



Project: CUY-480-07.92/VAR Paint
Subject: Estimated Quantity Calcs

PID: 105815
Prepared By: TSR Date: 7/2/2024
Checked By: RHC Date: 8/6/2024

ITEM 514 - SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL
ITEM 514 - FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT
ITEM 514 - FIELD PAINTING OF EXISTING STRUCTURAL STEEL, INTERMEDIATE COAT
ITEM 514 - FIELD PAINTING OF EXISTING STRUCTURAL STEEL, FINISH COAT

Note:

Per CMS 514.23 (Method of Measurement): For steel beam and steel girder bridges, the Department will determine the surface area by taking a nominal measurement of the beams (i.e., **two times the beam depth plus three times the flange width**). In addition to this nominal measurement, the Department will add a percentage to account for incidentals such as cross frames, bearing assemblies, stiffeners, expansion joints, scuppers, etc. It is not necessary for the Engineer or Inspector to field measure every detail of the bridge to verify quantities. If there is a quantity dispute, exact field measurements of all painted surfaces and calculations will govern over the above percentage to account for incidentals.

LOCATION 1; CUY-480-15.849; Granger Road over I-480; SFN 1802402

Skew = deg min sec = 0.00000 radians

Description	Length (ft)	Depth (ft)	(Flange) Width (ft)	Area
Girder A PL. PA	51.00 x (2 x 3.65 + 3 x 1.00) =			524.88 sf
Girder A PL. PB	12.00 x (2 x 3.71 + 3 x 1.00) =			125.00 sf
Girder A PL. PC	59.42 x (2 x 3.67 + 3 x 1.00) =			613.97 sf
Girder A PL. PD	12.00 x (2 x 3.79 + 3 x 1.00) =			127.00 sf
Girder A PL. PE/ Transition	19.00 x (1 x 95.08 + 3 x 1.33) =			171.08 sf
Girder A PL. PF	109.19 x (2 x 5.23 + 3 x 1.33) =			1578.74 sf
Girder A PL. PG	19.00 x (2 x 5.38 + 3 x 1.33) =			280.25 sf
Girder A PL. PH	13.30 x (2 x 5.27 + 3 x 1.33) =			193.36 sf
Girder A PL. PJ	78.11 x (2 x 5.15 + 3 x 1.33) =			1116.39 sf
Girder A PL. PK	19.00 x (2 x 5.29 + 3 x 1.33) =			277.08 sf
Girder A PL. PL	83.51 x (2 x 5.21 + 3 x 1.33) =			1203.94 sf
Girder B PL. PA	51.00 x (2 x 3.63 + 3 x 1.00) =			522.75 sf
Girder B PL. PB	12.00 x (2 x 3.69 + 3 x 1.00) =			124.50 sf
Girder B PL. PC	58.01 x (2 x 3.65 + 3 x 1.00) =			597.02 sf
Girder B PL. PD	12.00 x (2 x 3.77 + 3 x 1.00) =			126.50 sf
Girder B PL. PE/ Transition	19.00 x (1 x 94.29 + 3 x 1.33) =			170.29 sf
Girder B PL. PF	108.31 x (2 x 5.21 + 3 x 1.33) =			1561.43 sf
Girder B PL. PG	19.00 x (2 x 5.38 + 3 x 1.33) =			280.25 sf
Girder B PL. PH	13.45 x (2 x 5.27 + 3 x 1.33) =			195.63 sf
Girder B PL. PJ	79.15 x (2 x 5.15 + 3 x 1.33) =			1131.20 sf
Girder B PL. PK	21.00 x (2 x 5.29 + 3 x 1.33) =			306.25 sf
Girder B PL. PL	81.62 x (2 x 5.19 + 3 x 1.33) =			1173.28 sf
Girder C PL. PA	51.00 x (2 x 3.63 + 3 x 1.00) =			522.75 sf
Girder C PL. PB	12.00 x (2 x 3.69 + 3 x 1.00) =			124.50 sf
Girder C PL. PC	56.60 x (2 x 3.63 + 3 x 1.00) =			580.14 sf
Girder C PL. PD	12.00 x (2 x 3.77 + 3 x 1.00) =			126.50 sf
Girder C PL. PE/ Transition	19.00 x (1 x 94.29 + 3 x 1.33) =			170.29 sf
Girder C PL. PF	107.42 x (2 x 5.21 + 3 x 1.33) =			1548.67 sf
Girder C PL. PG	19.00 x (2 x 5.33 + 3 x 1.33) =			278.67 sf
Girder C PL. PH	13.61 x (2 x 5.25 + 3 x 1.33) =			197.41 sf
Girder C PL. PJ	80.12 x (2 x 5.15 + 3 x 1.33) =			1145.05 sf
Girder C PL. PK	21.00 x (2 x 5.29 + 3 x 1.33) =			306.25 sf
Girder C PL. PL	81.73 x (2 x 5.19 + 3 x 1.33) =			1174.93 sf
Girder D PL. PA	51.00 x (2 x 3.63 + 3 x 1.00) =			522.75 sf
Girder D PL. PB	12.00 x (2 x 3.69 + 3 x 1.00) =			124.50 sf
Girder D PL. PC	55.19 x (2 x 3.63 + 3 x 1.00) =			565.73 sf
Girder D PL. PD	12.00 x (2 x 3.77 + 3 x 1.00) =			126.50 sf
Girder D PL. PE/ Transition	19.00 x (1 x 94.29 + 3 x 1.33) =			170.29 sf
Girder D PL. PF	106.54 x (2 x 5.21 + 3 x 1.33) =			1535.98 sf
Girder D PL. PG	19.00 x (2 x 5.33 + 3 x 1.33) =			278.67 sf
Girder D PL. PH	13.79 x (2 x 5.25 + 3 x 1.33) =			199.90 sf
Girder D PL. PJ	81.47 x (2 x 5.15 + 3 x 1.33) =			1164.40 sf
Girder D PL. PK	21.00 x (2 x 5.29 + 3 x 1.33) =			306.25 sf
Girder D PL. PL	82.30 x (2 x 5.19 + 3 x 1.33) =			1183.09 sf
Girder E PL. PA	51.00 x (2 x 3.63 + 3 x 1.00) =			522.75 sf
Girder E PL. PB	12.00 x (2 x 3.69 + 3 x 1.00) =			124.50 sf
Girder E PL. PC	53.78 x (2 x 3.63 + 3 x 1.00) =			551.26 sf
Girder E PL. PD	12.00 x (2 x 3.75 + 3 x 1.00) =			126.00 sf
Girder E PL. PE/ Transition	19.00 x (1 x 93.50 + 3 x 1.33) =			169.50 sf



