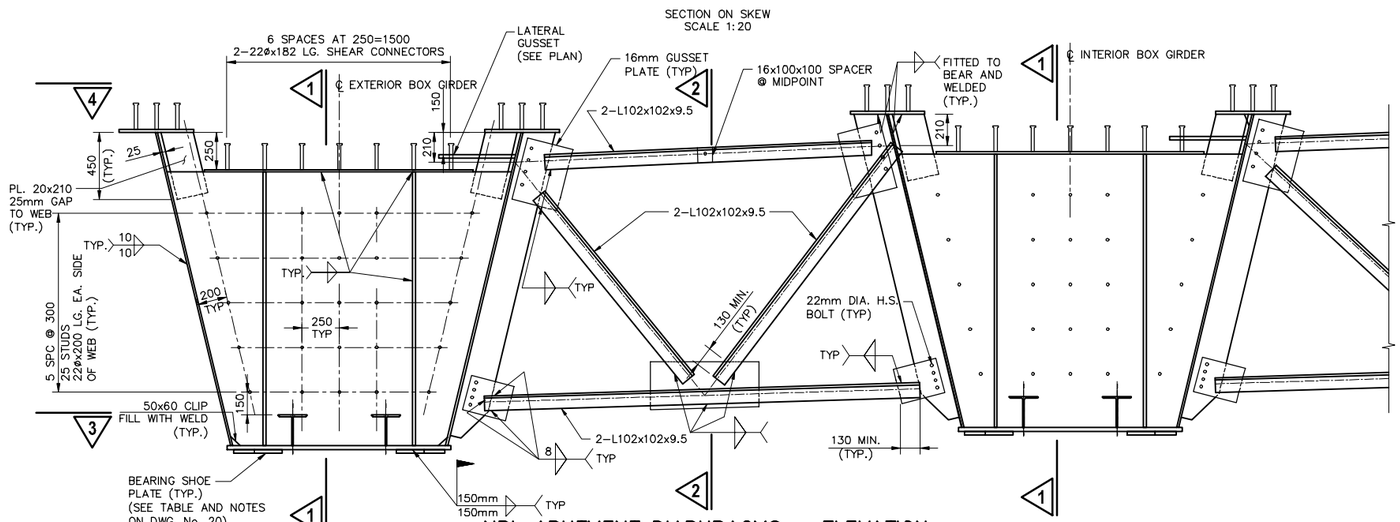
NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING Nos. 21, 22, 23, 24, 25, AND 27.
2. GIRDER SHOE PLATE DIMENSIONS SHALL BE ADJUSTED IF REQUIRED TO SUIT FINAL BEARING DESIGN DIMENSIONS. NOTIFY ENGINEER TO RESOLVE ANY CONFLICTS.
3. GRIND SHOE PLATES TO FIT UNDERSIDE OF GIRDER.



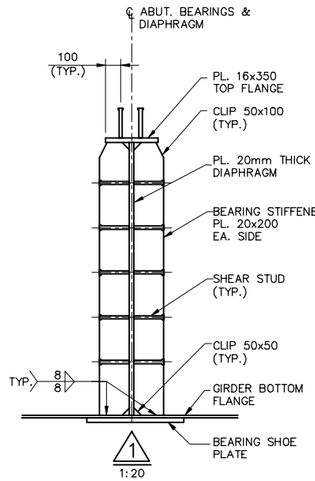
SBL ABUTMENT DIAPHRAGMS – ELEVATION

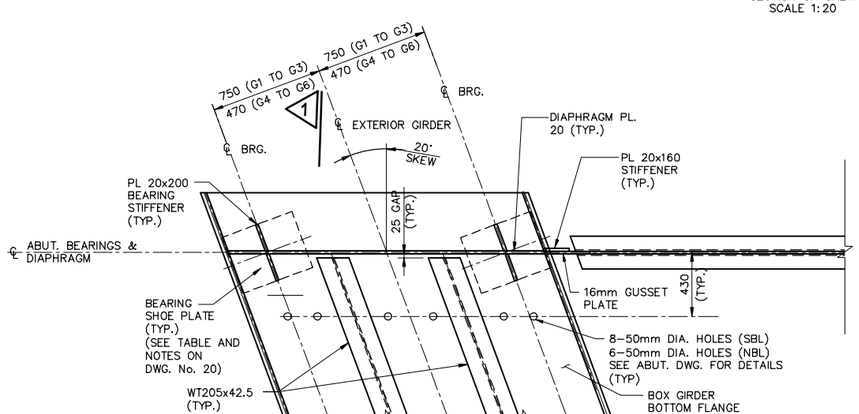
SECTION ON SKEW
SCALE 1:20



NBL ABUTMENT DIAPHRAGMS – ELEVATION

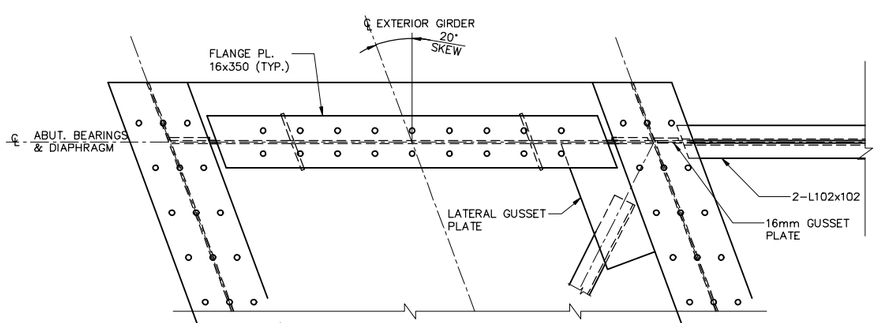
SECTION ON SKEW
SCALE 1:20





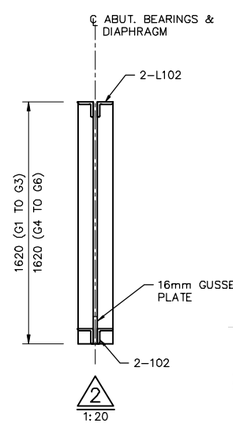
3 ABUTMENT DIAPHRAGMS – PLAN AT BOTTOM FLANGE

SCALE 1:20



4 ABUTMENT DIAPHRAGMS – PLAN AT TOP FLANGE

SCALE 1:20



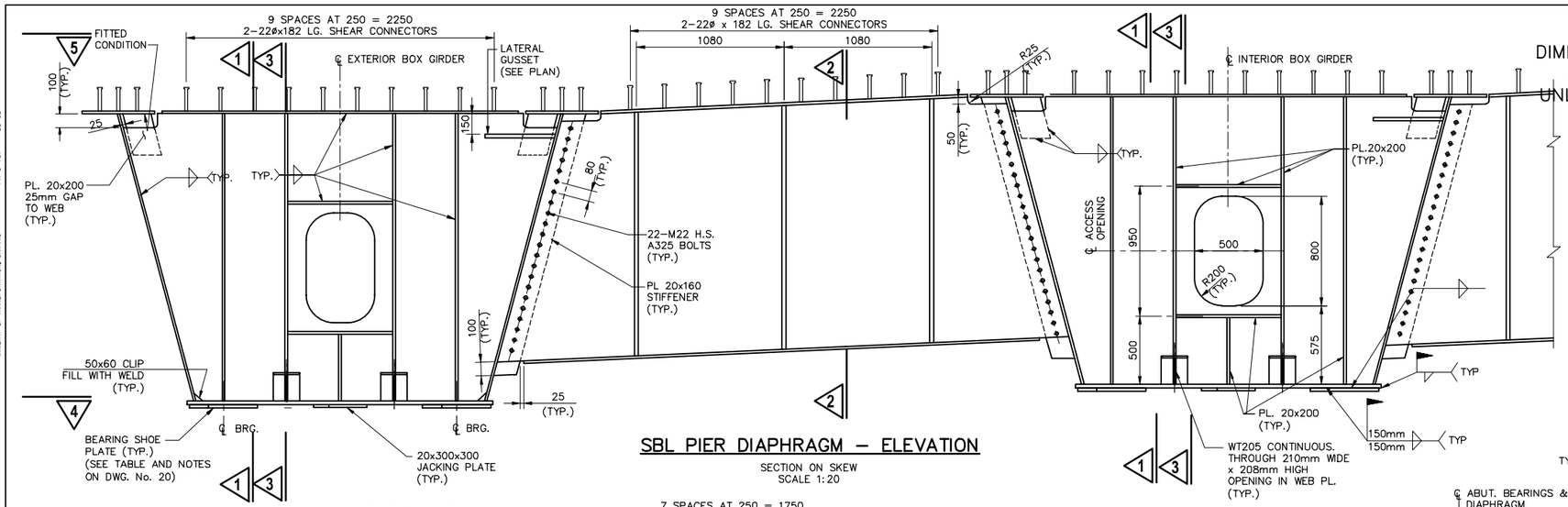
DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS		
DATE	BY	DESCRIPTION

DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT	DATE JAN., 19
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2		DWG 26

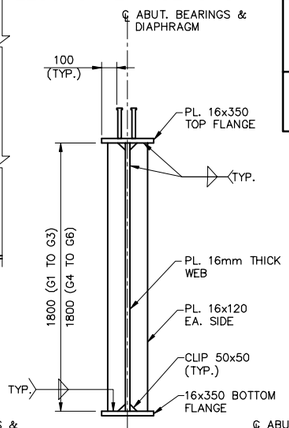
DRAWING NAME: 26-60581660-STRUCTURAL DETAILS 6.dwg
CREATED: 2018-10-12 MODIFIED: 2019-03-15 3:19 PM

MINISTRY OF TRANSPORTATION, ONTARIO
PR-D-707 88-05



SBL PIER DIAPHRAGM – ELEVATION

SECTION ON SKEW
SCALE 1:20



2 1:20

METRIC

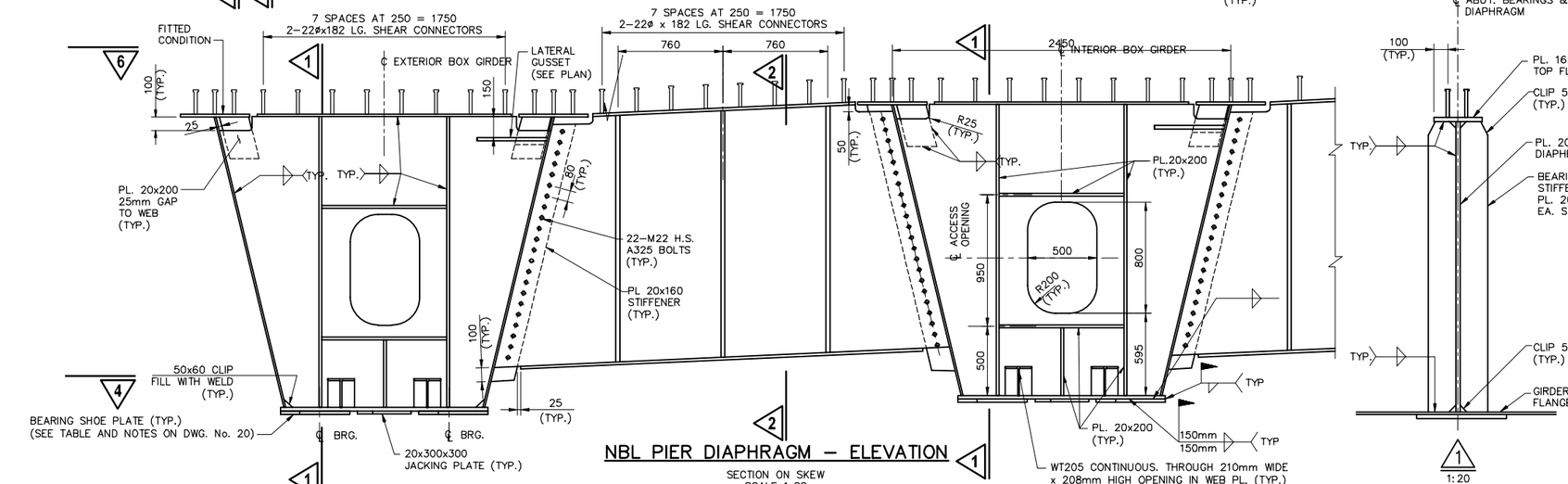
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN

HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD STEEL BOX GIRDER DETAILS 7	SHEET 205

AECOM

NOTES:

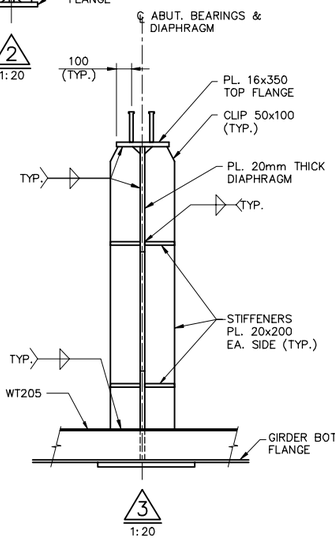
1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING Nos. 21 TO 26.
2. GIRDER SHOE PLATE DIMENSIONS SHALL BE ADJUSTED IF REQUIRED TO SUIT FINAL BEARING DESIGN DIMENSIONS. NOTIFY ENGINEER TO RESOLVE ANY CONFLICTS.
3. GRIND SHOE PLATES TO FIT UNDERSIDE OF GIRDER.



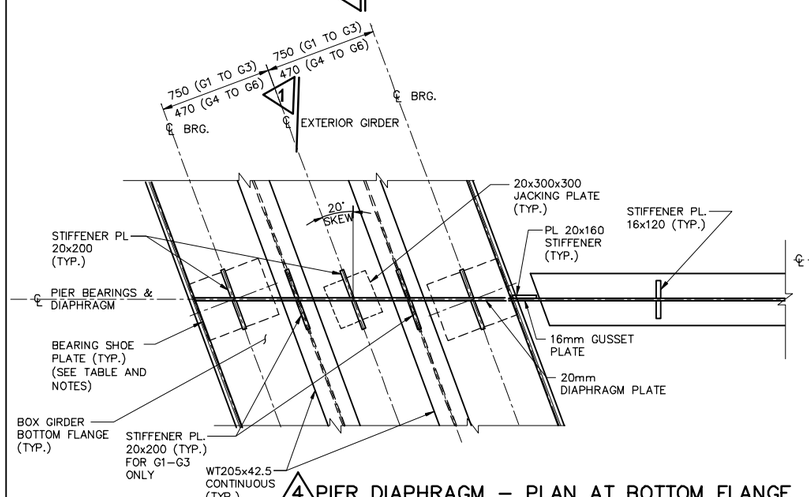
NBL PIER DIAPHRAGM – ELEVATION

SECTION ON SKEW
SCALE 1:20

1 1:20

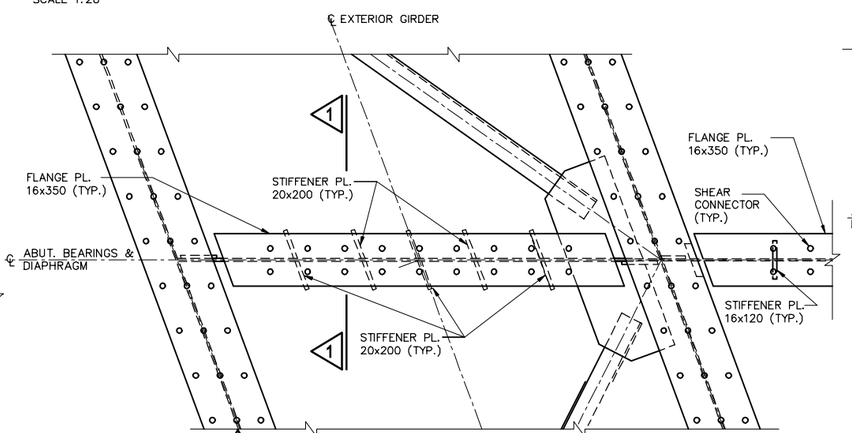


3 1:20



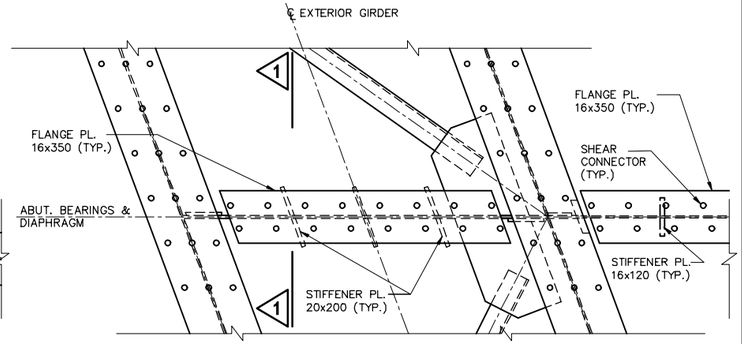
4 PIER DIAPHRAGM – PLAN AT BOTTOM FLANGE

SCALE 1:20



5 PIER DIAPHRAGM – PLAN AT TOP FLANGE

SCALE 1:20



6 PIER DIAPHRAGM – PLAN AT TOP FLANGE

SCALE 1:20

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS			
DATE	BY	DESCRIPTION	
DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT DATE JAN., 19
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2	DWG 27

D.G. ADAMSON 100120076 March 14, 20 PROVINCE OF ONTARIO

C. W. HSIEH 100199333 March 14, 20 PROVINCE OF ONTARIO

MINISTRY OF TRANSPORTATION, ONTARIO 88-05 PR-13-707

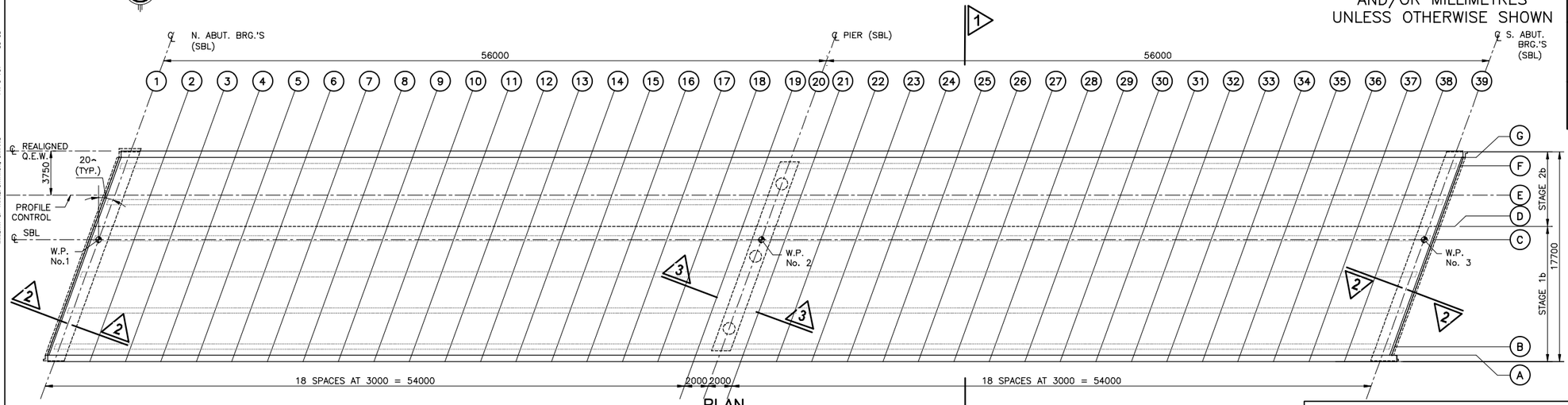
DRAWING NAME: 27-60581660-STRUCTURAL DETAILS 7.dwg
CREATED: 2018-10-12 MODIFIED: 2019-03-18 9:28 AM

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

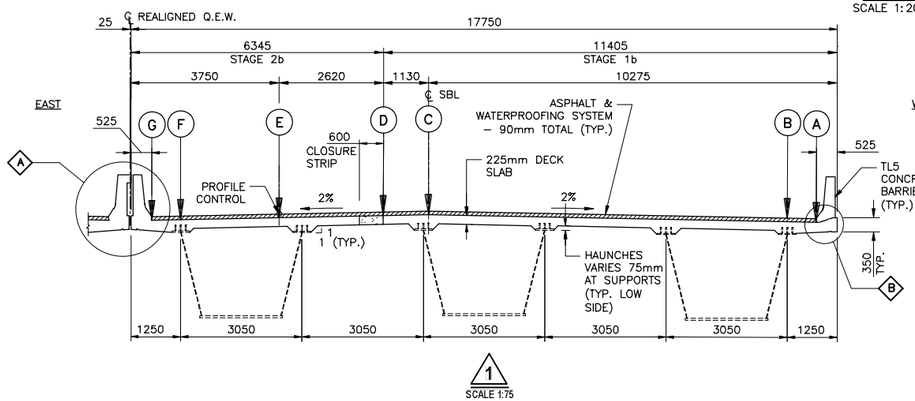
HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD	SHEET 206
DECK DETAILS (SBL)	

AECOM

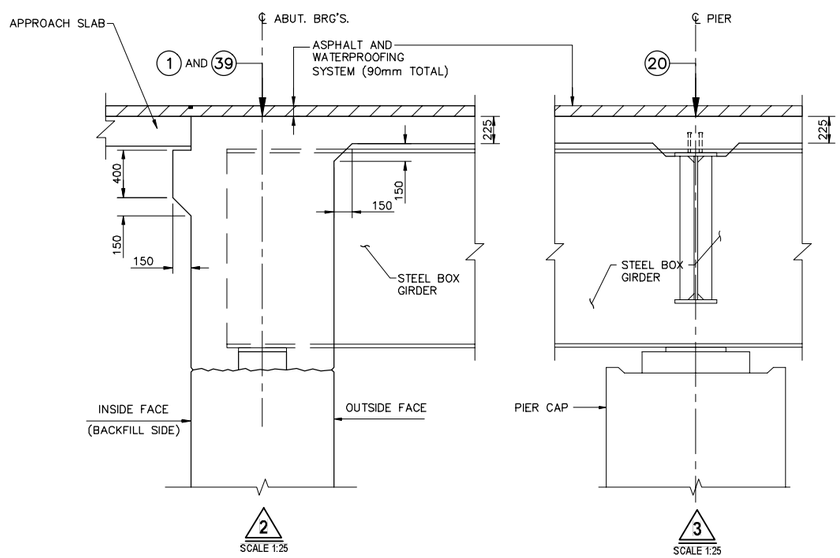
NORTH FOR CONSTRUCTION



PLAN
SCALE 1:200

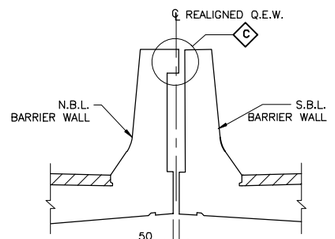


1
SCALE 1:75

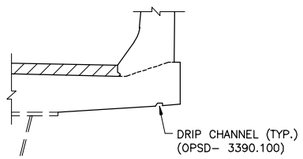


2
SCALE 1:25

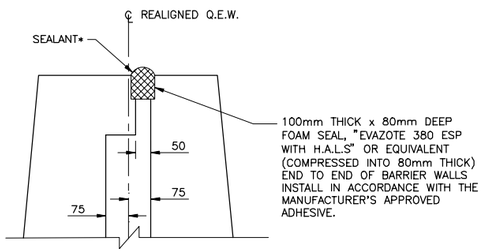
3
SCALE 1:25



A DETAIL
SCALE 1:25



B DETAIL
SCALE 1:25



* NOTE: USE SIKASIL OR DOW CORNING PRODUCT AS PER MANUFACTURER'S

C DETAIL
SCALE 1:10

NOTES:

1. SCREED ELEVATIONS ARE TO TOP OF CONCRETE.
2. SCREED ELEVATIONS SHOWN IN TABLE INCLUDE AN ALLOWANCE FOR ROADWAY PROFILE, WEIGHT OF DECK SLAB AND SUPERIMPOSED DEAD LOADS.
3. CONCRETE IN DECK SLABS AND DIAPHRAGMS SHALL BE RETARDED USING A TYPE B OR D ADMIXTURE TO ENSURE THAT THE CONCRETE REMAINS PLASTIC FOR THE DURATION OF EACH PLACEMENT.
4. CONCRETE SHALL REMAIN PLASTIC IN POURING OF SEGMENTS WITH THE SAME SEQUENCE NUMBER.
5. MINIMUM CONCRETE STRENGTH OF PREVIOUS DECK PLACEMENT SHALL BE 20 MPa BEFORE PROCEEDING WITH THE PLACEMENT.
6. CONCRETE IN BARRIER WALLS SHALL NOT BE PLACED UNTIL ALL CONCRETE IN DECK SLAB HAS REACHED A STRENGTH OF 20 MPa.
7. FALSEWORK FOR THE CANTILEVER PORTIONS OF THE DECK SLAB (FOR A LENGTH OF 2.0m) SHALL NOT BE REMOVED UNTIL ALL CONCRETE IN DECK SLAB HAS REACHED A STRENGTH OF 20 MPa.

SCREED ELEVATIONS

CONCRETE SURFACE

LINE	A	B	C	D	E	F	G
℄ N ABUT BRGS 1	190.233	190.250	190.461	190.442	190.398	190.357	190.344
2	190.278	190.295	190.505	190.486	190.441	190.400	190.387
3	190.320	190.337	190.545	190.526	190.482	190.440	190.427
4	190.359	190.376	190.583	190.564	190.519	190.477	190.464
5	190.395	190.412	190.618	190.599	190.554	190.511	190.499
6	190.428	190.445	190.650	190.631	190.586	190.543	190.530
7	190.459	190.475	190.680	190.660	190.614	190.571	190.558
8	190.486	190.503	190.706	190.686	190.640	190.597	190.584
9	190.511	190.527	190.730	190.710	190.663	190.620	190.607
10	190.533	190.549	190.750	190.730	190.684	190.640	190.627
11	190.552	190.568	190.768	190.748	190.701	190.657	190.644
12	190.568	190.584	190.783	190.763	190.716	190.671	190.658
13	190.581	190.597	190.795	190.775	190.727	190.682	190.669
14	190.591	190.607	190.804	190.784	190.736	190.691	190.677
15	190.598	190.614	190.811	190.790	190.742	190.696	190.683
16	190.603	190.619	190.814	190.793	190.745	190.699	190.685
17	190.605	190.620	190.814	190.794	190.745	190.699	190.685
18	190.603	190.619	190.812	190.791	190.742	190.696	190.682
19	190.599	190.615	190.807	190.786	190.736	190.690	190.676
℄ PIER 20	190.595	190.611	190.802	190.781	190.731	190.684	190.671
21	190.619	190.634	190.825	190.804	190.754	190.707	190.693
22	190.643	190.659	190.848	190.827	190.777	190.730	190.716
23	190.665	190.680	190.869	190.847	190.797	190.749	190.735
24	190.684	190.699	190.887	190.865	190.814	190.766	190.752
25	190.700	190.715	190.901	190.879	190.829	190.780	190.766
26	190.713	190.728	190.913	190.891	190.840	190.792	190.777
27	190.723	190.738	190.922	190.900	190.849	190.800	190.786
28	190.730	190.745	190.928	190.906	190.854	190.805	190.791
29	190.735	190.749	190.932	190.909	190.857	190.808	190.793
30	190.736	190.751	190.932	190.910	190.857	190.808	190.793
31	190.735	190.749	190.930	190.907	190.854	190.804	190.790
32	190.731	190.745	190.924	190.902	190.849	190.798	190.784
33	190.724	190.738	190.916	190.893	190.840	190.789	190.775
34	190.714	190.728	190.905	190.882	190.828	190.778	190.763
35	190.701	190.715	190.891	190.868	190.814	190.763	190.748
36	190.685	190.699	190.874	190.851	190.797	190.745	190.730
37	190.666	190.681	190.855	190.831	190.777	190.725	190.710
℄ S ABUT BRGS 38	190.645	190.659	190.832	190.808	190.754	190.702	190.687
39	190.627	190.641	190.813	190.789	190.734	190.682	190.666

APPLICABLE STANDARD DRAWINGS

OPSD–3310.100	DECK GIRDERS, CONCRETE, METHOD OF OBTAINING SCREED ELEVATIONS
OPSD–3370.100	DECK, WATERPROOFING, HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD
OPSD–3370.101	DECK, WATERPROOFING, HOT APPLIED ASPHALT MEMBRANE AT ACTIVE CRACKS GREATER THAN 2mm WIDE AND CONSTRUCTION JOINTS
OPSD–3390.100	DECK DRIP CHANNEL
OPSD–3950.100	JOINTS, CONCRETE EXPANSION AND CONSTRUCTION ON STRUCTURE

LICENSED PROFESSIONAL ENGINEER C. W. HSIEH 100199333 March 14, 2019 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER D.B. ADAMSON 100150076 March 14, 2019 PROVINCE OF ONTARIO

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS		
DATE	BY	DESCRIPTION

DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT	DATE JAN., 19	
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2		DWG 28	

DRAWING NAME: 28–60581660–SBL–DECK DETAILS.dwg
CREATED: 2018–10–03 MODIFIED: 2019–03–18 9:29 AM

MINISTRY OF TRANSPORTATION, ONTARIO PR–D–707 88–05

MINISTRY OF TRANSPORTATION, ONTARIO
RR-13-707 88-05
DRAWING NAME: 29-60581660-SBL-DECK REINFORCEMENT.dwg
CREATED: 2018-10-04 MODIFIED: 2019-03-18 9:31 AM

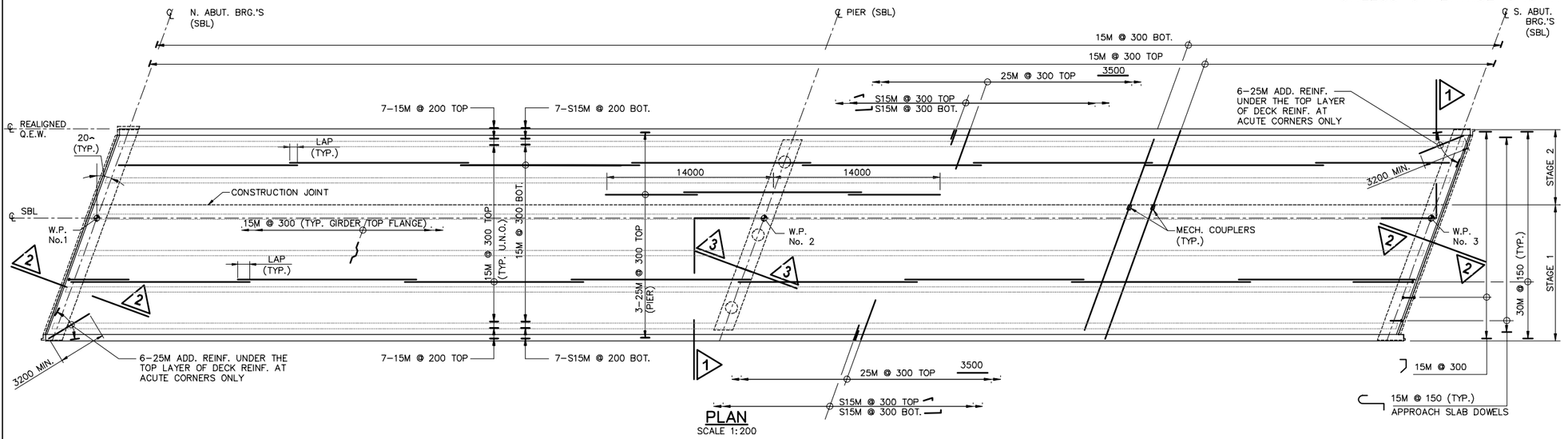
NORTH FOR CONSTRUCTION

METRIC
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN

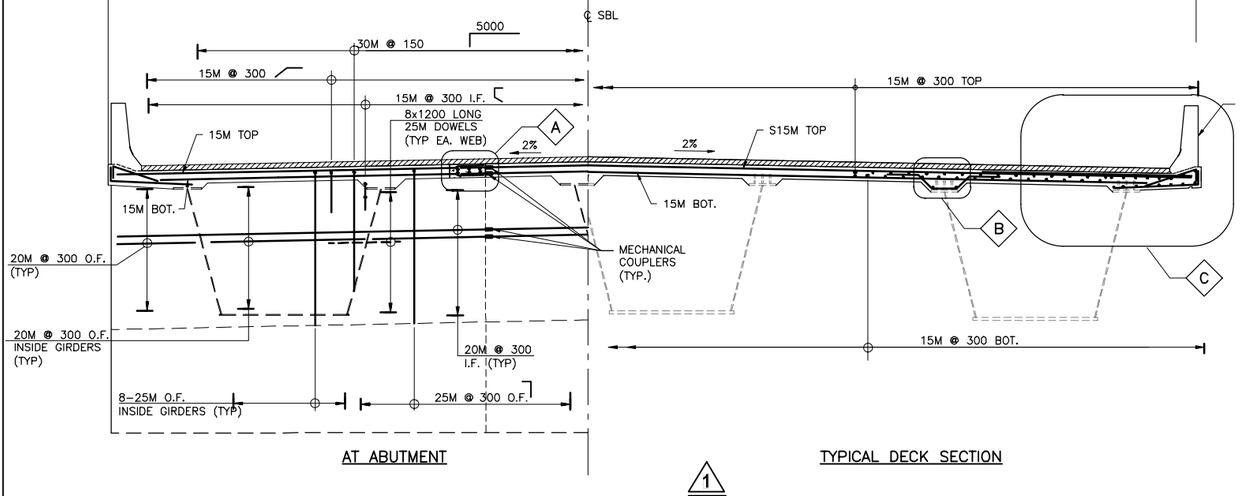
HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD	SHEET 207
DECK REINFORCEMENT (SBL)	

AECOM

NOTES:
1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DWG. No. 28.



