

**WAR-48-1154\_Final**

Calculated By: JYM	Date: 2/4/2021	Job No.: 079059
Checked By: PJP	Date: 6/27/2021	Bridge No.: WAR-48-1154
Project: WAR-48-1154		SFN: 8301174

ESTIMATED QUANTITIES					CALC BY: JYM	DATE: 2/24/2021
					CHECK BY: PJP	DATE: 6/27/2021
ITEM	EXT	QUANTITY	UNIT	DESCRIPTION		
202	11203	1	LS	PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN		
202	22900	134	SY	APPROACH SLAB REMOVED		
503	11100	1	LS	COFFERDAMS AND EXCAVATION BRACING		
503	21300	1	LS	UNCLASSIFIED EXCAVATION		
509	10000	131,994	LB	EPOXY COATED REINFORCING STEEL		
509	20001	100	LB	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN		
509	30020	4,393	FT	NO. 4 GFRP DEFORMED BARS		
510	10001	150	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT, AS PER PLAN		
511	33501	2	EACH	SEMI-INTEGRAL DIAPHRAGM GUIDE, AS PER PLAN		
511	45712	39	CY	CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT		
511	53014	370	CY	CLASS QC3 CONCRETE, MISC.: SUPERSTRUCTURE CONCRETE WITH QC/QA, AS PER PLAN		
511	53014	93	CY	CLASS QC3 CONCRETE, MISC.: PARAPET CONCRETE WITH QC/QA, AS PER PLAN		
511	53014	122	CY	CLASS QC3 CONCRETE, MISC.: SIDEWALK CONCRETE WITH QC/QA, AS PER PLAN		
512	10050	530	SY	SEALING OF CONCRETE SURFACES (NON-EPOXY)		
512	10100	1,053	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)		
512	10600	121	FT	CONCRETE REPAIR BY EPOXY INJECTION		
512	33000	13	SY	TYPE 2 WATERPROOFING		
512	74000	151	SY	REMOVAL OF EXISTING COATINGS FROM CONCRETE SURFACES		
513	10201	3,276	LB	STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN		
513	20000	2,628	EACH	WELDED STUD SHEAR CONNECTORS		
513	95000	1	FT	STRUCTURAL STEEL MISC.: REPAIR OF DAMAGED MAIN MEMBER, COMPLETE PENETRATION WELDING		
514	00050	2,805	SF	SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL		
514	00056	2,805	SF	FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT		
514	00060	2,868	SF	FIELD PAINTING OF STRUCTURAL STEEL, INTERMEDIATE COAT		
514	00066	2,868	SF	FIELD PAINTING OF STRUCTURAL STEEL, FINISH COAT		
514	10000	1	EACH	FINAL INSPECTION REPAIR		
514	21001	1	LS	FIELD PAINTING OF EXISTING DAMAGED STRUCTURAL STEEL, AS PER PLAN		
516	10000	107	FT	PREFORMED ELASTOMERIC COMPRESSION JOINT SEAL		
516	13600	18	SF	1" PREFORMED EXPANSION JOINT FILLER		
516	13900	158	SF	2" PREFORMED EXPANSION JOINT FILLER		
516	14020	107	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL		
516	44401	12	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (11.5"x16"x3.75" PAD WITH 12.5"x17"x1.25" PLATE)		
516	44401	18	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (12"x19"x3.75" PAD WITH 13"x20"x1.25" PLATE)		
516	47001	1	LS	JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN		
518	21200	110	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC		
518	40000	172	FT	6" PERFORATED CORRUGATED PLASTIC PIPE		
518	40010	65	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS		
519	11101	22	SF	PATCHING CONCRETE STRUCTURE, AS PER PLAN		
526	25011	256	SY	REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=15"), AS PER PLAN		
526	90010	107	FT	TYPE A INSTALLATION		
601	20000	412	SY	CRUSHED AGGREGATE SLOPE PROTECTION		
607	39910	242	FT	VANDAL PROTECTION FENCE, 8' STRAIGHT, COATED FABRIC		
607	39930	285	FT	VANDAL PROTECTION FENCE, 12' CURVED, COATED FABRIC		
846	00110	45	CF	POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM		
849	10000	1	LS	DAMAGE ASSESSMENT		
849	10500	1	LS	SURFACE PREPARATION		
849	10600	27	HOURL	REPAIRING DAMAGED MEMBERS BY GRINDING		
849	10700	1	LS	STRAIGHTENING DAMAGED MEMBERS		
<b>TOTAL</b>						

