



NEW ENGLAND VIADUCT - SPAN 19 - SUBSTRUCTURE REPAIRS

MP N.E. 5.09

D214945

WESTCHESTER COUNTY

TANE 24-19

DATE:

08/26/2024

PREPARED BY:

S. HANSEN

CHECKED BY:

P. MULKERN

COMP DATE:

05/08/2024

ITEM 203.02 (CY)

UNCLASSIFIED EXCAVATION AND DISPOSAL

DESCRIPTION	EXCAVATION DEPTH (FT)	EXCAVATION WIDTH (FT)	FOOTING TOE (FT)	EXCAVATION SLOPE	EXCAVATION (CY)
End Abutment	2.00	131.00	4.00	0.667	53.37
Concrete Pier	2.00	45.50	3.00	0.667	15.17
Total:					68.54

SAY: 70

NOTES:

per general substructure notes: "Remove the existing grade material. Remove below grade as required to locate sound concrete, or A.O.B.E. Fill with suitable excavated material. Cost for this work to be paid for under items 203.02 & 203.03."

excavation width is taken as the sum of repair area widths near the footings of the End Abutment and Concrete Pier

for the end abutment, assume that existing ground is 2ft above the top of the footing

for the pier, assume that existing ground is 2ft above the top of the footing

assume that only the top of the footing needs to be patched

assume a 1/1.5 slope of excavation from the edge of the footing



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ITEM 203.03 (CY)

EMBANKMENT IN PLACE

DESCRIPTION	EXCAVATION DEPTH (FT)	EXCAVATION WIDTH (FT)	FOOTING TOE (FT)	EXCAVATION SLOPE	EXCAVATION (CY)
End Abutment	2.00	131.00	4.00	0.667	53.37
Concrete Pier	2.00	45.50	3.00	0.667	15.17
Total:					68.54

SAY: 70

NOTES:

per general substructure notes: "Remove the existing grade material. Remove below grade as required to locate sound concrete, or A.O.B.E. Fill with suitable excavated material. Cost for this work to be paid for under items 203.02 & 203.03."

excavation width is taken as the sum of repair area widths near the footings of the End Abutment and Concrete Pier

for the end abutment, assume that existing ground is 2ft above the top of the footing

for the pier, assume that existing ground is 2ft above the top of the footing

assume that only the top of the footing needs to be patched

assume a 1/1.5 slope of excavation from the edge of the footing



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ITEM 555.0021 (CY)					
CONCRETE FOR STRUCTURES, PERFORMANCE					
DESCRIPTION	ESTIMATED WIDTH (FT)	ESTIMATED LENGTH (FT)	ESTIMATED DEPTH (FT)		VOLUME (CY)
End Abutment - FB 23 Pedestal	2.604	1.167	0.750		0.08
Total:					0.08

SAY:	1
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NOTES:

Assumed pedestal dimensions are taken from record plans. Actual dimensions will need to be field measured



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ITEM 555.9902 (QU)					
PERFORMANCE CONCRETE QUALITY ADJUSTMENT - CONCRETE FOR STRUCTURES					
DESCRIPTION					SUM
End Abutment - FB 23 Pedestal					1.00
Total:					1.00
SAY:					1

NOTES:



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ITEM 555.80020001 (LF)					
CRACK REPAIR BY EPOXY INJECTION (RESTORATION)					
DESCRIPTION	ESTIMATED LENGTH (FT)				LENGTH (FT)
End Abutment	75.00				75.00
Concrete Pier	75.00				75.00
Total:					150.00

SAY:		150
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NOTES:

Total length of crack repairs are assumed. Actual lengths will need to be field measured



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MP N.E. 5.09
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DATE: 08/26/2024
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ITEM 556.0201 (LB)					
UNCOATED BAR REINFORCEMENT FOR CONCRETE STRUCTURES					
DESCRIPTION	BAR SIZE	SPACING (FT)	CONCRETE REPAIR AREA (SF)	% OF TOTAL TO BE REPLACED	WEIGHT (LB)
End Abutment - Vertical Bars	5	1.500	3,234.00	20%	449.74
End Abutment - Horizontal Bars	6	1.000	3,234.00	20%	971.49
End Abutment - FB 23 Pedestal	5	-	-	-	37.98
Pier - Column - Vertical Bars	8	1.000	1,043.50	20%	557.23
Pier - Column - Horizontal Bars	4	1.000	1,043.50	20%	139.41
Pier - Beam - Vertical Bars	4	1.000	794.50	20%	424.26
Pier - Beam - Horizontal Bars	8	1.000	794.50	20%	106.15
Total:					2,686.27
SAY:					2,690

NOTES:

0.668 lb/ft = Weight of #4 bar ACI 318-14 Appendix A
1.043 lb/ft = Weight of #5 bar ACI 318-14 Appendix A
1.502 lb/ft = Weight of #6 bar ACI 318-14 Appendix A
2.670 lb/ft = Weight of #8 bar ACI 318-14 Appendix A

Existing abutment bar sizes are taken from record plans. Actual bar sizes will need to be field verified.