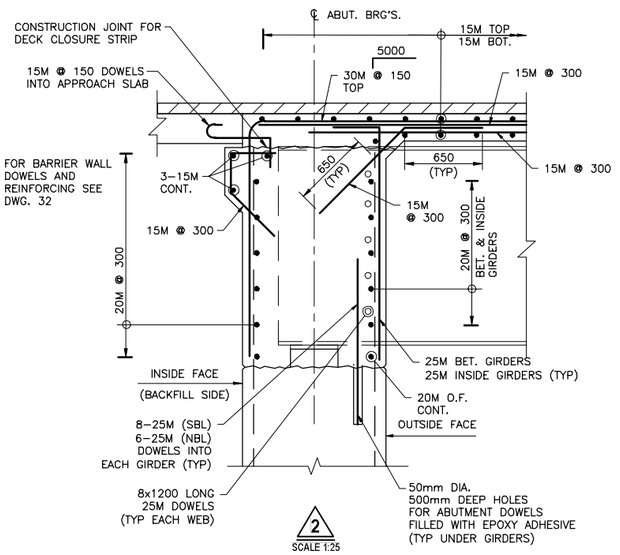
PLAN
SCALE 1:200



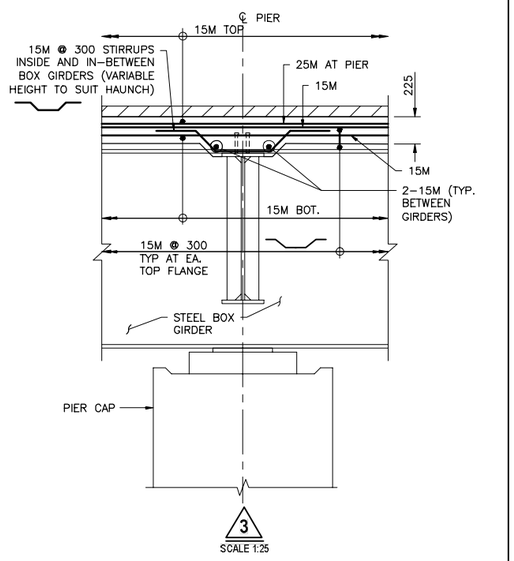
AT ABUTMENT

TYPICAL DECK SECTION

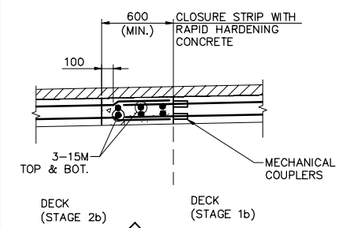
1
SCALE 1:50



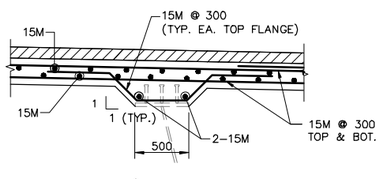
2
SCALE 1:25



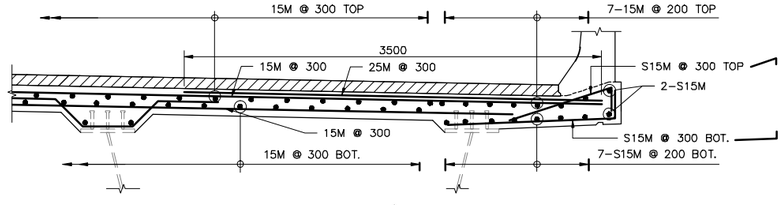
3
SCALE 1:25



A
SCALE 1:25



B
SCALE 1:25



C
SCALE 1:25

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

C. W. HSIEH 100199333 March 14, 19 PROVINCE OF ONTARIO

D.S. ADAMSON 100122076 March 14, 19 PROVINCE OF ONTARIO

REVISIONS		
DATE	BY	DESCRIPTION

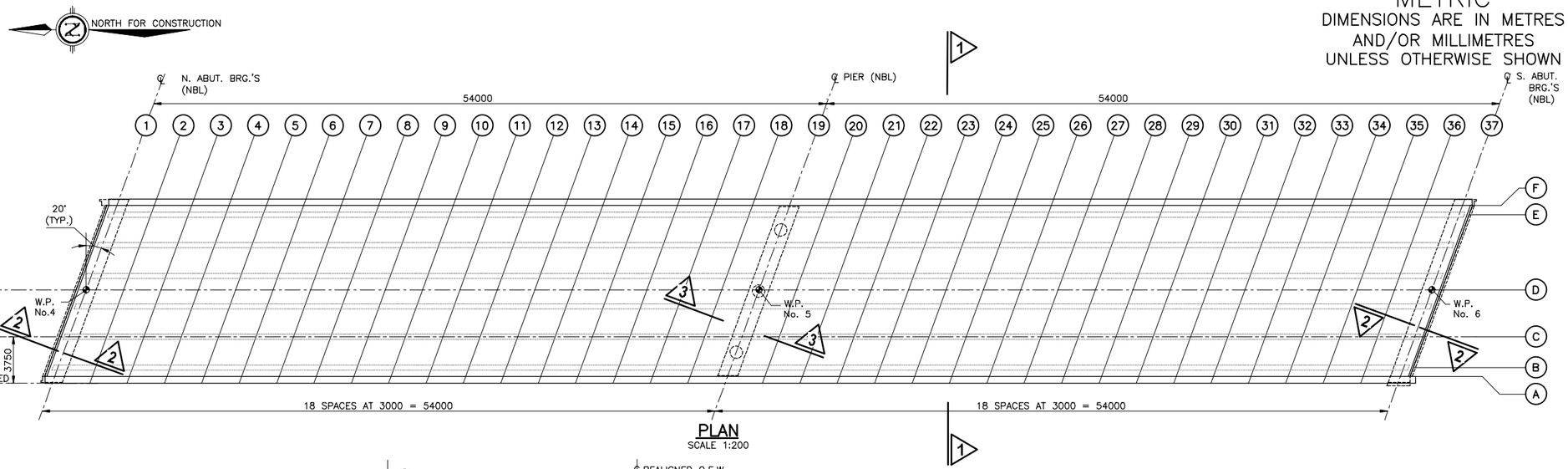
DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT	DATE JAN., 19	
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2		DWG 29	

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

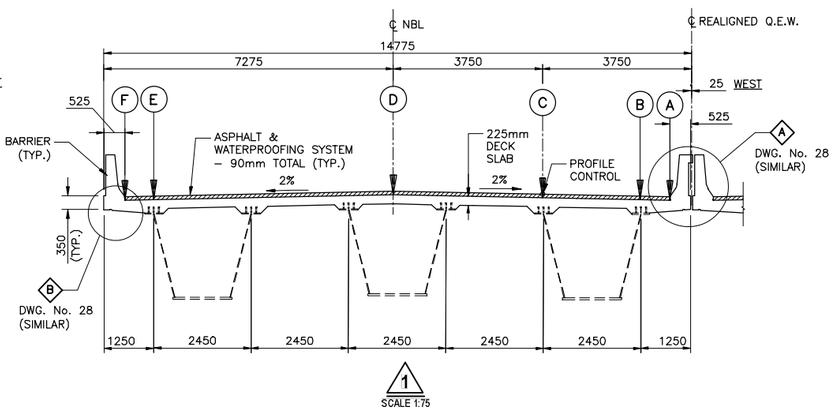
HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD	SHEET 208
DECK DETAILS (NBL)	

AECOM

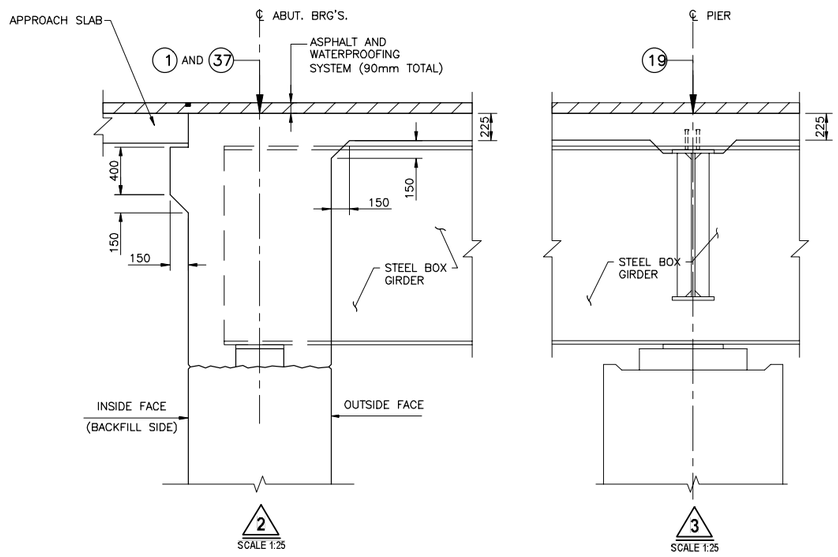
NOTES:
1. FOR GENERAL NOTES SEE DWG. NO. 1.
2. FOR SCREED NOTES SEE DWG. No. 28.



PLAN
SCALE 1:200



1
SCALE 1:75



2
SCALE 1:25

3
SCALE 1:25

SCREED ELEVATIONS
CONCRETE SURFACE

LINE	A	B	C	D	E	F
℄ N. ABUT. BRGS — 1	190.498	190.515	190.570	190.654	190.547	190.534
2	190.534	190.550	190.606	190.689	190.582	190.569
3	190.567	190.583	190.638	190.721	190.613	190.600
4	190.597	190.613	190.668	190.750	190.642	190.629
5	190.625	190.640	190.695	190.777	190.667	190.654
6	190.649	190.665	190.719	190.800	190.690	190.677
7	190.670	190.686	190.740	190.821	190.710	190.697
8	190.689	190.705	190.758	190.839	190.727	190.714
9	190.705	190.720	190.774	190.854	190.742	190.728
10	190.718	190.733	190.786	190.866	190.753	190.739
11	190.728	190.743	190.796	190.875	190.762	190.748
12	190.735	190.750	190.803	190.882	190.767	190.754
13	190.739	190.755	190.807	190.885	190.770	190.756
14	190.741	190.756	190.808	190.886	190.770	190.756
15	190.739	190.754	190.806	190.884	190.767	190.753
16	190.735	190.750	190.801	190.879	190.762	190.747
17	190.728	190.743	190.794	190.871	190.753	190.739
18	190.718	190.733	190.783	190.860	190.741	190.727
℄ PIER — 19	190.705	190.720	190.770	190.846	190.727	190.713
20	190.724	190.739	190.789	190.864	190.744	190.730
21	190.740	190.754	190.804	190.879	190.759	190.744
22	190.753	190.767	190.817	190.892	190.770	190.756
23	190.763	190.777	190.827	190.901	190.779	190.764
24	190.770	190.785	190.834	190.907	190.785	190.770
25	190.775	190.789	190.838	190.911	190.788	190.773
26	190.776	190.791	190.839	190.912	190.788	190.773
27	190.775	190.789	190.837	190.910	190.785	190.770
28	190.771	190.785	190.833	190.905	190.780	190.764
29	190.764	190.778	190.825	190.897	190.771	190.756
30	190.754	190.768	190.815	190.886	190.760	190.744
31	190.741	190.755	190.802	190.873	190.745	190.730
32	190.726	190.739	190.786	190.857	190.728	190.713
33	190.707	190.721	190.767	190.837	190.708	190.693
34	190.686	190.700	190.746	190.815	190.686	190.670
35	190.662	190.675	190.721	190.790	190.660	190.644
36	190.635	190.648	190.694	190.762	190.631	190.616
℄ S. ABUT. BRGS — 37	190.605	190.618	190.663	190.732	190.600	190.584



DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

APPLICABLE STANDARD DRAWINGS

OPSD–3310.100	DECK GIRDERS, CONCRETE, METHOD OF OBTAINING SCREED ELEVATIONS
OPSD–3370.100	DECK, WATERPROOFING, HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD
OPSD–3370.101	DECK, WATERPROOFING, HOT APPLIED ASPHALT MEMBRANE AT ACTIVE CRACKS GREATER THAN 2mm WIDE AND CONSTRUCTION JOINTS
OPSD–3390.100	DECK DRIP CHANNEL
OPSD–3950.100	JOINTS, CONCRETE EXPANSION AND CONSTRUCTION ON STRUCTURE

REVISIONS		
DATE	BY	DESCRIPTION

DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT	DATE JAN., 19	
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2		DWG 30	

MINISTRY OF TRANSPORTATION, ONTARIO PR–D–707 88–05

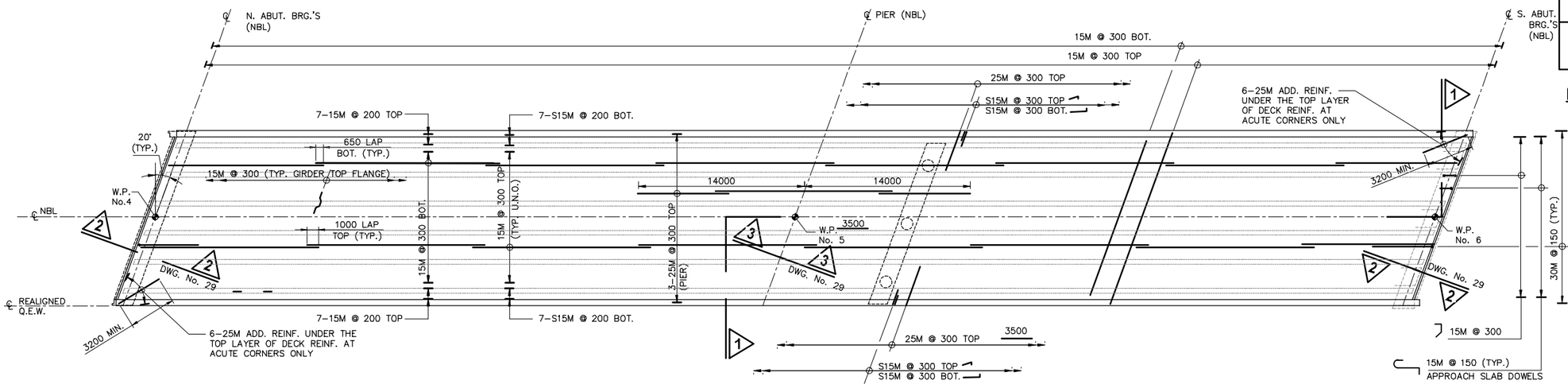
DRAWING NAME: 30–60581660–NBL–DECK DETAILS.dwg
CREATED: 2018–10–04 MODIFIED: 2019–03–18 9:32 AM

NORTH FOR CONSTRUCTION

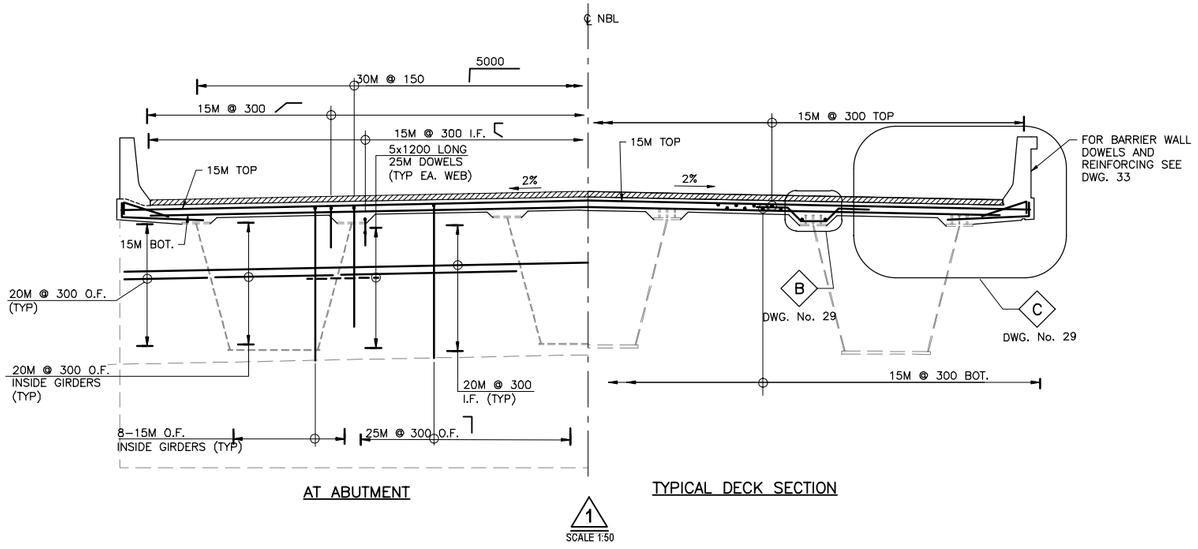
METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD	SHEET 209
DECK REINFORCEMENT (NBL)	

AECOM



PLAN
SCALE 1:200



AT ABUTMENT

TYPICAL DECK SECTION
SCALE 1:50

NOTES:
1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DWG. Nos. 28, 29 & 30.

C. W. HSIEH
100199333
March 14, 2019
PROVINCE OF ONTARIO

D.G. LADOMSON
100129378
March 14, 2019
PROVINCE OF ONTARIO

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

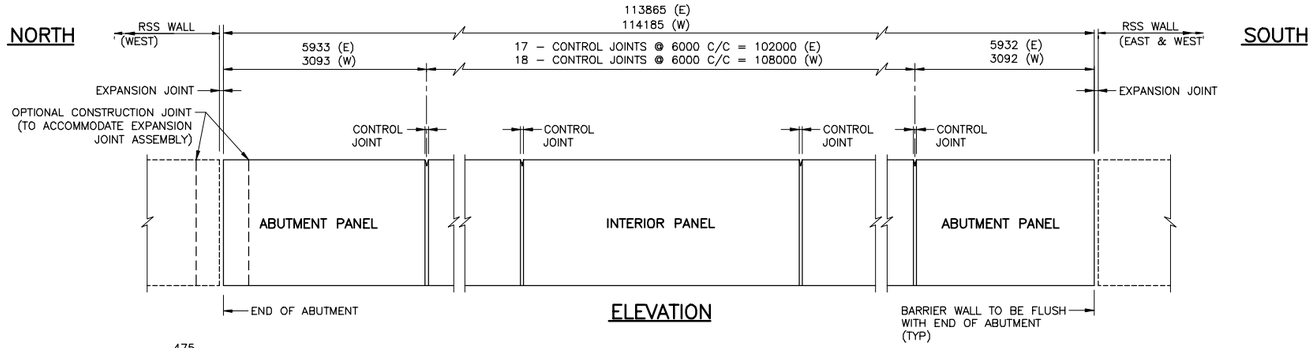
REVISIONS			
DATE	BY	DESCRIPTION	
DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT DATE JAN., 19
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2	DWG 31

DRAWING NAME: 31–605B1660–NBL–DECK REINFORCEMENT.dwg
CREATED: 2018–10–09 MODIFIED: 2019–03–18 9:27 AM

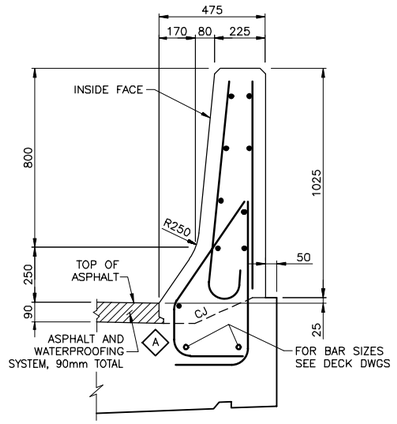
MINISTRY OF TRANSPORTATION, ONTARIO PR–D–707 88–05

MINISTRY OF TRANSPORTATION, ONTARIO PR-JL-707 88-05

NORTH — SOUTH



ELEVATION

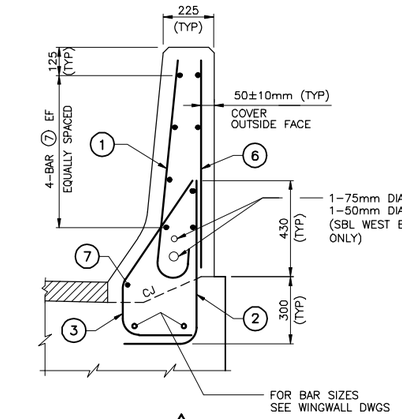


1

BARRIER WALL ON DECK (S.B.L.)

TYPICAL DIMENSIONS

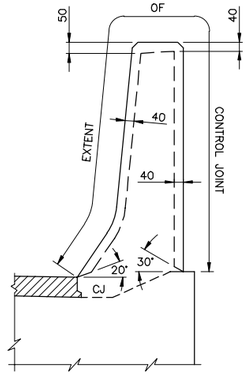
(FOR BAR NUMBERS SEE 2)



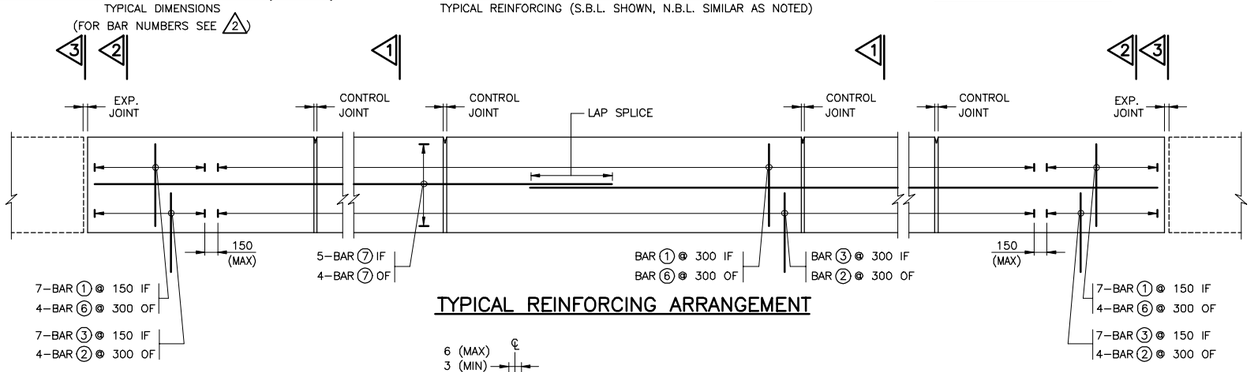
2

BARRIER WALL ON ABUTMENT

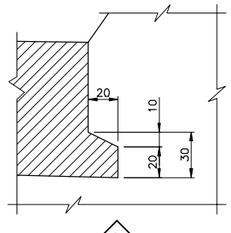
TYPICAL REINFORCING (S.B.L. SHOWN, N.B.L. SIMILAR AS NOTED)



EXTENT OF CONTROL JOINT IN BARRIER WALL

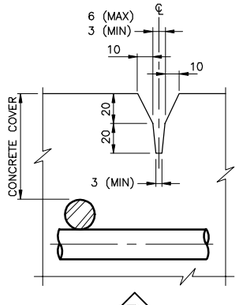


TYPICAL REINFORCING ARRANGEMENT



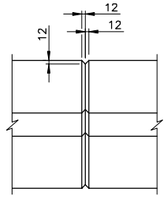
A

CHASE DETAIL

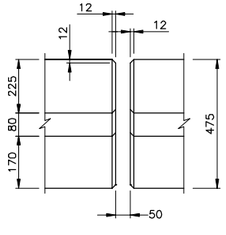


B

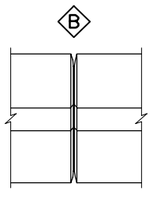
CONTROL JOINT DETAIL



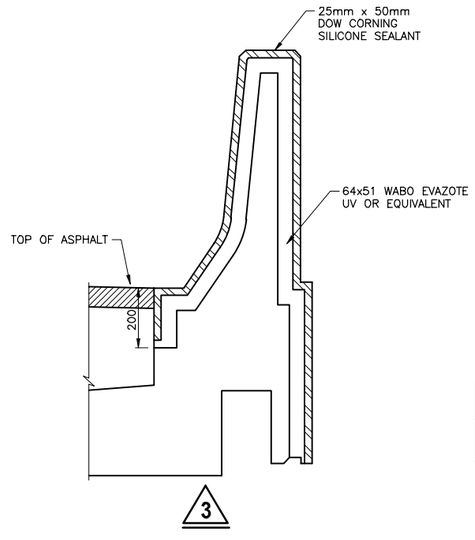
TYPICAL OPTIONAL CONSTRUCTION JOINT



TYPICAL EXPANSION JOINT



TYPICAL CONTROL JOINT



DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

METRIC
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN

BAR MARK	SIZE	SHAPE
1	S15M	65 / 130 / 900
2	S10M	300 / 740
3	S15M	250 / 300 / 540 / 315
4	S15M	65 / 130 / 1130
5	S15M	240 / 300 / 540 / 315
6	S10M	STRAIGHT
7	S15M	STRAIGHT

NOTES:

1. SYSTEM CONFIGURATION MEETS THE REQUIREMENTS OF NCHRP 350.
2. CONCRETE COVER TO REINFORCING STEEL 60±10mm EXCEPT AS NOTED.
3. REINFORCING STEEL SHALL BE STAINLESS TYPE 316LN OR DUPLEX 2205 WITH A MINIMUM YIELD STRENGTH OF 500 MPa.
4. BAR LAP SPLICE FOR HORIZONTAL REINFORCEMENT MUST NOT LAP THROUGH CONTROL JOINT.
5. MINIMUM BAR LAP SPLICE TO BE 550mm, UNLESS OTHERWISE SHOWN.
6. LENGTH OF HORIZONTAL BAR TO SUIT CONTRACTOR'S OPERATIONS. BAR LENGTHS NEED NOT MATCH DISTANCE BETWEEN CONTROL JOINTS.
7. CONTROL JOINT TO BE FORMED.
8. SAWCUTS NOT PERMITTED.
9. CONTROL JOINT FORM HARDWARE NOT TO BE LEFT IN PLACE.
10. OPTIONAL CONSTRUCTION JOINTS TO BE LOCATED WITHIN LIMITS OF CONCRETE DAMS ON DECK OR BALLAST WALL.
11. CHASE REQUIRED ON HIGH AND LOW SIDE OF CROSSFALL.
12. LEGEND: EF – DENOTES EACH FACE
IF – DENOTES INSIDE FACE
OF – DENOTES OUTSIDE FACE
CJ – CONSTRUCTION JOINT
LS – LAP SPLICE

HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD BARRIER WALL WITHOUT RAILING TL–5 (STAINLESS STEEL REBAR) (SBL)	SHEET 210

AECOM

C. W. HSIEH 100199333 March 14, 2019 PROVINCE OF ONTARIO

D.S.L. ADAMSON 100122076 March 14, 2019 PROVINCE OF ONTARIO

MODIFIED

STANDARD DRAWING DECEMBER 2017	SS110–61

BARRIER WALL WITHOUT RAILING, TL–5 (STAINLESS STEEL REBAR)

REVISIONS			
DATE	BY	DESCRIPTION	
DESIGN CWH	CHK DA	CODE CHBDC–14	LOADCL–625–ONT DATE JAN., 19
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2	DWG 32

DRAWING NAME: 32–60581660–BARRIER WALL – SBL.dwg 3:23 PM
CREATED: 2018–10–09 MODIFIED: 2019–03–15

MINISTRY OF TRANSPORTATION, ONTARIO
PR-D-707 88-05
DRAWING NAME: 33-60581660-BARRIER WALL - NBL.dwg
CREATED: 2018-10-09 MODIFIED: 2019-03-15 3:23 PM

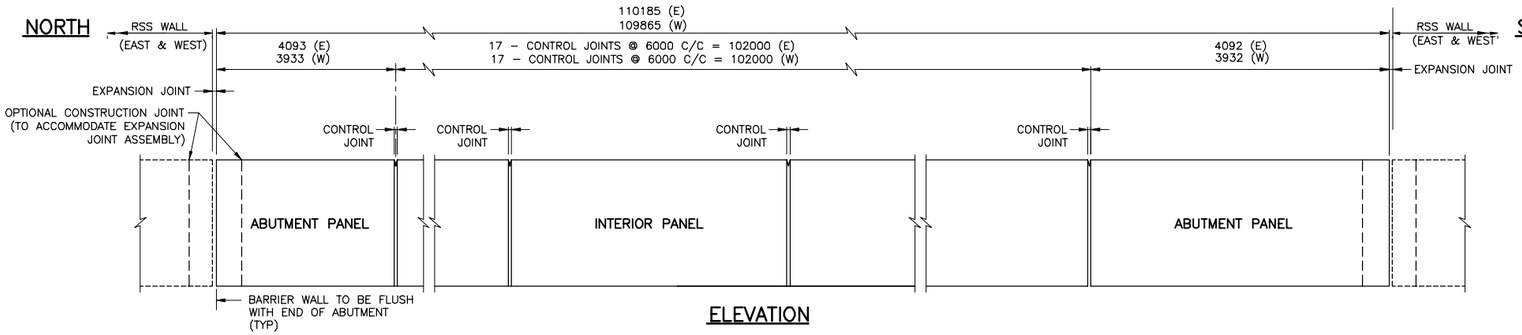
METRIC
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN

HWY	
CONT	2019-2003
WP	2116-16-00

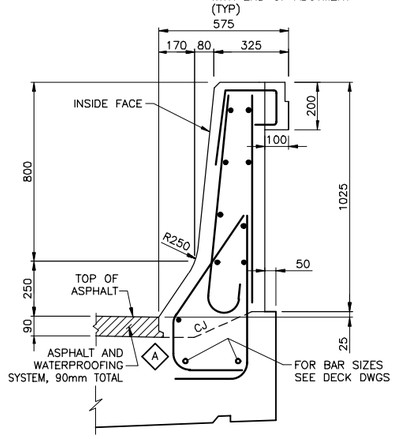
Q.E.W. – CNR/CPR OVERHEAD BARRIER WALL WITHOUT RAILING TL-5 (STAINLESS STEEL REBAR) (NBL)

SHEET 211

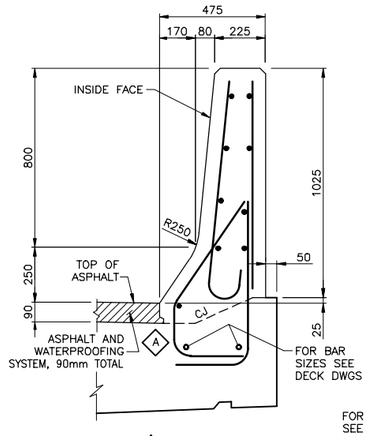
AECOM



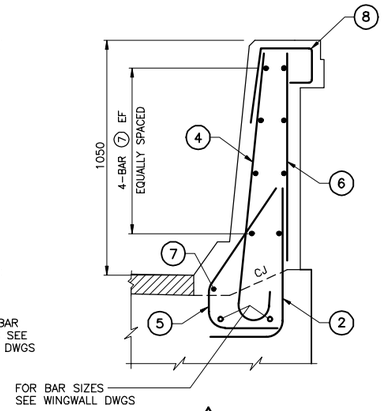
ELEVATION



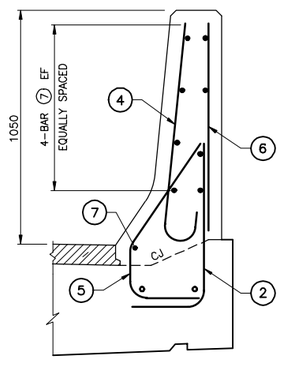
1
WEST BARRIER WALL ON DECK
TYPICAL DIMENSIONS
(FOR BAR NUMBERS SEE 2)



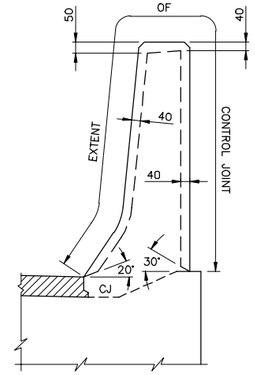
1
EAST BARRIER WALL ON DECK
TYPICAL DIMENSIONS
(FOR BAR NUMBERS SEE 2)



2
WEST BARRIER WALL ON ABUTMENT
TYPICAL REINFORCING



2
EAST BARRIER WALL ON DECK
TYPICAL DIMENSIONS
(FOR BAR NUMBERS SEE 2)

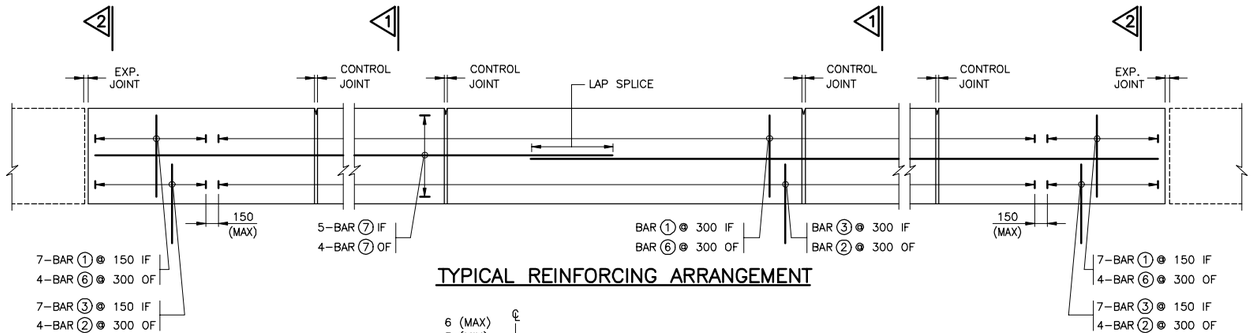


EXTENT OF CONTROL JOINT IN EAST BARRIER WALL

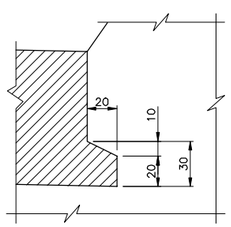
NOTES:

1. SYSTEM CONFIGURATION MEETS THE REQUIREMENTS OF NCHRP 350.
2. CONCRETE COVER TO REINFORCING STEEL 60±10mm EXCEPT AS NOTED.
3. REINFORCING STEEL SHALL BE STAINLESS TYPE 316LN OR DUPLEX 2205 WITH A MINIMUM YIELD STRENGTH OF 500 MPa.
4. BAR LAP SPLICE FOR HORIZONTAL REINFORCEMENT MUST NOT LAP THROUGH CONTROL JOINT.
5. MINIMUM BAR LAP SPLICE TO BE 550mm, UNLESS OTHERWISE SHOWN.
6. LENGTH OF HORIZONTAL BAR TO SUIT CONTRACTOR'S OPERATIONS. BAR LENGTHS NEED NOT MATCH DISTANCE BETWEEN CONTROL JOINTS.
7. CONTROL JOINT TO BE FORMED.
8. SAWCUTS NOT PERMITTED.
9. CONTROL JOINT FORM HARDWARE NOT TO BE LEFT IN PLACE.
10. OPTIONAL CONSTRUCTION JOINTS TO BE LOCATED WITHIN LIMITS OF CONCRETE DAMS ON DECK OR BALLAST WALL.
11. CHASE REQUIRED ON HIGH AND LOW SIDE OF CROSSFALL.
12. LEGEND: EF – DENOTES EACH FACE
IF – DENOTES INSIDE FACE
OF – DENOTES OUTSIDE FACE
CJ – CONSTRUCTION JOINT
LS – LAP SPLICE

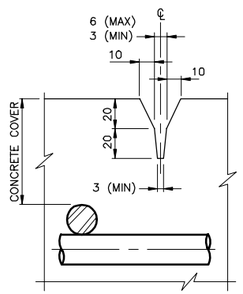
BAR MARK	SIZE	SHAPE
1	S15M	65, 130, 900
2	S10M	300, 740
3	S15M	250, 540, 315, 300
4	S15M	65, 130, 1130
5	S15M	240, 540, 315, 300
6	S10M	STRAIGHT
7	S15M	STRAIGHT
8	S15M	120, 100, 50, 200, 300



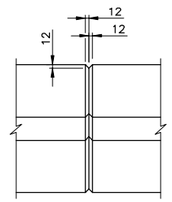
TYPICAL REINFORCING ARRANGEMENT



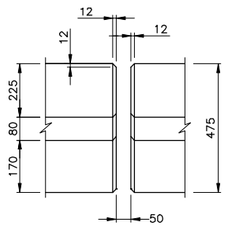
A
CHASE DETAIL



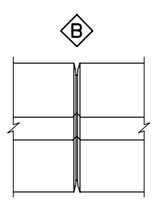
B
CONTROL JOINT DETAIL



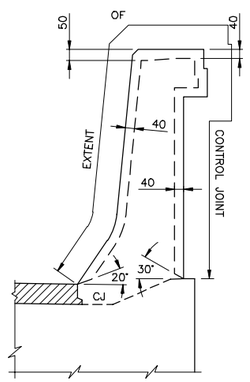
TYPICAL OPTIONAL CONSTRUCTION JOINT



TYPICAL EXPANSION JOINT

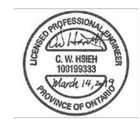


TYPICAL CONTROL JOINT



EXTENT OF CONTROL JOINT IN WEST BARRIER WALL

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING





MODIFIED	
STANDARD DRAWING DECEMBER 2017	SS110-61
BARRIER WALL WITHOUT RAILING, TL-5 (STAINLESS STEEL REBAR)	