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Girder E PL. PF	105.66	x (	2	x	5.21	+	3	x	1.33	) =	1523.29 sf
Girder E PL. PG	18.00	x (	2	x	5.33	+	3	x	1.33	) =	264.00 sf
Girder E PL. PH	14.96	x (	2	x	5.25	+	3	x	1.33	) =	216.97 sf
Girder E PL. PJ	82.77	x (	2	x	5.15	+	3	x	1.33	) =	1182.86 sf
Girder E PL. PK	21.00	x (	2	x	5.29	+	3	x	1.33	) =	306.25 sf
Girder E PL. PL	82.88	x (	2	x	5.19	+	3	x	1.33	) =	1191.40 sf
Girder F PL. PA	51.00	x (	2	x	3.63	+	3	x	1.00	) =	522.75 sf
Girder F PL. PB	12.00	x (	2	x	3.67	+	3	x	1.00	) =	124.00 sf
Girder F PL. PC	52.38	x (	2	x	3.63	+	3	x	1.00	) =	536.84 sf
Girder F PL. PD	12.00	x (	2	x	3.75	+	3	x	1.00	) =	126.00 sf
Girder F PL. PE/ Transition	19.00	x (	1	x	93.50	+	3	x	1.33	) =	169.50 sf
Girder F PL. PF	104.79	x (	2	x	5.19	+	3	x	1.33	) =	1506.31 sf
Girder F PL. PG	18.00	x (	2	x	5.33	+	3	x	1.33	) =	264.00 sf
Girder F PL. PH	15.14	x (	2	x	5.25	+	3	x	1.33	) =	219.54 sf
Girder F PL. PJ	84.15	x (	2	x	5.15	+	3	x	1.33	) =	1202.66 sf
Girder F PL. PK	21.00	x (	2	x	5.29	+	3	x	1.33	) =	306.25 sf
Girder F PL. PL	83.63	x (	2	x	5.19	+	3	x	1.33	) =	1202.11 sf
Girder G PL. PA	51.00	x (	2	x	3.65	+	3	x	1.00	) =	524.88 sf
Girder G PL. PB	12.00	x (	2	x	3.67	+	3	x	1.00	) =	124.00 sf
Girder G PL. PC	50.96	x (	2	x	3.63	+	3	x	1.00	) =	522.38 sf
Girder G PL. PD	12.00	x (	2	x	3.75	+	3	x	1.00	) =	126.00 sf
Girder G PL. PE/ Transition	19.00	x (	1	x	93.50	+	3	x	1.33	) =	169.50 sf
Girder G PL. PF	101.92	x (	2	x	5.19	+	3	x	1.33	) =	1465.05 sf
Girder G PL. PG	20.00	x (	2	x	5.33	+	3	x	1.33	) =	293.33 sf
Girder G PL. PH	15.33	x (	2	x	5.25	+	3	x	1.33	) =	222.33 sf
Girder G PL. PJ	84.66	x (	2	x	5.15	+	3	x	1.33	) =	1209.95 sf
Girder G PL. PK	22.00	x (	2	x	5.31	+	3	x	1.33	) =	321.75 sf
Girder G PL. PL	84.69	x (	2	x	5.21	+	3	x	1.33	) =	1220.91 sf
Girder H PL. PA	51.00	x (	2	x	3.65	+	3	x	1.00	) =	524.88 sf
Girder H PL. PB	12.00	x (	2	x	3.67	+	3	x	1.00	) =	124.00 sf
Girder H PL. PC	49.56	x (	2	x	3.63	+	3	x	1.00	) =	507.96 sf
Girder H PL. PD	12.00	x (	2	x	3.73	+	3	x	1.00	) =	125.50 sf
Girder H PL. PE/ Transition	19.00	x (	1	x	92.71	+	3	x	1.33	) =	168.71 sf
Girder H PL. PF	101.05	x (	2	x	5.19	+	3	x	1.33	) =	1452.55 sf
Girder H PL. PG	20.00	x (	2	x	5.33	+	3	x	1.33	) =	293.33 sf
Girder H PL. PH	15.53	x (	2	x	5.25	+	3	x	1.33	) =	225.13 sf
Girder H PL. PJ	86.33	x (	2	x	5.15	+	3	x	1.33	) =	1233.85 sf
Girder H PL. PK	22.00	x (	2	x	5.31	+	3	x	1.33	) =	321.75 sf
Girder H PL. PL	86.08	x (	2	x	5.21	+	3	x	1.33	) =	1241.03 sf
Girder J PL. PA	51.00	x (	2	x	3.65	+	3	x	1.00	) =	524.88 sf
Girder J PL. PB	12.00	x (	2	x	3.67	+	3	x	1.00	) =	124.00 sf
Girder J PL. PC	48.15	x (	2	x	3.63	+	3	x	1.00	) =	493.49 sf
Girder J PL. PD	12.00	x (	2	x	3.73	+	3	x	1.00	) =	125.50 sf
Girder J PL. PE/ Transition	19.00	x (	1	x	92.71	+	3	x	1.33	) =	168.71 sf
Girder J PL. PF	100.09	x (	2	x	5.17	+	3	x	1.33	) =	1434.68 sf
Girder J PL. PG	26.00	x (	2	x	5.33	+	3	x	1.33	) =	381.33 sf
Girder J PL. PH	9.73	x (	2	x	5.17	+	3	x	1.33	) =	139.45 sf
Girder J PL. PJ	88.03	x (	2	x	5.17	+	3	x	1.33	) =	1261.78 sf
Girder J PL. PK	22.00	x (	2	x	5.31	+	3	x	1.33	) =	321.75 sf
Girder J PL. PL	87.50	x (	2	x	5.21	+	3	x	1.33	) =	1261.46 sf
Girder K PL. PA	51.00	x (	2	x	3.65	+	3	x	1.00	) =	524.88 sf
Girder K PL. PB	12.00	x (	2	x	3.69	+	3	x	1.00	) =	124.50 sf
Girder K PL. PC	46.74	x (	2	x	3.63	+	3	x	1.00	) =	479.08 sf
Girder K PL. PD	12.00	x (	2	x	3.73	+	3	x	1.00	) =	125.50 sf
Girder K PL. PE/ Transition	19.00	x (	1	x	92.71	+	3	x	1.33	) =	168.71 sf
Girder K PL. PF	98.31	x (	2	x	5.19	+	3	x	1.33	) =	1413.24 sf
Girder K PL. PG	27.00	x (	2	x	5.38	+	3	x	1.33	) =	398.25 sf
Girder K PL. PH	9.99	x (	2	x	5.19	+	3	x	1.33	) =	143.68 sf
Girder K PL. PJ	90.01	x (	2	x	5.19	+	3	x	1.33	) =	1293.90 sf
Girder K PL. PK	24.00	x (	2	x	5.33	+	3	x	1.33	) =	352.00 sf
Girder K PL. PL	87.83	x (	2	x	5.21	+	3	x	1.33	) =	1266.19 sf
42" Beam Crossframe Horizontals	561.09	x (	2	x	0.29	+	2	x	0.29	) =	654.61 sf
42" Beam Crossframe Diagonals	587.47	x (	2	x	0.29	+	2	x	0.29	) =	685.38 sf



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60" Beam Crossframe Horizontals	1613.66	x (	2	x	0.29	+	2	x	0.29	) =	1882.60 sf
60" Beam Crossframe Diagonals	1784.62	x (	2	x	0.29	+	2	x	0.29	) =	2082.06 sf
60" Beam Type X Crossframe Horizontals	398.14	x (	2	x	0.33	+	2	x	0.33	) =	530.85 sf
60" Beam Type X Crossframe Diagonals	434.14	x (	2	x	0.33	+	2	x	0.33	) =	578.86 sf
Intermediate Stiffener 42" Beams	3.50	x (	2	x	0.42	+		x		) =	2.92 sf
Intermediate Stiffener 60" Beams	5.00	x (	2	x	0.50	+		x		) =	5.00 sf
Scuppers	0.00	x (		x		+	1	x	0.00	) =	0.00 sf
Scupper Supports	0.00	x (	2	x	0.00	+	2	x	0.00	) =	0.00 sf

Description	Number	x	Area	=	Total Area
Girder A PL. PA	1	x	524.88	=	524.88 sf
Girder A PL. PB	1	x	125.00	=	125.00 sf
Girder A PL. PC	1	x	613.97	=	613.97 sf
Girder A PL. PD	1	x	127.00	=	127.00 sf
Girder A PL. PE/ Transition	1	x	171.08	=	171.08 sf
Girder A PL. PF	1	x	1578.74	=	1578.74 sf
Girder A PL. PG	1	x	280.25	=	280.25 sf
Girder A PL. PH	1	x	193.36	=	193.36 sf
Girder A PL. PJ	1	x	1116.39	=	1116.39 sf
Girder A PL. PK	1	x	277.08	=	277.08 sf
Girder A PL. PL	1	x	1203.94	=	1203.94 sf
Girder B PL. PA	1	x	522.75	=	522.75 sf
Girder B PL. PB	1	x	124.50	=	124.50 sf
Girder B PL. PC	1	x	597.02	=	597.02 sf
Girder B PL. PD	1	x	126.50	=	126.50 sf
Girder B PL. PE/ Transition	1	x	170.29	=	170.29 sf
Girder B PL. PF	1	x	1561.43	=	1561.43 sf
Girder B PL. PG	1	x	280.25	=	280.25 sf
Girder B PL. PH	1	x	195.63	=	195.63 sf
Girder B PL. PJ	1	x	1131.20	=	1131.20 sf
Girder B PL. PK	1	x	306.25	=	306.25 sf
Girder B PL. PL	1	x	1173.28	=	1173.28 sf
Girder C PL. PA	1	x	522.75	=	522.75 sf
Girder C PL. PB	1	x	124.50	=	124.50 sf
Girder C PL. PC	1	x	580.14	=	580.14 sf
Girder C PL. PD	1	x	126.50	=	126.50 sf
Girder C PL. PE/ Transition	1	x	170.29	=	170.29 sf
Girder C PL. PF	1	x	1548.67	=	1548.67 sf
Girder C PL. PG	1	x	278.67	=	278.67 sf
Girder C PL. PH	1	x	197.41	=	197.41 sf
Girder C PL. PJ	1	x	1145.05	=	1145.05 sf
Girder C PL. PK	1	x	306.25	=	306.25 sf
Girder C PL. PL	1	x	1174.93	=	1174.93 sf
Girder D PL. PA	1	x	522.75	=	522.75 sf
Girder D PL. PB	1	x	124.50	=	124.50 sf
Girder D PL. PC	1	x	565.73	=	565.73 sf
Girder D PL. PD	1	x	126.50	=	126.50 sf
Girder D PL. PE/ Transition	1	x	170.29	=	170.29 sf
Girder D PL. PF	1	x	1535.98	=	1535.98 sf
Girder D PL. PG	1	x	278.67	=	278.67 sf
Girder D PL. PH	1	x	199.90	=	199.90 sf
Girder D PL. PJ	1	x	1164.40	=	1164.40 sf
Girder D PL. PK	1	x	306.25	=	306.25 sf
Girder D PL. PL	1	x	1183.09	=	1183.09 sf
Girder E PL. PA	1	x	522.75	=	522.75 sf
Girder E PL. PB	1	x	124.50	=	124.50 sf
Girder E PL. PC	1	x	551.26	=	551.26 sf
Girder E PL. PD	1	x	126.00	=	126.00 sf
Girder E PL. PE/ Transition	1	x	169.50	=	169.50 sf
Girder E PL. PF	1	x	1523.29	=	1523.29 sf
Girder E PL. PG	1	x	264.00	=	264.00 sf
Girder E PL. PH	1	x	216.97	=	216.97 sf
Girder E PL. PJ	1	x	1182.86	=	1182.86 sf
Girder E PL. PK	1	x	306.25	=	306.25 sf
Girder E PL. PL	1	x	1191.40	=	1191.40 sf