FB 23 Pedestal is assumed to be 2'-7.25" wide, 1'-2" long, and 9" tall. (2 hoops and 8 vertical bars from NYSDOT abutment BD sheets)

Assumed pedestal dimensions are taken from record plans. Actual dimensions will need to be field measured

Bar hook dimensions taken from ACI 318-14 Table 25.3.2



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05/08/2024

ITEM 564.0501 (LS)

STRUCTURAL STEEL, TYPE 1

DESCRIPTION					SUM
FB23 new bearing stiffener					1
Total:					1

SAY:	1
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NOTES:

Structural steel for the new bearing stiffener on FB23 to be used during lifting operations

Span 19 - Floorbeam 23

Beam Section: Built-Up Riveted

section depth	=	48.500 in
web depth	=	48.000 in
web thickness	=	0.375 in
flange width	=	16.375 in
flange thickness	=	0.625 in
flange leg length	=	8.000 in

New Bearing Stiffener Angle Size: L7x4x5/8

long leg	=	7.000 in
short leg	=	4.000 in
angle cross section	=	6.500 in^2
bearing stiff height	=	47.250 in
note: there are 4 angles total		
total angle weight	=	348.359 lb

New Bearing Stiffener Fill Plate:

plate height	=	32.500 in
plate width	=	8.000 in
plate thickness	=	0.625 in
note: there are 2 fill plates		
total fill plate weight	=	92.159 lb

bearing stiff weight	=	440.518 lb
note: conservatively add 5%		
total weight rounded	=	463.000 lb

note: assume a unit cost of \$15/lb	\$	6,945.00
cost rounded	=	\$ 7,000.00



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ITEM 570.01 (LS)					
LEAD EXPOSURE CONTROL PLAN					
DESCRIPTION					SUM
New England Viaduct - Span 19					1
Total:					1
SAY:					1

NOTES:



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ITEM 559.03 (SF)					
PROTECTIVE SEALING OF EXISTING STRUCTURAL CONCRETE					
DESCRIPTION	WIDTH (FT)	HEIGHT (FT)	DEPTH (FT)	COLUMN AREA (SF)	AREA (SF)
End Abutment - 1 - Stem	91.00	27.00	-	-	2,457.00
End Abutment - 1 - Bridge Seat	91.00	-	2.33	-	212.33
End Abutment - 1 - Backwall	91.00	7.50	-	-	682.50
End Abutment - 2 - Stem	86.50	27.00	-	-	2,335.50
End Abutment - 2 - Bridge Seat	86.50	-	2.33	-	201.83
End Abutment - 2 - Backwall	86.50	6.00	-	-	519.00
End Abutment - 3 - Stem	89.00	25.50	-	-	2,269.50
End Abutment - 3 - Bridge Seat	89.00	-	2.33	-	207.67
End Abutment - 3 - Backwall	89.00	5.50	-	-	489.50
Concrete Pier - 1 - Column - Front	22.00	23.50	-	-	1,034.00
Concrete Pier - 1 - Column - Side	3.00	23.50	-	-	211.50
Concrete Pier - 1 - Cap Beam - Front	28.00	4.00	-	-	224.00
Concrete Pier - 1 - Cap Beam - Top	28.00	-	4.00	-	112.00
Concrete Pier - 1 - Cap Beam - Bottom	28.00	-	4.00	54.00	58.00
Concrete Pier - 1 - Cap Beam - Side	4.00	4.00	-	-	16.00
Concrete Pier - 1 - Wall - Front	10.00	8.00	-	-	160.00
Concrete Pier - 1 - Wall - Top	10.00	-	2	-	20.00
Concrete Pier - 2 - Column - Front	38.00	24.00	-	-	1,824.00
Concrete Pier - 2 - Column - Side	3.00	24.00	-	-	576.00
Concrete Pier - 2 - Cap Beam - Front	86.00	5.00	-	-	860.00
Concrete Pier - 2 - Cap Beam - Top	86.00	-	4.00	-	344.00
Concrete Pier - 2 - Cap Beam - Bottom	86.00	-	4.00	114.00	230.00
Concrete Pier - 2 - Wall - Front	48.00	8.50	-	-	816.00
Concrete Pier - 2 - Wall - Top	48.00	-	2	-	96.00
Concrete Pier - 3 - Column - Front	56.50	21.00	-	-	2,373.00
Concrete Pier - 3 - Column - Side	3.00	21.00	-	-	378.00
Concrete Pier - 3 - Cap Beam - Front	89.50	5.00	-	-	895.00
Concrete Pier - 3 - Cap Beam - Top	89.50	-	4.00	-	358.00
Concrete Pier - 3 - Cap Beam - Bottom	89.50	-	4.00	157.50	200.50
Concrete Pier - 3 - Cap Beam - Side	4.00	4.00	-	-	16.00
Concrete Pier - 3 - Wall - Front	37.00	8.50	-	-	629.00
Concrete Pier - 3 - Wall - Top	37.00	-	2	-	74.00
Total:					20,879.83
SAY:					20,900

NOTES:

Ignore footing surface area for end abutment and concrete pier

Both the end abutment and the concrete pier have 3 separate sections

Pier Column side width is 3ft from FANETC 54-7 plan set

Pier Wall thickness is 2 ft from FANETC 54-7 plan set



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ITEM 570.02 (DC)					
MEDICAL TESTING					
DESCRIPTION					SUM
New England Viaduct - Span 19					10,000
Total:					10,000

SAY:	10,000
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NOTES:



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ITEM 570.03 (DC)					
PERSONAL EXPOSURE MONITORING SAMPLE ANALYSIS					
DESCRIPTION					SUM
New England Viaduct - Span 19					7,500
Total:					7,500
SAY:					7,500

NOTES:



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ITEM 570.04 (CW)					
DECONTAMINATION FACILITIES					
DESCRIPTION					SUM
New England Viaduct - Span 19					15
Total:					15
SAY:					15

NOTES:

Assume that the bearing restoration will take 15 weeks



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ITEM 570.090001 (LS)					
ENVIRONMENTAL GROUND PROTECTION					
DESCRIPTION					SUM
New England Viaduct - Span 19					1
Total:					1
SAY:					1

NOTES:



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ITEM 570.160001 (LS)					
CLASS B CONTAINMENT FOR PAINT REMOVAL					
DESCRIPTION					SUM
New England Viaduct - Span 19					1
Total:					1
SAY:					1

NOTES:



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ITEM 571.03 (LB)					
DISPOSAL OF HAZARDOUS PAINT WASTE CONTAINING LEAD					
DESCRIPTION	Bearings	Girder Ends			SUM
End Abutment	66	969			1035
Concrete Pier	48	797			845
FB23 New Bearing Stiffener					4
Total:					1,884

SAY:	1,884
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NOTES:

Painting of Span 19 Thru Girder and Floorbeam ends will be 4ft total in length at each bearing location

Assume the paint waste weights 0.5 lb/ft^2

Assume that there is 2 lbs of paint waste at each bearing

Span 19 - Floorbeam 1 -

Beam Section: W30x108

depth	=	29.800 in
web thickness	=	0.545 in
flange width	=	10.500 in
flange thickness	=	0.760 in
cross section	=	31.700 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		29.786 SF
bearing stiff width	=	5.500 in
bearing stiff height	=	28.280 in
		4.321 SF

Total = 34.107 SF

note: add an additional 5%

Rounded Total = 36.0 SF

End Abutment	Concrete Pier
0	36.0

Span 19 - Floorbeam 2 -

Beam Section: W30x108

depth	=	29.800 in
web thickness	=	0.545 in
flange width	=	10.500 in
flange thickness	=	0.760 in
cross section	=	31.700 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		29.786 SF
bearing stiff width	=	5.500 in
bearing stiff height	=	28.280 in
		4.321 SF

Total = 34.107 SF

note: add an additional 5%

Rounded Total = 36.0 SF

End Abutment	Concrete Pier
0	36.0

Span 19 - Floorbeam 3 -

Beam Section: W30x108

depth	=	29.800 in
web thickness	=	0.545 in
flange width	=	10.500 in
flange thickness	=	0.760 in
cross section	=	31.700 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		29.786 SF
bearing stiff width	=	5.500 in
bearing stiff height	=	28.280 in
		4.321 SF

Total = 34.107 SF

note: add an additional 5%

Rounded Total = 36.0 SF

End Abutment	Concrete Pier
0	36.0

Span 19 - Floorbeam 4 -

Beam Section: W30x116

depth	=	30.000 in
web thickness	=	0.565 in
flange width	=	10.500 in
flange thickness	=	0.850 in
cross section	=	34.200 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		29.923 SF
bearing stiff width	=	5.500 in
bearing stiff height	=	28.300 in
		4.324 SF

Total	=	34.247 SF
note: add an additional 5%		
Rounded Total	=	36.0 SF

End Abutment	Concrete Pier
0	36.0

Span 19 - Floorbeam 5 -

Beam Section: W33x141		
depth	=	33.300 in
web thickness	=	0.605 in
flange width	=	11.500 in
flange thickness	=	0.960 in
cross section	=	41.500 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		33.106 SF
bearing stiff width	=	5.500 in
bearing stiff height	=	31.380 in
		4.794 SF
Total	=	37.900 SF
note: add an additional 5%		
Rounded Total	=	40 SF

End Abutment	Concrete Pier
0	40.0

Span 19 - Floorbeam 6 -

Beam Section: W36x160		
depth	=	36.000 in
web thickness	=	0.650 in
flange width	=	12.000 in
flange thickness	=	1.020 in
cross section	=	47.000 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.393 SF
bearing stiff width	=	6.000 in
bearing stiff height	=	33.960 in
		5.660 SF
Total	=	41.053 SF
note: add an additional 5%		
Rounded Total	=	43 SF

End Abutment	Concrete Pier
0	43.0

Span 19 - Floorbeam 7 -

Beam Section: W36x160		
depth	=	36.000 in
web thickness	=	0.650 in
flange width	=	12.000 in
flange thickness	=	1.020 in
cross section	=	47.000 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.393 SF
bearing stiff width	=	6.000 in
bearing stiff height	=	33.960 in
		5.660 SF
Total	=	41.053 SF
note: add an additional 5%		
Rounded Total	=	43 SF

End Abutment	Concrete Pier
0	43.0

Span 19 - Floorbeam 8 -

Beam Section: W36x194		
depth	=	36.500 in
web thickness	=	0.765 in
flange width	=	12.100 in
flange thickness	=	1.260 in
cross section	=	57.000 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.815 SF
bearing stiff width	=	6.000 in
bearing stiff height	=	33.980 in
		5.663 SF
Total	=	41.478 SF
note: add an additional 5%		
Rounded Total	=	44 SF

End Abutment	Concrete Pier
0	44.0

Span 19 - Floorbeam 9 -

Beam Section: W36x150		
depth	=	35.900 in
web thickness	=	0.625 in
flange width	=	12.000 in
flange thickness	=	0.940 in
cross section	=	44.300 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.324 SF
bearing stiff width	=	6.000 in
bearing stiff height	=	34.020 in
		5.670 SF
Total	=	40.994 SF
note: add an additional 5%		
Rounded Total	=	43 SF

End Abutment	Concrete Pier
0	43.0

Span 19 - Floorbeam 10 -

Beam Section: W36x160

depth	=	36.000 in
web thickness	=	0.650 in
flange width	=	12.000 in
flange thickness	=	1.020 in
cross section	=	47.000 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.393 SF
bearing stiff width	=	6.000 in
bearing stiff height	=	33.960 in
		5.660 SF
Total	=	41.053 SF

note: add an additional 5%

Rounded Total = 43 SF

End Abutment	Concrete Pier
0	43.0

Span 19 - Floorbeam 11 -

Beam Section: W36x194

depth	=	36.500 in
web thickness	=	0.765 in
flange width	=	12.100 in
flange thickness	=	1.260 in
cross section	=	57.000 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.815 SF
bearing stiff width	=	6.000 in
bearing stiff height	=	33.980 in
		5.663 SF
Total	=	41.478 SF