REVISIONS

DATE	BY	DESCRIPTION

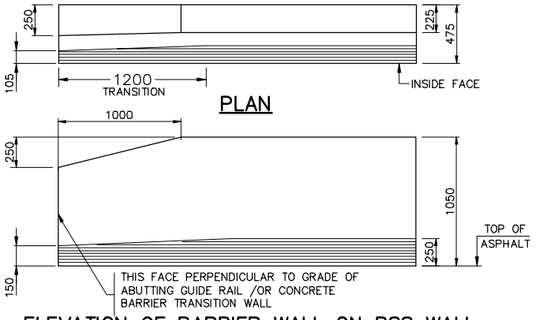
DESIGN CWH	CHK DA	CODE CHBDC-14	LOAD CL-625-ONT	DATE JAN., 19	
DRAWN PSH	CHK JV	SITE 34X-0129/B1/B2		DWG 33	

METRIC
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN

HWY	
CONT	2019–2003
WP	2116–16–00
SHEET	212

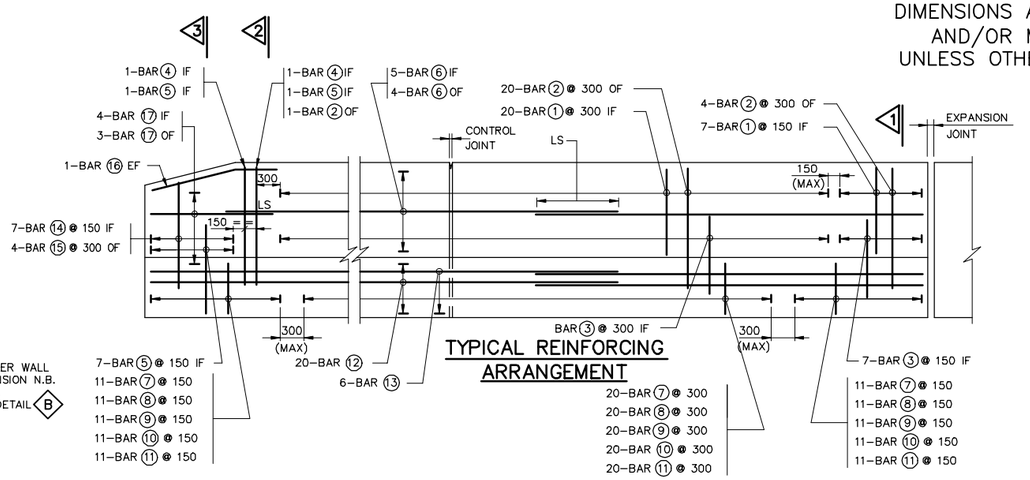
Q.E.W. – CNR/CPR OVERHEAD BARRIER WALL WITHOUT RAILING ON RSS WALL, TL–5 (STAINLESS STEEL REBAR)

AECOM



PLAN

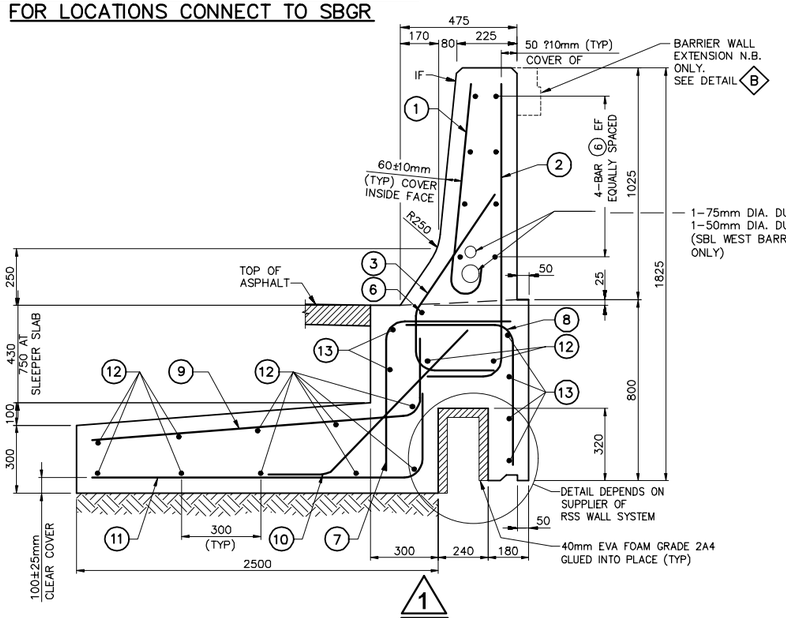
ELEVATION OF BARRIER WALL ON RSS WALL FOR LOCATIONS CONNECT TO SBGR



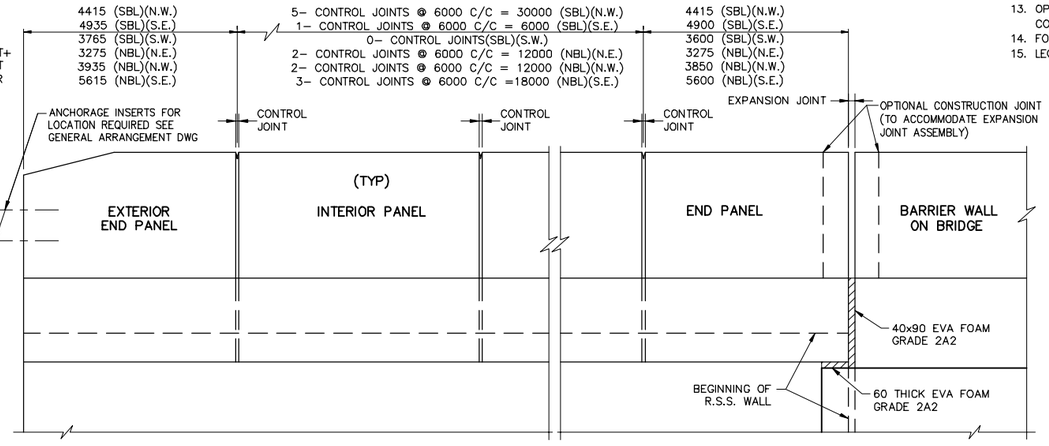
TYPICAL REINFORCING ARRANGEMENT

NOTES:

1. SYSTEM CONFIGURATION MEETS THE REQUIREMENTS OF NCHRP 350.
2. RETAINED SOIL SYSTEM WALL, BARRIER WALL AND FOOTING, SHALL BE IN ACCORDANCE WITH THE DESIGNATED SOURCES FOR MATERIALS LIST DSM 9.70.56.
3. CONCRETE COVER TO REINFORCING STEEL 70?20mm, EXCEPT AS NOTED.
4. CLASS OF CONCRETE FOR FOOTING 30MPa.
5. REINFORCING STEEL SHALL BE STAINLESS TYPE 316LN OR DUPLEX 2205 WITH A MINIMUM YIELD STRENGTH OF 500MPa AND GRADE 400W REINFORCING STEEL. SEE REINFORCING TABLE BELOW.
6. BAR MARKS WITH PREFIX 'S' DENOTE STAINLESS STEEL BARS.
7. BAR LAP SPLICE FOR HORIZONTAL REINFORCEMENT MUST NOT LAP THROUGH CONTROL JOINT.
8. MINIMUM BAR LAP SPLICE TO BE 700mm, UNLESS OTHERWISE SHOWN.
9. LENGTH OF HORIZONTAL BAR TO SUIT CONTRACTOR'S OPERATIONS. BAR LENGTHS NEED NOT MATCH DISTANCE BETWEEN CONTROL JOINTS.
10. CONTROL JOINT TO BE FORMED.
11. SAWCUTS NOT PERMITTED.
12. CONTROL JOINT FORM HARDWARE NOT TO BE LEFT IN PLACE.
13. OPTIONAL CONSTRUCTION JOINTS TO BE LOCATED WITHIN LIMITS OF CONCRETE DAMS ON DECK OR BALLAST WALL.
14. FOOTINGS SHALL HAVE CONSTRUCTION JOINTS AT MAX SPACING OF 12.0M.
15. LEGEND: EF – DENOTES EACH FACE; IF – DENOTES INSIDE FACE; OF – DENOTES OUTSIDE FACE; CJ – CONSTRUCTION JOINT; LS – LAP SPLICE

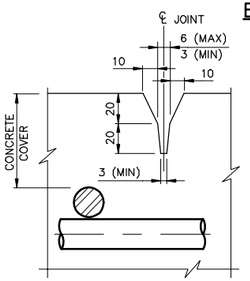


1 BARRIER WALL ON R.S.S. WALL
TYPICAL DIMENSIONS (S.B.L. SHOWN, N.B.L. SIMILAR AS NOTED)

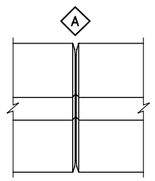


ELEVATION

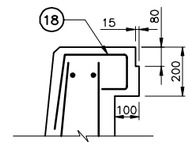
BAR MARK	SIZE	SHAPE
(1)	S15M	65 / 130 / 900
(2)	S10M	260 / 1250
(3)	S15M	265 / 260 / 600 / 350
(4)	S15M	65 / 130 / 1190
(5)	S15M	230 / 260 / 600 / 350
(6)	S15M	STRAIGHT
(7)	S15M	570 / 650
(8)	S15M	570 / 650
(9)	S15M	30 / 350 / VARIES
(10)	S15M	945 / 150 / 645
(11)	15M	350 / VARIES
(12)	15M	STRAIGHT
(13)	S15M	STRAIGHT
(14)	S15M	65 / 130 / VARIES
(15)	S10M	260 / VARIES
(16)	S15M	500 / 950 / 250
(17)	S15M	STRAIGHT
(18)	S15M	120 / 200 / 100 / 30 / 300



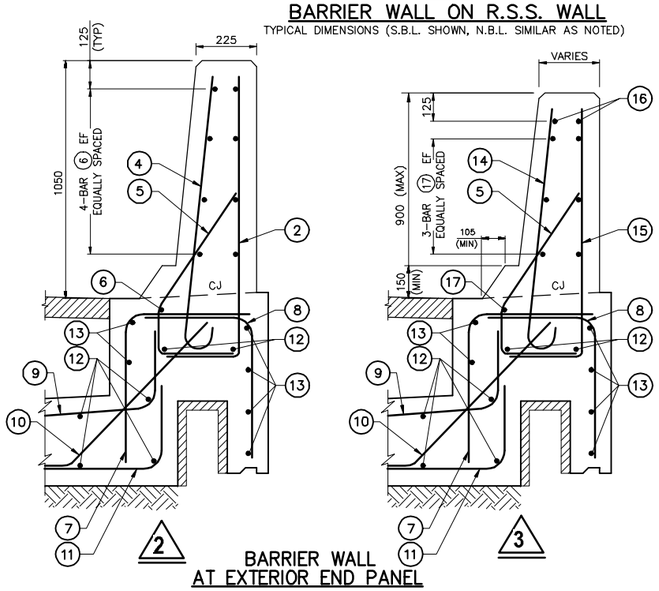
A CONTROL JOINT DETAIL



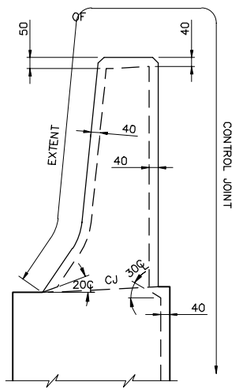
TYPICAL CONTROL JOINT



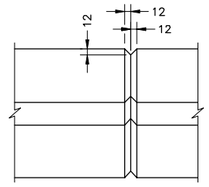
B N.B. BARRIER WALL EXTENSION DETAIL



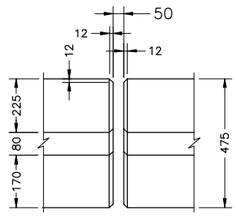
2 BARRIER WALL AT EXTERIOR END PANEL
3



EXTENT OF CONTROL JOINT IN BARRIER WALL



TYPICAL OPTIONAL CONSTRUCTION JOINT



TYPICAL EXPANSION JOINT

MODIFIED	
STANDARD DRAWING DECEMBER 2017	SS110–64
BARRIER WALL WITHOUT RAILING ON RSS WALL, TL–5 (STAINLESS STEEL REBAR)	

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS			
DATE	BY	DESCRIPTION	
DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT DATE JAN., 19
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2	DWG 34

DRAWING NAME: 34–6058160–BARRIER WALL ON RSS.dwg
CREATED: 2018–10–09 MODIFIED: 2019–03–15 3:25 PM

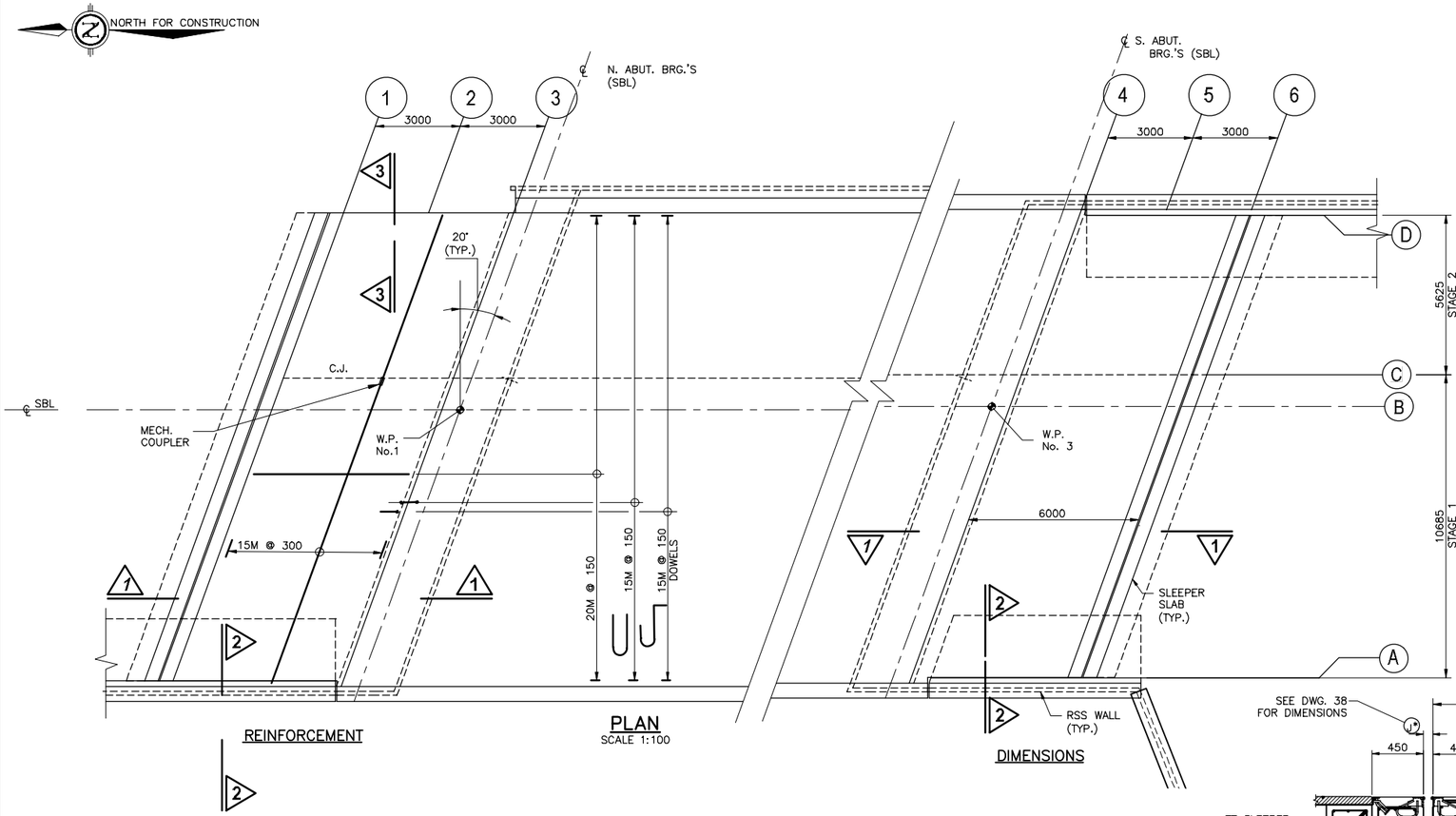
MINISTRY OF TRANSPORTATION, ONTARIO PR–D–707 88–05

NORTH FOR CONSTRUCTION

METRIC
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN

HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD	SHEET 213
6000mm APPROACH SLAB (SBL)	

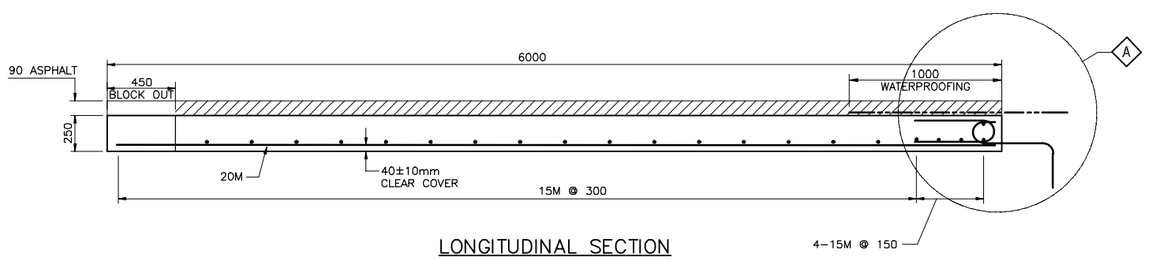
AECOM



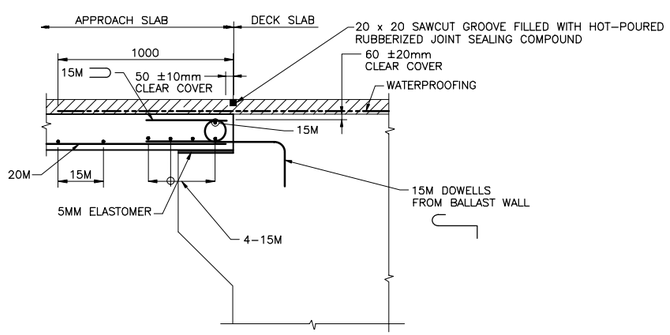
REINFORCEMENT

PLAN
SCALE 1:100

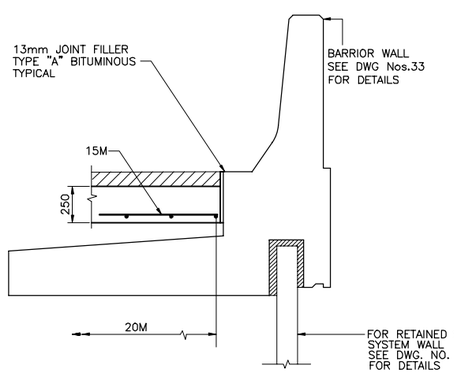
DIMENSIONS



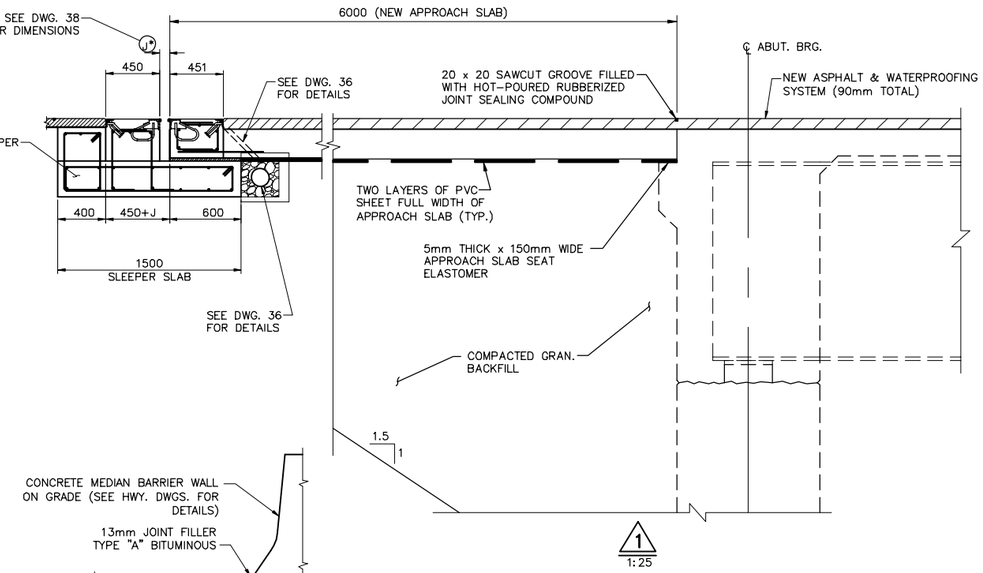
LONGITUDINAL SECTION



FOR BRIDGES WITHOUT EXPANSION JOINTS



2 SECTION AT RSS WALL



WITH ROADSIDE BARRIER

3 SECTION BEYOND RSS WALL

NOTES:

1. CLEAR COVER TO REINFORCING STEEL 70 ± 20 mm EXCEPT AS NOTED.
2. LAYOUT OF REINFORCING STEEL WILL BE SIMILAR FOR LEFT HAND AND ZERO DEGREE SKEW.
3. STAINLESS STEEL BARS SHALL BE TYPE 316 LN OR DUPLEX 2205 WITH A MINIMUM YIELD STRENGTH OF 500 MPA. REINFORCING STEEL SHALL BE GRADE 400W.
4. WATERPROOFING AT JOINT BETWEEN BRIDGE AND APPROACH SLAB TO BE IN ACCORDANCE WITH OPSD–3370.1000.
5. WATERPROOFING FOR BRIDGES WITHOUT EXPANSION JOINTS (RIGID FRAMES AND INTEGRAL ABUTMENTS) TO BE IN ACCORDANCE WITH OPSD–3370.1010.
6. BARS MARK WITH PREFIX S DENOTE STAINLESS STEEL BARS.

APPLICABLE STANDARD DRAWINGS

OPSD–3370.100	DECK, WATERPROOFING, HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD
OPSD–3370.101	DECK, WATERPROOFING, HOT APPLIED ASPHALT MEMBRANE AT ACTIVE CRACKS GREATER THAN 2mm WIDE AND CONSTRUCTION JOINTS

SCREED ELEVATIONS
CONCRETE SURFACE

LINE	A	B	C	D
1	190.169	190.399	190.380	190.284
2	190.199	190.428	190.409	190.312
3	190.227	190.455	190.437	190.339
4	190.625	190.811	190.787	190.665
5	190.618	190.802	190.778	190.655
6	190.609	190.792	190.768	190.644

C. W. HSIEH 100199333 March 14, 2019 PROVINCE OF ONTARIO

D. A. ADAMSON 100120076 March 14, 2019 PROVINCE OF ONTARIO

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

MODIFIED	
STANDARD DRAWING MARCH 2016	SS116-1
6000 mm APPROACH SLAB	

REVISIONS		
DATE	BY	DESCRIPTION

DESIGN CWH	CHK DA	CODE CHBDC–14	LOADCL–625–ONT	DATE JAN., 19	
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2		DWG 35	

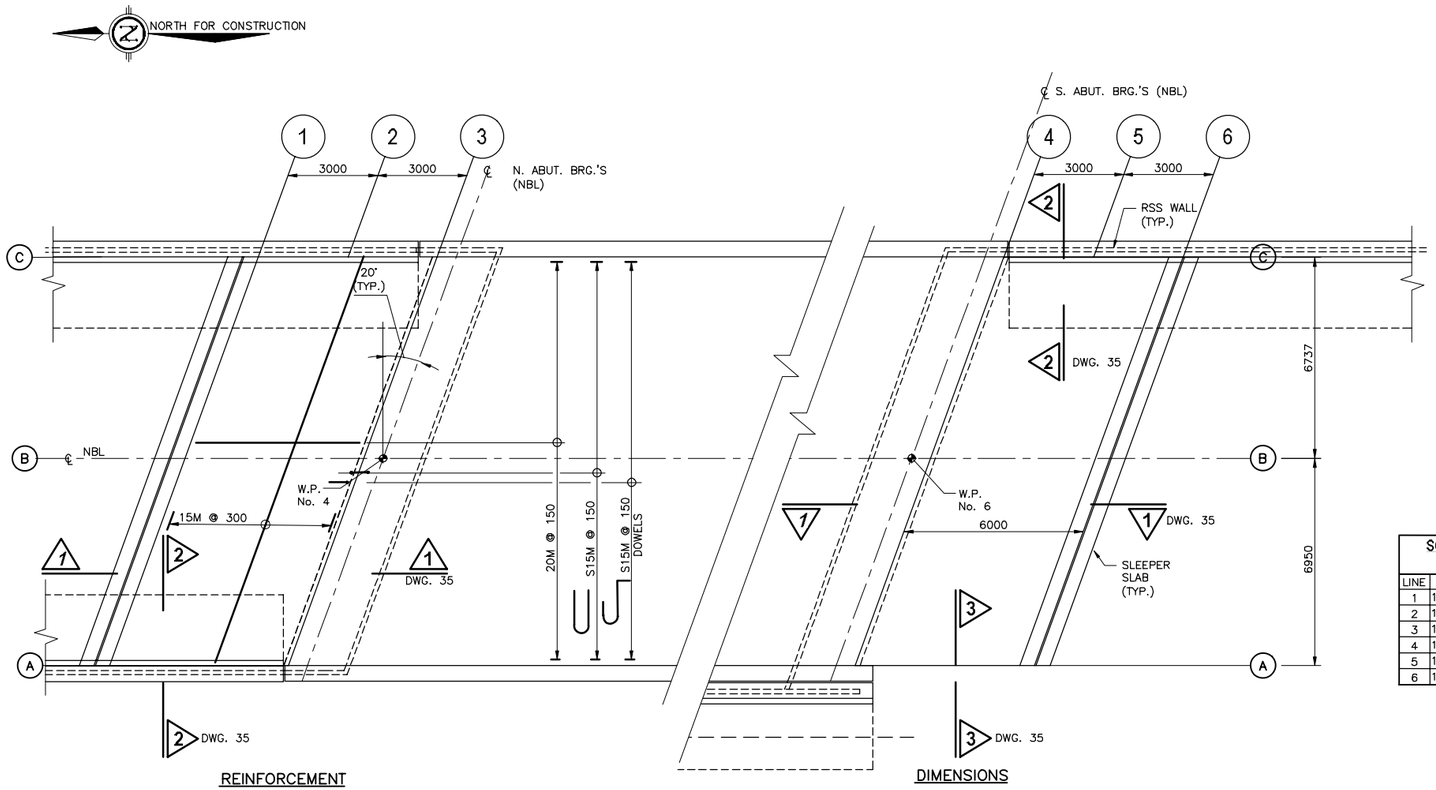
DRAWING NAME: 35–60581660–SBL–APPROACH SLAB.dwg
CREATED: 2018–10–04 MODIFIED: 2019–03–15 3:36 PM

MINISTRY OF TRANSPORTATION, ONTARIO PR–D–707 88–05

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD	SHEET 214
6000mm APPROACH SLAB (NBL)	

AECOM



REINFORCEMENT

DIMENSIONS

SCREED ELEVATIONS CONCRETE SURFACE			
LINE	A	B	C
1	190.452	190.609	190.489
2	190.474	190.630	190.510
3	190.494	190.650	190.529
4	190.602	190.729	190.579
5	190.587	190.713	190.563
6	190.572	190.697	190.545

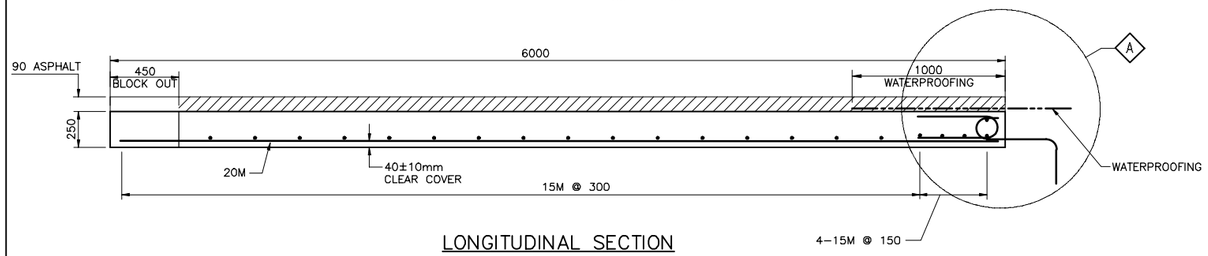
NOTES:

1. CLEAR COVER TO REINFORCING STEEL 70 ± 20 mm EXCEPT AS NOTED.
2. LAYOUT OF REINFORCING STEEL WILL BE SIMILAR FOR LEFT HAND AND ZERO DEGREE SKEW.
3. STAINLESS STEEL BARS SHALL BE TYPE 316 LN OR DUPLEX 2205 WITH A MINIMUM YIELD STRENGTH OF 500 MPA. REINFORCING STEEL SHALL BE GRADE 400W.
4. WATERPROOFING AT JOINT BETWEEN BRIDGE AND APPROACH SLAB TO BE IN ACCORDANCE WITH OPSD–3370.1000.
5. WATERPROOFING FOR BRIDGES WITHOUT EXPANSION JOINTS (RIGID FRAMES AND INTEGRAL ABUTMENTS) TO BE IN ACCORDANCE WITH OPSD–3370.1010.
6. BARS MARK WITH PREFIX S DENOTE STAINLESS STEEL BARS.

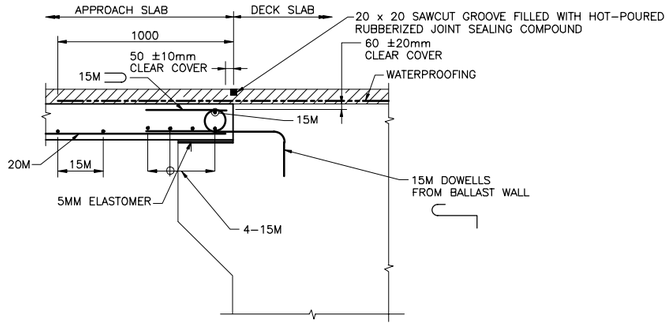
APPLICABLE STANDARD DRAWINGS

OPSD–3370.100	DECK, WATERPROOFING, HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD
OPSD–3370.101	DECK, WATERPROOFING, HOT APPLIED ASPHALT MEMBRANE AT ACTIVE CRACKS GREATER THAN 2mm WIDE AND CONSTRUCTION JOINTS

PLAN
SCALE 1:100



LONGITUDINAL SECTION



A

FOR BRIDGES WITHOUT EXPANSION JOINTS

LICENSED PROFESSIONAL ENGINEER
C. W. HSIEH
100199333
March 14, 2019
PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER
D. DA ADAMSON
100122079
March 14, 2019
PROVINCE OF ONTARIO

MODIFIED	
STANDARD DRAWING MARCH 2016	SS116-1
6000 mm APPROACH SLAB	

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS			
DATE	BY	DESCRIPTION	
DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT DATE JAN., 19
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2	DWG 36

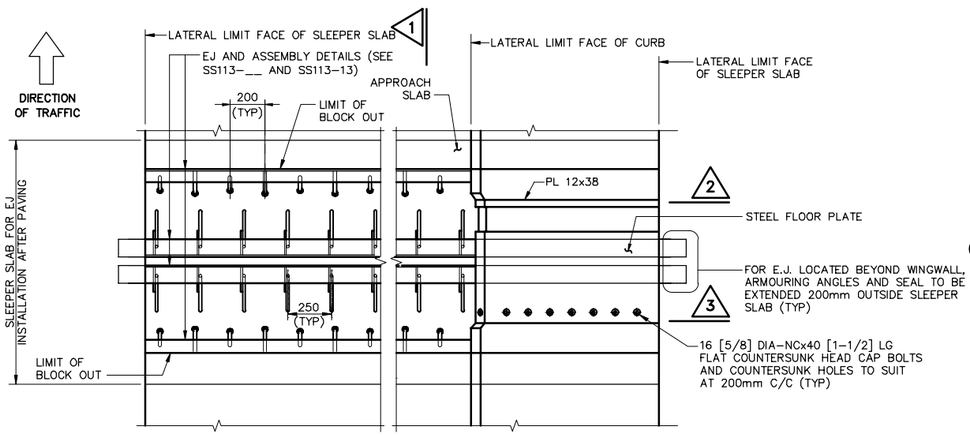
MINISTRY OF TRANSPORTATION, ONTARIO PR–D–707 88–05

DRAWING NAME: 36–60581660–NBL–APPROACH SLAB.dwg
CREATED: 2018–10–04 MODIFIED: 2019–03–15 3:26 PM

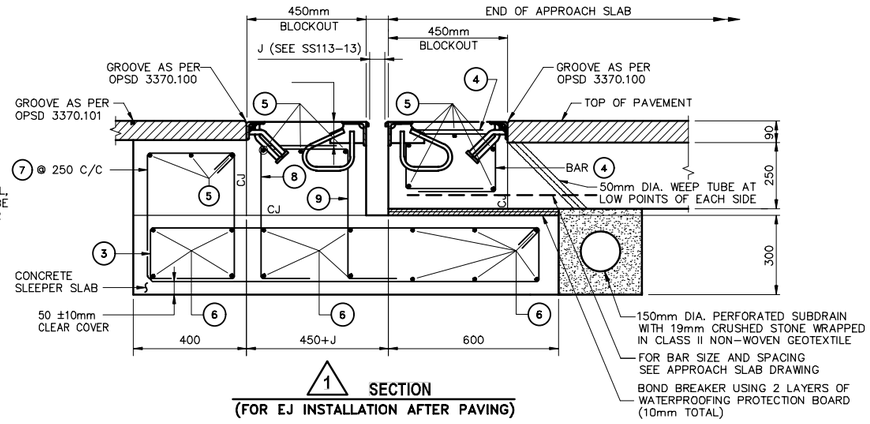
METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD	SHEET 215
TYPE 'C' STRIP SEAL & SLEEPER SLAB	

AECOM



PLAN
(FOR EJ AND ASSEMBLY DETAILS SEE SS113–19)



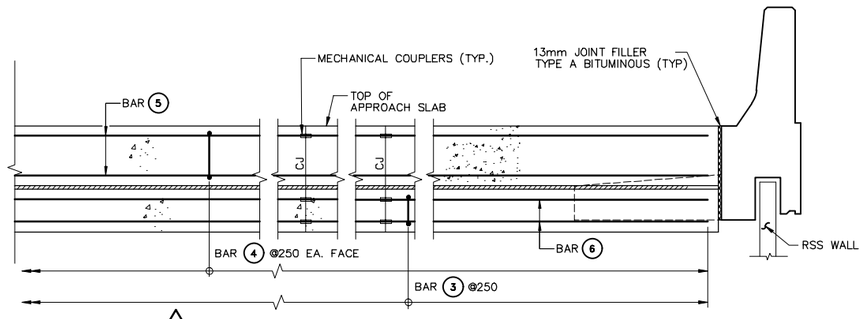
1 SECTION
(FOR EJ INSTALLATION AFTER PAVING)

NOTES:

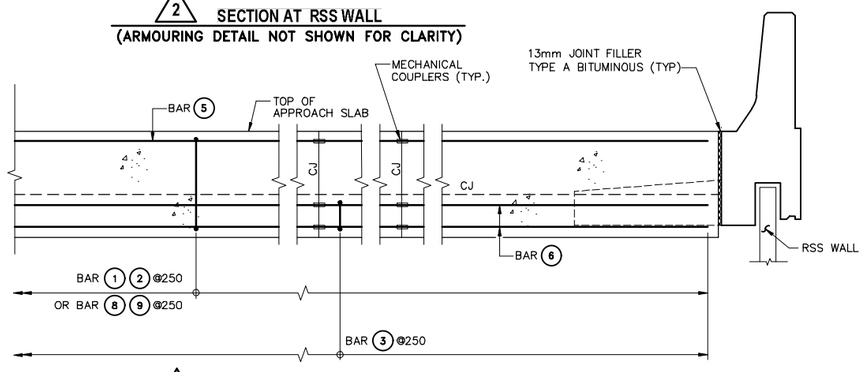
1. THIS DRAWING SHOWS EXPANSION JOINT AND SLEEPER SLAB AT THE END OF APPROACH SLAB OF INTEGRAL AND SEMI–INTEGRAL ABUTMENT BRIDGES WITH A MOVEMENT BETWEEN 10 AND 40mm.
2. CLASS OF CONCRETE 30 MPa.
3. REINFORCEMENT STEEL SHALL BE GRADE 400W. STAINLESS STEEL SHALL BE TYPE 316 LN OR DUPLEX 2205 WITH A MINIMUM YIELD STRENGTH OF 500 MPa. BARS MARKED WITH PREFIX S DENOTE STAINLESS STEEL BARS.
4. COVER TO REINFORCING STEEL 70 ±20mm EXCEPT AS NOTED.
5. THIS DRAWING TO BE READ IN CONJUCTION WITH DRAWING SS113–19.
6. EXPANSION JOINT TO BE SUPPLIED BY MANUFACTURES LISTED IN DSM 9.40.27 FOR THE SUPPLY OF TYPE 'C' STRIP SEAL EXPANSION JOINT.
7. EXPANSION JOINT ASSEMBLY CONSTRUCTION AND MATERIAL SHALL BE ACCORDING TO OPSS 920 AND OPSS 1210, AND AS SPECIFIED IN THE CONTRACT DOCUMENTS.
8. JOINT ASSEMBLY SHALL BE COMPLETELY SHOP ASSEMBLED (EXCEPT FOR SEALS) AND PRESET TO DIMENSION 'J' FOR 15°C AND ADJUSTED IN THE FIELD TO SUIT INSTALLATION TEMPERATURE.
9. JOINT ASSEMBLY INSTALLATION TEMPERATURE SHALL BE TAKEN AS MEAN SHADE AIR TEMPERATURE AT STRUCTURE PRIOR TO JOINT INSTALLATION AS FOLLOWS:
   – FOR CONCRETE STRUCTURES – 48 HOURS
   – FOR STEEL STRUCTURES – 24 HOURS
10. FIELD SPLICES IN JOINT ASSEMBLY ARE ONLY PERMITTED AT STAGED CONSTRUCTION, AND/OR AS SHOWN ON THE CONTRACT DRAWINGS.
11. IF THE JOINT ARMOURING FOR A SKEW STRUCTURE IS SPLICED AT A CROWN, THE SPLICE SHALL BE DETAILED PARALLEL TO THE CENTRELINE OF THE TRAFFIC LANE.
12. SETTING ANGLES SHALL BE FLAME CUT ACCORDING TO OPSS 920, BUT IN NO CASE PRIOR TO CONCRETE REACHING INITIAL SET.
13. AFTER CURING OF THE CONCRETE HAS BEEN COMPLETED, THE SETTING DEVICES MAY BE REMOVED. THE VOIDS UNDER THE ARMOURING ANGLE AND NOSING ANGLE SHALL THEN BE PRESSURE INJECTED.
14. PREFORMED SEALS SHALL HAVE MINIMUM THICKNESS OF 5mm OR AS PER DSM.
15. ALL STEEL RETAINER SURFACES COMING IN CONTACT WITH PREFORMED SEAL SHALL BE CLEANED PRIOR TO INSTALLATION OF THE SEAL.
16. PREFORMED SEALS SHALL BE INSTALLED AFTER JOINT ASSEMBLY HAS BEEN CAST, STYROFOAM OR FILLER BETWEEN APPROACH SLAB AND SLEEPER SLAB REMOVED, AND EXPANSION GAP CLEARED OF ANY DEBRIS.
17. HEADED CONCRETE ANCHORS IN NOSING ANGLES SHALL BE LOCATED WITHIN 75mm OF EITHER SIDE OF FIELD SPLICES.
18. PROTECT INJECTION HOSE AND FITTINGS ADJACENT TO FIELD SPLICE DURING WELDING AND REMOVE PROTECTION PRIOR TO PLACING OF CONCRETE IN BLOCKOUT.
19. FOR SKEWED STRUCTURE, WORKING DRAWING SHALL BE DETAILED TO SUIT GEOMETRY OF STRUCTURE.
20. ALL JOINT ANCHORAGES SHALL BE DETAILED ON WORKING DRAWINGS PERPENDICULAR TO THE EXPANSION JOINT ON BOTH THE APPROACH SLAB SIDE AND THE SLEEPER SLAB SIDE EXCEPT STRUCTURE SKEWED FROM OVER 15° AND UP TO 45° SHALL HAVE ANCHORAGES DETAILED 30° OFFSET FROM THE PERPENDICULAR TO THE EXPANSION JOINT ON THE APPROACH SLAB SIDE.
21. ALL CONSTRUCTIONS JOINTS (CJ) SURFACES SHALL BE INTENTIONALLY ROUGHENED BEFORE NEW CONCRETE IS PLACED AGAINST THEM.
22. SEQUENCE OF EXPANSION JOINT INSTALLATION SHALL BE AS PER DRAWING SS113–38.

LEGEND:

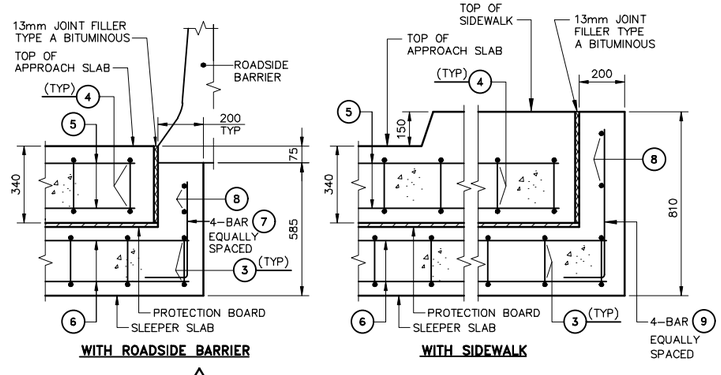
[ ] DENOTES FASTENER SIZE IN INCHES
CJ DENOTES CONSTRUCTION JOINT
EJ DENOTES EXPENSION JOINT



2 SECTION AT RSS WALL
(ARMOURING DETAIL NOT SHOWN FOR CLARITY)

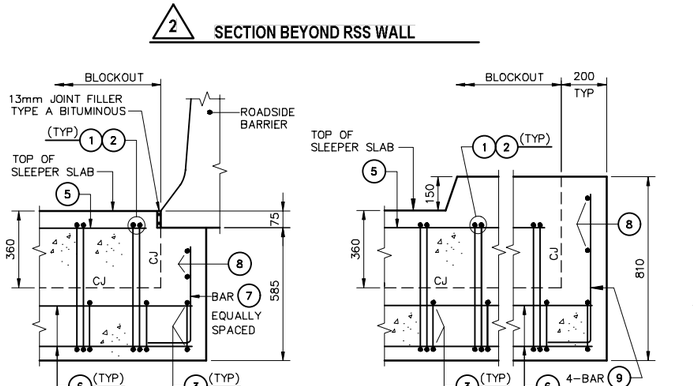


3 SECTION AT RSS WALL
(ARMOURING DETAIL NOT SHOWN FOR CLARITY)



WITH ROADSIDE BARRIER **WITH SIDEWALK**

2 SECTION BEYOND RSS WALL



WITH ROADSIDE BARRIER **WITH SIDEWALK**

3 SECTION BEYOND RSS WALL

BAR MARK	SIZE	SHAPE
1	S15M	310 / 530 / 180
2	S15M	300 / 530 / 180
3	S15M	180
4	S15M	200 / 310
5	S15M	STRAIGHT
6	15M	STRAIGHT
7	S15M	260 / 440
8	S15M	310 / 490 / 180
9	S15M	300 / 490 / 180

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

LICENSED PROFESSIONAL ENGINEER C. W. HSIEH 100199333 March 14, 2019 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER D. DA ADAMSON 100120076 March 14, 2019 PROVINCE OF ONTARIO

MODIFIED

STANDARD DRAWING MAY 2017	SS113–36

EXPANSION JOINT (TYPE C) AND SLEEPER SLAB (MOVEMENT>40mm)

REVISIONS			
DATE	BY	DESCRIPTION	
DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT DATE JAN., 19
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2	DWG 37

DRAWING NAME: 37–60581660– TYPE C STRIP SEAL AND SLEEPER SLAB.dwg
CREATED: 2018–10–14 MODIFIED: 2019–03–15 3:26 PM

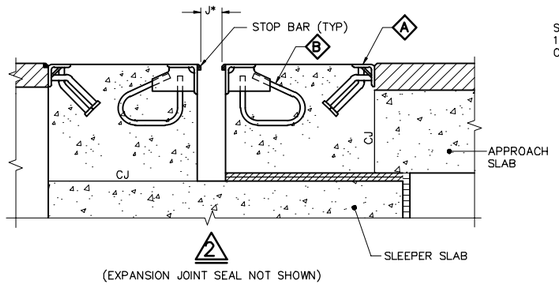
MINISTRY OF TRANSPORTATION, ONTARIO PR–0–707 88–05

MINISTRY OF TRANSPORTATION, ONTARIO
PR-0-707 88-05

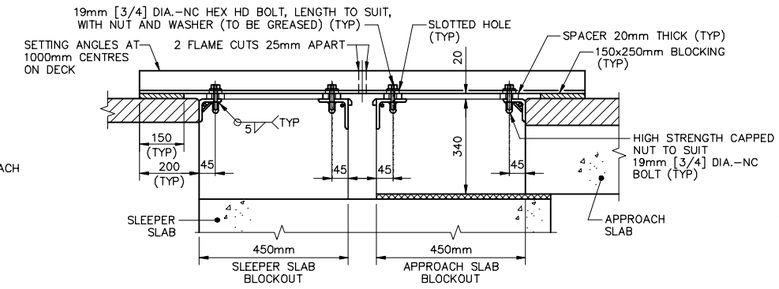
METRIC
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN

HWY	
CONT	2019-2003
WP	2116-16-00
Q.E.W. – CNR/CPR OVERHEAD	SHEET 216
STRIP SEAL EXPANSION JOINT TYPE 'C' DETAILS	

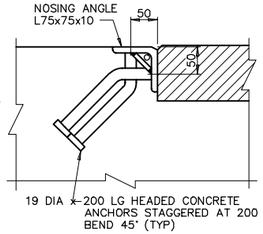
AECOM



(EXPANSION JOINT SEAL NOT SHOWN)



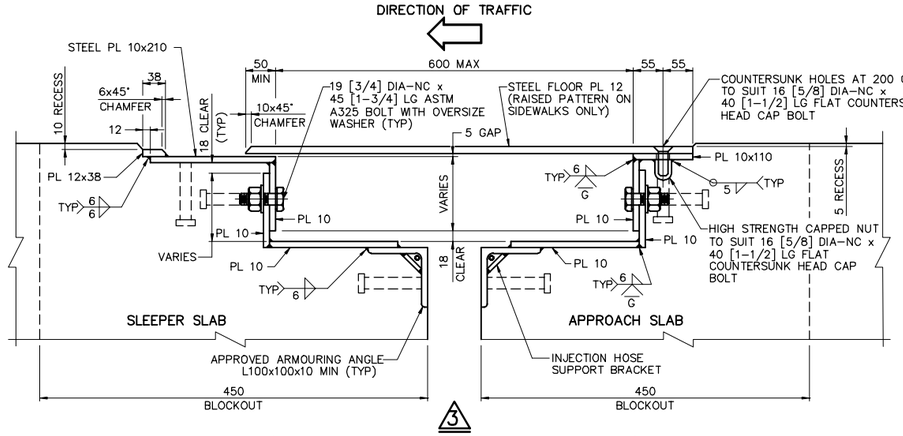
SETTING DEVICE AND BLOCKOUTS



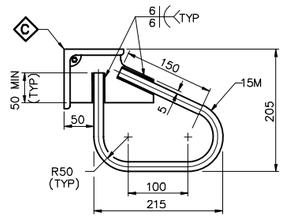
A DETAIL

NOTES:
1. THIS DRAWING TO BE READ IN CONJUCTION WITH DWG NO. 37.

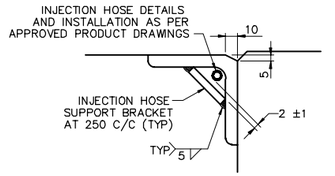
LEGEND:
[ ]	DENOTES FASTENER SIZE IN INCHES
CJ	DENOTES CONSTRUCTION JOINT
EJ	DENOTES EXPENSION JOINT



(STOP BARS AND RETAINER PLATES NOT SHOWN FOR CLARITY)



B ANCHORAGE DETAIL
FOR ALTERNATIVE SEE DETAIL D



INJECTION HOSE SUPPORT BRACKET DETAIL

ADDITIONAL NOTES FOR BOLTS:
1. 19 [3/4] DIAMETER BOLTS SHALL BE IN ACCORDANCE WITH WITH ASTM A325. ALL BOLTS USED IN 25 DIA. x 50 LONG SLOTTED HOLES SHALL BE INSTALLED WITH OVERSIZE WASHERS.
2. 16 [5/8] DIAMETER FLAT COUNTERSUNK HEAD CAP BOLTS SHALL BE IN ACCORDANCE WITH ASTM F835.
3. ALL BOLTS SHALL BE INSTALLED USING MOLY50 LUBRICANT.
4. ALL BOLTS SHALL BE TENSIONED USING THE TURN–OF–NUT TIGHTENING METHOD IN ACCORDANCE WITH CAN/CSA S6–14.

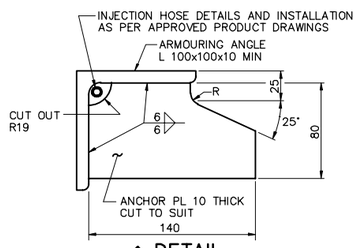
TABLE OF DESIGN REQUIREMENTS

EXP. JOINT LOCATION	MTO GAP ** RATING (mm)		DESIGN *** MOVEMENT	* "J" AT INSTALLATION TEMPERATURE (C) (mm)							
	MIN	MAX		-5°	0°	5°	10°	15°	20°	25°	30°
NBL N&S ABUTMENT	25	100	42mm	72	69	66	63	59	56	53	50
SBL N&S ABUTMENT	25	100	43mm	74	70	67	64	60	57	53	50

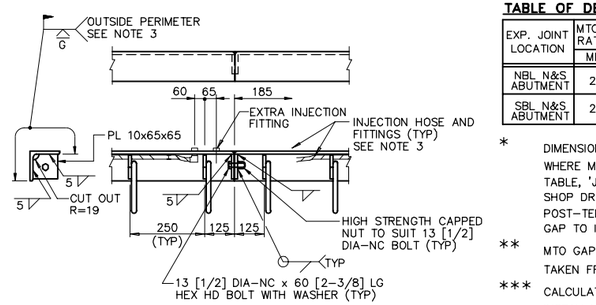
* DIMENSION 'J' MEASURED PERPENDICULAR TO CENTRELINE OF EXPANSION JOINT. WHERE MIN. AND MAX. FOR JOINT SUPPLIED DIFFER FROM THOSE SHOWN IN TABLE, 'J' DIMENSIONS SHALL BE REVISED BY CONTRACTOR AND SHOWN ON SHOP DRAWINGS. FOR STAGED CONSTRUCTION ON STRUCTURES OTHER THAN POST–TENSIONED, THE CONTRACTOR SHALL USE THE FIRST STAGE OBSERVED 'J' GAP TO INSTALL THE SECOND STAGE.

** MTO GAP, MEASURED BETWEEN PROJECTING FACES OF STEEL CLAMPING BAR, IS TAKEN FROM DSM 9.40.27, TYPE "C".

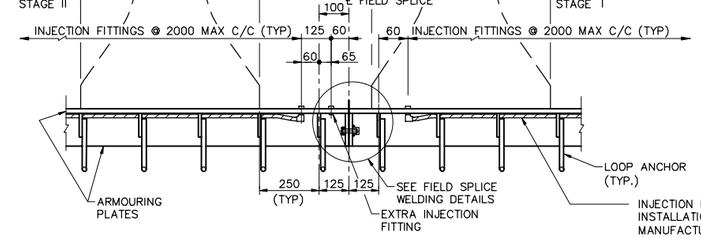
*** CALCULATED TOTAL MOVEMENT AT SLS OCCURRING AFTER TIME OF JOINT INSTALLATION. (MEASURED PARALLEL TO CENTRELINE OF STRUCTURE)



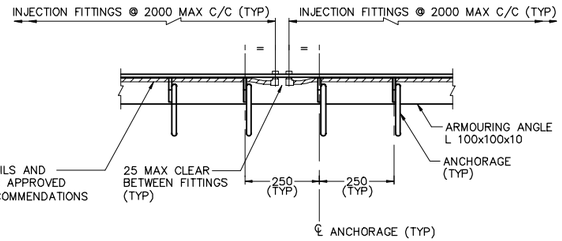
C DETAIL



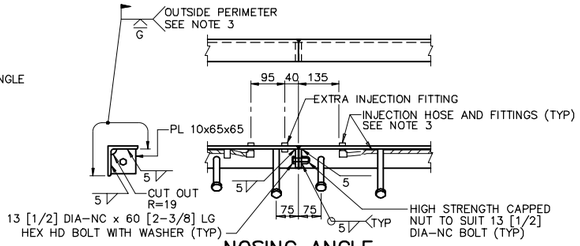
ARMOURING ANGLE FIELD SPLICE DETAIL



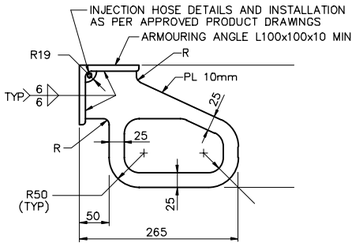
FIELD SPLICE DETAILS AT STAGED CONSTRUCTION FOR ARMOURING ANGLE



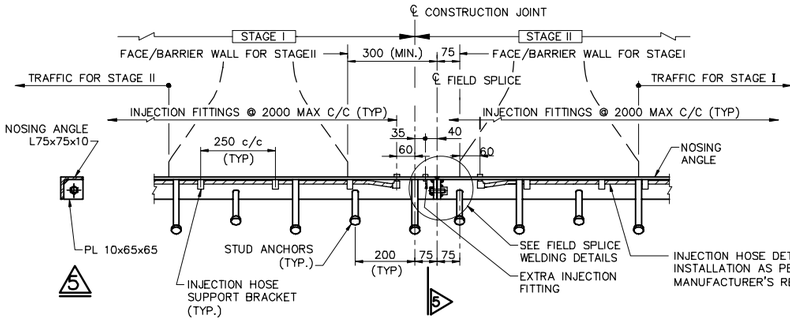
DETAILS OF ANCHORAGE AND INJECTION HOSE FOR ARMOURING ANGLE



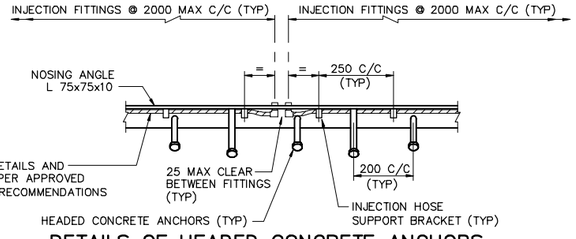
NOSING ANGLE FIELD SPLICE DETAIL



D ALTERNATIVE ANCHORAGE DETAIL



FIELD SPLICE DETAILS AT STAGED CONSTRUCTION FOR NOSING ANGLE



DETAILS OF HEADED CONCRETE ANCHORS AND INJECTION HOSE FOR NOSING ANGLE

C. W. HSIEH 100199333 March 14, 20 PROVINCE OF ONTARIO

D.S.M. ADAMSON 100182076 March 14, 20 PROVINCE OF ONTARIO

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

MODIFIED

STANDARD DRAWING OCTOBER 2013	SS113-13

STRIP SEAL EXPANSION JOINT – TYPE "C" DETAILS

REVISIONS		
DATE	BY	DESCRIPTION

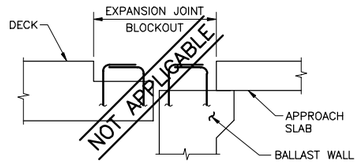
DESIGN CWH	CHK DA	CODE CHBDC–14	LOADCL–625–ONT	DATE JAN., 19	
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2		DWG 38	

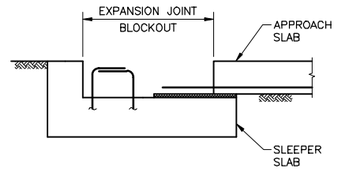
DRAWING NAME: 38–60581160–TYPE C STRIP SEAL DETAILS.dwg
CREATED: 2018–10–14 MODIFIED: 2019–03–15 3:26 PM

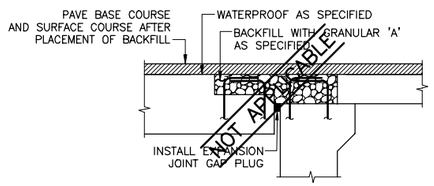
METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

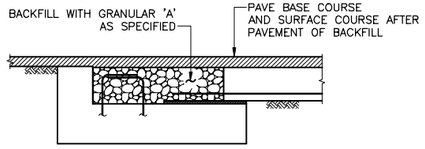
HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD	SHEET 217
SEQUENCE OF EXPANSION JOINT INSTALLATION	

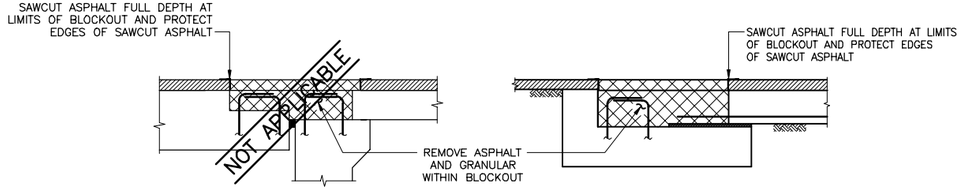
AECOM

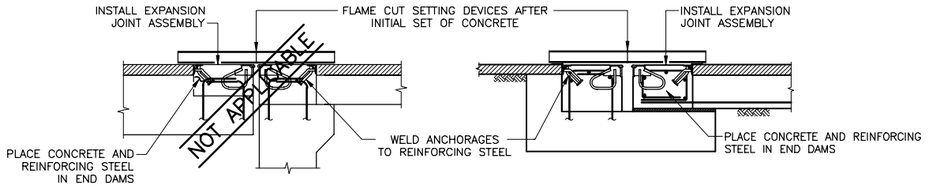












AT BRIDGE DECK AT SLEEPER SLAB

INSTALLATION AFTER PAVING

NOTES:

1. THE PURPOSE OF THIS DRAWING IS TO SHOW SCHEMATICALLY THE EXPANSION JOINT CONSTRUCTION SEQUENCE.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE EXPANSION JOINT DRAWINGS AND SPECIFICATIONS.
3. REINFORCING STEEL AND JOINT HARDWARE SHOWN ARE SCHEMATIC ONLY AND ARE AS SPECIFIED ELSEWHERE.
4. CONTRACTOR SHALL ENSURE THAT ALL REINFORCEMENT IN THE BLOCKOUT IS NOT DAMAGED.

LICENSED PROFESSIONAL ENGINEER C. W. HSIEH 100199333 March 14, 2019 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER D. B. ADAMSON 100120078 March 14, 2019 PROVINCE OF ONTARIO

STANDARD DRAWING MAY 2018	SS113–38
SEQUENCE OF EXPANSION JOINT INSTALLATION	

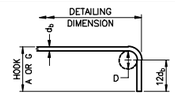
DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS			
	DATE	BY	DESCRIPTION

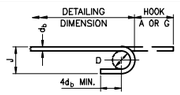
DESIGN	CWH	CHK	DA	CODE	CHBDC–14	LOAD	CL–625–ONT
DRAWN	PSH	CHK	JV	SITE	34X–0129/B1/B2	DATE	JAN., 19
						DWG	39

MINISTRY OF TRANSPORTATION, ONTARIO PR–D–707 88–05

DRAWING NAME: 39–60581660–STRUCTURAL STANDARDS.dwg
CREATED: 2018–10–15 MODIFIED: 2019–03–15 3:27 PM



STANDARD 90° HOOK



STANDARD 180° HOOK

MINIMUM BENDING PIN DIAMETER, D, mm

BAR SIZE	STEEL GRADE	
	400R (2)	400W
10M	70	60
15M	100	90
20M	120	100
25M	150	150
30M	250	200
35M	300	250
45M	450 (1)	400
55M	600 (1)	550

(1) Special fabrication is required for bends exceeding 90° for bars of these sizes and grade.

(2) For stainless steel, with Fy = 500, use the same D as for 400R.

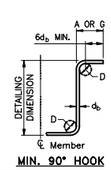
STANDARD HOOK DIMENSIONS

BAR SIZE	90° HOOKS		180° HOOKS			
	A OR G (mm)		A OR G (mm)		J (mm)	
	400R	400W	400R	400W	400R	400W
10M	180	180	140	130	90	80
15M	260	250	180	170	130	120
20M	310	300	220	200	160	140
25M	400	400	280	280	200	200
30M	510	490	400	350	310	260
35M	610	590	480	430	370	320
45M	790	770	680	630	540	490
55M	1030	1010	900	850	710	660

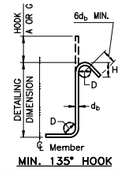
NOTE: All Hook Dimensions are according to the CHBDC–2014.

MINIMUM STIRRUP AND TIE HOOK DIMENSIONS

BAR SIZE	BAR DIAM. d_b(mm)	PIN DIAM. D(mm)	90° A OR G (mm)	135° A OR G (mm)	135° H (approx.) (mm)
10M	11.3	45	100	100	70
15M	16.0	65	140	140	100
20M	19.5	80	180	175	115
25M	25.2	100	230		



MIN. 90° HOOK



MIN. 135° HOOK

HOOK DIMENSIONS FOR REINFORCING STEEL BARS

Date: Sept. 2016 | Rev:

SS12-1





DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS			
	DATE	BY	DESCRIPTION

DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT	DATE JAN., 19		
DRAWN PSH	CHK JV	SITE 34X–0129/B1/B2		DWG 40		

MINISTRY OF TRANSPORTATION, ONTARIO PR–D–707 88–05
DRAWING NAME: 40–60581660–STRUCTURAL STANDARDS.dwg
CREATED: 2018–12–18 MODIFIED: 2019–03–15 3:27 PM

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

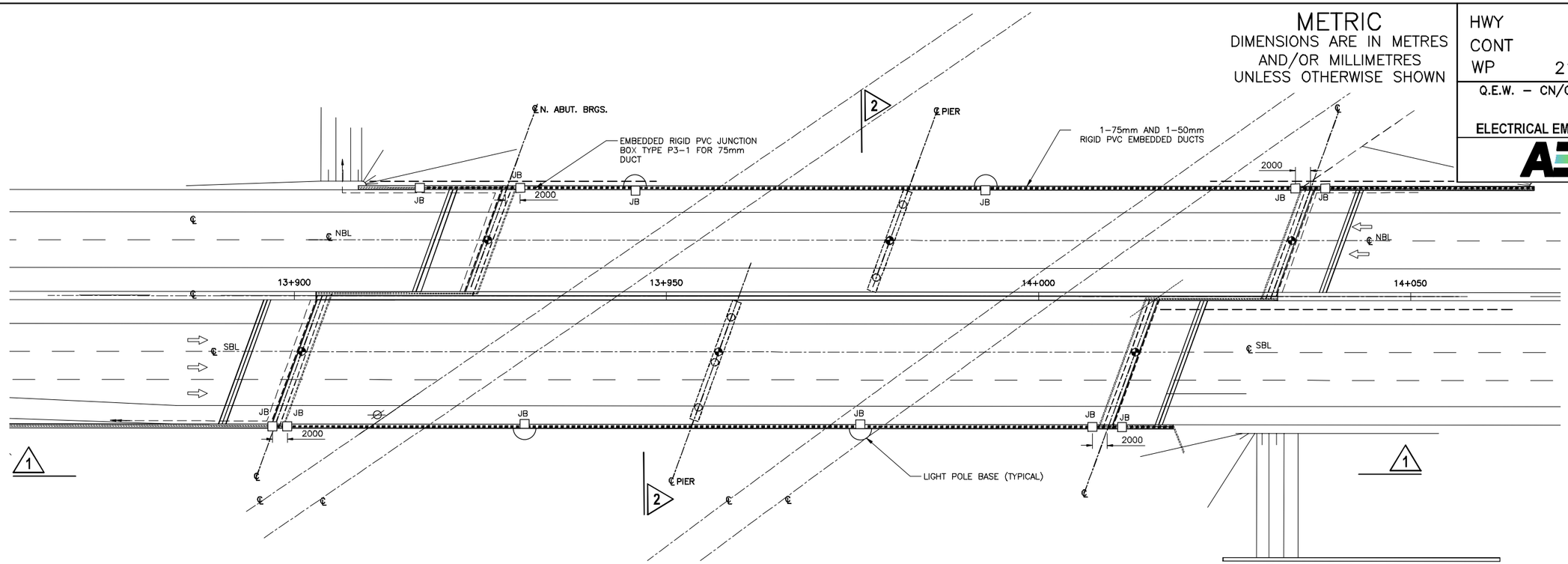
HWY	Q.E.W
CONT	2019–2003
WP	2116–16–00

Q.E.W. – CN/CP OVERHEAD

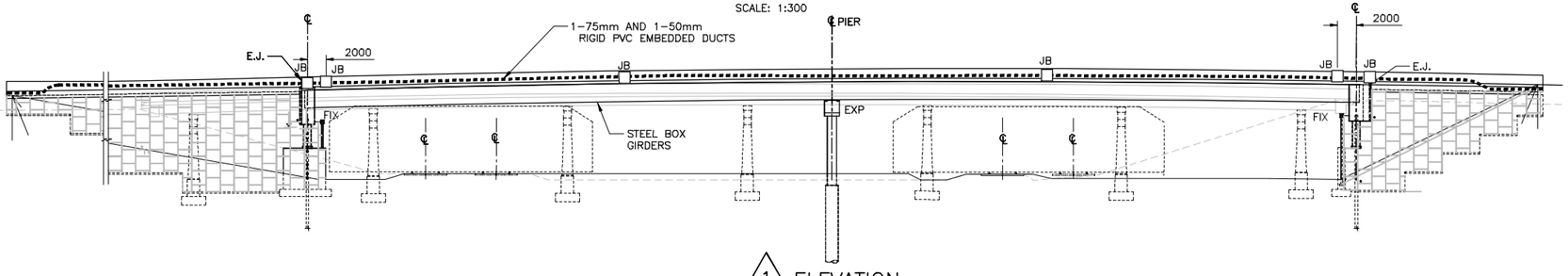
ELECTRICAL EMBEDDED WORK

SHEET 219

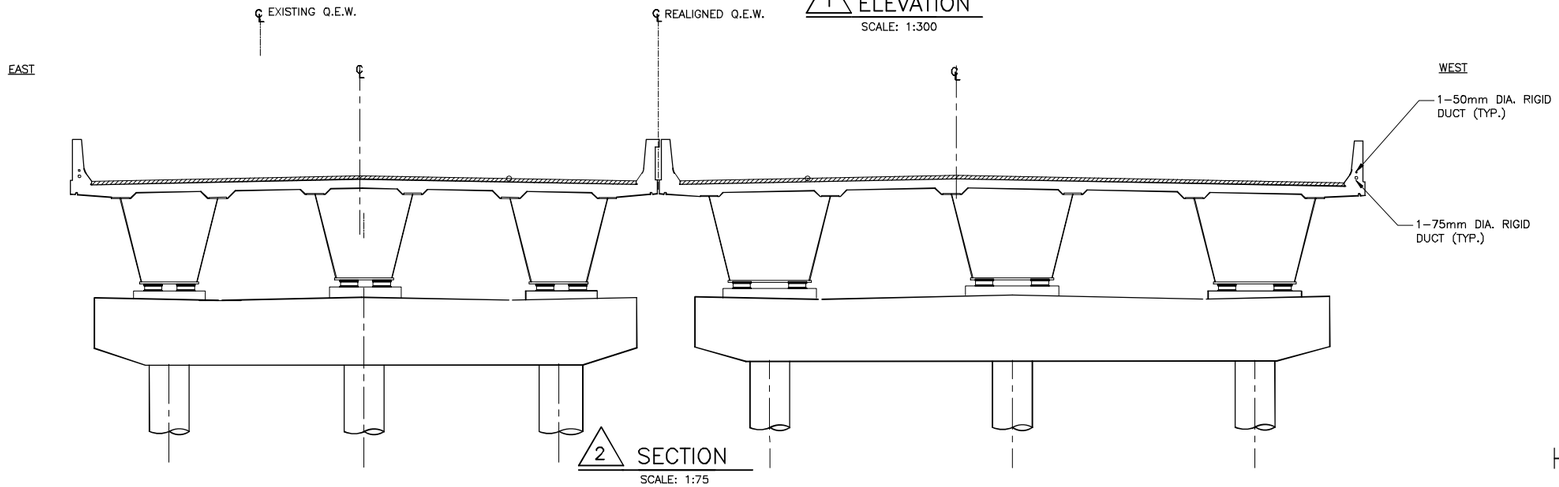
AECOM



PLAN
SCALE: 1:300



1 ELEVATION
SCALE: 1:300



2 SECTION
SCALE: 1:75

GENERAL NOTE(S):

A. TERMINATE EMBEDDED DUCT WITH 'O' RING EXPANSION JOINT COUPLING. CAP SPARE DUCTS AS NECESSARY FOR FUTURE USE.

B. WHERE REQUIRED FIELD ADJUST AS DIRECTED BY THE ENGINEER. THE LOCATION OF THE JUNCTION BOXES AND THE ROUTING OF EMBEDDED DUCTS TO AVOID CONFLICTS WITH STRUCTURAL STEEL.