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202	22900	134	SY	APPROACH SLAB REMOVED
		25.00	ft	length
		24.00	ft	width
		2.00	ea	number of approaches
		1200.00	sq ft	total area
		<b>134.00</b>	<b>sq yd</b>	<b>total</b>

509	10000	119,840	LB	EPOXY COATED REINFORCING STEEL
		4860.00	lb	rear abutment
		4859.00	lb	forward abutment
		2632.00	lb	wingwalls
		706.00	lb	haunch at abutments
		93013.00	lb	superstructure
		13770.00	lb	parapets (not including GFRP bars)
		<b>119840.00</b>	<b>lb</b>	<b>total</b>
		12154.00	lb	sidewalk
		<b>12154.00</b>	<b>lb</b>	<b>total</b>

509	20001	100	LB	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN
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509	30020	4393	FT	NO. 4 GFRP DEFORMED BARS
7' panel		7.00	ft	R401
		68.00	ea	# bars
		7.25	ft	R402
		68.00	ea	# bars
		969.00	ft	subtotal
6'-1 1/4" panel		6.08	ft	R403
		4.00	ea	# bars
		6.42	ft	R404
		4.00	ea	# bars
		50.00	ft	subtotal
3'-11" panel		4.75	ft	R407
		4.00	ea	# bars
		6.42	ft	R408
		4.00	ea	# bars
		44.67	ft	subtotal
deck longitudinal		30.00	ft	R405
		88.00	ea	# bars
		4.33	ft	R406
		11.00	ft	# bars
		2687.67	ft	subtotal
approach longitudinal		12.00	ft	R409
		22.00	ea	# bars
		264.00	ft	subtotal
transition		10.00	ft	R410
		24.00	ea	# bars
		6.33	ft	R411
		12.00	ea	# bars
		5.08	ft	R412
		12.00	ea	# bars
		377.00	ft	subtotal
		<b>4393.00</b>	<b>ft</b>	<b>total</b>
		0.189	lb/ft	weight per foot assumed equivalent
		<b>831.00</b>	<b>lb</b>	<b>total</b>

For Estimator

510	10001	150	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT, AS PER PLAN
		150.00	ea	wingwalls
		<b>150.00</b>	<b>ea</b>	<b>total</b>

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511	33501	2	EACH	SEMI-INTEGRAL DIAPHRAGM GUIDE, AS PER PLAN
		1.00	ea.	forward abutment
		1.00	ea.	rear abutment
		<b>2.00</b>	<b>ea.</b>	<b>total</b>
511	45712	39	CY	CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT
wing A		15.54	ft	length (top)
		8.53	ft	length (bottom)
		6.22	ft	height (top) (Elev A - Elev C)
		3.00	ft	height (tapered end) (Elev B - Elev D)
		3.82	ft	height (middle) (Elev C - Elev E - footing)
		3.25	ft	height footing
		1.50	ft	width (top)
		1.92	ft	width (middle)
		0.92	ft	width (bottom)
		128.07	cu ft	volume (top)
		62.46	cu ft	volume (middle)
		25.42	cu ft	volume (bottom)
		215.95	cu ft	volume wing A
wing B		17.04	ft	length (top)
		10.03	ft	length (bottom)
		6.30	ft	height (top) (Elev A - Elev C)
		3.00	ft	height (tapered end) (Elev B - Elev D)
		4.02	ft	height (middle) (Elev C - Elev E - footing)
		3.25	ft	height footing
		143.69	cu ft	volume (top)
		77.29	cu ft	volume (middle)
		29.88	cu ft	volume (bottom)
		250.87	cu ft	volume wing B
wing C		250.87	ft	volume wing C
wing D		215.95	ft	volume wing D
haunch		23.50	sq ft	surface area
		1.00	ft	thickness
		23.50	cu ft	volume per haunch
		2.00	ea	sides per abutment
		2.00	ea	number of abutments
		94.00	cu ft	volume haunch
		1027.64	cu ft	volume
		<b>39.00</b>	<b>cu yd</b>	<b>total</b>
511	53014	370	CY	CLASS QC3 CONCRETE, MISC.: SUPERSTRUCTURE CONCRETE WITH QC/QA, AS PER PLAN
deck		30	deg	skew
		8.50	in	deck thickness
		236.20	ft	length
		46.00	ft	width
		7696.18	cu ft	volume deck
beam		12.00	in	width
haunches		2.44	in	average haunch thickness
		29.25	sq in	area per beam
		6.00	ea	number of beams
		1.22	sq ft	area
		236.20	ft	length
		287.87	cu ft	volume haunches
diaphragm		2.08	ft	height approach slab seat
		1.38	ft	diaphragm height (top) (approach seat - deck thickness)
		3.25	ft	abutment width (top)
		53.12	ft	abutment length with skew (46ft / cos(30))
		237.36	cu ft	volume (top)
		3.83	ft	height below deck (approach slab seat to beam seat - bearing thickness)
		3.75	ft	abutment width (bottom)
		53.12	ft	abutment length with skew (46ft / cos(30))
		763.55	cu ft	volume (bottom)
		2.00	ea	number of abutments
		2001.82	cu ft	tot diaphragm excluding deck
		9985.87	cu ft	total volume
		<b>370.00</b>	<b>cu yd</b>	<b>total</b>