note: add an additional 5%

Rounded Total = 44 SF

End Abutment	Concrete Pier
0	44.0

Span 19 - Floorbeam 12 -

Beam Section: W36x230

depth	=	35.880 in
web thickness	=	0.765 in
flange width	=	16.500 in
flange thickness	=	1.260 in
cross section	=	67.730 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		39.693 SF
bearing stiff width	=	8.000 in
bearing stiff height	=	33.360 in
		7.413 SF
Total	=	47.106 SF

note: add an additional 5%

Rounded Total = 49 SF

End Abutment	Concrete Pier
0	49.0

Span 19 - Floorbeam 13 - At Bearing

Beam Section: Built-Up Riveted

section depth	=	48.500 in
web depth	=	48.000 in
web thickness	=	0.375 in
flange width	=	16.375 in
flange thickness	=	0.625 in
flange angle area	=	9.690 in^2
cross section	=	56.948 in^2
bearing sole plt. length	=	8.000 in
length	=	4.000 ft
		47.944 SF
bearing stiff width	=	6.000 in
bearing stiff height	=	47.250 in
		7.875 SF
int stiff width	=	6.000 in
int stiff height	=	47.250 in
		7.875 SF
Total	=	63.694 SF

note: add an additional 5%

Rounded Total = 67 SF

End Abutment	Concrete Pier
0	67.0

Span 19 - Floorbeam 13 - At Thru-Girder

Beam Section: Built-Up Riveted

section depth	=	48.500 in
web depth	=	48.000 in
web thickness	=	0.375 in
flange width	=	16.375 in
flange thickness	=	0.625 in
flange angle area	=	9.690 in^2
cross section	=	56.948 in^2
bearing sole plt. length	=	0.000 in
length	=	4.000 ft
		48.854 SF
bearing stiff width	=	0.000 in
bearing stiff height	=	47.250 in
		0.000 SF
int stiff width	=	6.000 in

int stiff height	=	47.250
		7.875 SF
Total	=	56.729 SF
note: add an additional 5%		
Rounded Total	=	60 SF

End Abutment	Concrete Pier	
60		0.0

Span 19 - Floorbeam 14 -

Beam Section: Built-Up Riveted		
section depth	=	54.500 in
web depth	=	54.000 in
web thickness	=	0.375 in
flange width	=	16.375 in
flange thickness	=	0.625 in
flange angle area	=	9.690 in^2
cross section	=	59.198 in^2
bearing sole plt. length	=	8.000 in
length	=	4.000 ft
		51.960 SF
bearing stiff width	=	6.000 in
bearing stiff height	=	53.250 in
		8.875 SF
int stiff width	=	6.000 in
int stiff height	=	53.250
		8.875 SF
Total	=	69.710 SF
note: add an additional 5%		
Rounded Total	=	73 SF

End Abutment	Concrete Pier	
73		73.0

Span 19 - Floorbeam 15 -

Beam Section: Built-Up Riveted		
section depth	=	54.500 in
web depth	=	54.000 in
web thickness	=	0.375 in
flange width	=	12.375 in
flange thickness	=	0.875 in
flange angle area	=	9.750 in^2
cross section	=	59.438 in^2
bearing sole plt. length	=	8.000 in
length	=	4.000 ft
		48.184 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	52.750 in
		7.326 SF
int stiff width	=	5.000 in
int stiff height	=	52.750
		7.326 SF
Total	=	62.836 SF
note: add an additional 5%		
Rounded Total	=	66 SF

End Abutment	Concrete Pier	
66		66.0

Span 19 - Floorbeam 16 -

Beam Section: Built-Up Riveted		
section depth	=	54.500 in
web depth	=	54.000 in
web thickness	=	0.375 in
flange width	=	12.375 in
flange thickness	=	0.875 in
flange angle area	=	9.750 in^2
cross section	=	59.438 in^2
bearing sole plt. length	=	8.000 in
length	=	4.000 ft
		48.184 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	52.750 in
		7.326 SF
int stiff width	=	5.000 in
int stiff height	=	52.750
		7.326 SF
Total	=	62.836 SF
note: add an additional 5%		
Rounded Total	=	66 SF

End Abutment	Concrete Pier	
66		66.0

Span 19 - Floorbeam 17 -

Beam Section: Built-Up Riveted		
section depth	=	54.500 in
web depth	=	54.000 in
web thickness	=	0.375 in
flange width	=	12.375 in
flange thickness	=	0.875 in
flange angle area	=	9.750 in^2
cross section	=	59.438 in^2
bearing sole plt. length	=	8.000 in
length	=	4.000 ft
		48.184 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	52.750 in
		7.326 SF
int stiff width	=	5.000 in
int stiff height	=	52.750

		7.326 SF
Total	=	62.836 SF
note: add an additional 5%		
Rounded Total	=	66 SF

End Abutment	Concrete Pier
66	66.0

Span 19 - Floorbeam 18 -

Beam Section: Built-Up Riveted		
section depth	=	54.500 in
web depth	=	54.000 in
web thickness	=	0.375 in
flange width	=	12.375 in
flange thickness	=	0.875 in
flange angle area	=	9.750 in^2
cross section	=	59.438 in^2
bearing sole plt. length	=	8.000 in
length	=	4.000 ft
		48.184 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	52.750 in
		7.326 SF
int stiff width	=	5.000 in
int stiff height	=	52.750 in
		7.326 SF
Total	=	62.836 SF
note: add an additional 5%		
Rounded Total	=	66 SF