C. PROVIDE FISH WIRE IN ALL EMPTY DUCTS.

APPLICABLE STANDARD DRAWINGS:

OPSD 2000.010	ABBREVIATIONS, GENERAL
OPSD 2011.101	GENERAL SYMBOLS, DUCTS AND CABLES
OPSD 2011.201	GENERAL SYMBOLS, MAINTENANCE HOLES, JUNCTION BOXES, PADS AND FOOTINGS.
OPSD 2102.01	UNDERGROUND RIGID DUCT CONNECTION AT CONCRETE STRUCTURE
OPSD 2302.010	EMBEDDED WORK DETAIL FOR RIGID PVC JUNCTION BOX, TYPE P3–1
OPSD 2302.020	EXPANSION AND DEFLECTION FITTING ASSEMBLY FOR 50 AND 75mm RIGID DUCTS
OPSD 2302.040	EMBEDDED WORK IN STRUCTURE NEW JERSEY TYPE BARRIER WALL

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS		
DATE	BY	DESCRIPTION

DESIGN IK	CHK RJR	CODE CHBDC–14	LOAD CL–625–ONT	DATE MARCH,19	
DRAWN IK	CHK JB	SITE 34–129/1/2		DWG	212

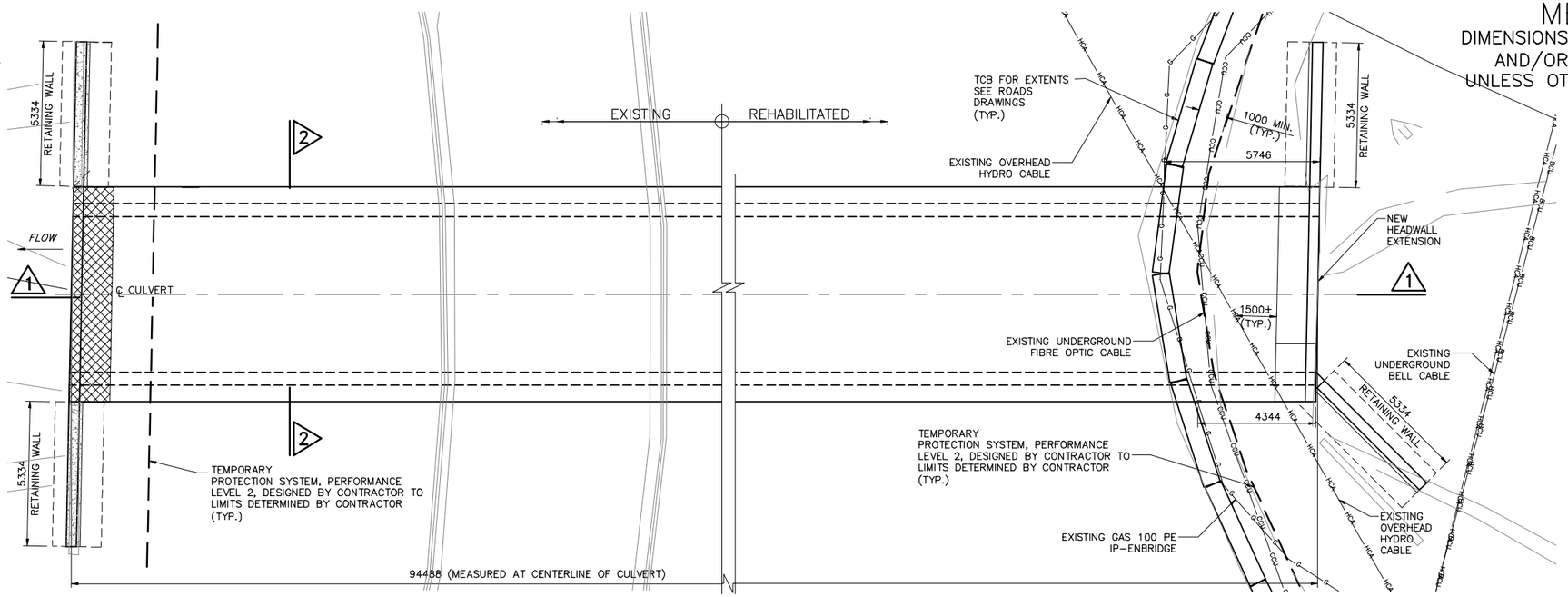
MINISTRY OF TRANSPORTATION, ONTARIO
PR–D–707 88–05
DRAWING NAME: 60581660 QEW Bertie CNR_CPR_GA.dwg
CREATED: 2019–03–13
MODIFIED: 2019–03–14 11:59 AM

NORTH FOR CONSTRUCTION

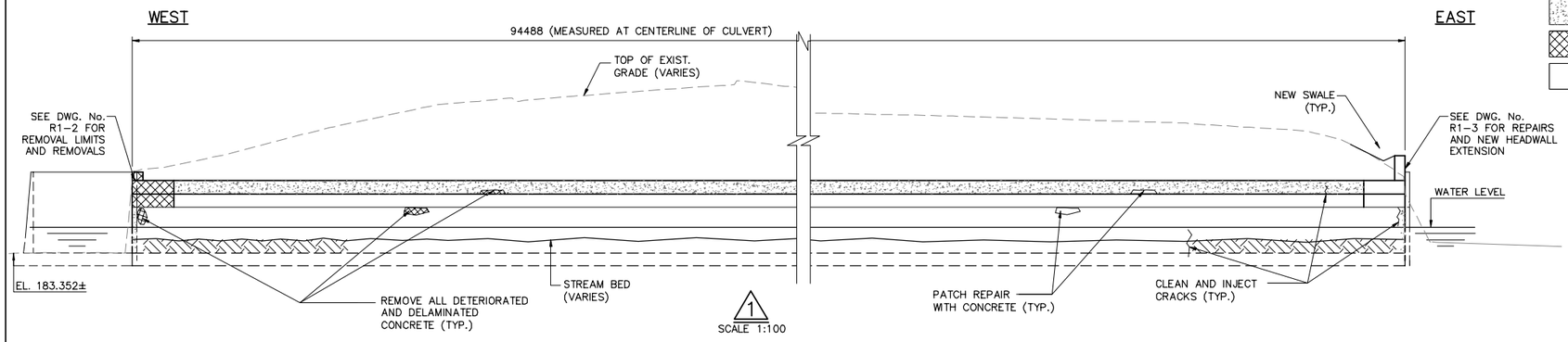
METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

HWY	Q.E.W.
CONT	2019–2003
WP	2116–16–00
FRENCHMAN'S CREEK CULVERT No. 34–454/C GENERAL ARRANGEMENT	SHEET 220

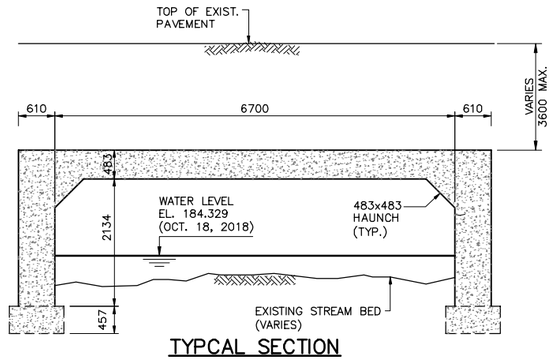
AECOM



PLAN
SCALE: 1:100



1
SCALE 1:100



TYPCAL SECTION
2
SCALE 1:50

LEGEND:

- EXISTING CONCRETE
- CONCRETE REMOVAL
- NEW CONCRETE

GENERAL NOTES:

1. CLASS OF CONCRETE TO BE 30 MPa
2. CLEAR COVER TO REINFORCING STEEL :

FOOTINGS:		100 ± 25
DECK	TOP	70 ± 20
	BOTTOM	50 ±10
REMAINDER:		70 ±20 UNLESS OTHERWISE NOTED

3. REINFORCING STEEL SHALL BE GRADE 400W UNLESS OTHERWISE SPECIFIED.
4. UNLESS OTHERWISE SHOWN, TENSION LAP LENGTHS NOT INDICATED IN THE DRAWING SHALL BE CLASS B.

CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, DETAILS AND ELEVATIONS OF THE EXISTING STRUCTURE THAT ARE RELEVANT TO THE WORK SHOWN ON THE DRAWINGS PRIOR TO ANY DISCREPANCIES SHALL BE REPORTED TO THE CONTRACT ADMINISTRATOR AND THE PROPOSED ADJUSTMENT OF THE WORK REQUIRED TO MATCH THE EXISTING STRUCTURE SHALL BE SUBMITTED FOR APPROVAL.
2. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ADEQUATE PROTECTION OF ALL UTILITIES, SERVICES, STRUCTURES, ROADWAYS, ETC. DURING CONSTRUCTION OPERATIONS.
3. DETERIORATED, SPALLED AND DELAMINATED AREAS ARE APPROXIMATE AND DO NOT REFLECT THE FULL EXTENT OF THE PARTIAL DEPTH CONCRETE REMOVALS OR REPAIRS. LIMITS OF CONCRETE REMOVAL SHALL BE AS SHOWN ON THE DRAWINGS OR AS DELIMITED ON SITE BY THE CONTRACTOR ADMINISTRATOR.
4. SAWCUT IN CONCRETE, WHERE DESIGNATED, SHALL BE 25mm DEEP OR TO THE FIRST LAYER OF REINFORCING STEEL, WHICHEVER IS LESS.
5. SOFFIT REMOVALS AND REPAIRS SHALL BE LIMITED TO $3m^3$ IN TOTAL AT ANY GIVEN TIME.
6. ANY DAMAGE DURING CONSTRUCTION TO THE EXISTING STRUCTURE NOT DESIGNATED FOR REPAIR, UTILITIES AND ADJACENT PROPERTIES SHALL BE REPAIRED GOOD BY THE CONTRACTOR TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR AND AT NO COST TO MTO.
7. EXPOSED REINFORCING STEEL TO REMAIN SHALL BE ABRASIVE BLAST CLEANED IN ACCORDANCE WITH OPSS 929 PRIOR TO COVERING.
8. BACKFILL SHALL BE GRANULAR 'A'.
9. LOCATION OF UTILITIES IS APPROXIMATE AND MAY NOT REPRESENT ACTUAL LOCATION. CONTRACTOR IS RESPONSIBLE TO IDENTIFY AND LOCATE ALL UTILITIES.

SCOPE OF REHABILITATION WORK:

REPAIR DELAMINATED AND DETERIORATED AREAS. REMOVE AND REPAIR TOP PORTION OF TOP SLAB AND RETAINING WALLS.

ENVIRONMENTAL NOTES

1. IN–WATER WORK TIMING WINDOWS ARE IN PLACE FOR THE WATERCOURSE. ALL IN–WATER WORK SHALL TAKE PLACE BETWEEN JULY 2nd TO FEBRUARY 28th, INCLUSIVE.
2. EROSION AND SEDIMENT CONTROL (ESC) SHALL BE INSTALLED PRIOR TO CONSTRUCTION. ALL ESC MEASURES SHALL BE MAINTAINED TO ENSURE PROPER FUNCTION AND SHALL BE INSPECTED AFTER ALL STORM EVENTS AND REPAIRED/REPLACED IF NECESSARY.
3. SILT FENCE CONFIGURATION/LOCATIONS TO BE CONFIRMED AND RELOCATED BY THE CONTRACTOR IN COORDINATION WITH ACCESS PIT AND SITE ACCESS LOCATIONS AND CONSTRUCTION SEQUENCING.
4. ALL WORK IS TO BE COMPLETED IN THE DRY.
5. CONTRACTOR SHALL COMPLY WITH ENVIRONMENTAL PROTECTION REQUIREMENTS AND ALL ENVIRONMENTAL CONSTRAINTS TO PREVENT CONTAMINATION OF THE WATERCOURSE.

LIST OF DRAWINGS:

R1–1	GENERAL ARRANGEMENT
R1–2	REMOVALS
R1–3	REHABILITATION
R1–4	TYPICAL REPAIR DETAILS

APPLICABLE STANDARD DRAWINGS

OPSD 3950.100 JOINTS CONCRETE EXPANSION AND CONSTRUCTION ON STRUCTURE

LIST OF ABBREVIATIONS:

DWG.	DRAWING
EL.	ELEVATION
EXIST.	EXIST.
REBAR.	REINFORCEMENT BAR FOR CONCRETE
TCB.	TEMPORARY CONCRETE BARRIER
TYP.	TYPICAL

LICENSED PROFESSIONAL ENGINEER J. LJUBICIC 100078187 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER D.BRANNEN 100120076 PROVINCE OF ONTARIO

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS			
	DATE	BY	DESCRIPTION

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DRAWN YB	CHK JV	SITE 34–454/C		DWG	R1–1

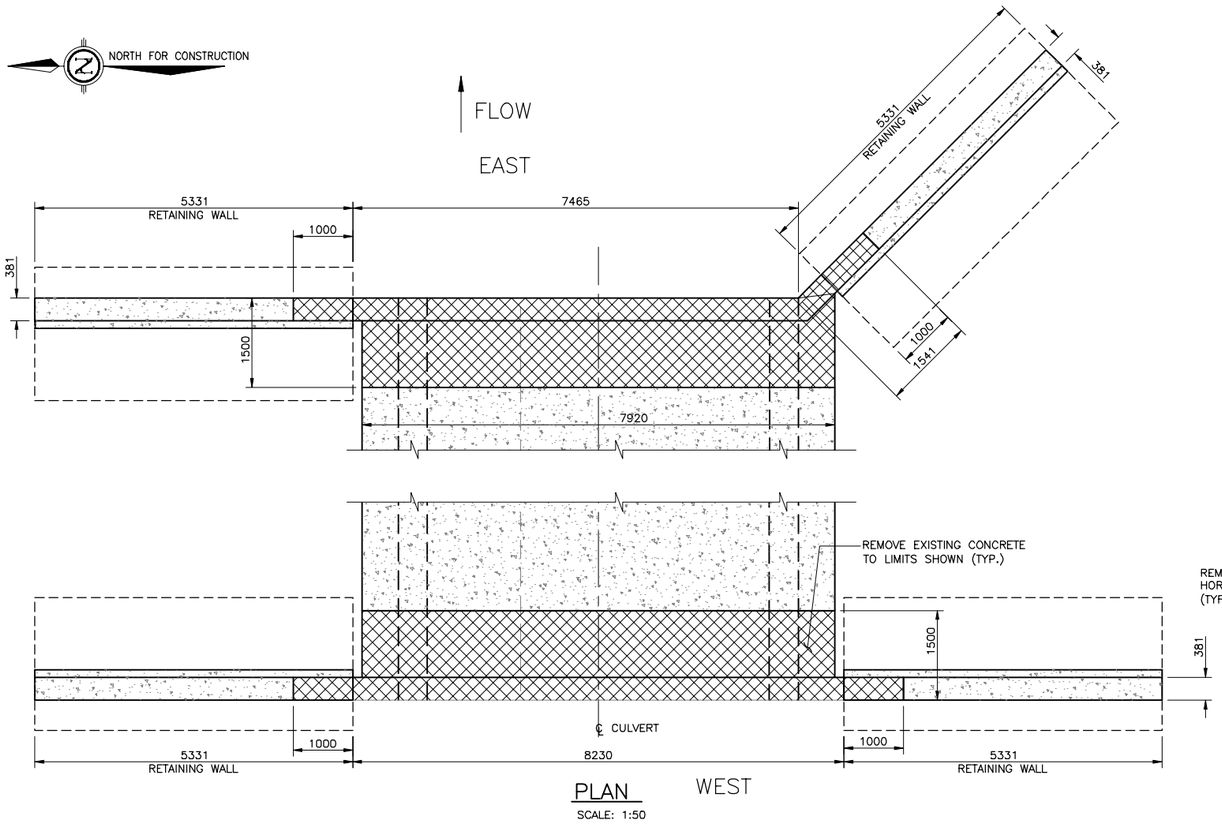
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CREATED: 2018–10–29 MODIFIED: 2019–03–15 3:32 PM

PR–10–707 88–05
MINISTRY OF TRANSPORTATION, ONTARIO

NORTH FOR CONSTRUCTION

FLOW

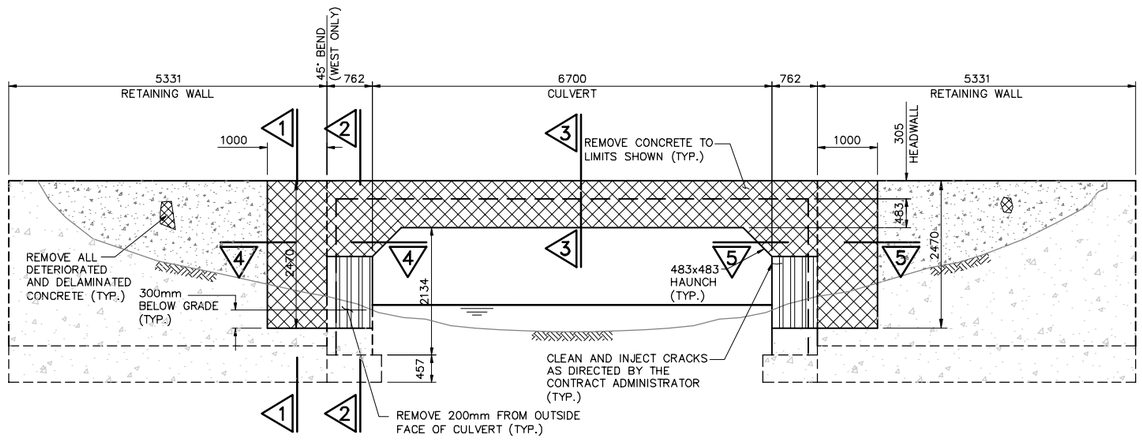
EAST



PLAN

SCALE: 1:50

WEST



EAST ELEVATION (WEST ELEVATION SIMILAR EXCEPT AS NOTED)

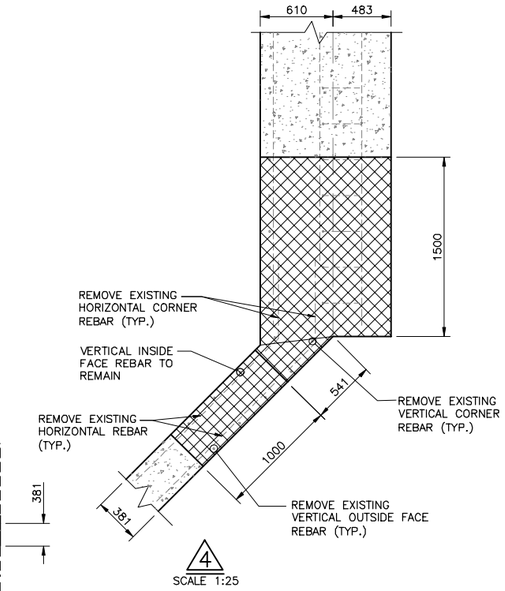
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LEGEND:

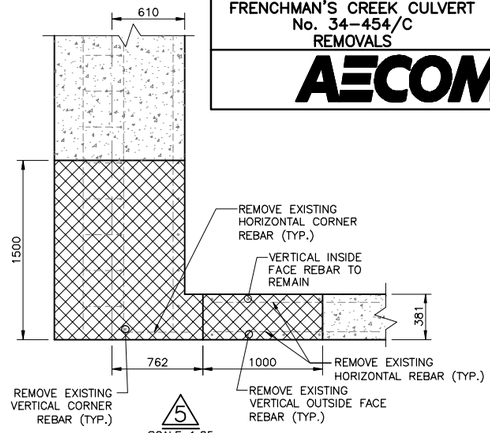
- EXISTING CONCRETE
- CONCRETE REMOVAL
- PARTIAL CONCRETE REMOVAL

METRIC

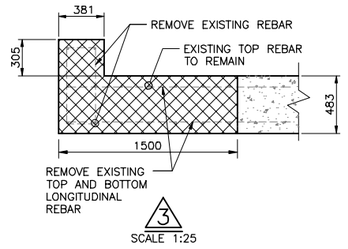
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN



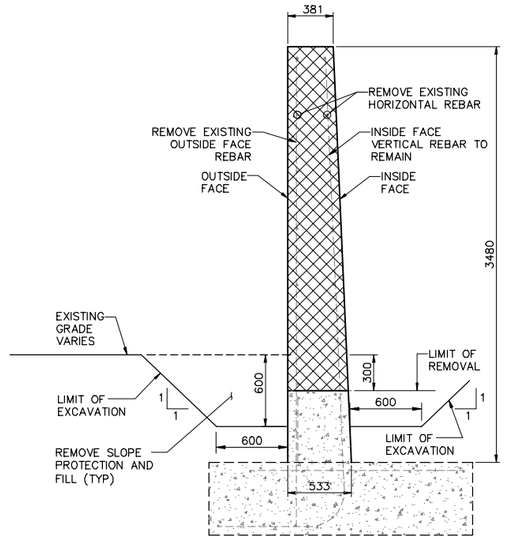
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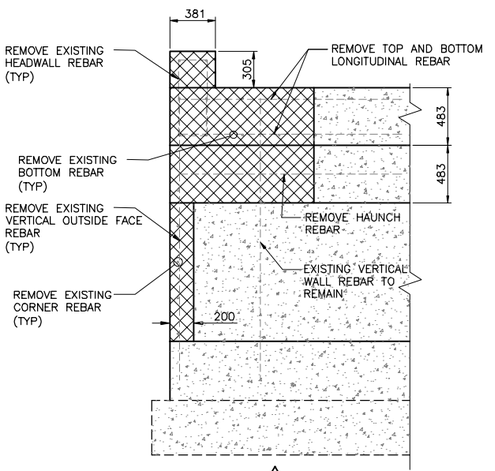
5
SCALE 1:25



3
SCALE 1:25



1
SCALE 1:25



2
SCALE 1:25

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

HWY	
CONT	2019–2003
WP	2116–16–00

FRENCHMAN'S CREEK CULVERT
No. 34–454/C
REMOVALS

SHEET 221

AECOM

REVISIONS		
DATE	BY	DESCRIPTION

DESIGN EM	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT	DATE	JAN., 19
DRAWN YB	CHK JV	SITE 34–454/C		DWG	R1–2

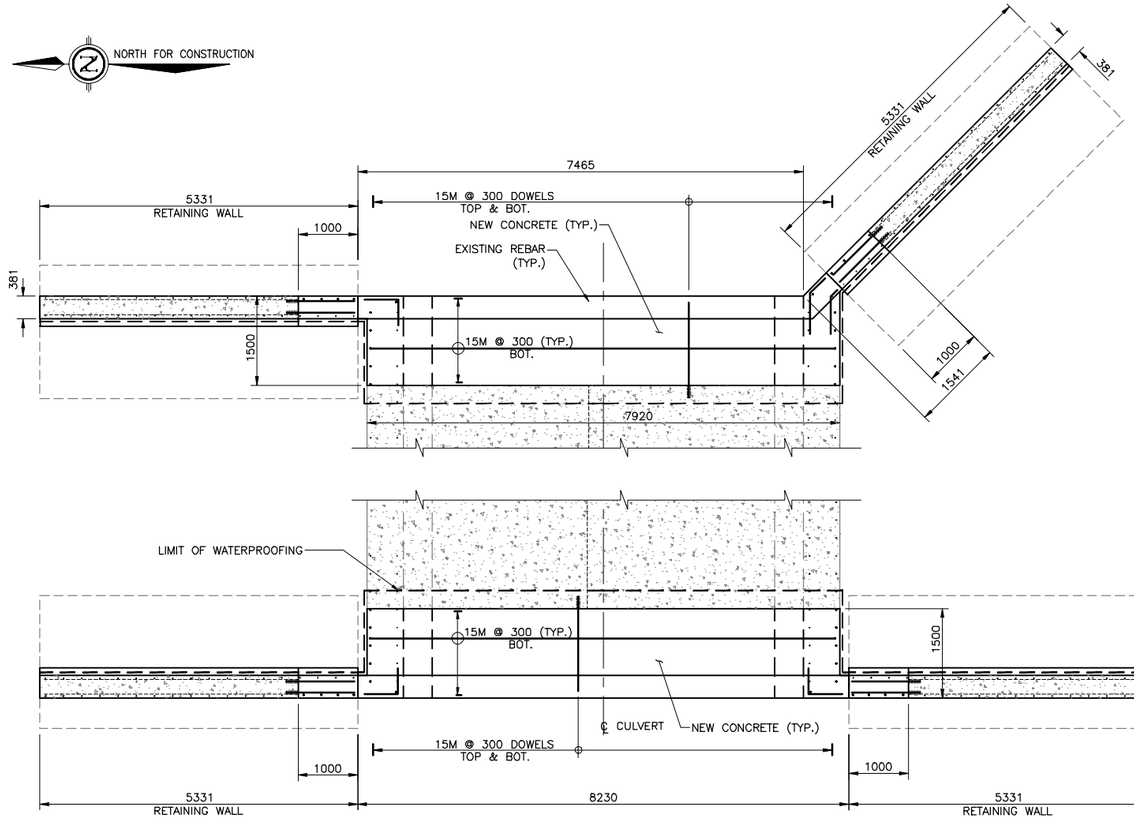
LICENCED PROFESSIONAL ENGINEER
J. VUCETIC
100128497
PROVINCE OF ONTARIO
March 14, 2019

LICENCED PROFESSIONAL ENGINEER
D.G.A. ADAMSON
100120079
PROVINCE OF ONTARIO
March 14, 2019

MINISTRY OF TRANSPORTATION, ONTARIO PR–D–707 88–05

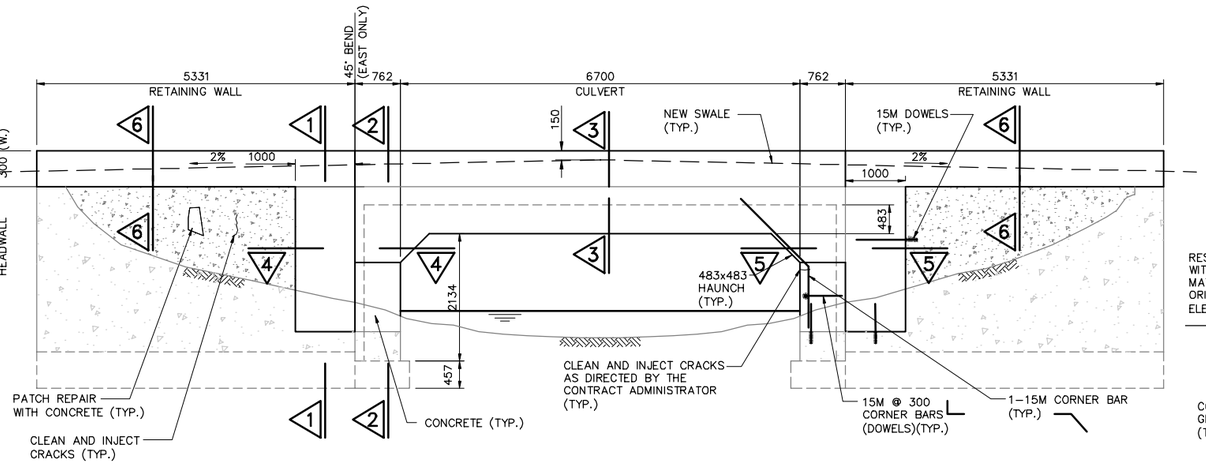
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CREATED: 2018–12–07 MODIFIED: 2019–03–15 3:31 PM

NORTH FOR CONSTRUCTION



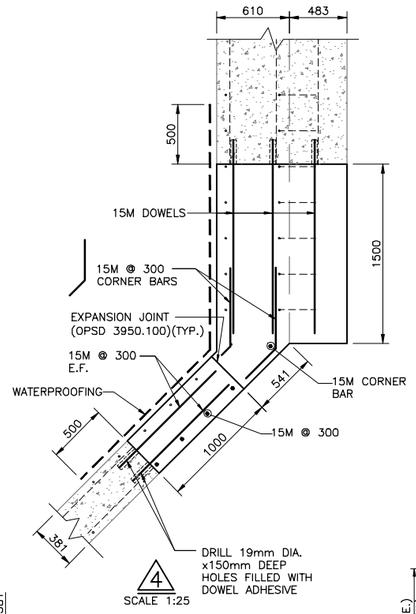
PLAN

SCALE: 1:50

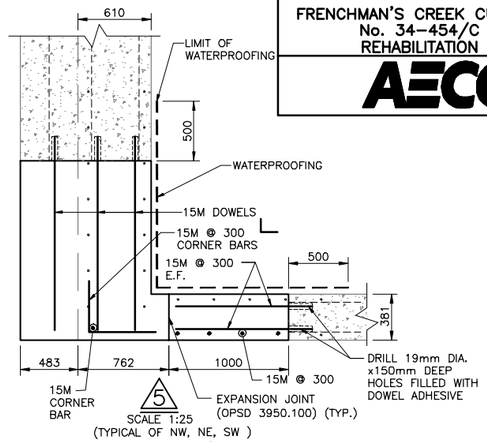


EAST ELEVATION (WEST ELEVATION SIMILAR EXCEPT AS NOTED)

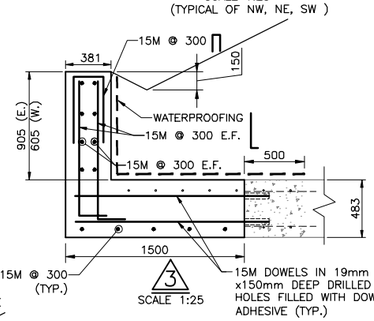
SCALE: 1:100



4
SCALE 1:25



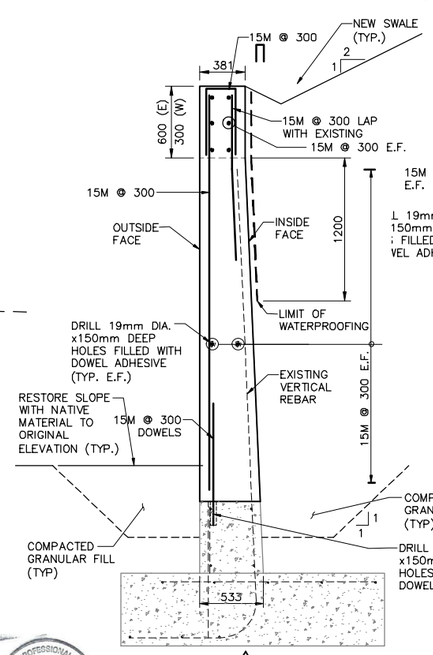
5
SCALE 1:25
(TYPICAL OF NW, NE, SW)



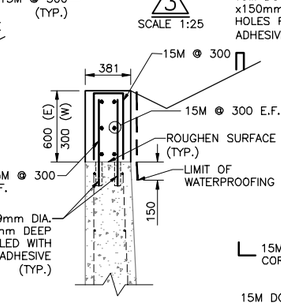
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LEGEND:

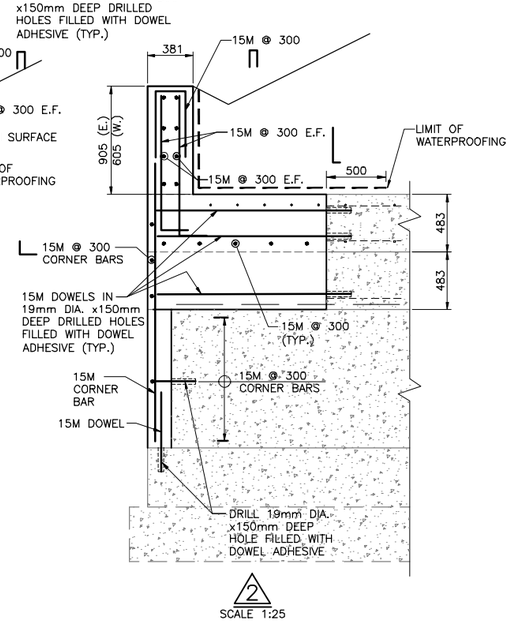
- EXISTING CONCRETE
- NEW CONCRETE
- EXISTING REBAR



1
SCALE 1:25



6
SCALE 1:25



2
SCALE 1:25

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

HWY	
CONT	2019-2003
WP	2116-16-00

FRENCHMAN'S CREEK CULVERT
No. 34-454/C
REHABILITATION

SHEET 222

AECOM

REVISIONS			
DATE	BY	DESCRIPTION	
DESIGN EM	CHK DA	CODE CHBDC-14	LOAD CL-625-ONT DATE JAN., 19
DRAWN YB	CHK JV	SITE 34-454/C	DWG R1-3

DRAWING NAME: 60581660-CULVERT 34-454C_R1-3_REHAB.dwg 3:33 PM
CREATED: 2018-12-04 MODIFIED: 2019-03-15

MINISTRY OF TRANSPORTATION, ONTARIO PR-JL-707 88-05

MINISTRY OF TRANSPORTATION, ONTARIO
PR-D-707 88-05
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CREATED: 2018-12-11 MODIFIED: 2019-03-15 3:32 PM

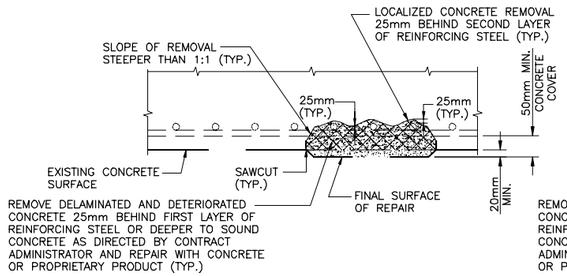
METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

HWY
CONT 2019-2003
WP 2116-16-00

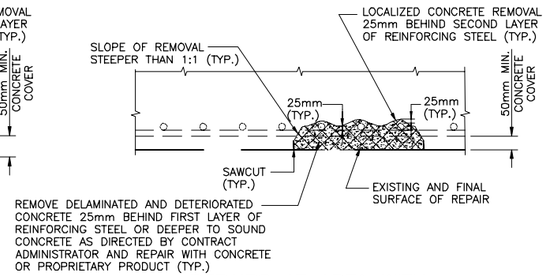
FRENCHMAN'S CREEK CULVERT
No. 34-454/C
TYPICAL REPAIR DETAILS

SHEET
223

AECOM



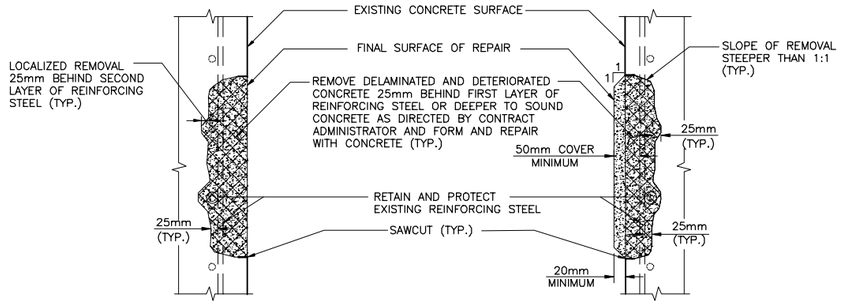
REPAIRS AT AREA WITH
CONCRETE COVER < 50mm



REPAIRS AT AREA WITH
CONCRETE COVER ⩾ 50mm

TYPICAL TYPE "B" CONCRETE REMOVAL AND REPAIR DETAIL (FOR OVERHEAD SURFACES AT SOFFIT AND FASCIA)

N.T.S.

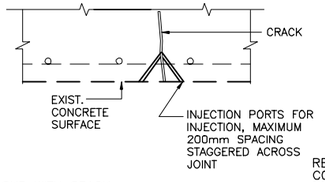


REPAIRS AT AREAS WITH
CONCRETE COVER ⩾ 50mm

REPAIRS AT AREAS WITH
CONCRETE COVER < 50mm

TYPICAL TYPE "C" LOCAL CONCRETE REMOVAL AND REPAIR DETAIL (FOR VERTICAL SURFACES AT WALLS)

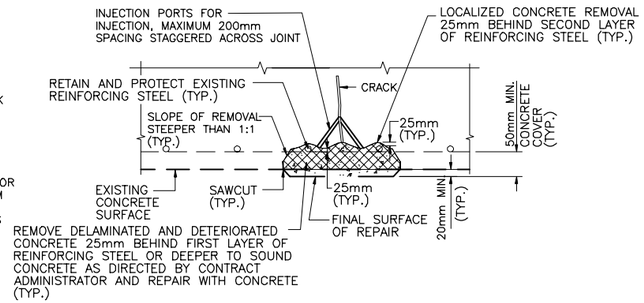
N.T.S.