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Girder F PL. PA	1	x	522.75	=	522.75 sf
Girder F PL. PB	1	x	124.00	=	124.00 sf
Girder F PL. PC	1	x	536.84	=	536.84 sf
Girder F PL. PD	1	x	126.00	=	126.00 sf
Girder F PL. PE/ Transition	1	x	169.50	=	169.50 sf
Girder F PL. PF	1	x	1506.31	=	1506.31 sf
Girder F PL. PG	1	x	264.00	=	264.00 sf
Girder F PL. PH	1	x	219.54	=	219.54 sf
Girder F PL. PJ	1	x	1202.66	=	1202.66 sf
Girder F PL. PK	1	x	306.25	=	306.25 sf
Girder F PL. PL	1	x	1202.11	=	1202.11 sf
Girder G PL. PA	1	x	524.88	=	524.88 sf
Girder G PL. PB	1	x	124.00	=	124.00 sf
Girder G PL. PC	1	x	522.38	=	522.38 sf
Girder G PL. PD	1	x	126.00	=	126.00 sf
Girder G PL. PE/ Transition	1	x	169.50	=	169.50 sf
Girder G PL. PF	1	x	1465.05	=	1465.05 sf
Girder G PL. PG	1	x	293.33	=	293.33 sf
Girder G PL. PH	1	x	222.33	=	222.33 sf
Girder G PL. PJ	1	x	1209.95	=	1209.95 sf
Girder G PL. PK	1	x	321.75	=	321.75 sf
Girder G PL. PL	1	x	1220.91	=	1220.91 sf
Girder H PL. PA	1	x	524.88	=	524.88 sf
Girder H PL. PB	1	x	124.00	=	124.00 sf
Girder H PL. PC	1	x	507.96	=	507.96 sf
Girder H PL. PD	1	x	125.50	=	125.50 sf
Girder H PL. PE/ Transition	1	x	168.71	=	168.71 sf
Girder H PL. PF	1	x	1452.55	=	1452.55 sf
Girder H PL. PG	1	x	293.33	=	293.33 sf
Girder H PL. PH	1	x	225.13	=	225.13 sf
Girder H PL. PJ	1	x	1233.85	=	1233.85 sf
Girder H PL. PK	1	x	321.75	=	321.75 sf
Girder H PL. PL	1	x	1241.03	=	1241.03 sf
Girder J PL. PA	1	x	524.88	=	524.88 sf
Girder J PL. PB	1	x	124.00	=	124.00 sf
Girder J PL. PC	1	x	493.49	=	493.49 sf
Girder J PL. PD	1	x	125.50	=	125.50 sf
Girder J PL. PE/ Transition	1	x	168.71	=	168.71 sf
Girder J PL. PF	1	x	1434.68	=	1434.68 sf
Girder J PL. PG	1	x	381.33	=	381.33 sf
Girder J PL. PH	1	x	139.45	=	139.45 sf
Girder J PL. PJ	1	x	1261.78	=	1261.78 sf
Girder J PL. PK	1	x	321.75	=	321.75 sf
Girder J PL. PL	1	x	1261.46	=	1261.46 sf
Girder K PL. PA	1	x	524.88	=	524.88 sf
Girder K PL. PB	1	x	124.50	=	124.50 sf
Girder K PL. PC	1	x	479.08	=	479.08 sf
Girder K PL. PD	1	x	125.50	=	125.50 sf
Girder K PL. PE/ Transition	1	x	168.71	=	168.71 sf
Girder K PL. PF	1	x	1413.24	=	1413.24 sf
Girder K PL. PG	1	x	398.25	=	398.25 sf
Girder K PL. PH	1	x	143.68	=	143.68 sf
Girder K PL. PJ	1	x	1293.90	=	1293.90 sf
Girder K PL. PK	1	x	352.00	=	352.00 sf
Girder K PL. PL	1	x	1266.19	=	1266.19 sf
42" Beam Crossframe Horizontals	1	x	654.61	=	654.61 sf
42" Beam Crossframe Diagonals	2	x	685.38	=	1370.76 sf
60" Beam Crossframe Horizontals	1	x	1882.60	=	1882.60 sf
60" Beam Crossframe Diagonals	2	x	2082.06	=	4164.12 sf
60" Beam Type X Crossframe Horizontals	2	x	530.85	=	1061.71 sf
60" Beam Type X Crossframe Diagonals	2	x	578.86	=	1157.71 sf
Intermediate Stiffener 42" Beams	317	x	2.92	=	924.58 sf



Project: CUY-480-07.92/VAR Paint
Subject: Estimated Quantity Calcs

PID: 105815
Prepared By: TSR Date: 7/2/2024
Checked By: RHC Date: 8/6/2024

Intermediate Stiffener 60" Beams	584	x	5.00	=	2920.00 sf
Scuppers		x		=	sf
Scupper Supports		x		=	sf

Misc. (calc 2%)	0.02	x	1390.85	=	27.82 sf
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Total Area = 76222.38 sf

Say = 76,300 sf

ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN

LOCATION 1; CUY-480-15.849; Granger Road over I-480; SFN 1802402

Total Weight = 0 LB Say = 0 LB

ITEM 514 - GRINDING FINIS, TEARS, SLIVERS ON EXISTING STRUCTURAL STEEL

LOCATION 1; CUY-480-15.849; Granger Road over I-480; SFN 1802402

Total Beam/Girder Length = 4,744 ft Say = 80 Hours

ITEM 514 - FINAL INSPECTION REPAIR

LOCATION 1; CUY-480-15.849; Granger Road over I-480; SFN 1802402

			Final Inspection
Total Est. Paint Area =	76,300	sf	Required
Total Beam/Girder Length =	4,744	ft	32
Total Cross frame assemblies =	337	ea	17

Total = 49

ITEM 630 - SIGNING, MISC.: OVERPASS NAME INSTALLATION

LOCATION 1; CUY-480-15.849; Granger Road over I-480; SFN 1802402

Total Signs on Bridge 4 Each



Project: CUY-480-07.92/VAR Paint
Subject: Estimated Quantity Calcs

PID: 105815
Prepared By: TSR Date: 7/2/2024
Checked By: RHC Date: 8/6/2024

ITEM 514 - SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL
ITEM 514 - FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT
ITEM 514 - FIELD PAINTING OF EXISTING STRUCTURAL STEEL, INTERMEDIATE COAT
ITEM 514 - FIELD PAINTING OF EXISTING STRUCTURAL STEEL, FINISH COAT

Note:

Per CMS 514.23 (Method of Measurement): For steel beam and steel girder bridges, the Department will determine the surface area by taking a nominal measurement of the beams (i.e., **two times the beam depth plus three times the flange width**). In addition to this nominal measurement, the Department will add a percentage to account for incidentals such as cross frames, bearing assemblies, stiffeners, expansion joints, scuppers, etc. It is not necessary for the Engineer or Inspector to field measure every detail of the bridge to verify quantities. If there is a quantity dispute, exact field measurements of all painted surfaces and calculations will govern over the above percentage to account for incidentals.

LOCATION 2; CUY-480-7.910; Rocky River Drive over I-480 Ramp; SFN 1810332

Skew = deg min sec = 0.00000 radians

Description	Length (ft)	Depth (ft)	(Flange) Width (ft)	Area
I-Beam W33x118	120.00 x (2 x 2.74 + 3 x 0.96) =			1003.20 sf
Bay 3-8 Intermediate Crossframe Horizontal	8.45 x (2 x 0.25 + 2 x 0.25) =			8.45 sf
Bay 3-8 Intermediate Crossframe Diagonals	8.67 x (2 x 0.25 + 2 x 0.25) =			8.67 sf
Bay 1-2 Intermediate Utility Support	1.98 x (2 x 0.33 + 2 x 0.25) =			2.31 sf
Bay 1-2 Intermediate Crossframe Horizontal	8.45 x (2 x 0.25 + 2 x 0.25) =			8.45 sf
Bay 1-2 Intermediate Crossframe Diagonals	8.67 x (2 x 0.25 + 2 x 0.25) =			8.67 sf
Bay 2-3 Intermediate Crossframe Top Horizontal	8.45 x (2 x 1.00 + 4 x 0.25) =			25.35 sf
Bay 2-3 Intermediate Crossframe Bottom Horizontal	8.45 x (2 x 0.25 + 2 x 0.25) =			8.45 sf
Bay 2-3 Intermediate Crossframe Vertical	1.20 x (2 x 0.25 + 2 x 0.25) =			1.20 sf
	x (2 x 0.25 + 2 x 0.25) =			0.00 sf
Bay 2-3 & 6-7 Intermediate Utility Supports	8.45 x (2 x 0.25 + 2 x 0.25) =			8.45 sf
Bay 2-3 End Crossframe Horizontal	8.45 x (2 x 0.33 + 2 x 0.33) =			11.27 sf
Bay 2-3 End Crossframe Diagonal 1	2.29 x (2 x 0.33 + 2 x 0.33) =			3.05 sf
Bay 2-3 End Crossframe Diagonal 2	1.83 x (2 x 0.33 + 2 x 0.33) =			2.44 sf
Bay 6-7 End Crossframe Horizontal	8.45 x (2 x 0.33 + 2 x 0.33) =			11.27 sf
Bay 6-7 End Crossframe Diagonals	3.75 x (2 x 0.33 + 2 x 0.33) =			5.00 sf
Scuppers	3.40 x (1 x 1.57) =			5.34 sf
Drain tube Support	8.45 x (2 x 0.29 + 2 x 0.29) =			9.86 sf