End Abutment	Concrete Pier
66	66.0

Span 19 - Floorbeam 19 -

Beam Section: Built-Up Riveted		
section depth	=	54.500 in
web depth	=	54.000 in
web thickness	=	0.375 in
flange width	=	12.375 in
flange thickness	=	0.875 in
flange angle area	=	9.750 in^2
cross section	=	59.438 in^2
bearing sole plt. length	=	8.000 in
length	=	4.000 ft
		48.184 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	52.750 in
		7.326 SF
int stiff width	=	5.000 in
int stiff height	=	52.750 in
		7.326 SF
Total	=	62.836 SF
note: add an additional 5%		
Rounded Total	=	66 SF

End Abutment	Concrete Pier
66	66.0

Span 19 - Floorbeam 20 -

Beam Section: Built-Up Riveted		
section depth	=	54.500 in
web depth	=	54.000 in
web thickness	=	0.375 in
flange width	=	12.375 in
flange thickness	=	0.875 in
flange angle area	=	9.750 in^2
cross section	=	59.438 in^2
bearing sole plt. length	=	8.000 in
length	=	4.000 ft
		48.184 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	52.750 in
		7.326 SF
int stiff width	=	5.000 in
int stiff height	=	52.750 in
		7.326 SF
Total	=	62.836 SF
note: add an additional 5%		
Rounded Total	=	66 SF

End Abutment	Concrete Pier
66	66.0

Span 19 - Floorbeam 21 -

Beam Section: Built-Up Riveted		
section depth	=	54.500 in
web depth	=	54.000 in
web thickness	=	0.375 in
flange width	=	12.375 in
flange thickness	=	0.750 in
flange angle area	=	8.460 in^2
cross section	=	54.278 in^2
bearing sole plt. length	=	8.000 in
length	=	4.000 ft
		48.148 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	53.000 in
		7.361 SF
int stiff width	=	5.000 in
int stiff height	=	53.000 in
		7.361 SF

Total	=	62.870 SF
note: add an additional 5%		
Rounded Total	=	66 SF

End Abutment	Concrete Pier
66	66.0

Span 19 - Floorbeam 22 -

Beam Section: Built-Up Riveted

section depth	=	54.500 in
web depth	=	54.000 in
web thickness	=	0.375 in
flange width	=	12.375 in
flange thickness	=	0.625 in
flange angle area	=	7.130 in^2
cross section	=	48.958 in^2
bearing sole plt. length	=	8.000 in
length	=	4.000 ft
		48.111 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	53.250 in
		7.396 SF
int stiff width	=	5.000 in
int stiff height	=	53.250
		7.396 SF

Total = 62.902 SF

note: add an additional 5%

Rounded Total = 66 SF

End Abutment	Concrete Pier
66	66.0

Span 19 - Floorbeam 23 - At Bearing

Beam Section: Built-Up Riveted

section depth	=	48.500 in
web depth	=	48.000 in
web thickness	=	0.375 in
flange width	=	16.375 in
flange thickness	=	0.625 in
flange angle area	=	9.690 in^2
cross section	=	56.948 in^2
bearing sole plt. length	=	8.000 in
length	=	4.000 ft
		47.944 SF
bearing stiff width	=	7.000 in
bearing stiff height	=	47.250 in
		9.188 SF
int stiff width	=	6.000 in
int stiff height	=	47.250
		7.875 SF

Total = 65.007 SF

note: add an additional 5%

Rounded Total = 68 SF

End Abutment	Concrete Pier
68	0.0

Span 19 - Floorbeam 23 - At Thru-Girder

Beam Section: Built-Up Riveted

section depth	=	48.500 in
web depth	=	48.000 in
web thickness	=	0.375 in
flange width	=	16.375 in
flange thickness	=	0.625 in
flange angle area	=	9.690 in^2
cross section	=	56.948 in^2
bearing sole plt. length	=	0.000 in
length	=	4.000 ft
		48.854 SF
bearing stiff width	=	0.000 in
bearing stiff height	=	47.250 in
		0.000 SF
int stiff width	=	6.000 in
int stiff height	=	47.250
		7.875 SF

Total = 56.729 SF

note: add an additional 5%

Rounded Total = 60 SF

End Abutment	Concrete Pier
0	60.0

Span 19 - Floorbeam 24 -

Beam Section: W36x230

depth	=	35.880 in
web thickness	=	0.765 in
flange width	=	16.500 in
flange thickness	=	1.260 in
cross section	=	67.730 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		39.693 SF
bearing stiff width	=	8.000 in
bearing stiff height	=	33.360 in
		7.413 SF

Total = 47.106 SF

note: add an additional 5%

Rounded Total = 49 SF

End Abutment	Concrete Pier
49	0.0

Span 19 - Floorbeam 25 -

Beam Section: W36x194

depth	=	36.500 in
web thickness	=	0.765 in
flange width	=	12.100 in
flange thickness	=	1.260 in
cross section	=	57.000 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.815 SF
bearing stiff width	=	6.000 in
bearing stiff height	=	33.980 in
		5.663 SF
Total	=	41.478 SF
note: add an additional 5%		
Rounded Total	=	44 SF

Span 19 - Floorbeam 26 -

Beam Section: W36x170		
depth	=	36.200 in
web thickness	=	0.680 in
flange width	=	12.000 in
flange thickness	=	1.100 in
cross section	=	50.000 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.527 SF
bearing stiff width	=	5.500 in
bearing stiff height	=	34.000 in
		5.194 SF
Total	=	40.722 SF
note: add an additional 5%		
Rounded Total	=	43 SF

Span 19 - Floorbeam 27 -

Beam Section: W36x170		
depth	=	36.200 in
web thickness	=	0.680 in
flange width	=	12.000 in
flange thickness	=	1.100 in
cross section	=	50.000 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.527 SF
bearing stiff width	=	5.500 in
bearing stiff height	=	34.000 in
		5.194 SF
Total	=	40.722 SF
note: add an additional 5%		
Rounded Total	=	43 SF

