

Element	Point Type	Station	Elevation	Length	Entrance Grade	Exit Grade	K	Middle Ordinate	SSD/HSD
Symmetrical Parabola	PVC	173+68.11	476.05	150	-1.68%	-2.06%	392.29	-0.0700	2897.23
		174+00.00	475.50						
	PVI	174+43.11	474.79						
		174+50.00	474.59						
		175+00.00	473.61						
Linear	PVT	175+18.11	473.25	427.02	-2.06%				
		175+50.00	472.59						
		176+00.00	471.56						
		176+50.00	470.53						
		177+00.00	469.49						
		177+50.00	468.46						
		178+00.00	467.43						
		178+50.00	466.40						
		179+00.00	465.37						
		179+50.00	464.34						
Symmetrical Parabola	PVC	179+45.13	464.44	550	-2.06%	0.03%	263.04	1.4400	
		179+50.00	464.34						
		180+00.00	463.36						
		180+50.00	462.48						
		181+00.00	461.70						
		181+50.00	461.01						
		182+00.00	460.42						
	PVI	182+20.13	458.77						
		182+50.00	459.92						
		183+00.00	459.51						
		183+50.00	459.20						
		184+00.00	458.99						
		184+50.00	458.87						
		184+95.13	458.84						
	Linear	VLOW	184+87.66						
PVT		184+95.13	458.84						
		185+00.00	458.85						
		185+50.00	458.86						
		185+60.27	458.86						
Symmetrical Parabola	PVC	185+60.27	458.86	220	0.03%	1.74%	128.87	0.4700	
		186+00.00	458.93						
		186+50.00	459.20						
	PVI	186+70.27	458.89						
		187+00.00	459.66						
Linear		187+50.00	460.31	2.73	1.74%				
	PVT	187+80.27	460.80						
		187+80.27	460.80						
	PVC	187+83.00	460.85						
		187+83.00	460.85						
Symmetrical Parabola	PVC	187+83.00	460.85	100	1.74%	1.09%	155.87	-0.0800	1732.02
		188+00.00	461.14						
	PVI	188+33.00	461.72						
		188+50.00	461.87						
		188+50.00	461.87						
Linear	PVT	188+83.00	462.26	128.09	1.09%				
		188+83.00	462.26						
		189+00.00	462.45						
		189+50.00	463.00						
		190+00.00	463.54						
Symmetrical Parabola	PVC	190+11.09	463.67	180	1.09%	0.35%	242.43	-0.1700	1543.44
		190+50.00	464.06						
		191+00.00	464.48						
	PVI	191+01.09	464.65						
		191+50.00	464.79						
Linear	PVT	191+91.09	464.97	6.2	0.35%				
		191+91.09	464.97						
	PVC	191+97.29	464.99						
		191+97.29	464.99						
		192+00.00	465.00						
Symmetrical Parabola		192+50.00	465.22	200	0.35%	0.96%	327.69	0.1500	
	PVI	192+97.29	465.34						
		193+00.00	465.51						
		193+50.00	465.88						
	PVT	193+97.29	466.30						
Linear	PVT	193+97.29	466.30	325.8	0.96%				
		194+00.00	466.33						
		194+50.00	466.81						
		195+00.00	467.29						
		195+50.00	467.77						
		196+00.00	468.25						
		196+50.00	468.73						
		197+00.00	469.21						
		197+23.09	469.44						
	PVC	197+23.09	469.44						

Element	Point Type	Station	Elevation	Length	Entrance Grade	Exit Grade	K	Middle Ordinate	SSD/HSD
Symmetrical Parabola	PVC	197+23.09	469.44	200	0.96%	-2.63%	55.69	-0.9000	400.47
		197+50.00	469.63						
		198+00.00	469.64						
	PVI	198+23.09	470.40						
		198+50.00	469.21						
		199+00.00	468.33						
		199+23.09	467.77						
		199+50.00	467.06						
		197+76.84	469.69						
		199+23.09	467.77						
Linear	PVC	199+87.53	466.07	64.45	-2.63%				
		199+87.53	466.07						
		200+00.00	465.75						
Symmetrical Parabola	PVI	200+50.00	464.53	200	-2.63%	-1.59%	191.83	0.2600	
		201+00.00	463.44						
		201+50.00	462.49						
	PVT	201+87.53	461.85						
		201+87.53	461.85						
Linear		202+00.00	461.66	207.47	-1.59%				
		202+50.00	460.86						
		203+00.00	460.07						
		203+50.00	459.28						
		203+50.00	459.28						
		203+95.00	458.56						
		203+95.00	458.56						
		204+00.00	458.48						
		204+50.00	457.80						
		205+00.00	457.32						
Symmetrical Parabola	PVI	205+20.00	456.58	250	-1.59%	0.33%	130.45	0.6000	
		205+50.00	457.02						
		206+00.00	456.92						
	PVRC	206+45.00	456.99						
		206+45.00	456.99						
Symmetrical Parabola	PVI	206+80.00	457.10	70	0.33%	-0.09%	166.77	-0.0400	2606
		207+00.00	457.08						
	PVT	207+15.00	457.07						
	VHIGH	206+99.89	457.08						
		207+15.00	457.07						
Linear		207+50.00	457.04	546.41	-0.09%				
		208+00.00	457.00						
		208+50.00	456.95						
		209+00.00	456.91						
		209+50.00	456.86						
		210+00.00	456.81						
		210+50.00	456.77						
		211+00.00	456.72						
		211+50.00	456.68						
		212+00.00	456.63						
		212+50.00	456.59						
		212+61.41	456.58						
		212+61.41	456.58						
		213+00.00	456.77						
		213+50.00	457.68						
Symmetrical Parabola	PVI	213+91.41	456.46	260	-0.09%	7.74%	33.2	2.5500	
		214+00.00	459.34						
		214+50.00	461.76						
		215+00.00	464.93						
	PVT	215+21.41	466.52						
Linear	VLOW	212+64.42	456.58	3.59	7.74%				
	PVT	215+21.41	466.52						
		215+25.00	466.80						
	PVC	215+25.00	466.80						
		215+50.00	468.55						
Symmetrical Parabola	PVI	215+60.00	469.51	70	7.74%	3.65%	17.11	-0.3600	298.81
		215+95.00	470.79						
	PVT	215+95.00	470.79						
		216+00.00	470.97						
		216+50.00	472.79						
Linear		217+00.00	474.62	286.88	3.65%				
		217+50.00	476.44						
		218+00.00	478.27						
		218+50.00	480.09						
		218+50.00	480.09						
		218+81.88	481.26						
	PVC	218+81.88	481.26						