Description	Number	x	Area	=	Total Area
I-Beam W33x118	8	x	1003.20	=	8025.60 sf
Bay 3-8 Intermediate Crossframe Horizontal	50	x	8.45	=	422.50 sf
Bay 3-8 Intermediate Crossframe Diagonals	100	x	8.67	=	867.00 sf
Bay 1-2 Intermediate Utility Support	10	x	2.31	=	23.10 sf
Bay 1-2 Intermediate Crossframe Horizontal	10	x	8.45	=	84.50 sf
Bay 1-2 Intermediate Crossframe Diagonals	20	x	8.67	=	173.40 sf
Bay 2-3 Intermediate Crossframe Top Horizontal	10	x	25.35	=	253.50 sf
Bay 2-3 Intermediate Crossframe Bottom Horizontal	10	x	8.45	=	84.50 sf
Bay 2-3 Intermediate Crossframe Vertical	20	x	1.20	=	24.00 sf
Bay 2-3 & 6-7 Intermediate Utility Supports	31	x	8.45	=	261.95 sf
Bay 2-3 End Crossframe Horizontal	2	x	11.27	=	22.53 sf
Bay 2-3 End Crossframe Diagonal 1	4	x	3.05	=	12.21 sf
Bay 2-3 End Crossframe Diagonal 2	4	x	2.44	=	9.76 sf
Bay 6-7 End Crossframe Horizontal	2	x	11.27	=	22.53 sf
Bay 6-7 End Crossframe Diagonals	4	x	5.00	=	20.00 sf
Scuppers	10	x	5.34	=	53.38 sf
Drain tube Support	5	x	9.86	=	49.29 sf



Project: CUY-480-07.92/VAR Paint
Subject: Estimated Quantity Calcs

PID: 105815
Prepared By: TSR Date: 7/2/2024
Checked By: RHC Date: 8/6/2024

Misc. (calc 2%) 0.02 x 9934.10 = 198.68 sf

Total Area = 10608.44 sf Say = 10,600 sf

ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN

LOCATION 2; CUY-480-7.910; Rocky River Drive over I-480 Ramp; SFN 1810332

Total Length= 2022.15 ft
Unit Weight L3x3x5/16= 6.1 lb/ft
Steel Repair Ratio = 0.2
Total Weight = 2467 LB Say = 2468 LB

ITEM 514 - GRINDING FINES, TEARS, SLIVERS ON EXISTING STRUCTURAL STEEL

LOCATION 2; CUY-480-7.910; Rocky River Drive over I-480 Ramp; SFN 1810332

Total Beam/Girder Length = 960 ft Say = 16 Hours

ITEM 514 - FINAL INSPECTION REPAIR

LOCATION 2; CUY-480-7.910; Rocky River Drive over I-480 Ramp; SFN 1810332

			Final Inspection Required
Total Est. Paint Area =	10,600	sf	
Total Beam/Girder Length =	960	ft	7
Total Cross frame assemblies =	74	ea	4
Total =			<u>11</u>

ITEM 630 - SIGNING, MISC.: OVERPASS NAME INSTALLATION

LOCATION 2; CUY-480-7.910; Rocky River Drive over I-480 Ramp; SFN 1810332

Total Signs on Bridge 2 Each



Project: CUY-480-07.92/VAR Paint
Subject: Estimated Quantity Calcs

PID: 105815
Prepared By: TSR Date: 7/2/2024
Checked By: RHC Date: 8/6/2024

ITEM 514 - SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL
ITEM 514 - FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT
ITEM 514 - FIELD PAINTING OF EXISTING STRUCTURAL STEEL, INTERMEDIATE COAT
ITEM 514 - FIELD PAINTING OF EXISTING STRUCTURAL STEEL, FINISH COAT

Note:

Per CMS 514.23 (Method of Measurement): For steel beam and steel girder bridges, the Department will determine the surface area by taking a nominal measurement of the beams (i.e., **two times the beam depth plus three times the flange width**). In addition to this nominal measurement, the Department will add a percentage to account for incidentals such as cross frames, bearing assemblies, stiffeners, expansion joints, scuppers, etc. It is not necessary for the Engineer or Inspector to field measure every detail of the bridge to verify quantities. If there is a quantity dispute, exact field measurements of all painted surfaces and calculations will govern over the above percentage to account for incidentals.

LOCATION 3; CUY-RA-18055-0.273 NW; I-71 Ramp S.W. to I-480 over Rocky River Drive; SFN 1810359

Skew = deg min sec = 0.00000 radians

Description	Length (ft)	Depth (ft)	(Flange) Width (ft)	Area
I-Beams W36x182	142.85 x (2 x	3.03 + 3 x	1.01) =	1298.50 sf
I-Beams W36x230	47.04 x (2 x	2.99 + 3 x	1.37) =	474.60 sf
Span 1 Intermediate 3"x3" Crossframe Horizontal	9.77 x (2 x	0.25 + 2 x	0.25) =	9.77 sf
Span 1 Intermediate 3"x3" Crossframe Diagonals	9.96 x (2 x	0.25 + 2 x	0.25) =	9.96 sf
Span 1 Intermediate 4"x4" Crossframe Horizontal	9.77 x (2 x	0.33 + 2 x	0.33) =	13.03 sf
Span 1 Intermediate 4"x4" Crossframe Diagonals	9.96 x (2 x	0.33 + 2 x	0.33) =	13.28 sf
Span 2 Intermediate 3"x3" Crossframe Horizontal	9.53 x (2 x	0.25 + 2 x	0.25) =	9.53 sf
Span 2 Intermediate 3"x3" Crossframe Diagonals	9.73 x (2 x	0.25 + 2 x	0.25) =	9.73 sf
Span 2 Intermediate 4"x4" Crossframe Horizontal	9.53 x (2 x	0.33 + 2 x	0.33) =	12.70 sf
Span 2 Intermediate 4"x4" Crossframe Diagonals	9.73 x (2 x	0.33 + 2 x	0.33) =	12.97 sf
Span 3 Intermediate 3"x3" Crossframe Horizontal	9.33 x (2 x	0.25 + 2 x	0.25) =	9.33 sf
Span 3 Intermediate 3"x3" Crossframe Diagonals	9.53 x (2 x	0.25 + 2 x	0.25) =	9.53 sf
Span 3 Intermediate 4"x4" Crossframe Horizontal	9.33 x (2 x	0.33 + 2 x	0.33) =	12.43 sf
Span 3 Intermediate 4"x4" Crossframe Diagonals	9.53 x (2 x	0.33 + 2 x	0.33) =	12.71 sf
Endframe Horizontal	11.43 x (2 x	0.25 + 2 x	0.25) =	11.43 sf
Endframe Diagonal 1	4.05 x (2 x	0.25 + 2 x	0.25) =	4.05 sf
Endframe Diagonal 2	2.32 x (2 x	0.33 + 2 x	0.33) =	3.09 sf
Endframe Vertical	2.16 x (2 x	0.33 + 2 x	0.33) =	2.88 sf
Span 3 Tube support drainage	9.33 x (2 x	0.29 + 2 x	0.29) =	10.88 sf
Scuppers	3.69 x (x	+ 1 x	1.57) =	5.79 sf