Span 19 - Floorbeam 28 -

Beam Section: W36x150		
depth	=	35.900 in
web thickness	=	0.625 in
flange width	=	12.000 in
flange thickness	=	0.940 in
cross section	=	44.300 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.324 SF
bearing stiff width	=	5.500 in
bearing stiff height	=	34.020 in
		5.198 SF
Total	=	40.522 SF
note: add an additional 5%		
Rounded Total	=	43 SF

Span 19 - Floorbeam 29 -

Beam Section: W36x150		
depth	=	35.900 in
web thickness	=	0.625 in
flange width	=	12.000 in
flange thickness	=	0.940 in
cross section	=	44.300 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.324 SF
bearing stiff width	=	5.500 in
bearing stiff height	=	34.020 in
		5.198 SF
Total	=	40.522 SF
note: add an additional 5%		
Rounded Total	=	43 SF

Span 19 - Floorbeam 30 -

Beam Section: W36x194		
depth	=	36.500 in
web thickness	=	0.765 in
flange width	=	12.100 in
flange thickness	=	1.260 in

End Abutment	Concrete Pier	
44		0.0

End Abutment	Concrete Pier	
43		0.0

End Abutment	Concrete Pier	
43		0.0

End Abutment	Concrete Pier	
43		0.0

End Abutment	Concrete Pier	
43		0.0

cross section	=	57.000 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.815 SF
bearing stiff width	=	5.500 in
bearing stiff height	=	33.980 in
		5.191 SF
Total	=	41.006 SF
note: add an additional 5%		
Rounded Total	=	43 SF

End Abutment	Concrete Pier
43	0.0

Span 19 - Floorbeam 31 -

Beam Section: W36x170		
depth	=	36.200 in
web thickness	=	0.680 in
flange width	=	12.000 in
flange thickness	=	1.100 in
cross section	=	50.000 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.527 SF
bearing stiff width	=	5.500 in
bearing stiff height	=	34.000 in
		5.194 SF
Total	=	40.722 SF
note: add an additional 5%		
Rounded Total	=	43 SF

End Abutment	Concrete Pier
43	0.0

Span 19 - Floorbeam 32 -

Beam Section: W36x150		
depth	=	35.900 in
web thickness	=	0.625 in
flange width	=	12.000 in
flange thickness	=	0.940 in
cross section	=	44.300 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.324 SF
bearing stiff width	=	5.500 in
bearing stiff height	=	34.020 in
		5.198 SF
Total	=	40.522 SF
note: add an additional 5%		
Rounded Total	=	43 SF

End Abutment	Concrete Pier
43	0.0

Span 19 - Floorbeam 33 -

Beam Section: W36x170		
depth	=	36.200 in
web thickness	=	0.680 in
flange width	=	12.000 in
flange thickness	=	1.100 in
cross section	=	50.000 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.527 SF
bearing stiff width	=	5.500 in
bearing stiff height	=	34.000 in
		5.194 SF
Total	=	40.722 SF
note: add an additional 5%		
Rounded Total	=	43 SF

End Abutment	Concrete Pier
43	0.0

Span 19 - Floorbeam 34 -

Beam Section: W36x150		
depth	=	35.900 in
web thickness	=	0.625 in
flange width	=	12.000 in
flange thickness	=	0.940 in
cross section	=	44.300 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.324 SF
bearing stiff width	=	5.500 in
bearing stiff height	=	34.020 in
		5.198 SF
Total	=	40.522 SF
note: add an additional 5%		
Rounded Total	=	43 SF

End Abutment	Concrete Pier
43	0.0

Span 19 - Floorbeam 35 -

Beam Section: W33x141		
depth	=	33.300 in
web thickness	=	0.605 in
flange width	=	11.500 in
flange thickness	=	0.960 in
cross section	=	41.500 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		33.106 SF

bearing stiff width	=	5.000 in
bearing stiff height	=	31.380 in
		4.358 SF
Total	=	37.464 SF
note: add an additional 5%		
Rounded Total	=	39 SF

End Abutment	Concrete Pier	
39		0.0

Span 19 - Floorbeam 36 -

Beam Section: W30x124		
depth	=	30.200 in
web thickness	=	0.585 in
flange width	=	10.500 in
flange thickness	=	0.930 in
cross section	=	36.500 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		30.059 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	28.340 in
		3.936 SF
Total	=	33.995 SF
note: add an additional 5%		
Rounded Total	=	36.0 SF

End Abutment	Concrete Pier	
36		0.0

Span 19 - Floorbeam 37 -

Beam Section: W30x116		
depth	=	30.000 in
web thickness	=	0.565 in
flange width	=	10.500 in
flange thickness	=	0.850 in
cross section	=	34.200 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		29.923 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	28.300 in
		3.931 SF
Total	=	33.854 SF
note: add an additional 5%		
Rounded Total	=	36.0 SF

End Abutment	Concrete Pier	
36		0.0

Span 19 - Floorbeam 38 -

Beam Section: W30x108		
depth	=	29.800 in
web thickness	=	0.545 in
flange width	=	10.500 in
flange thickness	=	0.760 in
cross section	=	31.700 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		29.786 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	28.280 in
		3.928 SF
Total	=	33.714 SF
note: add an additional 5%		
Rounded Total	=	35.0 SF

End Abutment	Concrete Pier	
35		0.0

Span 19 - Floorbeam 39 -

Beam Section: W30x108		
depth	=	29.800 in
web thickness	=	0.545 in
flange width	=	10.500 in
flange thickness	=	0.760 in
cross section	=	31.700 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		29.786 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	28.280 in
		3.928 SF
Total	=	33.714 SF
note: add an additional 5%		
Rounded Total	=	35.0 SF