NOTES:

1. REPAIR CRACKS WITH CRACK INJECTION METHOD.
2. CLEAN CONCRETE SURFACE AS PER SPECIFICATION.

CRACK INJECTION WITH
SOUND CONCRETE SURFACE



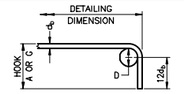
CRACK INJECTION WITH
DETERIORATED CONCRETE SURFACE

CRACK REPAIR DETAIL AT CRACKS > 0.3mm WIDE

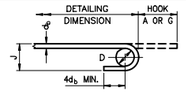
N.T.S.

LEGEND

- EXISTING CONCRETE
- NEW CONCRETE
- CONCRETE REMOVAL
- EXIST. REINFORCING BARS



STANDARD 90° HOOK



STANDARD 180° HOOK

MINIMUM BENDING PIN DIAMETER, D, mm

BAR SIZE	STEEL GRADE 400R (2)	400W
10M	70	60
15M	100	90
20M	120	100
25M	150	150
30M	250	200
35M	300	250
45M	450 (1)	400
55M	600 (1)	550

(1) Special fabrication is required for bends exceeding 90° for bars of these sizes and grade.
(2) For stainless steel, with Fy = 500, use the same D as for 400R.

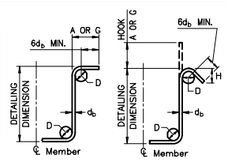
STANDARD HOOK DIMENSIONS

BAR SIZE	90° HOOKS A OR G (mm) 400R	400W	180° HOOKS A OR G (mm) 400R	400W	J (mm) 400R	400W
10M	180	180	140	130	90	80
15M	260	250	180	170	130	120
20M	310	300	220	200	160	140
25M	400	400	280	280	200	200
30M	510	490	400	350	310	260
35M	610	590	480	430	370	320
45M	790	770	680	630	540	490
55M	1030	1010	900	850	710	660

NOTE: All Hook Dimensions are according to the CHBDC-2014.

MINIMUM STIRRUP AND TIE HOOK DIMENSIONS

BAR SIZE	BAR DIAM. d_b(mm)	PIN DIAM. D(mm)	90° A OR G (mm)	135° A OR G (mm)	135° H (approx.) (mm)
10M	11.3	45	100	100	70
15M	16.0	65	140	140	100
20M	19.5	80	180	175	115
25M	25.2	100	230		



MIN. 90° HOOK MIN. 135° HOOK

HOOK DIMENSIONS FOR REINFORCING STEEL BARS

Date Sept. 2016 Rev

SS12-1

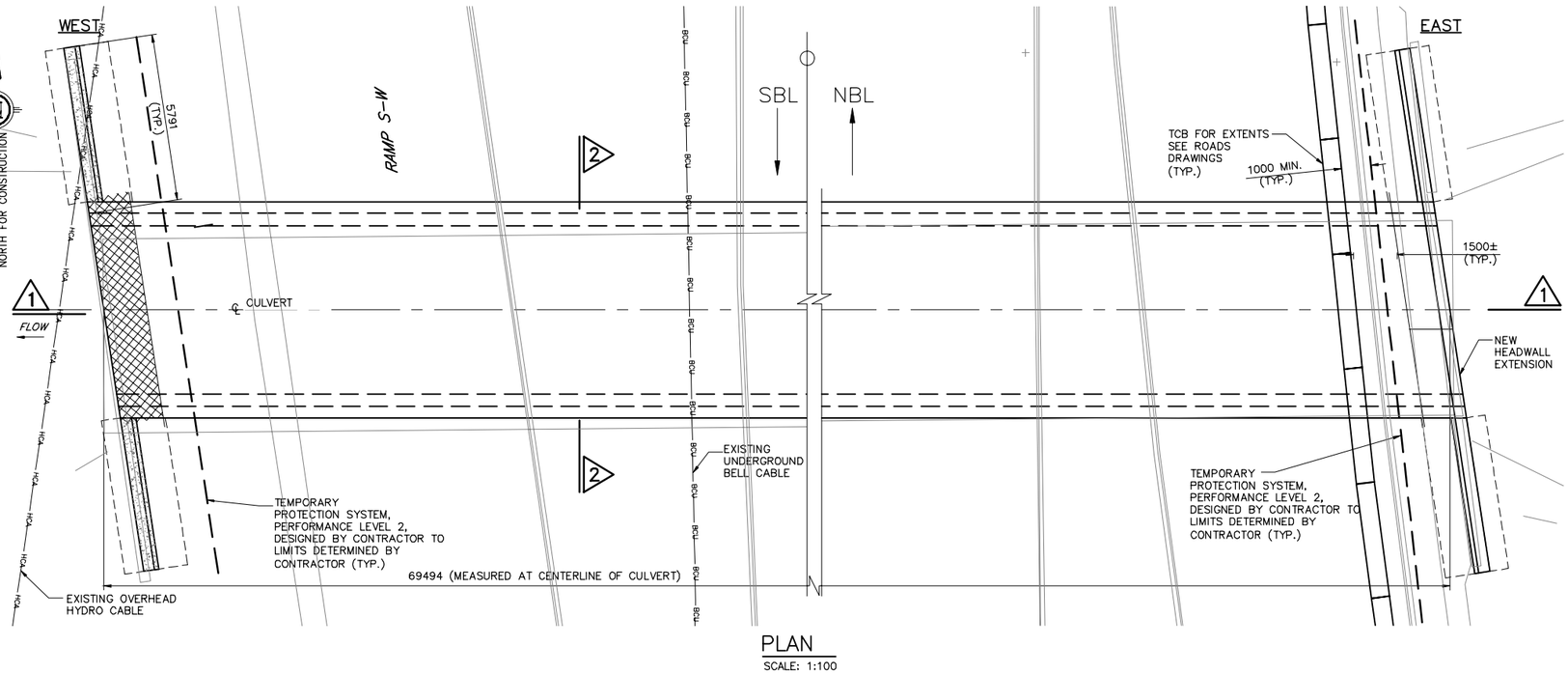




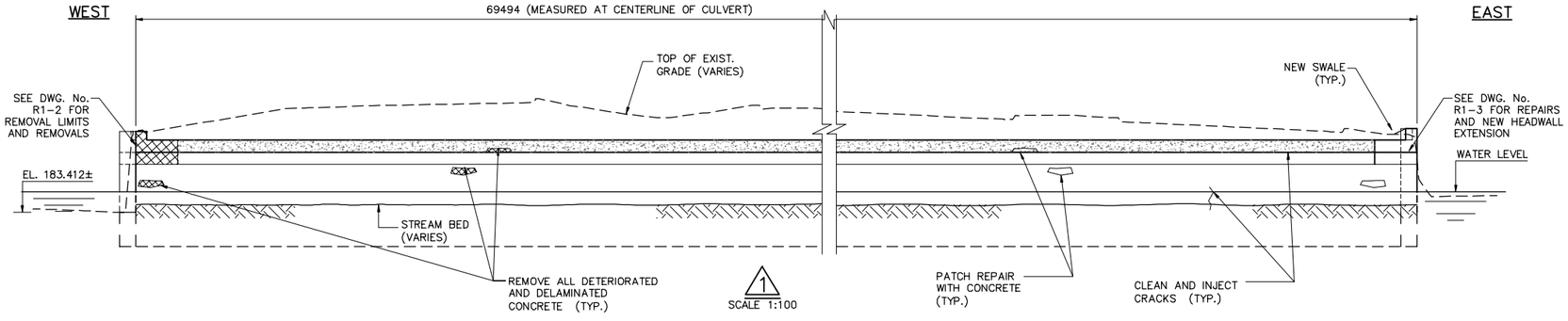
DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS			
	DATE	BY	DESCRIPTION

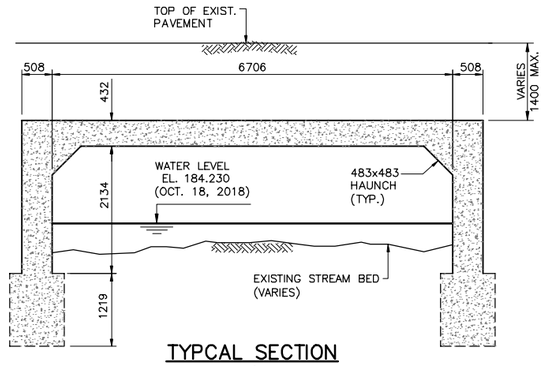
DESIGN EM	CHK DA	CODE	CHBDC-14	LOAD	CL-625-ONT	DATE	JAN., 19
DRAWN YB	CHK JV	SITE	34-454/C			DWG	R1-4



PLAN
SCALE: 1:100



1
SCALE 1:100



TYPCAL SECTION
2
SCALE 1:50

METRIC
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN

LEGEND:
- EXISTING CONCRETE
- CONCRETE REMOVAL
- NEW CONCRETE

GENERAL NOTES:
1. CLASS OF CONCRETE TO BE 30 MPa
2. CLEAR COVER TO REINFORCING STEEL :

BOTTOM OF TOP SLAB:		50 ± 10
DECK	TOP	70 ± 20
	BOTTOM	50 ± 10
REMAINDER:		70 ±20 UNLESS OTHERWISE NOTED

3. REINFORCING STEEL SHALL BE GRADE 400W UNLESS OTHERWISE SPECIFIED.
4. UNLESS OTHERWISE SHOWN, TENSION LAP LENGTHS NOT INDICATED IN THE DRAWING SHALL BE CLASS B.

CONSTRUCTION NOTES:
1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, DETAILS AND ELEVATIONS OF THE EXISTING STRUCTURE THAT ARE RELEVANT TO THE WORK SHOWN ON THE DRAWINGS PRIOR TO ANY DISCREPANCIES SHALL BE REPORTED TO THE CONTRACT ADMINISTRATOR AND THE PROPOSED ADJUSTMENT OF THE WORK REQUIRED TO MATCH THE EXISTING STRUCTURE SHALL BE SUBMITTED FOR APPROVAL.
2. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ADEQUATE PROTECTION OF ALL UTILITIES, SERVICES, STRUCTURES, ROADWAYS, ETC. DURING CONSTRUCTION OPERATIONS.
3. DETERIORATED, SPALLED AND DELAMINATED AREAS ARE APPROXIMATE AND DO NOT REFLECT THE FULL EXTENT OR LOCATION OF THE POTENTIAL DEPTH CONCRETE REMOVAL OR REPAIRS. LIMITS OF CONCRETE REMOVAL SHALL BE AS SHOWN ON THE DRAWINGS OR AS DELIMITED ON SITE BY THE CONTRACT ADMINISTRATOR.
4. SAWCUT IN CONCRETE, WHERE DESIGNATED, SHALL BE 25mm DEEP OR TO THE FIRST LAYER OF REINFORCING STEEL, WHICHEVER IS LESS.
5. SOFFIT REMOVALS AND REPAIRS SHALL BE LIMITED TO $3m^3$ IN TOTAL AT ANY GIVEN TIME.
6. ANY DAMAGE DURING CONSTRUCTION TO THE EXISTING STRUCTURE NOT DESIGNATED FOR REPAIR, UTILITIES AND ADJACENT PROPERTIES SHALL BE REPAIRED GOOD BY THE CONTRACTOR TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR AND AT NO COST TO MTO.
7. EXPOSED REINFORCING STEEL TO REMAIN SHALL BE ABRASIVE BLAST CLEANED IN ACCORDANCE WITH OPSS 929 PRIOR TO COVERING.
8. BACKFILL SHALL BE GRANULAR 'A'.
9. LOCATION OF UTILITIES IS APPROXIMATE AND MAY NOT REPRESENT ACTUAL LOCATION. CONTRACTOR IS RESPONSIBLE TO IDENTIFY AND LOCATE ALL UTILITIES.

SCOPE OF REHABILITATION WORK:
REPAIR DELAMINATED AND DETERIORATED AREAS. REMOVE AND REBUILD TOP PORTION OF TOP SLAB AND RETAINING WALL.

ENVIRONMENTAL NOTES
1. IN-WATER WORK TIMING WINDOWS ARE IN PLACE FOR THE WATERCOURSE. ALL IN-WATER WORK SHALL TAKE PLACE BETWEEN JULY 2nd TO FEBRUARY 28th, INCLUSIVE.
2. EROSION AND SEDIMENT CONTROL (ESC) SHALL BE INSTALLED PRIOR TO CONSTRUCTION. ALL ESC MEASURES SHALL BE MAINTAINED TO ENSURE PROPER FUNCTION AND SHALL BE INSPECTED AFTER ALL STORM EVENTS AND REPAIRED/REPLACED IF NECESSARY.
3. SILT FENCE CONFIGURATION/LOCATIONS TO BE CONFIRMED AND RELOCATED BY THE CONTRACTOR IN COORDINATION WITH ACCESS PIT AND SITE ACCESS LOCATIONS AND CONSTRUCTION SEQUENCING.
4. ALL WORK IS TO BE COMPLETED IN THE DRY.
5. CONTRACTOR SHALL COMPLY WITH ENVIRONMENTAL PROTECTION REQUIREMENTS AND ALL ENVIRONMENTAL CONSTRAINTS TO PREVENT CONTAMINATION OF THE WATERCOURSE.

LIST OF DRAWINGS:

R1-1	GENERAL ARRANGEMENT
R1-2	REMOVALS
R1-3	REHABILITATION
R1-4	TYPICAL REMOVAL DETAILS

APPLICABLE STANDARD DRAWINGS

OPSD 3950.100	JOINTS CONCRETE EXPANSION AND CONSTRUCTION ON STRUCTURE

LIST OF ABBREVIATIONS:

DWG.	DRAWING
EL.	ELEVATION
EXIST.	EXIST.
REBAR.	REINFORCEMENT BAR FOR CONCRETE
TCB.	TEMPORARY CONCRETE BARRIER
TYP.	TYPICAL

LICENSED PROFESSIONAL ENGINEER J. TURATO 100079137 PROVINCE OF ONTARIO March 19, 2019

LICENSED PROFESSIONAL ENGINEER D.BAGRAMOV 100122078 PROVINCE OF ONTARIO March 19, 2019

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS		
DATE	BY	DESCRIPTION

DESIGN EM	CHK DA	CODE CHBDC-14	LOAD CL-625-ONT	DATE	JAN., 19
DRAWN YB	CHK JV	SITE 34-455/C		DWG	R1-1

HWY Q.E.W.
CONT 2019-2003
WP 2116-16-00

FRENCHMAN'S CREEK CULVERT
No. 34-455/C
GENERAL ARRANGEMENT

SHEET 224

AECOM

MINISTRY OF TRANSPORTATION, ONTARIO
PR-D-707 88-05

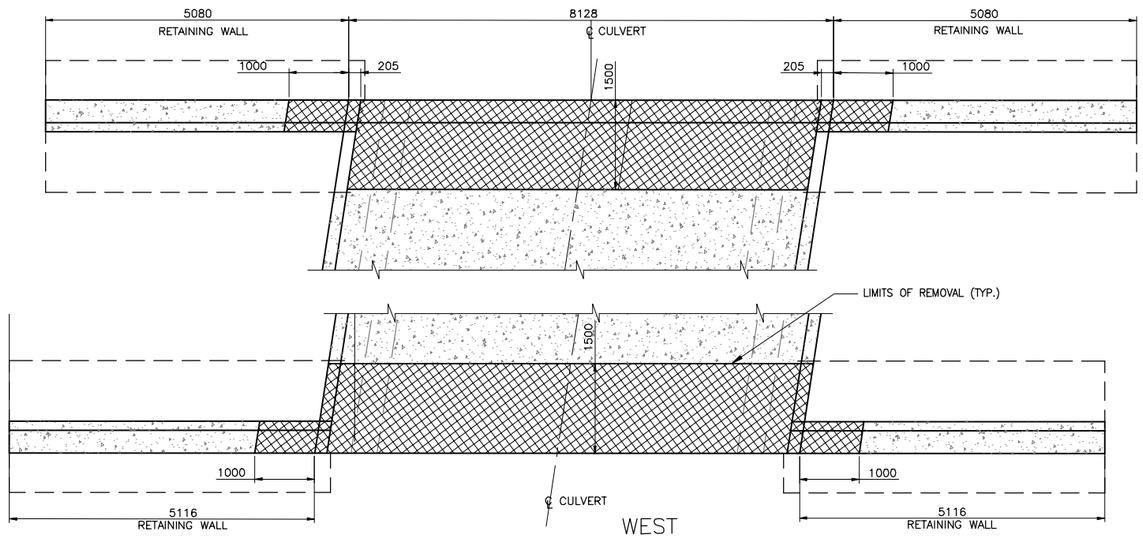
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CREATED: 2018-10-29 MODIFIED: 2019-03-15 3:34 PM

MINISTRY OF TRANSPORTATION, ONTARIO PR-JL-707 88-05

NORTH FOR CONSTRUCTION

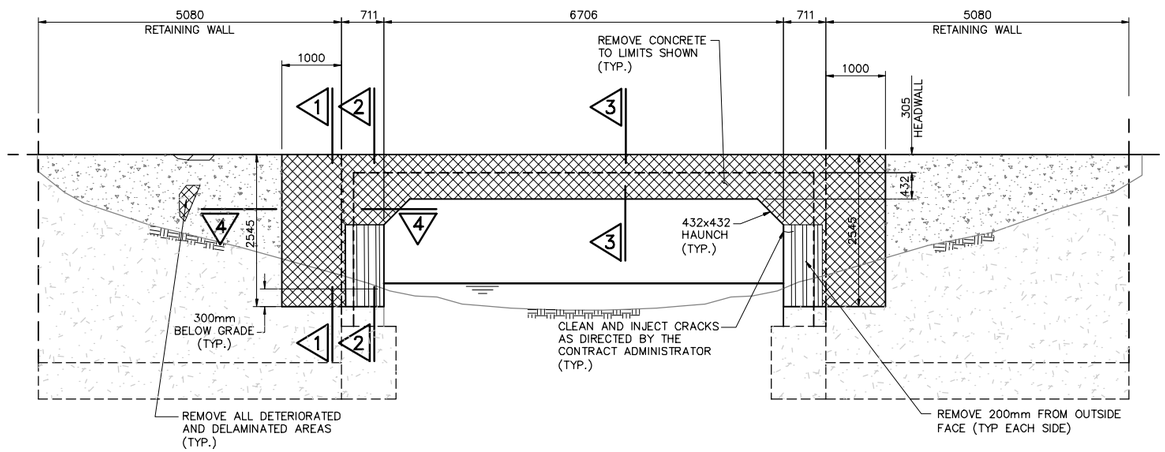
FLOW

EAST



WEST

PLAN
SCALE: 1:50



EAST ELEVATION (WEST ELEVATION SIMILAR)
SCALE: 1:50

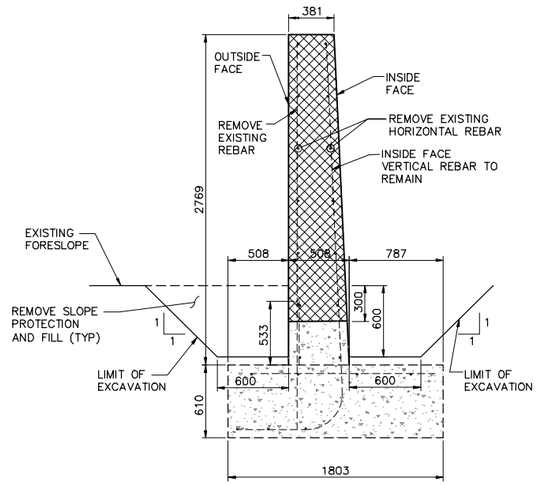
LEGEND:

- EXISTING CONCRETE
- CONCRETE REMOVAL
- PARTIAL CONCRETE REMOVAL

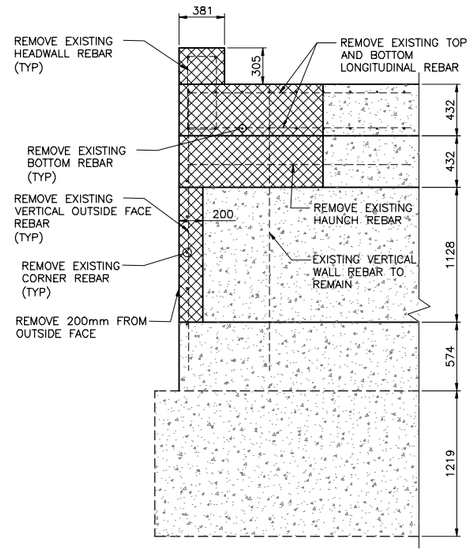
METRIC
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN

HWY	
CONT	2019–2003
WP	2116–16–00
FRENCHMAN'S CREEK CULVERT No. 34–455/C REMOVALS	SHEET 225

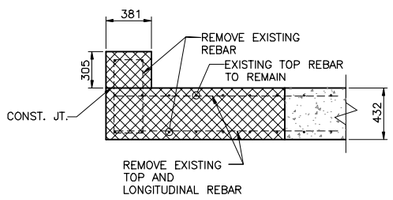
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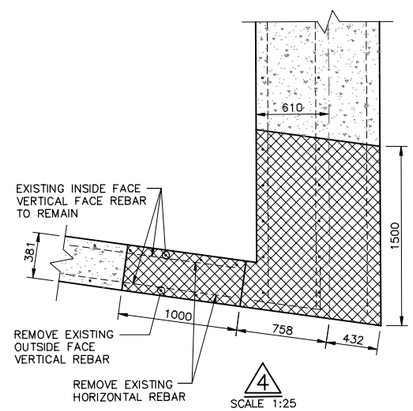
1
SCALE 1:25



2
SCALE 1:25



3
SCALE 1:25



4
SCALE 1:25

LICENSED PROFESSIONAL ENGINEER J. YU-TUNG 100128437 PROVINCE OF ONTARIO June 19, 2019

LICENSED PROFESSIONAL ENGINEER D.BO ADAMSON 100120070 PROVINCE OF ONTARIO March 19, 2019

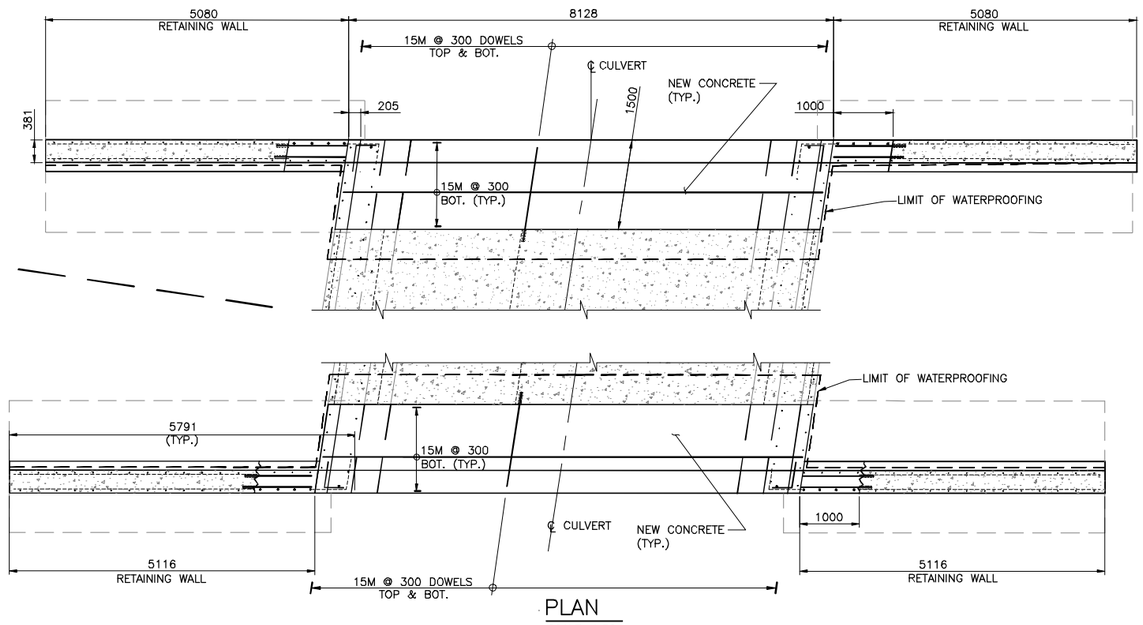
DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS		
DATE	BY	DESCRIPTION

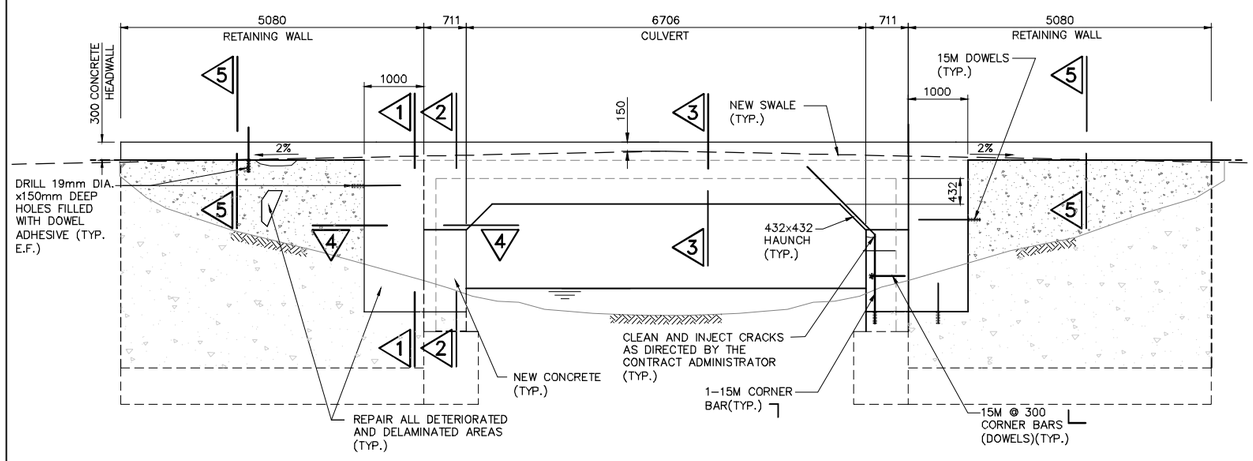
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DRAWN YB	CHK JV	SITE 34–455/C		DWG R1–2	

DRAWING NAME: 60581660–CULVERT 34–455C_R1–2_REM.dwg 3:34 PM
CREATED: 2018–12–06 MODIFIED: 2019–03–15

NORTH FOR CONSTRUCTION



PLAN
SCALE: 1:50



EAST ELEVATION (WEST ELEVATION SIMILAR)
SCALE: 1:50

LEGEND:

EXISTING CONCRETE

NEW CONCRETE

EXISTING REBAR

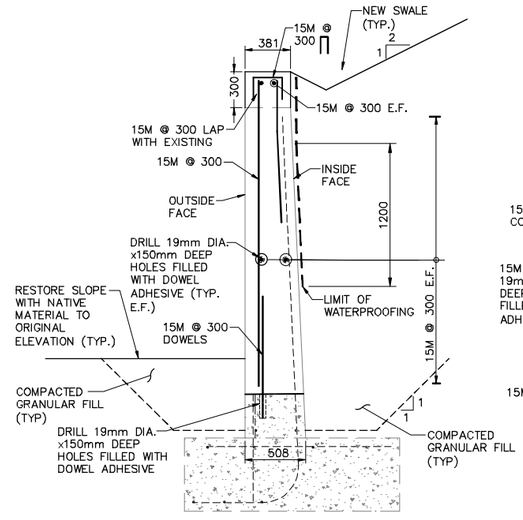
METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

HWY	
CONT	2019-2003
WP	2116-16-00

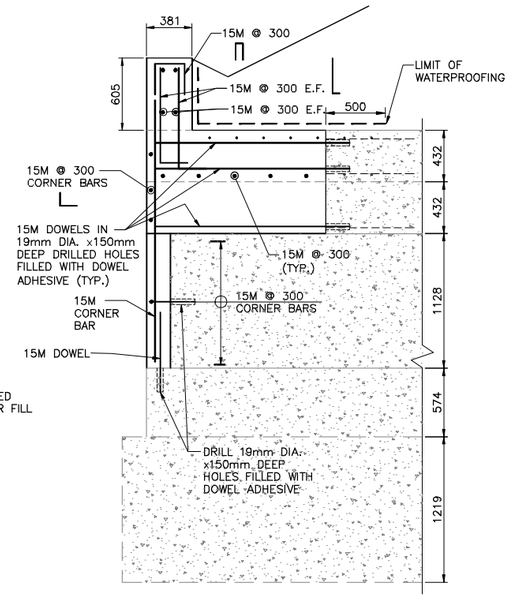
FRENCHMAN'S CREEK CULVERT
No. 34-455/C
REHABILITATION

SHEET
226

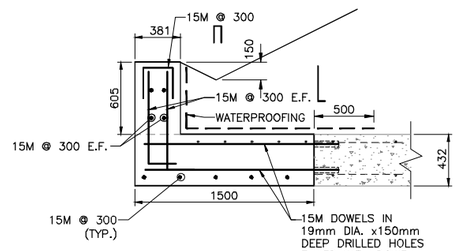
AECOM



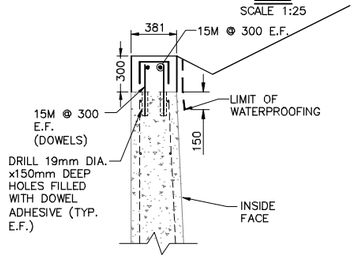
1
SCALE 1:25



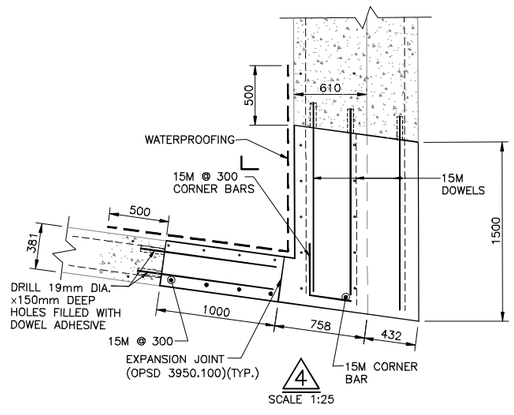
2
SCALE 1:25



3
SCALE 1:25



5
SCALE 1:25



4
SCALE 1:25

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS			
	DATE	BY	DESCRIPTION

DESIGN EM	CHK DA	CODE CHBDC-14	LOAD CL-625-ONT	DATE JAN., 19	
DRAWN YB	CHK JV	SITE 34-455/C		DWG R1-3	

LICENSED PROFESSIONAL ENGINEER
J. LAUTIC
100219457
PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER
D.B. ADAMSON
100120076
PROVINCE OF ONTARIO

MINISTRY OF TRANSPORTATION, ONTARIO PR-D-707 88-05

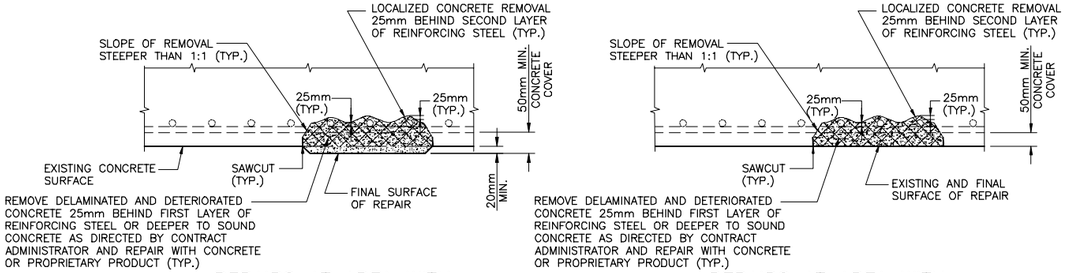
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CREATED: 2018-12-04 MODIFIED: 2019-03-15 3:35 PM

HWY
CONT 2019–2003
WP 2116–16–00

FRENCHMAN'S CREEK CULVERT
No. 34–455/C
TYPICAL REPAIR DETAILS

SHEET
227

AECOM

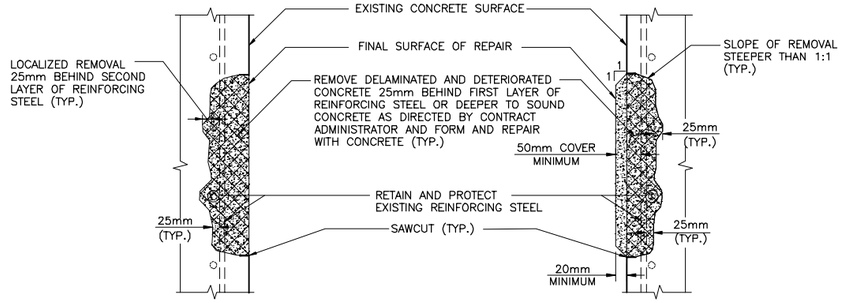


REPAIRS AT AREA WITH CONCRETE COVER < 50mm

REPAIRS AT AREA WITH CONCRETE COVER ⩾ 50mm

TYPICAL TYPE "B" CONCRETE REMOVAL AND REPAIR DETAIL (FOR OVERHEAD SURFACES AT SOFFIT AND FASCIA)

N.T.S.

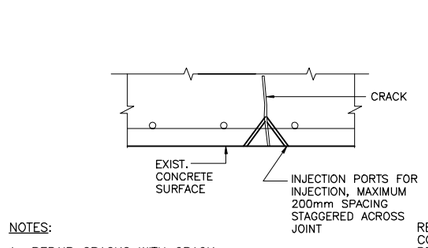


REPAIRS AT AREAS WITH CONCRETE COVER ⩾ 50mm

REPAIRS AT AREAS WITH CONCRETE COVER < 50mm

TYPICAL TYPE "C" LOCAL CONCRETE REMOVAL AND REPAIR DETAIL (FOR VERTICAL SURFACES AT WALLS)

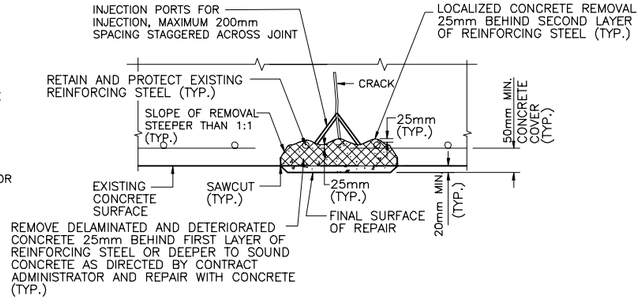
N.T.S.



NOTES:

1. REPAIR CRACKS WITH CRACK INJECTION METHOD.
2. CLEAN CONCRETE SURFACE AS PER SPECIFICATION.

CRACK INJECTION WITH SOUND CONCRETE SURFACE



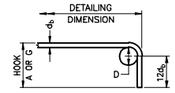
CRACK INJECTION WITH DETERIORATED CONCRETE SURFACE

CRACK REPAIR DETAIL AT CRACKS > 0.3mm WIDE

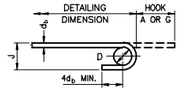
N.T.S.