Description	Number	x	Area	=	Total Area
I-Beams W36x182	5	x	1298.50	=	6492.49 sf
I-Beams W36x230	5	x	474.60	=	2372.99 sf
Span 1 Intermediate 3"x3" Crossframe Horizontal	20	x	9.77	=	195.47 sf
Span 1 Intermediate 3"x3" Crossframe Diagonals	40	x	9.96	=	398.52 sf
Span 1 Intermediate 4"x4" Crossframe Horizontal	8	x	13.03	=	104.25 sf
Span 1 Intermediate 4"x4" Crossframe Diagonals	8	x	13.28	=	106.27 sf
Span 2 Intermediate 3"x3" Crossframe Horizontal	10	x	9.53	=	95.29 sf
Span 2 Intermediate 3"x3" Crossframe Diagonals	20	x	9.73	=	194.54 sf
Span 2 Intermediate 4"x4" Crossframe Horizontal	8	x	12.70	=	101.64 sf
Span 2 Intermediate 4"x4" Crossframe Diagonals	8	x	12.97	=	103.76 sf
Span 3 Intermediate 3"x3" Crossframe Horizontal	20	x	9.33	=	186.51 sf
Span 3 Intermediate 3"x3" Crossframe Diagonals	40	x	9.53	=	381.26 sf
Span 3 Intermediate 4"x4" Crossframe Horizontal	8	x	12.43	=	99.47 sf
Span 3 Intermediate 4"x4" Crossframe Diagonals	8	x	12.71	=	101.67 sf
Endframe Horizontal	8	x	11.43	=	91.44 sf
Endframe Diagonal 1	8	x	4.05	=	32.40 sf
Endframe Diagonal 2	8	x	3.09	=	24.75 sf
Endframe Vertical	8	x	2.88	=	23.04 sf
Span 3 Tube support drainage	5	x	10.88	=	54.40 sf
Scuppers	6	x	5.79	=	34.76 sf



Project: CUY-480-07.92/VAR Paint
Subject: Estimated Quantity Calcs

PID: 105815
Prepared By: TSR Date: 7/2/2024
Checked By: RHC Date: 8/6/2024

Misc. (calc 2%) 0.02 x 11194.91 = 223.90 sf

Total Area = 11418.80 sf Say = 11,400 sf

ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN

LOCATION 3; CUY-RA-18055-0.273 NW; I-71 Ramp S.W. to I-480 over Rocky River Drive; SFN 1810359

Bottom Chord R.A. Bay 2-3 = 11.14 ft
Bottom Chord F.A. Bay 2-3 = 11.44 ft
Bottom Chord F.A. Bay 3-4 = 11.44 ft

Unit Weight L4x4x5/16 = 8.2 lb/ft
Total Weight = 279 LB Say = 279 LB

ITEM 514 - GRINDING FINIS, TEARS, SLIVERS ON EXISTING STRUCTURAL STEEL

LOCATION 3; CUY-RA-18055-0.273 NW; I-71 Ramp S.W. to I-480 over Rocky River Drive; SFN 1810359

Total Beam/Girder Length = 949 ft Say = 16 Hours

ITEM 514 - FINAL INSPECTION REPAIR

LOCATION 3; CUY-RA-18055-0.273 NW; I-71 Ramp S.W. to I-480 over Rocky River Drive; SFN 1810359

			Final Inspection
			Required
Total Est. Paint Area =	11,400	sf	
Total Beam/Girder Length =	949	ft	7
Total Cross frame assemblies =	74	ea	4
Total =			<u>11</u>

ITEM 630 - SIGNING, MISC.: OVERPASS NAME INSTALLATION

LOCATION 3; CUY-RA-18055-0.273 NW; I-71 Ramp S.W. to I-480 over Rocky River Drive; SFN 1810359

Total Signs on Bridge 2 Each



Project: CUY-480-07.92/VAR Paint
Subject: Estimated Quantity Calcs

PID: 105815
Prepared By: TSR Date: 7/2/2024
Checked By: RHC Date: 8/6/2024

ITEM 514 - SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL
ITEM 514 - FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT
ITEM 514 - FIELD PAINTING OF EXISTING STRUCTURAL STEEL, INTERMEDIATE COAT
ITEM 514 - FIELD PAINTING OF EXISTING STRUCTURAL STEEL, FINISH COAT

Note:

Per CMS 514.23 (Method of Measurement): For steel beam and steel girder bridges, the Department will determine the surface area by taking a nominal measurement of the beams (i.e., **two times the beam depth plus three times the flange width**). In addition to this nominal measurement, the Department will add a percentage to account for incidentals such as cross frames, bearing assemblies, stiffeners, expansion joints, scuppers, etc. It is not necessary for the Engineer or Inspector to field measure every detail of the bridge to verify quantities. If there is a quantity dispute, exact field measurements of all painted surfaces and calculations will govern over the above percentage to account for incidentals.

LOCATION 4; CUY-480-12.152; Southwood Drive over I-480; SFN 1812971

Skew = deg min sec = 0.00000 radians

Description	Length (ft)	Depth (ft)	(Flange) Width (ft)	Area
Girder Section 1	90.50 x (2 x	4.91 + 3 x	1.33) =	1250.03 sf
Girder Section 2	21.50 x (2 x	4.91 + 3 x	1.33) =	296.97 sf
Girder Section 3	32.00 x (2 x	5.15 + 3 x	1.33) =	457.33 sf
Girder Section 4	21.50 x (2 x	4.91 + 3 x	1.33) =	296.97 sf
Girder Section 5	90.50 x (2 x	4.91 + 3 x	1.33) =	1250.03 sf
Intermediate Crossframe Horizontal	7.96 x (2 x	0.25 + 2 x	0.25) =	7.96 sf
Intermediate Crossframe Diagonals	8.66 x (2 x	0.25 + 2 x	0.25) =	8.66 sf
End Crossframe Horizontal	8.81 x (2 x	0.33 + 2 x	0.33) =	11.75 sf
End Crossframe Diagonals 1	4.80 x (2 x	0.33 + 2 x	0.33) =	6.40 sf
End Crossframe Diagonals 2	4.08 x (2 x	0.33 + 2 x	0.33) =	5.44 sf
Abutment Bearing Stiffener	4.67 x (2 x	0.63 + x	) =	5.83 sf
Pier Bearing Stiffener	4.67 x (2 x	0.63 + x	) =	5.83 sf
Intermediate Stiffener	4.67 x (2 x	0.42 + x	) =	3.89 sf
Utility Support	7.96 x (2 x	0.33 + 2 x	0.33) =	10.61 sf

Description	Number	x	Area	=	Total Area
Girder Section 1	5	x	1250.03	=	6250.16 sf
Girder Section 2	5	x	296.97	=	1484.84 sf
Girder Section 3	5	x	457.33	=	2286.67 sf
Girder Section 4	5	x	296.97	=	1484.84 sf
Girder Section 5	5	x	1250.03	=	6250.16 sf
Intermediate Crossframe Horizontal	76	x	7.96	=	604.96 sf
Intermediate Crossframe Diagonals	152	x	8.66	=	1316.32 sf
End Crossframe Horizontal	8	x	11.75	=	93.97 sf
End Crossframe Diagonals 1	16	x	6.40	=	102.40 sf
End Crossframe Diagonals 2	16	x	5.44	=	87.04 sf
Abutment Bearing Stiffener	20	x	5.83	=	116.67 sf
Pier Bearing Stiffener	10	x	5.83	=	58.33 sf
Intermediate Stiffener	190	x	3.89	=	738.89 sf
Utility Support	19	x	10.61	=	201.65 sf

Misc. (calc 2%) 0.02 x 21076.90 = 421.54 sf

Total Area = 21498.44 sf

Say = 21,500 sf

ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN

LOCATION 4; CUY-480-12.152; Southwood Drive over I-480; SFN 1812971

Total Length = 1921.28 ft
Unit Weight L4x3x5/16 = 7.2 lb/ft
Steel Repair Ratio = 0.2
Total Weight = 2767 LB
Say = 2767 LB



Project: CUY-480-07.92/VAR Paint
Subject: Estimated Quantity Calcs

PID: 105815
Prepared By: TSR Date: 7/2/2024
Checked By: RHC Date: 8/6/2024

ITEM 514 - GRINDING FINIS, TEARS, SLIVERS ON EXISTING STRUCTURAL STEEL

LOCATION 4; CUY-480-12.152; Southwood Drive over I-480; SFN 1812971

Total Beam/Girder Length = 1,280 ft Say = 22 Hours

ITEM 514 - FINAL INSPECTION REPAIR

LOCATION 4; CUY-480-12.152; Southwood Drive over I-480; SFN 1812971

			Final Inspection
Total Est. Paint Area =		sf	Required
Total Beam/Girder Length =	1,280	ft	9
Total Cross frame assemblies =	76	ea	4
Total =			<u>13</u>

ITEM 630 - SIGNING, MISC.: OVERPASS NAME INSTALLATION

LOCATION 4; CUY-480-12.152; Southwood Drive over I-480; SFN 1812971

Total Signs on Bridge 2 Each



Project: CUY-480-07.92/VAR Paint
Subject: Estimated Quantity Calcs

PID: 105815
Prepared By: TSR Date: 7/2/2024
Checked By: RHC Date: 8/6/2024

ITEM 514 - SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL
ITEM 514 - FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT
ITEM 514 - FIELD PAINTING OF EXISTING STRUCTURAL STEEL, INTERMEDIATE COAT
ITEM 514 - FIELD PAINTING OF EXISTING STRUCTURAL STEEL, FINISH COAT

Note:

Per CMS 514.23 (Method of Measurement): For steel beam and steel girder bridges, the Department will determine the surface area by taking a nominal measurement of the beams (i.e., **two times the beam depth plus three times the flange width**). In addition to this nominal measurement, the Department will add a percentage to account for incidentals such as cross frames, bearing assemblies, stiffeners, expansion joints, scuppers, etc. It is not necessary for the Engineer or Inspector to field measure every detail of the bridge to verify quantities. If there is a quantity dispute, exact field measurements of all painted surfaces and calculations will govern over the above percentage to account for incidentals.