End Abutment	Concrete Pier	
35		0.0

Span 19 - Floorbeam 40 -

Beam Section: W30x108		
depth	=	29.800 in
web thickness	=	0.545 in
flange width	=	10.500 in
flange thickness	=	0.760 in
cross section	=	31.700 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		29.786 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	28.280 in
		3.928 SF
Total	=	33.714 SF

note: add an additional 5%

Rounded Total = 35.0 SF

Span 19 - Floorbeam 41 -

Beam Section: W30x108

depth	=	29.800 in
web thickness	=	0.545 in
flange width	=	10.500 in
flange thickness	=	0.760 in
cross section	=	31.700 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		29.786 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	28.280 in
		3.928 SF
Total	=	33.714 SF

note: add an additional 5%

Rounded Total = 35.0 SF

Span 19 - Floorbeam 42 -

Beam Section: W30x108

depth	=	29.800 in
web thickness	=	0.545 in
flange width	=	10.500 in
flange thickness	=	0.760 in
cross section	=	31.700 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		29.786 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	28.280 in
		3.928 SF
Total	=	33.714 SF

note: add an additional 5%

Rounded Total = 35.0 SF

Span 19 - Floorbeam 43 -

Beam Section: W30x108

depth	=	29.800 in
web thickness	=	0.545 in
flange width	=	10.500 in
flange thickness	=	0.760 in
cross section	=	31.700 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		29.786 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	28.280 in
		3.928 SF
Total	=	33.714 SF

note: add an additional 5%

Rounded Total = 35.0 SF

Span 19 - Floorbeam 44 -

Beam Section: W30x108

depth	=	29.800 in
web thickness	=	0.545 in
flange width	=	10.500 in
flange thickness	=	0.760 in
cross section	=	31.700 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		29.786 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	28.280 in
		3.928 SF
Total	=	33.714 SF

note: add an additional 5%

Rounded Total = 35.0 SF

Span 19 - Thru Girder 1 - At Expansion Bearing

Beam Section: Built-Up Riveted

section depth	=	139.250 in
web depth	=	138.000 in
web thickness	=	0.625 in
top flange width	=	18.000 in
top flange thickness	=	1.625 in
bot flange width	=	16.625 in
bot flange thickness	=	0.875 in
bearing sole plt. length	=	14.500 in
length	=	4.000 ft
		115.326 SF
bearing stiff width	=	7.000 in
bearing stiff height	=	136.000 in
		26.444 SF
int stiff width	=	6.000 in
int stiff height	=	136.000 in
		22.667 SF

note: thru girder will only be painted in areas not requiring a lane closure / wztc

- outside face of web
- inside face of web under the deck (assume 4 ft)
- all of bottom flange
- outside bottom of top flange
- all of top of top flange
- all of back face of girder

End Abutment	Concrete Pier	
	35	0.0

End Abutment	Concrete Pier	
	35	0.0

End Abutment	Concrete Pier	
	35	0.0

End Abutment	Concrete Pier	
	35	0.0

End Abutment	Concrete Pier	
	35	0.0

long stiff width	=	5,000 in
		3,333 SF
seat plate width	=	4,000 in
		4,667 SF
Total	=	172.437 SF
note: add an additional 5%		
Rounded Total	=	181 SF

End Abutment	Concrete Pier
181	0.0

Span 19 - Thru Girder 1 - At Fixed Bearing

Beam Section: Built-Up Riveted

section depth	=	139.250 in
web depth	=	138.000 in
web thickness	=	0.625 in
top flange width	=	18.000 in
top flange thickness	=	1.625 in
bot flange width	=	16.625 in
bot flange thickness	=	0.875 in
bearing sole plt. length	=	14.000 in
length	=	4,000 ft
		115.384 SF
bearing stiff width	=	7,000 in
bearing stiff height	=	136.000 in
		26.444 SF
int stiff width	=	6,000 in
int stiff height	=	136.000 in
		22.667 SF
long stiff width	=	5,000 in
		3,333 SF
seat plate width	=	4,000 in
		4,667 SF
Total	=	172.495 SF
note: add an additional 5%		
Rounded Total	=	181 SF

note: thru girder will only be painted in areas not requiring a lane closure / wztc

- outside face of web
- inside face of web under the deck (assume 4 ft)
- all of bottom flange
- outside bottom of top flange
- all of top of top flange
- all of back face of girder

End Abutment	Concrete Pier
0	181.0

Span 19 - Thru Girder 2 - At Expansion Bearing

Beam Section: Built-Up Riveted

section depth	=	145.500 in
web depth	=	144.000 in
web thickness	=	0.625 in
top flange width	=	20.000 in
top flange thickness	=	1.875 in
bot flange width	=	16.625 in
bot flange thickness	=	1.125 in
bearing sole plt. length	=	14.500 in
length	=	4,000 ft
		124.013 SF
bearing stiff width	=	7,000 in
bearing stiff height	=	141.750 in
		27.563 SF
int stiff width	=	6,000 in
int stiff height	=	141.750 in
		23.625 SF
long stiff width	=	5,000 in
		3,333 SF
seat plate width	=	4,000 in
		4,667 SF
Total	=	183.201 SF
note: add an additional 5%		
Rounded Total	=	192 SF

note: thru girder will only be painted in areas not requiring a lane closure / wztc

- outside face of web
- inside face of web under the deck (assume 4 ft)
- all of bottom flange
- outside bottom of top flange
- all of top of top flange
- all of back face of girder