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511	53014	93	CY	CLASS QC3 CONCRETE, MISC.: PARAPET CONCRETE WITH QC/QA, AS PER PLAN
right parapet	3.50	ft		height
	1.67	ft		max width
	1.00	ft		min width
	1.33	ft		avg width
	4.67	sq ft		cross sectional area
	236.20	ft		length
	1102.27	cu ft		volume
approach slab	11.00	ft		length
	3.50	ft		height parapet
	1.33	ft		avg width parapet
	4.67	sq ft		cross sectional area
	2.00	ea		number of sides
	102.67	cu ft		volume
transition	4.67	sq ft		cross sectional area Section C (see SCD SBR-1-20 + 2" aesthetic panel)
	2.67	ft		height 1 Section D
	1.38	ft		width 1 Section D
	0.33	ft		height 2 Section D
	0.29	ft		width 2 Section D
	3.72	sq ft		cross sectional area Section D
	4.19	sq ft		avg. cross sectional area Section C to D
	10.00	ft		length
	41.91	cu ft		volume Section C to D
	3.72	sq ft		area Section E = area Section D
	2.50	ft		length
	9.29	cu ft		volume Section D to E
	3.72	sq ft		area Section E
	2.67	ft		height 1 Section F
	1.00	ft		width 1 Section F
	0.33	ft		height 2 Section F
	0.67	ft		width 2 Section F
	2.89	sq ft		cross sectional area Section F
	3.30	sq ft		avg. cross sectional area Section E to F
	1.50	ft		length
	4.95	cu ft		volume Section E to F
	56.15	cu ft		volume per transition
	2.00	ea		number of sides
	112.30	cu ft		volume
left barrier	1.17	ft		width
	3.50	ft		height
	4.08	sq ft		cross sectional area
	236.20	ft		deck length
	964.48	cu ft		volume
approach slab	4.08	sq ft		cross sectional area
	25.00	ft		approach slab length, each side
	2.00	ea		number of sides
	204.17	cu ft		volume
	2485.89	cu ft		total volume
	93.00	cu yd		total
511	53014	122	CY	CLASS QC3 CONCRETE, MISC.: SIDEWALK CONCRETE WITH QC/QA, AS PER PLAN
deck	8.00	in		curb height
	17.17	ft		width
	236.20	ft		deck length
	2703.18	cu ft		volume
approach slab	50.00	ft		approach slab length, both sides
	572.22	cu ft		volume
	3275.40	cu ft		total
	122.00	cu yd		total
512	10050	530	SY	SEALING OF CONCRETE SURFACES (NON-EPOXY)
deck	16.00	ft		sidewalk exposed surface width
	8.00	in		curb height
	16.67	ft		total width
	236.20	ft		deck length
	3936.67	sq ft		surface area
approach slab	25.00	ft		approach length, each side
	2.00	ea		number of sides
	833.33	sq ft		surface area