LOCATION 5; CUY-480-15.956; Tuxedo Ave. over I-480; SFN 1813048

Skew = 18 deg 48 min 41 sec = 0.32832 radians

Description	Length (ft)	Depth (ft)	(Flange) Width (ft)	Area
I-Beams, 36 WF 194	144.50 x (2 x	3.04 + 3 x	1.01) =	1316.15 sf
I-Beams, 36 WF 230	130.00 x (2 x	2.99 + 3 x	1.38) =	1314.08 sf
I-Beams, 36 WF 150	53.00 x (2 x	2.99 + 3 x	1.00) =	476.12 sf
I-Beams, 36 WF 135	44.50 x (2 x	2.97 + 3 x	1.00) =	397.53 sf
I-Beam, Beam F	21.67 x (2 x	2.97 + 3 x	1.00) =	193.56 sf
Standard Bay Crossframe Diagonals	9.17 x (2 x	0.25 + 2 x	0.25) =	9.17 sf
Standard Bay Crossframe Horizontals	8.92 x (2 x	0.25 + 2 x	0.25) =	8.92 sf
Bay C-D Diagonals	9.17 x (2 x	0.25 + 2 x	0.25) =	9.17 sf
Bay C-D Horizontals	8.92 x (2 x	0.29 + 2 x	0.29) =	10.40 sf
Bay C-D Utility Support Channel	2.08 x (4 x	0.13 + 2 x	0.25) =	2.08 sf
Bay C-D Field Splice Locations Diagonals	9.17 x (2 x	0.25 + 2 x	0.25) =	9.17 sf
Bay C-D Field Splice Locations Horizontals	8.92 x (2 x	0.33 + 2 x	0.29) =	11.15 sf
Bay C-D Field Splice Locations Stiffeners	2.62 x (2 x	0.42 + x	) =	2.18 sf
Bay C-D Utility Support Channel	2.08 x (4 x	0.13 + 2 x	0.25) =	2.08 sf
Bay C-D Additional Utility Support Horizontal	8.92 x (2 x	0.29 + 2 x	0.29) =	10.40 sf
Bay C-D Additional Utility Support Channel	2.08 x (4 x	0.13 + 2 x	0.25) =	2.08 sf
Bay D-E Diagonal 1	6.33 x (2 x	0.25 + 2 x	0.25) =	6.33 sf
Bay D-E Diagonal 2	3.33 x (2 x	0.25 + 2 x	0.25) =	3.33 sf
Bay D-E Top Horizontal (Angle)	8.92 x (2 x	0.33 + 2 x	0.25) =	10.40 sf
Bay D-E Bottom Horizontal (Channel)	8.92 x (4 x	0.21 + 2 x	0.33) =	13.38 sf
Bay D-E Utility Support	2.08 x (2 x	0.33 + 2 x	0.25) =	2.43 sf
Bay D-E Field Splice Diagonal 1	6.25 x (2 x	0.25 + 2 x	0.25) =	6.25 sf
Bay D-E Field Splice Diagonal 2	3.00 x (2 x	0.25 + 2 x	0.25) =	3.00 sf
Bay D-E Field Splice Top Horizontal (Angle)	8.92 x (2 x	0.33 + 2 x	0.25) =	10.40 sf
Bay D-E Field Splice Bottom Horizontal (Channel)	8.92 x (4 x	0.21 + 2 x	0.33) =	13.38 sf
Bay D-E Utility Support	2.08 x (2 x	0.33 + 2 x	0.25) =	2.43 sf
Bay D-E Field Splice Stiffener	2.67 x (2 x	0.42 + x	) =	2.22 sf
Standard End Crossframe Top Horizontal	39.83 x (2 x	0.33 + 2 x	0.33) =	53.11 sf
Standard End Crossframe Bottom Horizontal	8.92 x (2 x	0.33 + 2 x	0.33) =	11.89 sf
Standard End Crossframe Diagonal 1	3.33 x (2 x	0.33 + 2 x	0.33) =	4.44 sf
Standard End Crossframe Diagonal 2	2.38 x (2 x	0.33 + 2 x	0.33) =	3.17 sf
Standard End Crossframe Plate 1	1.17 x (2 x	0.83 + x	) =	1.94 sf
Standard End Crossframe Plate 2	1.33 x (2 x	1.00 + x	) =	2.67 sf
Bay C-D End Crossframe Bottom Horizontal (Channel)	8.92 x (4 x	0.21 + 2 x	0.33) =	13.38 sf
Bay C-D End Crossframe Diagonal 1	3.33 x (2 x	0.33 + 2 x	0.33) =	4.44 sf
Bay C-D End Crossframe Vertical 1	2.42 x (2 x	0.33 + 2 x	0.33) =	3.22 sf
Bay C-D End Crossframe Plate 1	1.00 x (2 x	0.83 + x	) =	1.67 sf
Bay C-D End Crossframe Plate 2	0.67 x (2 x	0.67 + x	) =	0.89 sf
Bay D-E End Crossframe Bottom Horizontal (Channel)	8.92 x (4 x	0.21 + 2 x	0.33) =	13.38 sf
Bay D-E End Crossframe Diagonal 1	3.33 x (2 x	0.33 + 2 x	0.33) =	4.44 sf
Bay D-E End Crossframe Diagonal 2	2.50 x (2 x	0.33 + 2 x	0.33) =	3.33 sf
Bay D-E End Crossframe Diagonal 3	2.42 x (2 x	0.33 + 2 x	0.33) =	3.22 sf
Bay D-E End Crossframe Plate 1	1.17 x (2 x	0.83 + x	) =	1.94 sf
Bay D-E End Crossframe Plate 2	1.33 x (2 x	1.00 + x	) =	2.67 sf
Bay D-E End Crossframe Utility Support	2.08 x (2 x	0.33 + 2 x	0.25) =	2.43 sf



Project: CUY-480-07.92/VAR Paint
Subject: Estimated Quantity Calcs

PID: 105815
Prepared By: TSR Date: 7/2/2024
Checked By: RHC Date: 8/6/2024

Bay E-F End Crossframe Bottom Horizontal	9.25	x (	2	x	0.33	+	2	x	0.33	) =	12.33 sf
Bay E-F End Crossframe Diagonal 1	3.50	x (	2	x	0.33	+	2	x	0.33	) =	4.67 sf
Bay E-F End Crossframe Diagonal 2	2.42	x (	2	x	0.33	+	2	x	0.33	) =	3.22 sf
Bay E-F End Crossframe Plate 1	1.17	x (	2	x	0.83	+		x		) =	1.94 sf
Bay E-F End Crossframe Plate 2	1.33	x (	2	x	1.00	+		x		) =	2.67 sf
Scuppers	1.00	x (	0	x	0.00	+	1	x	1.57	) =	1.57 sf