LEGEND

- EXISTING CONCRETE
- NEW CONCRETE
- CONCRETE REMOVAL
- EXIST. REINFORCING BARS



STANDARD 90° HOOK



STANDARD 180° HOOK

MINIMUM BENDING PIN DIAMETER, D, mm

BAR SIZE	STEEL GRADE	
	400R (2)	400W
10M	70	60
15M	100	90
20M	120	100
25M	150	150
30M	250	200
35M	300	250
45M	450 (1)	400
55M	600 (1)	550

(1) Special fabrication is required for bends exceeding 90° for bars of these sizes and grade.

(2) For stainless steel, with Fy = 500, use the same D as for 400R.

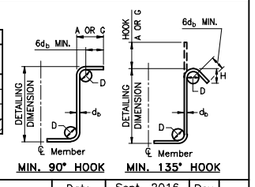
STANDARD HOOK DIMENSIONS

BAR SIZE	90° HOOKS		180° HOOKS			
	A OR G (mm)		A OR G (mm)		J (mm)	
	400R	400W	400R	400W	400R	400W
10M	180	180	140	130	90	80
15M	260	250	180	170	130	120
20M	310	300	220	200	160	140
25M	400	400	280	280	200	200
30M	510	490	400	350	310	260
35M	610	590	480	430	370	320
45M	790	770	680	630	540	490
55M	1030	1010	900	850	710	660

NOTE: All Hook Dimensions are according to the CHBDC–2014.

MINIMUM STIRRUP AND TIE HOOK DIMENSIONS

BAR SIZE	BAR DIAM. d_b(mm)	PIN DIAM. D(mm)	90° A OR G (mm)	135° A OR G (mm)	135° H (approx.) (mm)
10M	11.3	45	100	100	70
15M	16.0	65	140	140	100
20M	19.5	80	180	175	115
25M	25.2	100	230		



MIN. 90° HOOK MIN. 135° HOOK

HOOK DIMENSIONS FOR REINFORCING STEEL BARS

Date	Sept. 2016	Rev

SS12–1

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS			
DATE	BY	DESCRIPTION	
DESIGN EM	CHK DA	CODE CHBDC–14 LOAD CL–625–ONT	DATE JAN., 19
DRAWN YB	CHK JV	SITE 34–455/C	DWG R1–4

DRAWING NAME: 60581660–CULVERT 34–455C_R1–4_REPAIR.dwg
CREATED: 2018–12–12 MODIFIED: 2019–03–15 3:37 PM

PR–D–707 88–05

MINISTRY OF TRANSPORTATION, ONTARIO

NORTH FOR CONSTRUCTION

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

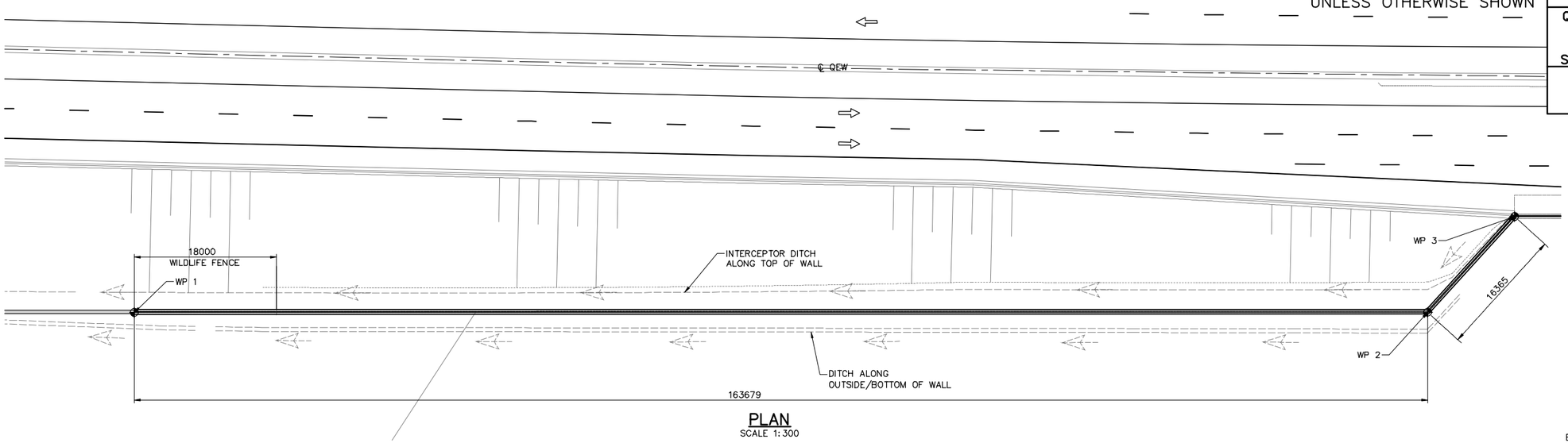
HWY	
CONT	2019–2003
WP	2116–16–00

Q.E.W. – CNR/CPR OVERHEAD

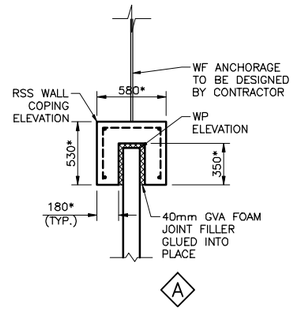
RETAINING WALL 1
STA. 13+670 TO STA. 13+858

SHEET 228

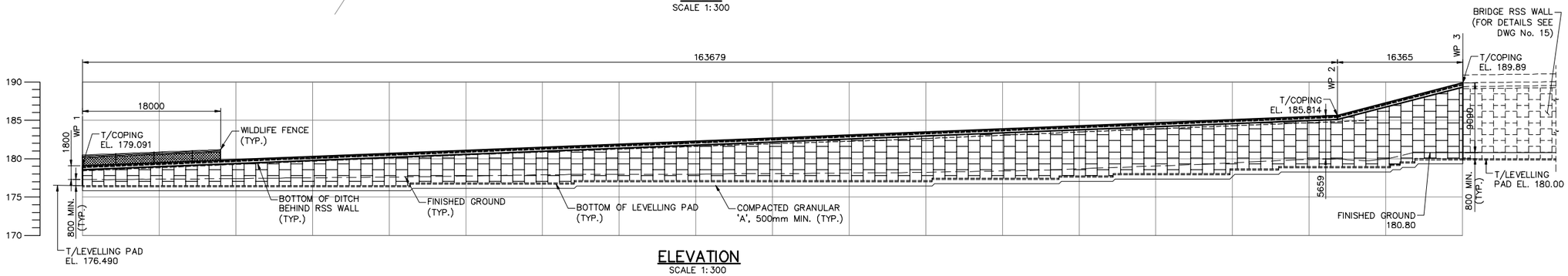
AECOM



PLAN
SCALE 1:300



* DIMENSIONS SHOWN ARE FOR REFERENCE ONLY, THE FINAL DIMENSIONS OF COPING SHALL BE DETERMINED BY CONTRACTOR.



ELEVATION
SCALE 1:300

GENERAL NOTES:

1. CONTRACTOR SHALL DESIGN THE RSS CAP TO SUIT THE GEOMETRIC REQUIREMENTS OF THE SPECIFIC PROPRIETY SYSTEM TO BE UTILIZED. ALL DIMENSION CHANGES ARE SUBJECT TO REVIEW BY THE CONTRACT ADMINISTRATOR.
2. RETAINED SOIL SYSTEM SHALL BE ACCORDING TO DESIGNATED SOURCES FOR MATERIAL (DSM) 9.70.56.
3. RSS WALL LENGTHS SHOWN ARE MEASURED ALONG OUTSIDE LENGTH OF RSS WALL.
4. RETAINED SOIL SYSTEM HAVE THE FOLLOWING ATTRIBUTES:
   –APPLICATION: WALL/SLOPE
   –PERFORMANCE: HIGH
   –APPEARANCE: HIGH
   –GEOMETRY: VERTICAL
5. SHOP DRAWINGS FOR RETAINED SOIL SYSTEM SHALL BE SUBMITTED TO THE CONTRACT ADMINISTRATOR IN ACCORDANCE WITH THE CONTRACT SPECIFICATION.
6. THE ASSOCIATED DETAILS SHOWN OF THE DRAWINGS INCLUDING THE FOUNDATION MATERIAL BELOW THE CONCRETE PAD IS CONCEPTUAL DESIGN ONLY. THE CONTRACTOR SHALL PROVIDE A DETAILED DESIGN AS NECESSARY TO COMPLEMENT THE DESIGN OF THE RETAINED SOIL SYSTEM.
7. CONTRACTOR SHALL DESIGN THE ANCHORAGE SYSTEM OF THE WILDLIFE FENCE ON TOP OF RSS CAP

LIST OF ABBREVIATIONS:

W.P. DENOTES WORKING POINT
C.I.P. DENOTES CAST–IN–PLACE

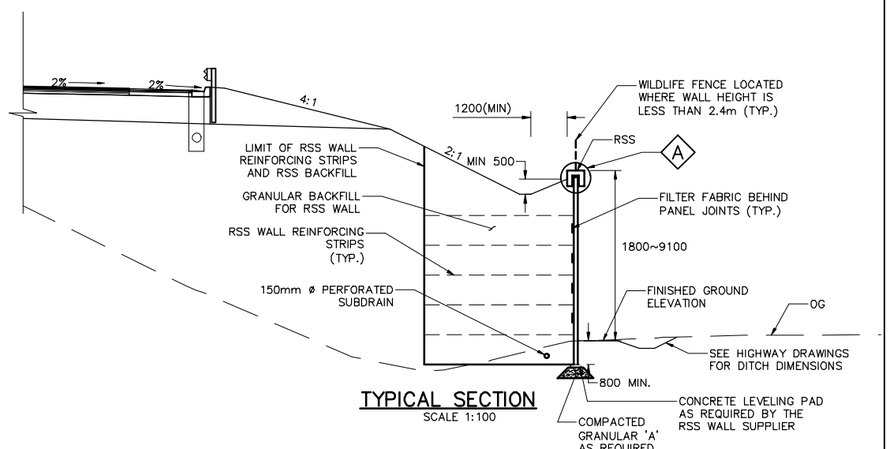
LIST OF DRAWINGS:

1. RETAINING WALL 1

W.P. #	STATION	QEW ℄ OFFSET	NORTHING	EASTING
1	13+683.80	32.921	4755646.517	346303.559
2	13+846.95	29.880	4755529.178	346417.674
3	13+856.88	18.766	4755529.677	346432.591

	RSS WALL ELEVATIONS		TOP OF FINISHED GROUND ELEVATIONS
	DISTANCE FROM WP 1 (m)	ELEVATION (m)	ELEVATION (m)
WP 1	0.000	178.871	177.290
	10.000	179.271	177.321
	20.000	179.671	177.387
	30.000	180.071	177.502
	40.000	180.471	177.601
	50.000	180.871	177.736
	60.000	181.271	177.885
	70.000	181.671	177.959
	80.000	182.071	177.970
	90.000	182.471	178.073

	RSS WALL ELEVATIONS		TOP OF FINISHED GROUND ELEVATIONS
	DISTANCE FROM WP 1 (m)	ELEVATION (m)	ELEVATION (m)
	100.000	182.871	178.125
	110.000	183.271	178.225
	120.000	183.671	178.400
	130.000	184.071	178.674
	140.000	184.471	179.047
	150.000	184.871	179.454
	160.000	185.271	179.882
WP 2	163.679	185.418	179.981
	170.000	187.054	179.949
WP 3	180.043	189.654	180.800



TYPICAL SECTION
SCALE 1:100

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

LICENSED PROFESSIONAL ENGINEER
J. V. CUTTING
100178437
June 19, 2019
PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER
C. W. HSIEH
100199333
March 14, 2019
PROVINCE OF ONTARIO

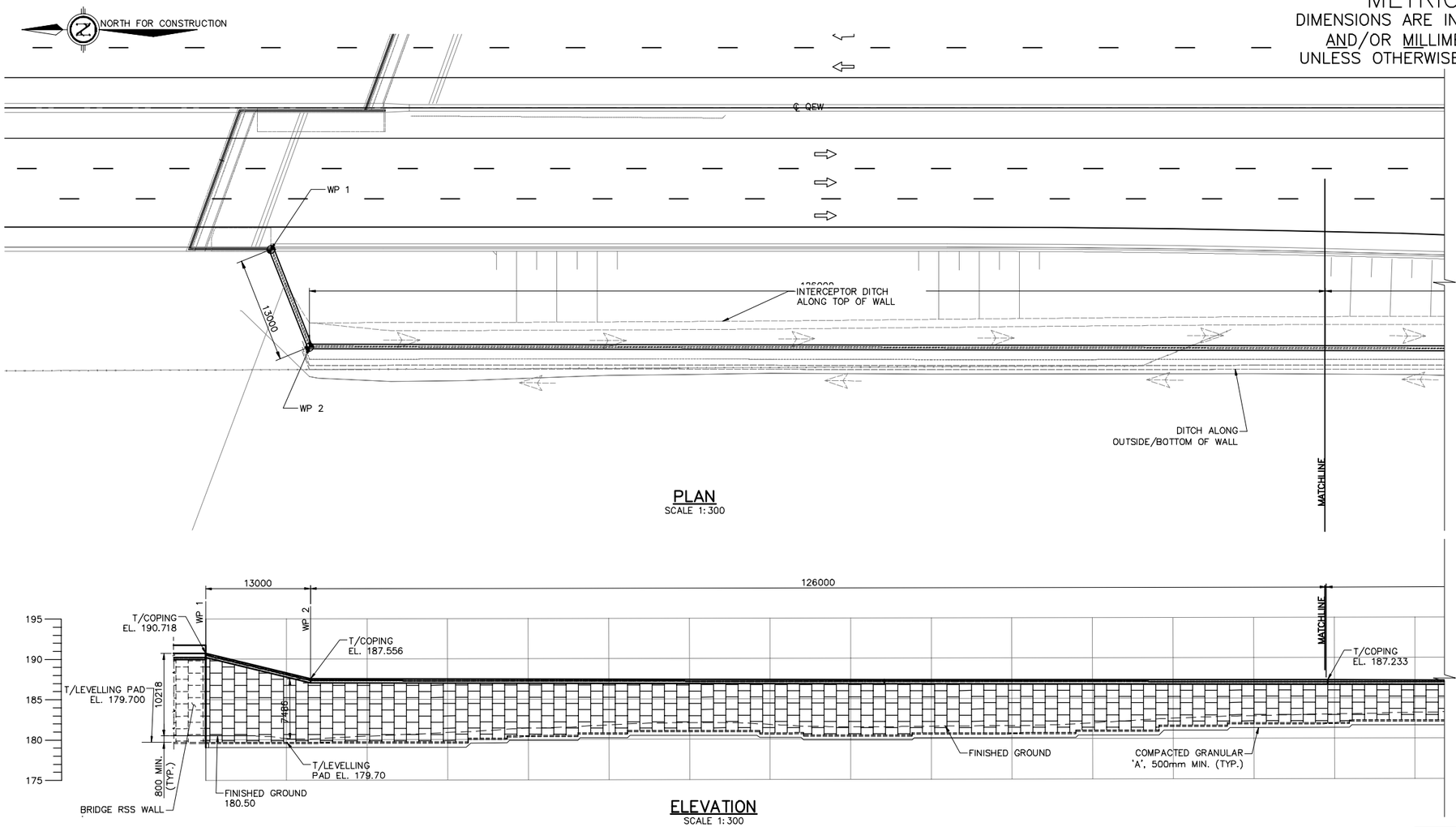
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DATE	BY	DESCRIPTION	
DESIGN CWH	CHK DA	CODE CHBDC-14	LOAD CL-625-ONT DATE JAN., 19
DRAWN ATC	CHK JV	SITE 34X-0600/W0	DWG 1

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CREATED: 2019-01-09
MODIFIED: 2019-03-15 3:40 PM

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD	SHEET 229
RETAINING WALL 2–1 STA. 14+010 TO STA. 14+313	

AECOM



PLAN
SCALE 1:300

ELEVATION
SCALE 1:300

	RSS WALL ELEVATIONS		TOP OF FINISHED GROUND ELEVATIONS
	DISTANCE FROM WP 1 (m)	ELEVATION (m)	ELEVATION (m)
WP 1	0.000	190.498	180.500
WP 2	13.000	187.336	180.085
	23.000	187.306	180.556
	33.000	187.276	180.999
	43.000	187.246	181.450
	53.000	187.216	181.908
	63.000	187.186	182.037
	73.000	187.156	181.652
	83.000	187.126	181.508
	93.000	187.105	181.583
	103.000	187.085	181.657
	113.000	187.065	182.120
	123.000	187.045	182.615
	133.000	187.025	182.878
MATCHLINE	139.000	187.013	182.992

W.P. #	STATION	QEW ℄ OFFSET	NORTHING	EASTING
1	14+018.20	17.415	4755414.762	346545.993
2	14+022.89	29.642	4755402.874	346540.498

GENERAL NOTES:

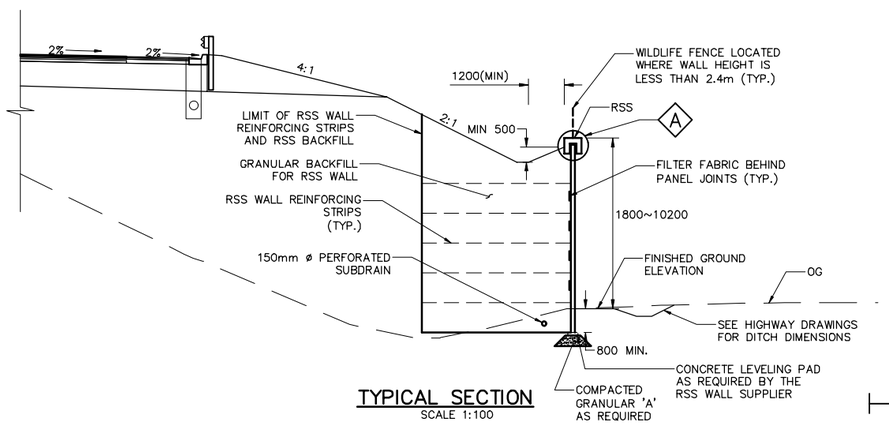
1. CONTRACTOR SHALL DESIGN THE RSS CAP TO SUIT THE GEOMETRIC REQUIREMENTS OF THE SPECIFIC PROPRIETY SYSTEM TO BE UTILIZED. ALL DIMENSION CHANGES ARE SUBJECT TO REVIEW BY THE CONTRACT ADMINISTRATOR.
2. RETAINED SOIL SYSTEM SHALL BE ACCORDING TO DESIGNATED SOURCES FOR MATERIAL (DSM) 9.70.56.
3. RSS WALL LENGTHS SHOWN ARE MEASURED ALONG OUTSIDE LENGTH OF RSS WALL.
4. RETAINED SOIL SYSTEM HAVE THE FOLLOWING ATTRIBUTES:
   –APPLICATION: WALL/SLOPE
   –PERFORMANCE: HIGH
   –APPEARANCE: HIGH
   –GEOMETRY: VERTICAL
5. SHOP DRAWINGS FOR RETAINED SOIL SYSTEM SHALL BE SUBMITTED TO THE CONTRACT ADMINISTRATOR IN ACCORDANCE WITH THE CONTRACT SPECIFICATION.
6. THE ASSOCIATED DETAILS SHOWN OF THE DRAWINGS INCLUDING THE FOUNDATION MATERIAL BELOW THE CONCRETE PAD IS CONCEPTUAL DESIGN ONLY. THE CONTRACTOR SHALL PROVIDE A DETAILED DESIGN AS NECESSARY TO COMPLEMENT THE DESIGN OF THE RETAINED SOIL SYSTEM.
7. CONTRACTOR SHALL DESIGN THE ANCHORAGE SYSTEM OF THE WILDLIFE FENCE ON TOP OF RSS CAP

LIST OF ABBREVIATIONS:

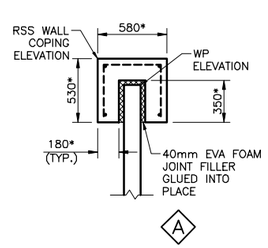
W.P. DENOTES WORKING POINT
C.I.P. DENOTES CAST–IN–PLACE

LIST OF DRAWINGS:

1. RETAINING WALL 2–1
2. RETAINING WALL 2–2



TYPICAL SECTION
SCALE 1:100



* DIMENSIONS SHOWN ARE FOR REFERENCE ONLY, THE FINAL DIMENSIONS OF COPING SHALL BE DETERMINED BY CONTRACTOR.

LICENSED PROFESSIONAL ENGINEER
C. W. HSIEH
100199333
March 14, 19
PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER
J. MUROTIC
100128437
MAR 19, 2019
PROVINCE OF ONTARIO

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS			
DATE	BY	DESCRIPTION	
DESIGN CWH	CHK DA	CODE CHBDC-14	LOAD CL-625-ONT DATE JAN., 19
DRAWN ATC	CHK JV	SITE 34X-0600W0	DWG 1

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CREATED: 2019-01-10
MODIFIED: 2019-02-15 3:43 PM
MINISTRY OF TRANSPORTATION, ONTARIO
PROVINCE

NORTH FOR CONSTRUCTION

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

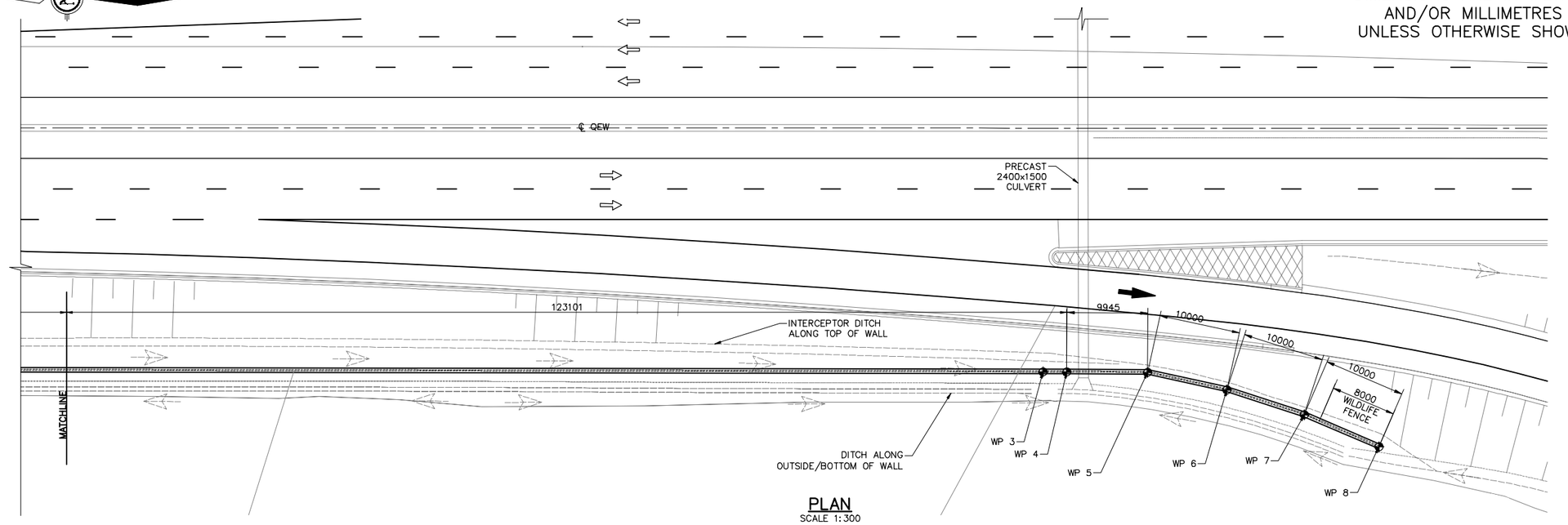
HWY
CONT 2019-2003
WP 2116-16-00

Q.E.W. – CNR/CPR OVERHEAD

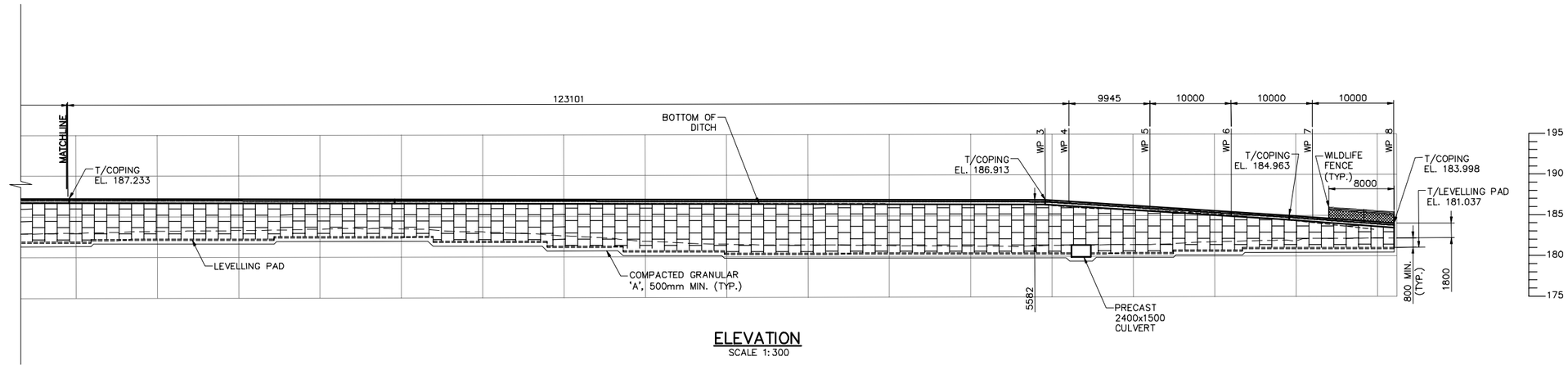
RETAINING WALL 2-2
STA. 14+010 TO STA. 14+313

SHEET 230

AECOM



PLAN
SCALE 1:300



ELEVATION
SCALE 1:300

	RSS WALL ELEVATIONS		TOP OF FINISHED GROUND ELEVATIONS
	DISTANCE FROM WP 1 (m)	ELEVATION (m)	ELEVATION (m)
MATCHLINE	139.000	187.013	182.992
	143.000	187.001	183.056
	153.000	186.971	183.246
	163.000	186.941	183.320
	173.000	186.911	183.545
	179.180	186.893	183.491
	183.000	186.883	183.410
	193.000	186.858	182.961
	203.000	186.833	182.435
	213.000	186.808	181.797
	223.000	186.783	181.479
	233.000	186.758	181.408
	243.000	186.733	181.312
	253.000	186.708	181.233
WP 3	259.180	186.693	181.330
WP 4	262.100	186.503	181.370
WP 5	272.045	185.856	181.427
WP 6	282.045	185.206	181.785
WP 7	292.045	184.527	182.132
WP 8	302.045	183.778	182.198

W.P. #	STATION	QEW ℄ OFFSET	NORTHING	EASTING
3	14+271.99	30.029	4755223.998	346713.862
4	14+281.94	30.094	4755216.823	346720.747
5	14+291.71	32.229	4755208.330	346726.027
6	14+301.23	35.300	4755199.365	346730.459
7	14+310.41	39.258	4755190.022	346734.022

LICENSED PROFESSIONAL ENGINEER
C. W. HSIEH
100199333
March 14, 2019
PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER
A. TUTOTIC
100218457
MAR 14, 2019
PROVINCE OF ONTARIO

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS			
DATE	BY	DESCRIPTION	
DESIGN CWH	CHK DA	CODE CHBDC-14 LOAD CL-625-ONT	DATE JAN., 19
DRAWN ATC	CHK JV	SITE 34X-0600/W0	DWG 2

DRAWING NAME: XX-6958-1660-RETAINING WALL_14+010-14+313.dwg
(CREATED) 2019-01-10
MODIFIED 2019-02-15
3:43 PM

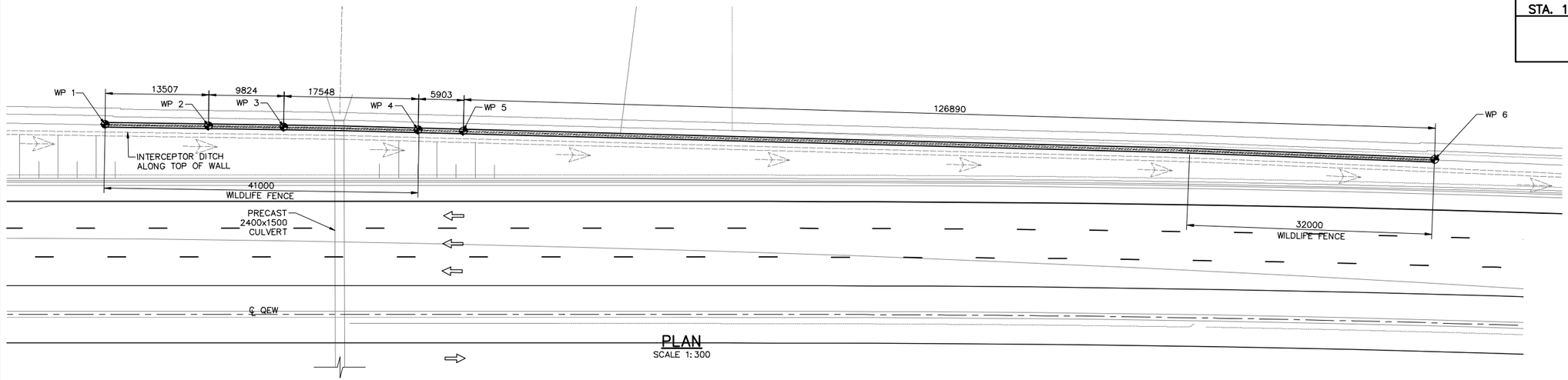
NORTH FOR CONSTRUCTION

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. – CNR/CPR OVERHEAD	
RETAINING WALL 3 STA. 14+190 TO STA. 14+470	

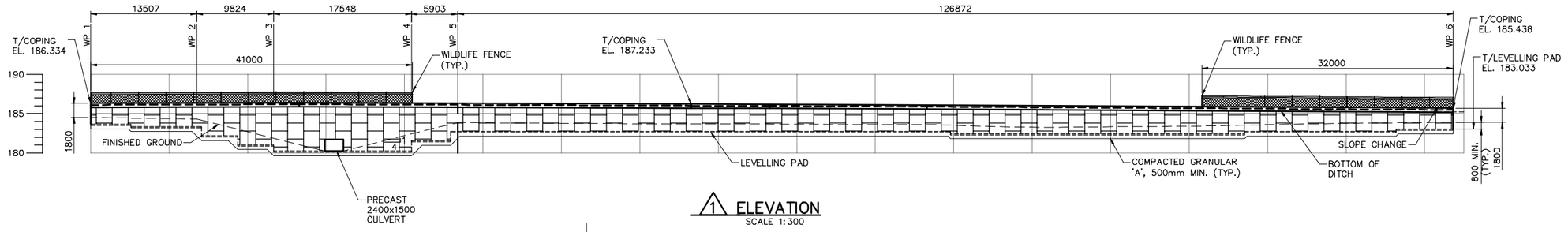
SHEET 231

AECOM



PLAN
SCALE 1:300

RSS WALL ELEVATIONS			TOP OF FINISHED GROUND ELEVATIONS
	DISTANCE FROM WP 1 (m)	ELEVATION (m)	ELEVATION (m)
WP 1	0.000	186.108	184.528
	10.000	186.138	184.365
WP 2	13.507	186.148	184.314
	20.000	186.168	184.222
WP 3	23.342	186.178	181.858
	30.915	186.172	184.083
WP 4	40.880	186.137	182.403
WP 5	46.783	186.117	183.879
	50.000	186.106	183.846
	60.000	186.071	183.764
	70.000	186.036	183.715
	76.546	186.013	183.709
	80.000	186.002	183.709
	86.546	185.983	183.674
	90.000	185.965	183.651
	96.875	185.931	183.600
	100.000	185.915	183.602
	106.546	185.883	183.587
	110.000	185.862	183.515
	120.000	185.802	183.260
	130.000	185.742	183.324
	140.545	185.679	183.394
	150.000	185.622	183.587
	160.000	185.562	183.767
	170.000	185.502	183.866
WP 6	173.687	185.482	183.902



1 ELEVATION
SCALE 1:300

GENERAL NOTES:

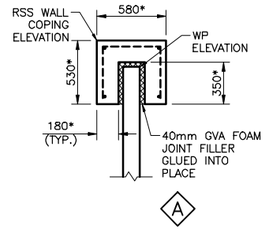
1. CONTRACTOR SHALL DESIGN THE RSS CAP TO SUIT THE GEOMETRIC REQUIREMENTS OF THE SPECIFIC PROPRIETY SYSTEM TO BE UTILIZED. ALL DIMENSION CHANGES ARE SUBJECT TO REVIEW BY THE CONTRACT ADMINISTRATOR.
2. RETAINED SOIL SYSTEM SHALL BE ACCORDING TO DESIGNATED SOURCES FOR MATERIAL (DSM) 9.70.56.
3. RSS WALL LENGTHS SHOWN ARE MEASURED ALONG OUTSIDE LENGTH OF RSS WALL.
4. RETAINED SOIL SYSTEM HAVE THE FOLLOWING ATTRIBUTES:
   - –APPLICATION: WALL/SLOPE
   - –PERFORMANCE: HIGH
   - –APPEARANCE: HIGH
   - –GEOMETRY: VERTICAL
5. SHOP DRAWINGS FOR RETAINED SOIL SYSTEM SHALL BE SUBMITTED TO THE CONTRACT ADMINISTRATOR IN ACCORDANCE WITH THE CONTRACT SPECIFICATION.
6. THE ASSOCIATED DETAILS SHOWN OF THE DRAWINGS INCLUDING THE FOUNDATION MATERIAL BELOW THE CONCRETE PAD IS CONCEPTUAL DESIGN ONLY. THE CONTRACTOR SHALL PROVIDE A DETAILED DESIGN AS NECESSARY TO COMPLEMENT THE DESIGN OF THE RETAINED SOIL SYSTEM.
7. CONTRACTOR SHALL DESIGN THE ANCHORAGE SYSTEM OF THE WILDLIFE FENCE ON TOP OF RSS CAP

LIST OF ABBREVIATIONS:

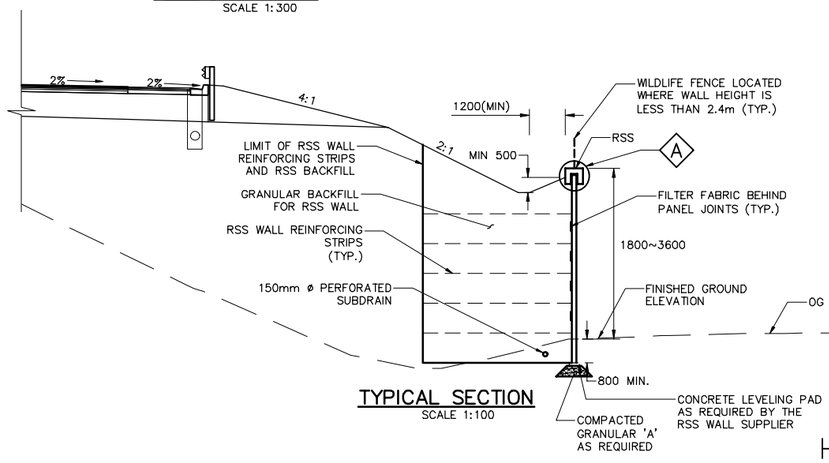
W.P. DENOTES WORKING POINT
C.I.P. DENOTES CAST–IN–PLACE

LIST OF DRAWINGS:

1. RETAINING WALL 3



* DIMENSIONS SHOWN ARE FOR REFERENCE ONLY, THE FINAL DIMENSIONS OF COPING SHALL BE DETERMINED BY CONTRACTOR.