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		4770.00	sq ft	total	
		530.00	sq yd	total	
<b>512</b>	<b>10100</b>	<b>1053</b>	<b>SY</b>	<b>SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)</b>	
right parapet		3.56	ft		diagonal height parapet (front)
		1.00	ft		width parapet (top)
		3.50	ft		height parapet (back)
		11.85	in		avg. height right edge of deck
		1.75	ft		overhang length
		6.00	in		half flange width
		10.30	ft		perimeter of parapet = diagonal height + top width + back height + edge height + overhang - flange
		236.20	ft		length of deck
		2432.96	sq ft		surface area parapet along deck
parapet on approach slab		8.06	ft		perimeter Section C
		11.00	ft		length
		2.00	ea		number of sides
		177.38	sq ft		surface area parapet along approach slab
transition		6.82	ft		perimeter Section D
		7.44	ft		avg. perimeter Section C to D
		10.00	ft		length Section C to Section D
		74.40	sq ft		area Section C to D
		6.82	ft		perimeter Section E
		2.50	ft		length Section D to E
		17.04	sq ft		area Section D to E
		7.00	ft		perimeter Section F
		6.91	ft		avg. perimeter Section E to F
		1.50	ft		length Section E to F
		10.36	sq ft		area Section E to F
		102	sq ft		area parapet transition
		2	ea		number of sides
		204	sq ft		surface area parapet transition areas
left barrier		2.88	ft		height sidewalk barrier (front)
		1.17	ft		width sidewalk barrier (top)
		3.50	ft		height sidewalk barrier (back)
		10.63	in		avg. height left edge of deck
		1.75	ft		overhang length
		6.00	in		half flange width
		9.68	ft		perimeter of parapet = front height + top width + back height + edge height + overhang - flange
		236.20	ft		length of deck
		2285.73	sq ft		surface area left barrier along deck
left barrier on approach slab		7.54	ft		perimeter = front height + top width + back height
		25.00	ft		length approach slab, each side
		2.00	ea		number of sides
		377.08	sq ft		surface area barrier along approach slab
abutments		30.00	deg		skew
		6.00	ft		avg. exposed height
		53.12	ft		length with skew (46ft / cos(30))
		2.00	ea		number of abutments
		637.39	sq ft		surface area abutments
wingwalls		53.00	sq ft		approx. exposed surface area (microstation)
		23.25	sq ft		approx. exposed surface area top
		4.00	ea		number of wingwalls
		305.00	sq ft		surface area wingwalls
abutment haunch		23.50	sq ft		surface area front
		13.00	sq ft		approx. surface area bottom
		4.00	ea		number of haunches
		146.00	sq ft		surface area haunches

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piers	52.00	ft	length along skew
	43.00	ft	length (bottom)
	4.00	ft	height (max)
	3.00	ft	height (tapered end)
	4.50	ft	length (tapered end)
	203.50	sq ft	surface area front and back of cap
	3.00	ft	width
	4.61	ft	diagonal length tapered end
	3.00	ft	height (tapered end)
	52.00	ft	length top
	43.00	ft	length bottom
	110.22	ft	perimeter sides, top, and bottom of pier cap
	330.66	sq ft	surface area sides, top, and bottom of cap
	3.00	ft	diameter column
	15.33	ft	avg exposed column height
	3.00	ea	number of columns per pier
	433.54	sq ft	surface area columns
	3.00	ea	number of piers
	2903.10	sq ft	total surface area piers
	9468.27	sq ft	total
<b>1053.00</b>	<b>sq yd</b>	<b>total</b>	

**512 74000 151 SY REMOVAL OF EXISTING COATINGS FROM CONCRETE SURFACES**

pier columns	433.54	sq ft	surface area columns (see above)
	3.00	ea	number of piers
	1300.62	sq ft	total columns
abutments	6.00	in	exposed height existing abutments up to beam seat
	53.12	ft	length with skew (46ft / cos(30))
	2.00	ea	number of abutments
	53.12	sq ft	total abutments
1353.74	sq ft	total	
<b>151.00</b>	<b>sq yd</b>	<b>total</b>	

**512 10600 121.00 FT CONCRETE REPAIR BY EPOXY INJECTION**

70.00	ft	sum of RA crack lengths
31.00	ft	sum of FA crack lengths
20.00	ft	sum of P3 crack lengths
<b>121.00</b>	<b>ft</b>	<b>total</b>

**512 33000 13 SY TYPE 2 WATERPROOFING**

wingwalls	3.00	ft	width sheeting
	8.53	ft	left wingwall (Dim F)
	10.03	ft	right wingwall (Dim F)
	18.56	ft	length sheeting
	2.00	ea	number abutments
	111.38	sq ft	area wingwalls
	<b>13.00</b>	<b>sq yd</b>	<b>total</b>

**513 10201 3276 LB STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN**

piers	6	ea	number of beams
	3	ea	number of piers
	18	ea	total HP posts
	2	ea	haunched pedestals per bearing
	36	ea	total pedestals
	2.168	sq ft	surface area pedestal
	0.25	in	thickness
	0.5	in	flange plate thickness
	10.75	in	flange plate width
	2.615	ft	flange plate length
	8.5	plf	4x3 weight/ft
	1.5	ft	angle length
	490	pcf	steel unit weight
	82.71	lb	weight per pedestal
	2977.55	lb	total weight
	10.00	%	connections and details
	<b>3276.00</b>	<b>lb</b>	<b>total</b>