Description	Number	x	Area	=	Total Area
I-Beams, 36 WF 194	5	x	1316.15	=	6580.77 sf
I-Beams, 36 WF 230	5	x	1314.08	=	6570.42 sf
I-Beams, 36 WF 150	5	x	476.12	=	2380.58 sf
I-Beams, 36 WF 135	5	x	397.53	=	1987.67 sf
I-Beam, Beam F	1	x	193.56	=	193.56 sf
Standard Bay Crossframe Diagonals	108	x	9.17	=	990.00 sf
Standard Bay Crossframe Horizontals	54	x	8.92	=	481.50 sf
Bay C-D Diagonals	50	x	9.17	=	458.33 sf
Bay C-D Horizontals	25	x	10.40	=	260.07 sf
Bay C-D Utility Support Channel	25	x	2.08	=	52.08 sf
Bay C-D Field Splice Locations Diagonals	4	x	9.17	=	36.67 sf
Bay C-D Field Splice Locations Horizontals	2	x	11.15	=	22.29 sf
Bay C-D Field Splice Locations Stiffeners	4	x	2.18	=	8.72 sf
Bay C-D Utility Support Channel	2	x	2.08	=	4.17 sf
Bay C-D Additional Utility Support Horizontal	52	x	10.40	=	540.94 sf
Bay C-D Additional Utility Support Channel	52	x	2.08	=	108.33 sf
Bay D-E Diagonal 1	27	x	6.33	=	171.00 sf
Bay D-E Diagonal 2	27	x	3.33	=	90.00 sf
Bay D-E Top Horizontal (Angle)	27	x	10.40	=	280.88 sf
Bay D-E Bottom Horizontal (Channel)	27	x	13.38	=	361.13 sf
Bay D-E Utility Support	27	x	2.43	=	65.63 sf
Bay D-E Field Splice Diagonal 1	1	x	6.25	=	6.25 sf
Bay D-E Field Splice Diagonal 2	1	x	3.00	=	3.00 sf
Bay D-E Field Splice Top Horizontal (Angle)	1	x	10.40	=	10.40 sf
Bay D-E Field Splice Bottom Horizontal (Channel)	1	x	13.38	=	13.38 sf
Bay D-E Utility Support	1	x	2.43	=	2.43 sf
Bay D-E Field Splice Stiffener	1	x	2.22	=	2.22 sf
Standard End Crossframe Top Horizontal	1	x	53.11	=	53.11 sf
Standard End Crossframe Bottom Horizontal	4	x	11.89	=	47.56 sf
Standard End Crossframe Diagonal 1	8	x	4.44	=	35.56 sf
Standard End Crossframe Diagonal 2	8	x	3.17	=	25.33 sf
Standard End Crossframe Plate 1	8	x	1.94	=	15.56 sf
Standard End Crossframe Plate 2	4	x	2.67	=	10.67 sf
Bay C-D End Crossframe Bottom Horizontal (Channel)	2	x	13.38	=	26.75 sf
Bay C-D End Crossframe Diagonal 1	4	x	4.44	=	17.78 sf
Bay C-D End Crossframe Vertical 1	4	x	3.22	=	12.89 sf
Bay C-D End Crossframe Plate 1	4	x	1.67	=	6.67 sf
Bay C-D End Crossframe Plate 2	2	x	0.89	=	1.78 sf
Bay D-E End Crossframe Bottom Horizontal (Channel)	2	x	13.38	=	26.75 sf
Bay D-E End Crossframe Diagonal 1	4	x	4.44	=	17.78 sf
Bay D-E End Crossframe Diagonal 2	2	x	3.33	=	6.67 sf
Bay D-E End Crossframe Diagonal 3	2	x	3.22	=	6.44 sf
Bay D-E End Crossframe Plate 1	2	x	1.94	=	3.89 sf
Bay D-E End Crossframe Plate 2	2	x	2.67	=	5.33 sf
Bay D-E End Crossframe Utility Support	2	x	2.43	=	4.86 sf
Bay E-F End Crossframe Bottom Horizontal	1	x	12.33	=	12.33 sf
Bay E-F End Crossframe Diagonal 1	2	x	4.67	=	9.33 sf
Bay E-F End Crossframe Diagonal 2	2	x	3.22	=	6.44 sf
Bay E-F End Crossframe Plate 1	2	x	1.94	=	3.89 sf
Bay E-F End Crossframe Plate 2		x	2.67	=	sf



Project: CUY-480-07.92/VAR Paint
Subject: Estimated Quantity Calcs

PID: 105815
Prepared By: TSR Date: 7/2/2024
Checked By: RHC Date: 8/6/2024

Scuppers 20 x 1.57 = 31.40 sf

Misc. (calc 2%) 0.02 x 19184.49 = 383.69 sf

Total Area = 22454.86 sf Say = 22,500 sf

ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN

LOCATION 5; CUY-480-15.956; Tuxedo Ave. over I-480; SFN 1813048

Total Length = 17.8333 ft
Unit Weight L4x4x5/16 = 8.2 lb/ft

Total Length = 8.91667 ft
Unit Weight 4C13.8 = 13.8 lb/ft

Plate Weight (12"x16"x3/8") = 20.4192 lbs
Plate Count = 3 each

Total Weight = 331 LB Say = 331 LB

ITEM 514 - GRINDING FINIS, TEARS, SLIVERS ON EXISTING STRUCTURAL STEEL

LOCATION 5; CUY-480-15.956; Tuxedo Ave. over I-480; SFN 1813048

Total Beam/Girder Length = 1,882 ft Say = 32 Hours

ITEM 514 - FINAL INSPECTION REPAIR

LOCATION 5; CUY-480-15.956; Tuxedo Ave. over I-480; SFN 1813048

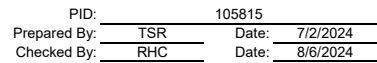
			Final Inspection Required
Total Est. Paint Area =	22,500	sf	
Total Beam/Girder Length =	1,882	ft	13
Total Cross frame assemblies =	121	ea	7

Total = 20

ITEM 630 - SIGNING, MISC.: OVERPASS NAME INSTALLATION

LOCATION 5; CUY-480-15.956; Tuxedo Ave. over I-480; SFN 1813048

Total Signs on Bridge 0 Each





Project: CUY-480-07.92/VAR Paint
Subject: Estimated Quantity Calcs

PID: 105815
Prepared By: TSR Date: 7/2/2024
Checked By: RHC Date: 8/6/2024

ITEM 514 - SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL
ITEM 514 - FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT
ITEM 514 - FIELD PAINTING OF EXISTING STRUCTURAL STEEL, INTERMEDIATE COAT
ITEM 514 - FIELD PAINTING OF EXISTING STRUCTURAL STEEL, FINISH COAT

Note:

Per CMS 514.23 (Method of Measurement): For steel beam and steel girder bridges, the Department will determine the surface area by taking a nominal measurement of the beams (i.e., **two times the beam depth plus three times the flange width**). In addition to this nominal measurement, the Department will add a percentage to account for incidentals such as cross frames, bearing assemblies, stiffeners, expansion joints, scuppers, etc. It is not necessary for the Engineer or Inspector to field measure every detail of the bridge to verify quantities. If there is a quantity dispute, exact field measurements of all painted surfaces and calculations will govern over the above percentage to account for incidentals.

LOCATION 7; CUY-480-9.444; I-480 over West 150th Street; SFN 1814273

Skew = deg min sec = 0.00000 radians

Description	Length (ft)	Depth (ft)	(Flange) Width (ft)	Area
Plate Grinders	81.00 x (2 x	6.00 + 3 x	1.29) =	1285.47 sf
Longitudinal Stiffener	81.00 x (2 x	0.38 + x	) =	60.75 sf
Intermediate Crossframe Horizontal	8.34 x (2 x	0.25 + 2 x	0.25) =	8.34 sf
Intermediate Crossframe Diagonals	9.51 x (2 x	0.25 + 2 x	0.25) =	9.51 sf
Crossframe Connection Plate	0.50 x (2 x	0.83 + x	) =	0.83 sf
Intermediate Stiffeners	5.83 x (2 x	0.50 + x	) =	5.83 sf
Bearing Stiffeners	5.83 x (2 x	0.58 + x	) =	6.80 sf

Description	Number	x	Area	=	Total Area
Plate Grinders	18	x	1285.47	=	23138.46 sf
Longitudinal Stiffener	18	x	60.75	=	1093.50 sf
Intermediate Crossframe Horizontal	100	x	8.34	=	834.00 sf
Intermediate Crossframe Diagonals	200	x	9.51	=	1902.00 sf
Crossframe Connection Plate	100	x	0.83	=	83.00 sf
Intermediate Stiffeners	360	x	5.83	=	2098.80 sf
Bearing Stiffeners		x	6.80	=	sf

Misc. (calc 2%) 0.02 x 26967.96 = 539.36 sf

Total Area = 29689.12 sf Say = 29,700 sf

ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN

LOCATION 7; CUY-480-9.444; I-480 over West 150th Street; SFN 1814273

Total Weight = 0 LB Say = 0 LB

ITEM 514 - GRINDING FINS, TEARS, SLIVERS ON EXISTING STRUCTURAL STEEL

LOCATION 7; CUY-480-9.444; I-480 over West 150th Street; SFN 1814273

Total Beam/Girder Length = 1,458 ft Say = 25 Hours

ITEM 514 - FINAL INSPECTION REPAIR

LOCATION 7; CUY-480-9.444; I-480 over West 150th Street; SFN 1814273

			Final Inspection Required
Total Est. Paint Area =	29,700	sf	10
Total Beam/Girder Length =	1,458	ft	10
Total Cross frame assemblies =	200	ea	10
Total =	<u>20</u>		

ITEM 630 - SIGNING, MISC.: OVERPASS NAME INSTALLATION

LOCATION 7; CUY-480-9.444; I-480 over West 150th Street; SFN 1814273

Total Signs on Bridge 0 Each



Project: CUY-480-07.92/VAR Paint
Subject: Estimated Quantity Calcs

PID: 105815
Prepared By: NDG Date: 3/24/2025
Checked By: SCT Date: 3/31/2025

ITEM 514 - SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL
ITEM 514 - FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT
ITEM 514 - FIELD PAINTING OF EXISTING STRUCTURAL STEEL, INTERMEDIATE COAT
ITEM 514 - FIELD PAINTING OF EXISTING STRUCTURAL STEEL, FINISH COAT

Note:

Per CMS 514.23 (Method of Measurement): For steel beam and steel girder bridges, the Department will determine the surface area by taking a nominal measurement of the beams (i.e., **two times the beam depth plus three times the flange width**). In addition to this nominal measurement, the Department will add a percentage to account for incidentals such as cross frames, bearing assemblies, stiffeners, expansion joints, scuppers, etc. It is not necessary for the Engineer or Inspector to field measure every detail of the bridge to verify quantities. If there is a quantity dispute, exact field measurements of all painted surfaces and calculations will govern over the above percentage to account for incidentals.