TYPICAL SECTION
SCALE 1:100

W.P. #	STATION	QEW ℄ OFFSET	NORTHING	EASTING
1	14+243.33	–24.822	4755282.784	346733.210
2	14+274.25	–24.364	4755260.300	346754.430
3	14+340.11	–22.664	4755211.810	346799.144
4	14+383.52	–21.903	4755179.698	346828.764
5	14+416.38	–21.344	4755155.101	346850.929

LICENSED PROFESSIONAL ENGINEER
C. W. HSIEH
100199333
PROVINCE OF ONTARIO
March 14, 2019

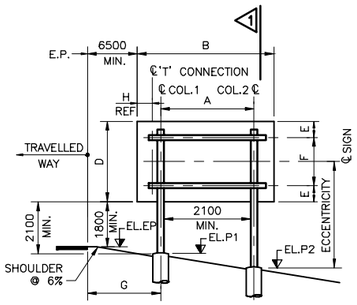
LICENSED PROFESSIONAL ENGINEER
J. VUKOTIC
100128137
PROVINCE OF ONTARIO
March 14, 2019

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

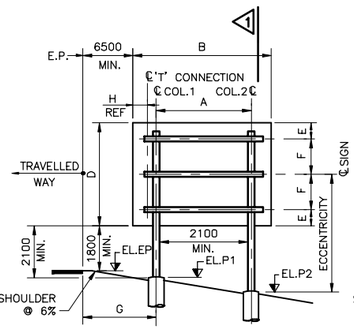
REVISIONS			
DATE	BY	DESCRIPTION	
DESIGN CWH	CHK DA	CODE CHBDC-14	LOAD CL-625-ONT DATE JAN. 19
DRAWN ATC	CHK JV	SITE 34X-0600/W0	DWG 1

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(CREATED) 2019/01/10 MODIFIED 2019/03/15 3:42 PM

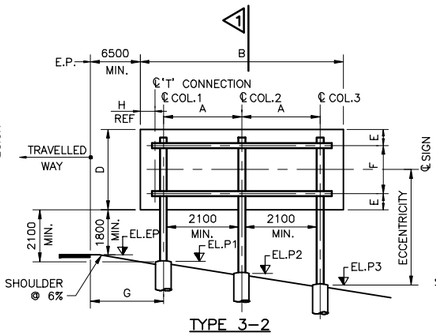
MINISTRY OF TRANSPORTATION, ONTARIO
PR-10-707 88-05
DRAWING NAME: 60581660-SIGN SUPPORT SSD 0118.0030.dwg 2019-03-15 3:38 PM
CREATED: 2019-03-14 MODIFIED:



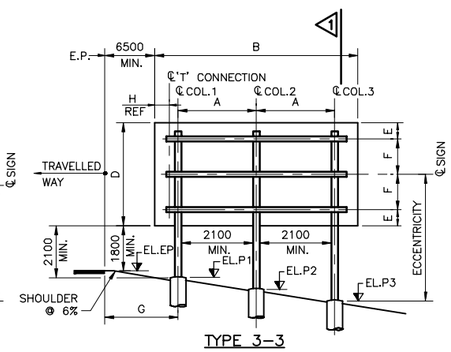
TYPE 2–2



TYPE 2–3



TYPE 3–2



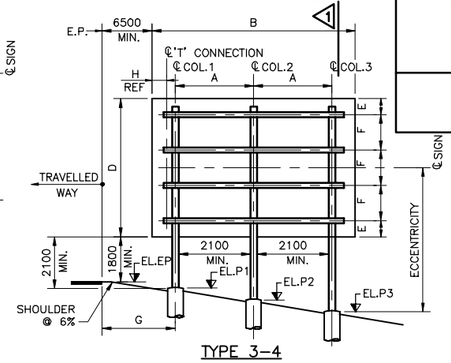
TYPE 3–3

METRIC
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN

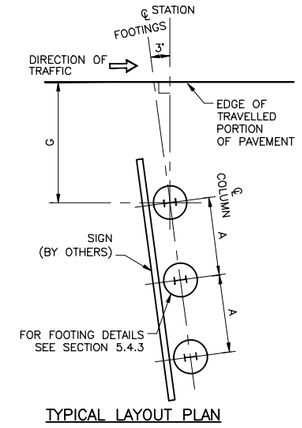
HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W.	SHEET 232

STEEL COLUMN BREAKAWAY SIGNS

AECOM



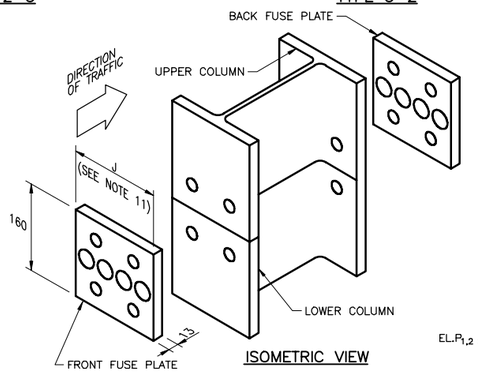
TYPE 3–4



TYPICAL LAYOUT PLAN

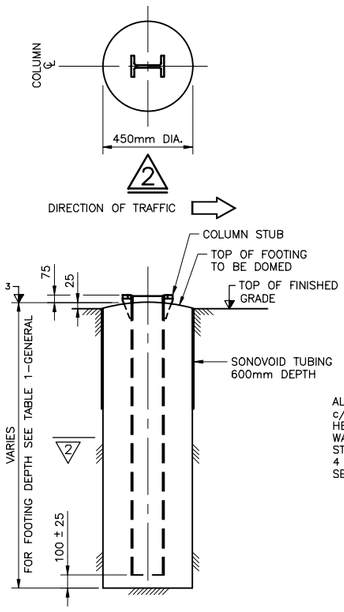
TABLE 1 – GENERAL

STATION	13+315	15+066	16+065		
SIGN No.	2	8	9		
SIGN SIZE (DxB)	610X1525 2135X4880	2135x5490	610X1525 2135X4880		
TYPE	2–3	3–3	2–3		
EL.EP	177.150	188.476	188.520		
EL.P$_1$	176.011	187.234	187.567		
EL.P$_2$	175.393	186.885	187.109		
EL.P$_3$	–	186.510	–		
A	3000	2300	3000		
E	463	463	463		
F	605	605	605		
G	7440	6995	7440		
H	190	145	190		
COLUMN SIZE	W200x46	W200x42	W200x46		
FRICTION PLATE CONNECTION PRETIGHTENING TORQUE (N.m)	67	67	67		
FOOTING DEPTH	2200	1700	2200		
CONCRETE IN FOOTINGS (m^3)	0.700	0.810	0.700		



ISOMETRIC VIEW

PERFORATED FUSE PLATE CONNECTION



FOOTING DETAILS

TABLE 2 – COMPONENTS/PARTS

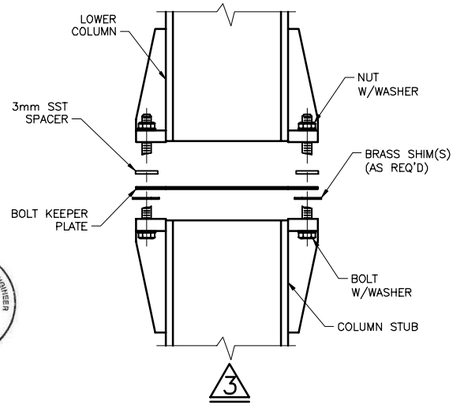
STATION	13+315		15+066		16+065					
DESCRIPTION	SIZE	QUANT./LENGTH	SIZE	QUANT./LENGTH	SIZE	QUANT./LENGTH	SIZE	QUANT./LENGTH	SIZE	QUANT./LENGTH
COLUMN STUB	W200x46	2x2200	W200x42	3x1700	W200x46	2x2200				
LOWER COLUMN No.1	W200x46	1x3123	W200x42	1x3253	W200x46	1x2926				
LOWER COLUMN No.2	W200x46	1x3740	W200x42	1x3657	W200x46	1x3394				
LOWER COLUMN No.3	–	–	W200X42	1x3981	–	–				
UPPER COLUMNS	W200X46	2x1519	W200X42	2x1519	W200X46	2x1519				
LOWER CROSSARM(S)	S75x8	2x4615	S75x8	2x5315	S75x8	2x4615				
TOP CROSSARM	S75x8	1x4615	S75x8	1x5315	S75x8	1x4615				
BRASS SHIMS t = 0.305 / t = 0.813	AS REQUIRED FOR PLUMBING LOWER COLUMN									
FRONT FUSE PLATE	t=13mm	2	t=13mm	3	t=13mm	2				
BACK FUSE PLATE	t=13mm	2	t=13mm	3	t=13mm	2				
ALUMINUM CLAMP	–	16	–	24	–	16	4 PER CONNECTION JOINT (JOINT AT POST & CROSSARM) AT THE LOWER CROSSARM ONLY			

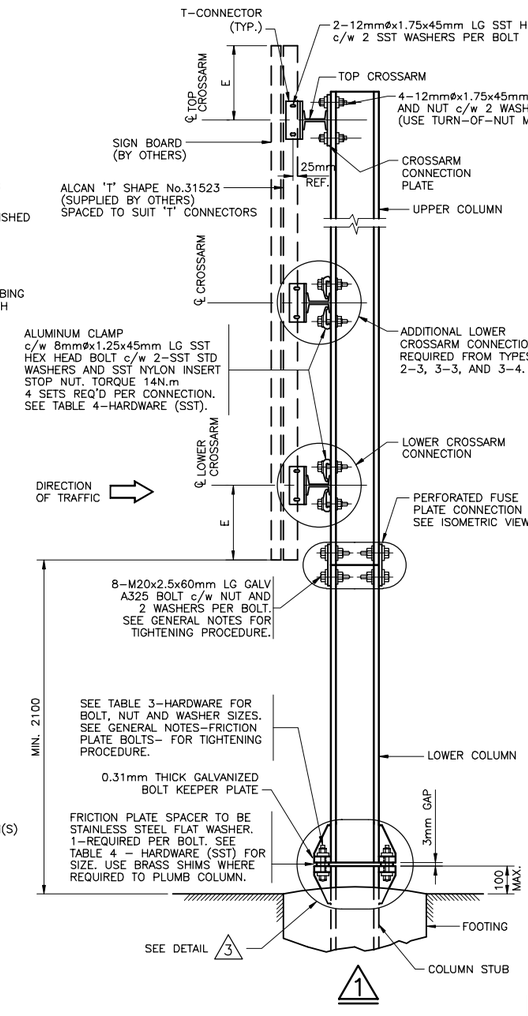
TABLE 3 – HARDWARE (ASTM A325 GALV)

STATION	13+315		15+066		16+065					
DESCRIPTION	SIZE	QUANT.	SIZE	QUANT.	SIZE	QUANT.	SIZE	QUANT.	SIZE	QUANT.
TOP CROSSARM BOLTS	12mmx1.75x45mmLG	8	12mmx1.75x45mmLG	12	12mmx1.75x45mmLG	8	12mmx1.75x45mmLG		12mmx1.75x45mmLG	
FUSE PLATE BOLTS	M20x60mmLG	16	M20x60mmLG	24	M20x60mmLG	16	M20x60mmLG		M20x60mmLG	
FRICTION PLATE BOLTS	M16x70mm	8	M16x70mm	12	M16x70mm	8				
FRICTION PLATE WASHERS	M16 FLAT	16	M16 FLAT	24	M16 FLAT	16				

TABLE 4 – HARDWARE (SST)

STATION	13+315	15+066	16+065			DESCRIPTION
	QUANT.	QUANT.	QUANT.	QUANT.	QUANT.	
LOWER CROSSARM CONNECTION	16	24	16			8mmø x1.25x45mm LG THREADED LENGTH 25mm SST HEX. HD. BOLT
	32	48	32			8mmø SST STD FLAT WASHER
	16	24	16			8mmø x1.25 SST NYLON INSERT STOP NUT
FRICTION PLATE SPACER	8	12	8			SST 37 O.D.x21 I.D.x3mm THK
T–CONNECTOR TO 'T' SHAPE CONNECTION	12	36	12			12mmø x1.75x45mm LG SST HEX. HD. BOLT
	24	72	24			12mmø SST FLAT WASHER





DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

NOTES

1. ALL STRUCTURAL STEEL SHALL CONFORM TO CAN/CSA G40.20–04/G40.21–04 GRADE 300W.
2. ALL BOLTS, NUTS, AND WASHERS EXCEPT LOWER CROSSARM CONNECTIONS SHALL CONFORM TO ASTM A325 AND BE HOT DIP GALVANIZED.
3. ALL STEEL SHALL BE HOT–DIP GALVANIZED AFTER FABRICATION.
4. THE PROCEDURE FOR TIGHTENING BOLTS SHALL BE AS FOLLOWS:
   (A) FRICTION PLATE BOLTS
   – ASSEMBLE COLUMN TO STUB WITH GALVANIZED BOLTS AND WITH TWO GALVANIZED WASHERS PLUS ONE FLAT SST WASHER ON EACH BOLT BETWEEN PLATES, AND GALVANIZED BOLT KEEPER PLATE ON BOTTOM FRICTION PLATE, USING BRASS SHIMS AS REQUIRED TO PLUMB COLUMN.
   – TIGHTEN BOLTS IN A SYSTEMATIC ORDER TO PRESCRIBED PRETIGHTENING TORQUE AS SPECIFIED IN TABLE 1–GENERAL.
   – LOOSEN EACH BOLT AND RETIGHTEN TO SPECIFIED TORQUE IN THE SAME ORDER AS INITIAL TIGHTENING. (DO NOT OVER TIGHTEN)
   (B) FUSE PLATE BOLTS
   – TIGHTEN BOLTS IN A SYSTEMATIC ORDER TO A SNUG–TIGHT CONDITION.
   – CONTINUE TO FURTHER TIGHTEN EACH BOLT, IN THE SAME ORDER AS THE INITIAL TIGHTENING, BY 1/3 TURN OF NUT.
5. CLASS OF CONCRETE TO BE 30 MPa.
6. CONCRETE TO BE PLACED AGAINST UNDISTURBED GROUND IN AUGURED HOLE.
7. THE FRICTION PLATE ATOP THE VERTICALLY POSITIONED COLUMN STUB SHALL BE INSTALLED DEAD LEVEL AND HELD IN THE CORRECT POSITION AND ELEVATION WITH A TEMPLATE, UNTIL THE CONCRETE HAS PROPERLY SET.
8. TOP SURFACE OF FOOTING SHALL BE DOMED.
9. FRICTION PLATE AND FUSE PLATE BOLT THREADS TO BE BURRED AT JUNCTION WITH NUT USING CENTRE PUNCH.
10. EL.P$_1$, EL.P$_2$ OR EL.P$_3$ DENOTES ELEVATION OF TOP OF FOOTING CONCRETE.
11. FOR DETAILS OF PARTS SEE FABRICATION INFORMATION IN SIGN SUPPORT MANUAL, SECTION 5.5–FABRICATION.
12. UPPER AND LOWER COLUMNS SHALL NOT BE ERECTED UNTIL 7 DAYS AFTER CONCRETE HAS BEEN PLACED.
13. THE USE OF BRASS SHIMS SHALL BE LIMITED TO A TOTAL THICKNESS OF 5mm, FOR PERFECTLY PLUMBING THE LOWER COLUMN. IF THIS CANNOT BE ACCOMPLISHED, THE FOOTING WITH THAT COLUMN STUB SHALL BE REJECTED.
14. THE ALIGNMENT OF THE CENTRELINES OF FOOTINGS, AND THE LOCATION OF THE STUB WITH RESPECT TO THE CENTRE OF THE FOOTINGS AND THE C/C OF COLUMNS ('A'–DIMENSION) SHALL BE AS REQUIRED BY OPSS 915.

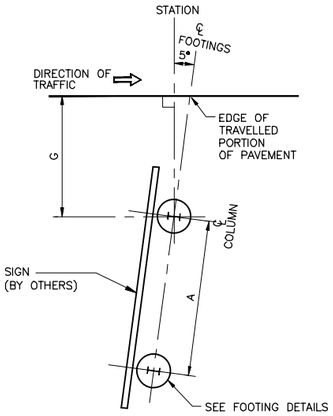
STANDARD DRAWING JULY 2014	SS118–30
STEEL COLUMN BREAKAWAY SIGN SUPPORTS	





REVISIONS			
DATE	BY	DESCRIPTION	
DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT DATE MAR., 19
DRAWN PSH	CHK JV	SITE	DWG 1

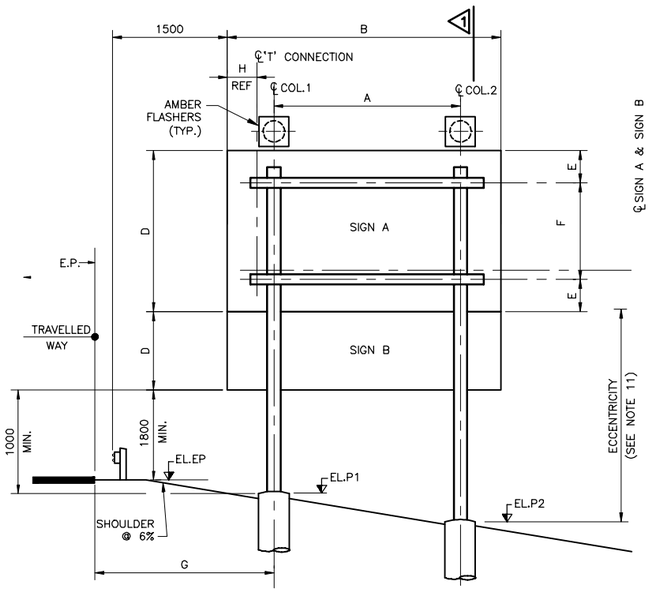
MINISTRY OF TRANSPORTATION, ONTARIO
PR-D-707 88-05



TYPICAL LAYOUT PLAN

TABLE 1 – GENERAL

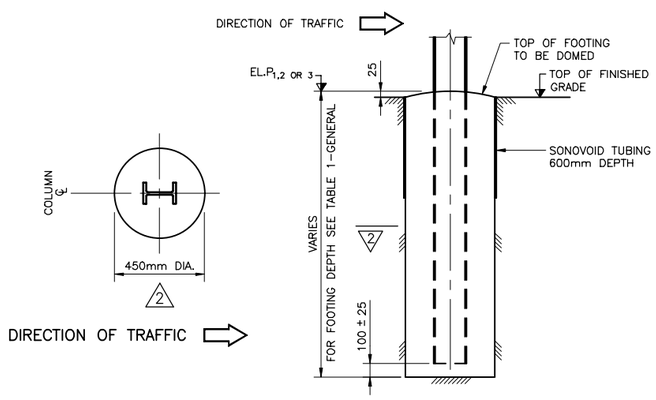
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SIGN No.	3				
SIGN A SIZE (DxB)	1200x3000				
SIGN B SIZE (DxB)	610x3000				
TYPE	2–2				
EL.EP	178.993				
EL.P_1	178.757				
EL.P_2	178.619				
EL.P_3	–				
A	2300				
E	230				
F	740				
G	4350				
H	100				
COLUMN SIZE	W200x42				
FOOTING DEPTH	1600				
CONCRETE IN FOOTINGS (m^3)	0.508				



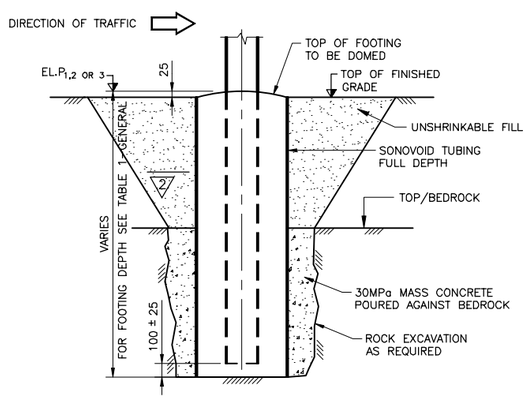
TYPE 2–2

TABLE 2 – COMPONENTS/PARTS

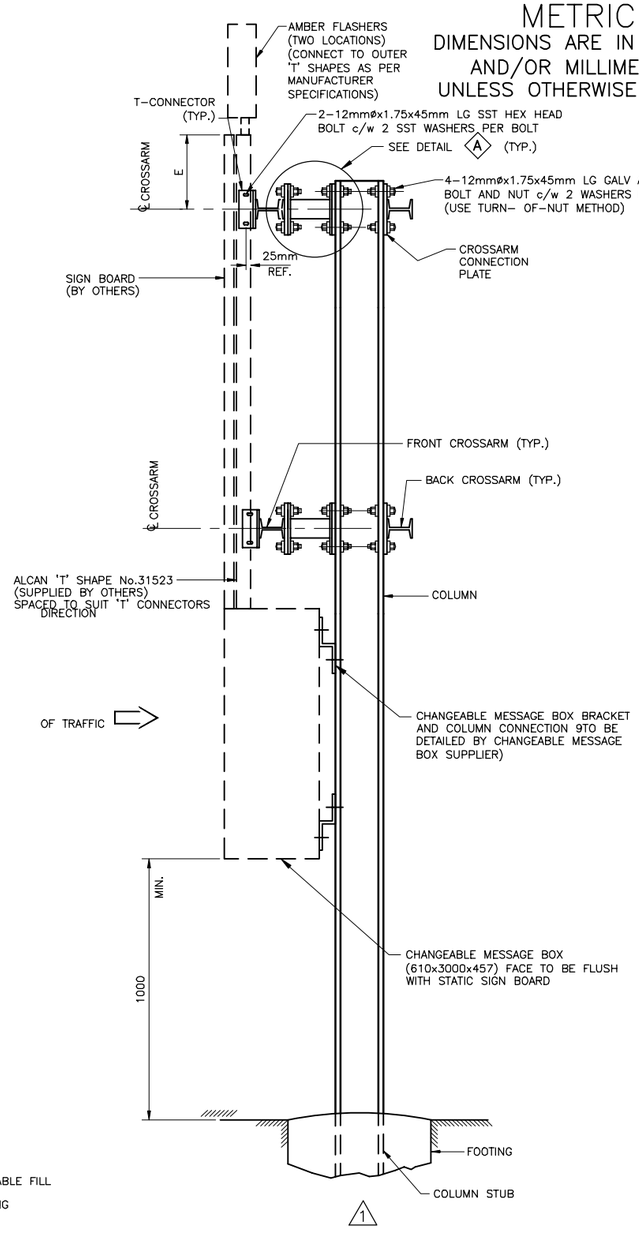
STATION	13+445									
COMPONENT	SIZE	QUANT./LENGTH	SIZE	QUANT./LENGTH	SIZE	QUANT./LENGTH	SIZE	QUANT./LENGTH	SIZE	QUANT./LENGTH
FRONT CROSSARM	S75x8	2x2915								
BACK CROSSARM	S75x8	2x2500								
COLUMN No.1	W200x42	1x3586								
COLUMN No.2	W200x42	1x3726								
COLUMN No.3	–	13+445								

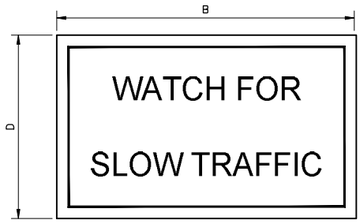


FOOTING DETAILS



FOOTING DETAILS IN ROCK





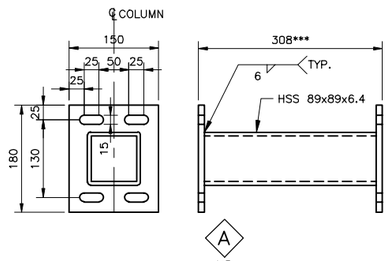
DETAIL OF SIGN A

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

METRIC
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN

HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. STA. 13+445	SHEET 233
STEEL COLUMN NON–BREAKAWAY SIGNS	

AECOM



STUB BRACKETS (4 REQ'D. PER SIGN)

*** DIMENSION TO BE VERIFIED BASED ON ACTUAL CHANGEABLE MESSAGE BOARD SUPPLIED. ENGINEER SHOULD BE NOTIFIED IF DIMENSION EXCEEDS 350mm.

NOTES

1 ALL STRUCTURAL STEEL SHALL CONFORM TO CAN/CSA G40.20–04/G40.21–04 GRADE 300W AND HOT DIP GALVANIZED.
2 ALL BOLTS, NUTS AND WASHERS FOR CROSSARM CONNECTIONS SHALL CONFORM TO ASTM A325 AND BE HOT DIP GALVANIZED.
3 CLASS OF CONCRETE TO BE 30 MPa.
4 CONCRETE TO BE PLACED AGAINST UNDISTURBED GROUND IN AUGERED HOLE.
5 TOP SURFACE OF FOOTING SHALL BE DOMED.
6 EL.P_1 , EL.P_2 OR EL.P_3 DENOTES ELEVATION OF TOP OF FOOTING CONCRETE.
7 FOR DETAILS OF PARTS SEE FABRICATION INFORMATION IN SIGN SUPPORT MANUAL, SECTION 5.5–FABRICATION.
8 THE COLUMNS SHALL BE INSTALLED AND HELD IN CORRECT POSITION UNTIL THE CONCRETE HAS PROPERLY SET.
9 SIGN BOARD SHALL NOT BE ERECTED UNTIL 7 DAYS AFTER CONCRETE HAS BEEN PLACED.
10 FOR TURN–OF–NUT TIGHTENING METHOD, THE BOLTS SHALL BE FIRST BROUGHT TO A SNUG–TIGHT CONDITION, AND THEN FURTHER TIGHTENED BY 1/3 OF A TURN. SNUG–TIGHT IS THE TIGHTNESS ATTAINED BY THE FULL EFFORT OF A MAN USING A SPUD WRENCH.
11 FOR ECCENTRICITY LARGER THAN 6900mm, REGRADING REQUIRED.
12 CONTRACTOR SHALL PERFORM A FIELD SURVEY OF THE EXISTING GROUND ELEVATIONS IN ORDER TO VERIFY TOP OF FOOTING ELKEVATIONS AND SPECIFIC COLUMN LENGTHS.



STANDARD DRAWING JULY 2014	MODIFIED SS118–33
STEEL COLUMN NON–BREAKAWAY SIGN SUPPORTS	

REVISIONS			
	DATE	BY	DESCRIPTION
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DRAWN PSH	CHK JV	SITE	DWG 1

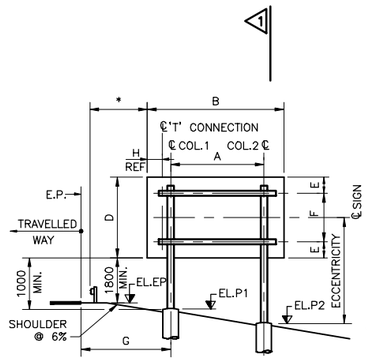
DRAWING NAME: 60581660–SIGN SUPPORT 13+445 SSD 0118.0033.dwg 3:37 PM
CREATED: 2019–03–14 MODIFIED: 2019–03–15

* – DIMENSION VAIRES, AND SHALL BE ACCORDING TO THE REQUIREMENTS OF THE ROADSIDE SAFETY MANUAL.

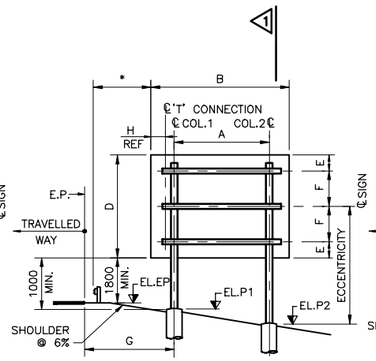
METRIC
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN

HWY	
CONT	2019–2003
WP	2116–16–00
Q.E.W. STA. 13+815	SHEET 234
STEEL COLUMN NON–BREAKAWAY SIGNS	

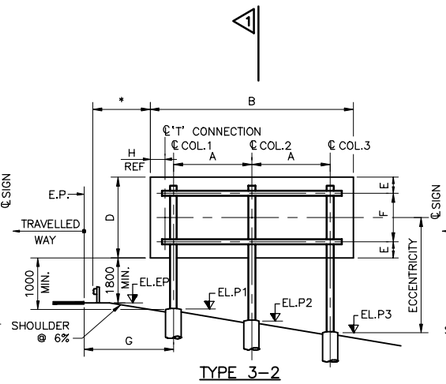
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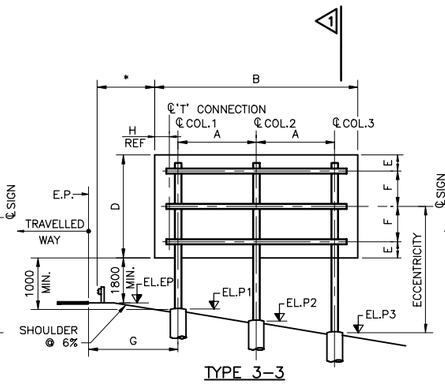
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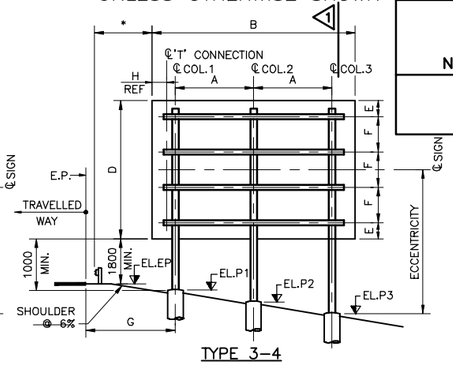
TYPE 2–3



TYPE 3–2



TYPE 3–3



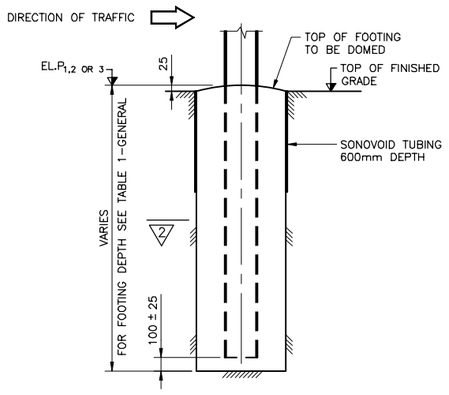
TYPE 3–4

TABLE 1 – GENERAL

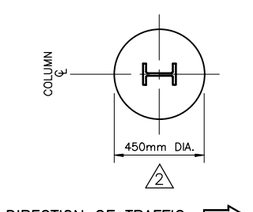
STATION	13+815				
SIGN No.	QWS				
SIGN SIZE (DxB)	2135x5490				
TYPE	3–3				
EL.EP	189.309				
EL.P_1	188.664				
EL.P_2	187.025				
EL.P_3	187.025				
A	2300				
E	463				
F	605				
G	4445				
H	145				
COLUMN SIZE	W200x42				
FOOTING DEPTH	1700				
CONCRETE IN FOOTINGS (m^3)	0.810				

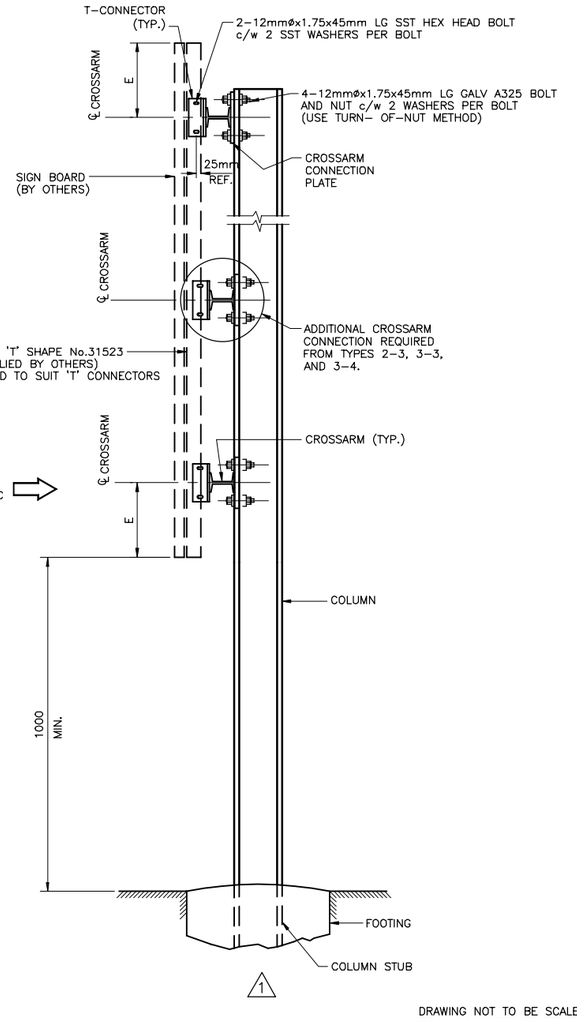
TABLE 2 – COMPONENTS/PARTS

STATION										
COMPONENT	SIZE	QUANT./LENGTH	SIZE	QUANT./LENGTH	SIZE	QUANT./LENGTH	SIZE	QUANT./LENGTH	SIZE	QUANT./LENGTH
CROSSARM	S75x8	1x5315								
COLUMN No.1	W200x42	1x5822								
COLUMN No.2	W200x42	1x6397								
COLUMN No.3	W200x42	1x7461								

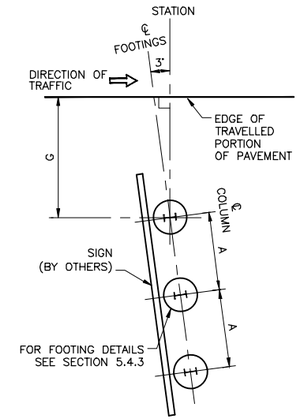


FOOTING DETAILS





DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING



TYPICAL LAYOUT PLAN

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LICENSED PROFESSIONAL ENGINEER C. W. HSIEH 100199333 PROVINCE OF ONTARIO March 14, 2019

LICENSED PROFESSIONAL ENGINEER J. YUTOTIC 100128437 PROVINCE OF ONTARIO Mar 14, 2019

STANDARD DRAWING JULY 2014	SS118–33
STEEL COLUMN NON–BREAKAWAY SIGN SUPPORTS	

REVISIONS			
DATE	BY	DESCRIPTION	
DESIGN CWH	CHK DA	CODE CHBDC–14	LOAD CL–625–ONT DATE MAR., 19
DRAWN PSH	CHK JV	SITE	DWG 1

DRAWING NAME: 60581660–SIGN SUPPORT 13+815 SSD 0118.0033.dwg 3:38 PM
CREATED: 2019–03–14 MODIFIED: 2019–03–15
MINISTRY OF TRANSPORTATION, ONTARIO PR–D–707 88–05