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Item	Quantity	Unit	Description
<b>513 20000 2628 EACH WELDED STUD SHEAR CONNECTORS</b>			
	146	ea	number of rows per beam
	3	ea	number of connectors per row
	6	ea	number of beams
	2628	ea	total connectors
<b>513 95000 1 FT STRUCTURAL STEEL MISC.: REPAIR OF DAMAGED MAIN MEMBER, COMPLETE PENETRATION WELDING</b>			
<b>514 00050 2805 SF SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL</b>			
	35.60	in	beam depth
	12.00	in	flange width
	107.20	in	interior full perimeter = 2xbeam depth + 3xflange width
	2.75	ft	length of beam ends (1ft beyond diaphragm)
	6.00	ea	number of beams
	2.00	ea	beam ends
	59.60	in	exterior exposed perimeter = 1xbeam depth + 2xflange width
	227.00	ft	length of beams (excluding beam ends)
	2.00	ea	number of exterior beams
	2549.67	sq ft	surface area
	10.00	%	connections and details
	2805.00	sq ft	total
<b>514 00056 2805 SF FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT</b>			
	2805.00	sq ft	see above
	2805.00	sq ft	total
<b>514 00060 2868 SF FIELD PAINTING OF STRUCTURAL STEEL, INTERMEDIATE COAT</b>			
	2.17	sq ft	surface area of haunch plate
	2.34	sq ft	flange plate
	12.50	sq ft	connection angle
	36.00	ea	total haunch plates
	2254.87	sq ft	exterior beams
	2868.00	sq ft	total
<b>514 00066 2868 SF FIELD PAINTING OF STRUCTURAL STEEL, FINISH COAT</b>			
	2868.00	sq ft	see above
	2868.00	sq ft	total
<b>516 10000 107 FT PREFORMED ELASTOMERIC COMPRESSION JOINT SEAL</b>			
	53.12	ft	length abutment with skew
	2.00	ea	number of abutment
	107.00	ft	total
<b>516 13600 18 SF 1" PREFORMED EXPANSION JOINT FILLER</b>			
railing	4.08	sq ft	surface area sidewalk barrier
	4.67	sq ft	surface area right parapet
	2.00	ea	number of abuts
	17.50	sq ft	area total
	18.00	sq ft	total
<b>516 13900 158 SF 2" PREFORMED EXPANSION JOINT FILLER</b>			
abutments	30.00	deg	skew
	3.75	ft	width with skew (3.25ft / cos(30))
	6.30	ft	avg. height diaphragm
	2.00	ea	sides per abutment
	2.00	ea	number of abutments
	94.57	sq ft	area abutments
wingwalls	15.00	in	approach slab thickness
	11.79	ft	left wingwall - abutment width
	13.29	ft	right wingwall - abutment width
	2.00	ea	number of abutments
	62.69	sq ft	area wingwalls
	158.00	sq ft	total

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Checked By:	PJP	Date:	6/27/2021	Bridge No.:	WAR-48-1154
Project:	WAR-48-1154	SFN:	8301174		