LOCATION 8; CUY-271-8.178; Chagrin Blvd. over I-271; SFN 1811258

Skew = deg min sec = 0.00000 radians

		Length (ft)		Depth (ft)		(Flange) Width (ft)		Area	
Description									
Replacement	Girder A	10.50	x (2 x	4.13	+ 3 x	1.00	) =	118.13	sf
	Girder A - Splice 5	2.00	x (2 x	4.25	+ 3 x	1.00	) =	23.00	sf
	Girder K (PL 12x1-1/4)	7.46	x (2 x	4.21	+ 3 x	1.00	) =	85.15	sf
	Girder K (PL 14x1-1/4)	24.00	x (2 x	4.21	+ 3 x	1.17	) =	286.00	sf
	Girder K (PL 12x3/4)	38.32	x (2 x	4.13	+ 3 x	1.00	) =	431.13	sf
Repair	Girder K - Splice 5	4.08	x (2 x	4.31	+ 3 x	1.00	) =	47.47	sf
	Girder K (PL 12x3/4)	40.82	x (1 x	5.19	+ 2.5 x	1.00	) =	313.83	sf
	Girder K (PL 16x1-1/4)	23.00	x (1 x	5.31	+ 2.5 x	1.33	) =	198.85	sf
	Girder K (PL 14x1-1/4)	74.00	x (1 x	5.31	+ 2.5 x	1.17	) =	608.96	sf
	Girder K (PL 22x1-1/4)	23.00	x (1 x	5.31	+ 2.5 x	1.83	) =	227.60	sf
	Girder K (PL 12x1-1/4)	58.92	x (1 x	5.31	+ 2.5 x	1.00	) =	460.29	sf
	Girder K (PL 16x1-1/4)	20.00	x (1 x	5.31	+ 2.5 x	1.33	) =	172.92	sf
	Girder K (PL 12x1-1/4)	60.42	x (1 x	5.31	+ 2.5 x	1.00	) =	472.01	sf
	Girder K (PL 20x1-1/4)	24.00	x (1 x	5.31	+ 2.5 x	1.67	) =	227.50	sf
	Girder K (PL 12x1-1/4)	68.46	x (1 x	5.31	+ 2.5 x	1.00	) =	534.83	sf
	Girder K - Splice 1	3.75	x (1 x	5.47	+ 2.5 x	1.17	) =	31.45	sf
	Girder K - Splice 2	3.75	x (1 x	5.47	+ 2.5 x	1.17	) =	31.45	sf
	Girder K - Splice 3	4.08	x (1 x	5.47	+ 2.5 x	1.00	) =	32.54	sf
	Girder K - Splice 4	4.08	x (1 x	5.47	+ 2.5 x	1.00	) =	32.54	sf
Replacement	Girder A - Intermediate Stiffeners	4.00	x (2 x	0.42	+ x	) =	3.33	sf	
	Girder A - Bearing Stiffeners (Fwd Abut)	4.00	x (2 x	0.42	+ x	) =	3.33	sf	
	Girder A - Utility Connection	4.00	x (2 x	0.58	+ x	) =	4.67	sf	
	Girder K - Intermediate Stiffeners	4.00	x (2 x	0.42	+ x	) =	3.33	sf	
	Girder K - Bearing Stiffeners (Pier 5)	4.00	x (2 x	0.42	+ x	) =	3.33	sf	
Repair	Girder K - Bearing Stiffeners (Fwd Abut)	4.00	x (2 x	0.42	+ x	) =	3.33	sf	
	Girder K - Splice Angle 5	4.00	x (2 x	0.45	+ x	) =	3.58	sf	
	Girder K - Intermediate Stiffeners (PL 5x3/8)	1.00	x (2 x	0.42	+ x	) =	0.83	sf	
	Girder K - Intermediate Stiffeners (PL 6x3/8)	1.00	x (2 x	0.50	+ x	) =	1.00	sf	
	Girder K - Intermediate Stiffeners (PL 8x1/2)	1.00	x (2 x	0.67	+ x	) =	1.33	sf	
	Girder K - Bearing Stiffeners (Rear Abut)	1.00	x (2 x	0.42	+ x	) =	0.83	sf	
	Girder K - Bearing Stiffeners (Piers 1&3)	1.00	x (2 x	0.50	+ x	) =	1.00	sf	
	Girder K - Bearing Stiffeners (Piers 2&4)	1.00	x (2 x	0.67	+ x	) =	1.33	sf	
	Girder K - Splice Angle (5x3-1/2x3/8)	1.00	x (2 x	0.45	+ x	) =	0.90	sf	
	Girder K - Splice Angle (6x3-1/2x3/8)	1.00	x (2 x	0.53	+ x	) =	1.06	sf	
Replacement	Description	Number	x	Area	=	Total Area			
	Girder A	1	x	118.13	=	118.13	sf		
	Girder A - Splice 5	1	x	23.00	=	23.00	sf		
	Girder K (PL 12x1-1/4)	1	x	85.15	=	85.15	sf		
	Girder K (PL 14x1-1/4)	1	x	286.00	=	286.00	sf		
	Girder K (PL 12x3/4)	1	x	431.13	=	431.13	sf		
	Girder K - Splice 5	1	x	47.47	=	47.47	sf		
	Girder K - Repair (PL 12x3/4)	1	x	313.83	=	313.83	sf		
	Girder K - Repair (PL 16x1-1/4)	1	x	198.85	=	198.85	sf		
	Girder K - Repair (PL 14x1-1/4)	1	x	608.96	=	608.96	sf		
	Girder K - Repair (PL 22x1-1/4)	1	x	227.60	=	227.60	sf		



Project: CUY-480-07.92/VAR Paint
Subject: Estimated Quantity Calcs

PID: 105815
Prepared By: NDG Date: 3/24/2025
Checked By: SCT Date: 3/31/2025

Repair	Girder K - Repair (PL 12x1-1/4)	1	x	460.29	=	460.29 sf
	Girder K - Repair (PL 16x1-1/4)	1	x	172.92	=	172.92 sf
	Girder K - Repair (PL 12x1-1/4)	1	x	472.01	=	472.01 sf
	Girder K - Repair (PL 20x1-1/4)	1	x	227.50	=	227.50 sf
	Girder K - Repair (PL 12x1-1/4)	1	x	534.83	=	534.83 sf
	Girder K - Splice 1	1	x	31.45	=	31.45 sf
	Girder K - Splice 2	1	x	31.45	=	31.45 sf
	Girder K - Splice 3	1	x	32.54	=	32.54 sf
Replacement	Girder K - Splice 4	1	x	32.54	=	32.54 sf
	Girder A - Intermediate Stiffeners	3	x	3.33	=	10.00 sf
	Girder A - Bearing Stiffeners (Fwd Abut)	2	x	3.33	=	6.67 sf
	Girder A - Utility Connection	1	x	4.67	=	4.67 sf
	Girder K - Intermediate Stiffeners	24	x	3.33	=	80.00 sf
	Girder K - Bearing Stiffeners (Pier 5)	2	x	3.33	=	6.67 sf
	Girder K - Bearing Stiffeners (Fwd Abut)	2	x	3.33	=	6.67 sf
	Girder K - Splice Angle 5	1	x	3.58	=	3.58 sf
Repair	Girder K - Intermediate Stiffeners (PL 5x3/8)	90	x	0.83	=	75.00 sf
	Girder K - Intermediate Stiffeners (PL 6x3/8)	39	x	1.00	=	39.00 sf
	Girder K - Intermediate Stiffeners (PL 8x1/2)	14	x	1.33	=	18.67 sf
	Girder K - Bearing Stiffeners (Rear Abut)	2	x	0.83	=	1.67 sf
	Girder K - Bearing Stiffeners (Piers 1&3)	4	x	1.00	=	4.00 sf
	Girder K - Bearing Stiffeners (Piers 2&4)	4	x	1.33	=	5.33 sf
	Girder K - Splice Angle (5x3-1/2x3/8)	2	x	0.90	=	1.79 sf
	Girder K - Splice Angle (6x3-1/2x3/8)	2	x	1.06	=	2.13 sf
Misc. (calc 2%)		0.02	x	4601.46	=	92.03 sf

Total Area = 4693.49 sf

Say = 4,690 sf

ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN

LOCATION 8; CUY-271-8.178; Chagrin Blvd. over I-271; SFN 1811258

Total Weight = 0 LB Say = 0 LB

ITEM 514 - GRINDING FINIS, TEARS, SLIVERS ON EXISTING STRUCTURAL STEEL

LOCATION 8; CUY-271-8.178; Chagrin Blvd. over I-271; SFN 1811258

Total Beam/Girder Length = 495 ft Say = 09 Hours

ITEM 514 - FINAL INSPECTION REPAIR

LOCATION 8; CUY-271-8.178; Chagrin Blvd. over I-271; SFN 1811258

			Final Inspection
Total Est. Paint Area =	4,690	sf	Required
Total Beam/Girder Length =	495	ft	4
Total Cross frame assemblies =	00	ea	0
Total =			<u>4</u>

ITEM 630 - SIGNING, MISC.: OVERPASS NAME INSTALLATION

LOCATION 8; CUY-271-8.178; Chagrin Blvd. over I-271; SFN 1811258

Total Signs on Bridge 1 Each