Element	Point Type	Station	Elevation	Length	Entrance Grade	Exit Grade	K	Middle Ordinate	SSD/HSD
Symmetrical Parabola	PVC	218+81.88	481.26	220	3.65%	-3.46%	30.94	-1.9600	261.78
		219+00.00	481.87						
		219+50.00	482.99						
	PVI	219+91.88	485.27						
		220+00.00	483.31						
		220+50.00	482.83						
		221+00.00	481.53						
		221+01.88	481.47						
		219+94.81	483.32						
		221+01.88	481.47						
Linear	PVT	221+50.00	479.80	97.58	-3.46%				
		221+50.00	479.80						
		221+99.45	478.09						
Symmetrical Parabola	PVC	221+99.45	478.09	450	-3.46%	0.83%	105	2.4100	
		222+00.00	478.07						
		222+50.00	476.46						
		223+00.00	475.09						
		223+50.00	473.96						
		224+00.00	473.07						
	PVI	224+24.45	470.31						
		224+50.00	472.41						
		225+00.00	471.99						
		225+50.00	471.81						
		226+00.00	471.87						
		226+49.45	472.16						
		225+62.75	471.81						
		226+49.45	472.16						
	Linear	PVT	226+50.00						
		227+00.00	472.58						
		227+10.33	472.67						
PVC		227+10.33	472.67						
		227+50.00	472.75						
Symmetrical Parabola	PVI	227+85.33	473.29	150	0.83%	-3.90%	31.75	-0.8900	303.43
		228+00.00	472.14						
		228+50.00	470.75						
	PVT	228+60.33	470.36						
		227+36.55	472.77						
Linear	PVT	228+60.33	470.36	16.79	-3.90%				
		228+77.13	469.71						
	PVC	228+77.13	469.71						
		229+00.00	468.86						
		229+27.13	467.76						
Symmetrical Parabola	PVI	229+50.00	467.28	100	-3.90%	-2.35%	64.66	0.1900	
		229+50.00	467.28						
	PVT	229+77.13	466.58						
		229+77.13	466.58						
		230+00.00	466.04						
Linear		230+50.00	464.87	143.57	-2.35%				
		231+00.00	463.69						
		231+20.69	463.21						
	PVC	231+20.69	463.21						
		231+45.69	462.62						
Symmetrical Parabola	PVI	231+45.69	462.62	50	-2.35%	-3.23%	57.14	-0.0500	1258.29
		231+50.00	462.44						
		231+70.69	461.81						
	PVT	231+70.69	461.81						
		231+86.09	461.31						
Linear	PVC	231+86.09	461.31	15.4	-3.23%				
		232+00.00	460.88						
		0+50.00	458.70						
	PVI	0+99.09	456.47						
		1+00.00	457.89						
Symmetrical Parabola		1+50.00	457.40	300	-3.23%	0.59%	78.69	1.4300	
		2+00.00	457.22						
		2+49.09	457.35						
	PVT	2+49.09	457.35						
		2+03.01	457.22						

**VERTICAL  
ALIGNMENT  
TABLE SHEET  
#4**

PROJECT NAME: ESSEX-WESTFORD  
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn  
PROJECT LEADER: JLL  
DESIGNED BY: STANTEC  
IPARM FILE: p10c226vats04.i

PLOT DATE: 2/20/2013  
DRAWN BY: STANTEC  
CHECKED BY: STANTEC  
SHEET 88 OF 239