Item ID	Quantity	Unit	Description
<b>516 14020 107 FT SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL</b>			
abutments	53.12	ft	length sheeting
	2.00	ea	number abutments
	106.23	sq ft	area abutments
	<b>107.00</b>	<b>sq ft</b>	<b>total</b>
<b>516 44401 12 EACH ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (11.5"x16"x3.75" PAD WITH 12.5"x17"x1.25" PLATE)</b>			
	6	ea	number of beams
	2	ea	number of abutments
	<b>12</b>	<b>ea</b>	<b>total</b>
<b>516 44401 18 EACH ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (12"x19"x3.75" PAD WITH 13"x20"x1.25" PLATE)</b>			
	6	ea	number of beams
	3	ea	number of piers
	<b>18</b>	<b>ea</b>	<b>total</b>
<b>518 21200 110 CY POROUS BACKFILL WITH GEOTEXTILE FABRIC</b>			
abutments	2.00	ft	thickness
	8.50	ft	avg height (below approach slab beam seat)
	53.12	ft	abutment length with skew (46ft / cos(30))
	2.00	ea	number of abutments
	1805.95	cu ft	volume abutments
wingwalls	2.00	ft	thickness behind abutment
	4.00	ft	avg. abutment height
	3.92	ft	thickness behind diaphragm
	5.00	ft	avg. diaphragm height
	9.75	ft	length left = 15.5ft - 3.75ft abut width - 2ft porous backfill
	11.25	ft	length right = 17ft - 3.75ft abut width - 2ft porous backfill
	27.58	sq ft	surface area
	579.25	cu ft	volume per abutment
	2.00	ea	number abutments
	1158.50	cu ft	volume wingwalls
	2964.45	cu ft	total volume
	<b>110.00</b>	<b>cu yd</b>	<b>total</b>
<b>518 40000 172 FT 6" PERFORATED CORRUGATED PLASTIC PIPE</b>			
	30	deg	skew
	53.12	ft	abutment length with skew (46ft / cos(30))
	32.58	ft	total wingwall length
	2.00	ea	number abutments
	<b>172.00</b>	<b>ft</b>	<b>total</b>
<b>518 40010 65 FT 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS</b>			
	12.00	ft	rear left side
	14.00	ft	rear right side
	14.00	ft	forward left side
	25.00	ft	forward right side
	<b>65.00</b>	<b>ft</b>	<b>total</b>
<b>519 11101 22 SF PATCHING CONCRETE STRUCTURE, AS PER PLAN</b>			
rear abut	1.00	sq ft	spall area
	0.75	sq ft	spall area
	1.75	sq ft	total rear abutment
fwd abut	1.00	sq ft	spall area
	5.00	sq ft	spall area
	6.00	sq ft	spall area
	12.00	sq ft	total fwd abutment
pier 2	4.00	sq ft	spall area
	1.00	sq ft	spall area
	5.00	sq ft	total pier 2
pier 3	3.00	sq ft	spall area
	<b>22.00</b>	<b>sq ft</b>	<b>total</b>



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<b>526</b>	<b>25011</b>	<b>256</b>	<b>SY</b>	<b>REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=15"), AS PER PLAN</b>
		46.00	ft	width
		25.00	ft	length
		2.00	ea	number of approaches
		2300.00	sq ft	total
		<b>256.00</b>	<b>sq yd</b>	<b>total</b>
<b>526</b>	<b>90010</b>	<b>107</b>	<b>FT</b>	<b>TYPE A INSTALLATION</b>
		30	deg	skew
		53.12	ft	approach slab width with skew (46ft / cos(30))
		2.00	ea	number of approach slabs
		<b>107.00</b>	<b>ft</b>	<b>total</b>
<b>601</b>	<b>20000</b>	<b>412</b>	<b>SY</b>	<b>CRUSHED AGGREGATE SLOPE PROTECTION</b>
		31.92	ft	width at rear abutment
		39.33	ft	width at forward abutment
		46.00	ft	deck width
		3.00	ft	limits beyond edge of deck, each side
		52.00	ft	length per abutment
		1659.67	sq ft	surface area rear abutment
		2045.33	sq ft	surface area forward abutment
		3705.00	sq ft	surface area
		<b>412</b>	<b>sq yd</b>	<b>total</b>
<b>607</b>	<b>39910</b>	<b>242</b>	<b>FT</b>	<b>VANDAL PROTECTION FENCE, 8' STRAIGHT, COATED FABRIC</b>
		241.21	ft	length right fence
		<b>242</b>	<b>ft</b>	<b>total</b>
<b>607</b>	<b>39930</b>	<b>285</b>	<b>FT</b>	<b>VANDAL PROTECTION FENCE, 12' CURVED, COATED FABRIC</b>
		284.69	ft	length left fence
		<b>285.00</b>	<b>ft</b>	<b>total</b>
<b>846</b>	<b>00110</b>	<b>45</b>	<b>CF</b>	<b>POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM</b>
		3.00	in	depth
		20.00	in	width
		53.12	ft	length of joint system
		22.13	cu ft	volume per approach
		2.00	ea	number of approach slabs
		<b>45.00</b>	<b>cu ft</b>	<b>total</b>
<b>849</b>	<b>10600</b>	<b>27</b>	<b>HOOR</b>	<b>REPAIRING DAMAGED MEMBERS BY GRINDING</b>
		4	ea	number of damaged beams
		66.5	ft	span length
		266	ft	total length
		0.10	hr/ft	1/10th hour per foot
		<b>27</b>	<b>hr</b>	<b>total</b>