End Abutment	Concrete Pier
0	192.0

Span 19 - Thru Girder 2 - At Fixed Bearing

Beam Section: Built-Up Riveted

section depth	=	145.500 in
web depth	=	144.000 in
web thickness	=	0.625 in
top flange width	=	20.000 in
top flange thickness	=	1.875 in
bot flange width	=	16.625 in
bot flange thickness	=	1.125 in
bearing sole plt. length	=	14.500 in
length	=	4,000 ft
		124.013 SF
bearing stiff width	=	7,000 in
bearing stiff height	=	141.750 in
		27.563 SF
int stiff width	=	6,000 in
int stiff height	=	141.750 in
		23.625 SF
long stiff width	=	5,000 in
		3,333 SF
seat plate width	=	4,000 in
		4,667 SF
Total	=	183.201 SF
note: add an additional 5%		
Rounded Total	=	192 SF

note: thru girder will only be painted in areas not requiring a lane closure / wztc

- outside face of web
- inside face of web under the deck (assume 4 ft)
- all of bottom flange
- outside bottom of top flange
- all of top of top flange
- all of back face of girder

End Abutment	Concrete Pier
192	0.0

Span 19 - Floorbeam 23 New Bearing Stiffener

Beam Section: Built-Up Riveted

section depth	=	48.500 in
---------------	---	-----------

web depth	=	48.000 in
web thickness	=	0.375 in
flange width	=	16.375 in
flange thickness	=	0.625 in
flange leg length	=	8.000 in
New Bearing Stiffener Angle Size: L7x4x5/8		
long leg	=	7.000 in
short leg	=	4.000 in
thickness	=	0.625 in
angle cross section	=	6.500 in^2
bearing stiff height	=	47.250 in
note: there are 4 angles total		
New Bearing Stiffener Fill Plate:		
plate height	=	32.500 in
plate width	=	8.000 in
plate thickness	=	0.625 in
note: there are 2 fill plates		
FB23 Web		
width	=	8.000
height	=	47.250
		5.250 SF
FB23 Flanges		
flange leg length	=	8.000 in
		1.778 SF
Total	=	7.028 SF
note: add an additional 5%		
Rounded Total	=	7 SF



NEW ENGLAND VIADUCT - SPAN 19 - SUBSTRUCTURE REPAIRS

MP N.E. 5.09
D214945
WESTCHESTER COUNTY
TANE 24-19DATE: 08/26/2024
PREPARED BY: S. HANSEN
CHECKED BY: P. MULKERN
COMP DATE: 08/26/2024

ITEM 574.030001 (SF)					
STRUCTURAL STEEL PAINTING: LOCALIZED					
DESCRIPTION					SUM
End Abutment					2,084
Concrete Pier					1,696
FB23 New Bearing Stiffener					46
Total:					3,826

SAY:	3,826
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NOTES:

Painting of Span 19 Thru Girder and Floorbeam ends will be 4ft total in length at each bearing location
Assume that there is 4SF of painting at each bearing location

Span 19 - Floorbeam 1 -

Beam Section: W30x108

depth	=	29.800 in
web thickness	=	0.545 in
flange width	=	10.500 in
flange thickness	=	0.760 in
cross section	=	31.700 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		29.786 SF
bearing stiff width	=	5.500 in
bearing stiff height	=	28.280 in
		4.321 SF
bearing	=	4.000 SF
Total	=	38.107 SF

note: add an additional 5%

Rounded Total = 40.0 SF

End Abutment	Concrete Pier
0	40.0

Span 19 - Floorbeam 2 -

Beam Section: W30x108

depth	=	29.800 in
web thickness	=	0.545 in
flange width	=	10.500 in
flange thickness	=	0.760 in
cross section	=	31.700 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		29.786 SF
bearing stiff width	=	5.500 in
bearing stiff height	=	28.280 in
		4.321 SF
bearing	=	4.000 SF
Total	=	38.107 SF

note: add an additional 5%

Rounded Total = 40.0 SF

End Abutment	Concrete Pier
0	40.0

Span 19 - Floorbeam 3 -

Beam Section: W30x108

depth	=	29.800 in
web thickness	=	0.545 in
flange width	=	10.500 in
flange thickness	=	0.760 in
cross section	=	31.700 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		29.786 SF
bearing stiff width	=	5.500 in
bearing stiff height	=	28.280 in
		4.321 SF
bearing	=	4.000 SF
Total	=	38.107 SF

note: add an additional 5%

Rounded Total = 40.0 SF

End Abutment	Concrete Pier
0	40.0

Span 19 - Floorbeam 4 -

Beam Section: W30x116

depth	=	30.000 in
web thickness	=	0.565 in
flange width	=	10.500 in
flange thickness	=	0.850 in
cross section	=	34.200 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		29.923 SF
bearing stiff width	=	5.500 in

bearing stiff height	=	28.300 in
		4.324 SF
bearing	=	4.000 SF
Total	=	38.247 SF
note: add an additional 5%		
Rounded Total	=	40.0 SF

Span 19 - Floorbeam 5 -

Beam Section: W33x141		
depth	=	33.300 in
web thickness	=	0.605 in
flange width	=	11.500 in
flange thickness	=	0.960 in
cross section	=	41.500 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		33.106 SF
bearing stiff width	=	5.500 in
bearing stiff height	=	31.380 in
		4.794 SF
bearing	=	4.000 SF
Total	=	41.900 SF
note: add an additional 5%		
Rounded Total	=	44 SF

Span 19 - Floorbeam 6 -

Beam Section: W36x160		
depth	=	36.000 in
web thickness	=	0.650 in
flange width	=	12.000 in
flange thickness	=	1.020 in
cross section	=	47.000 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.393 SF
bearing stiff width	=	6.000 in
bearing stiff height	=	33.960 in
		5.660 SF
bearing	=	4.000 SF
Total	=	45.053 SF
note: add an additional 5%		
Rounded Total	=	47 SF

Span 19 - Floorbeam 7 -

Beam Section: W36x160		
depth	=	36.000 in
web thickness	=	0.650 in
flange width	=	12.000 in
flange thickness	=	1.020 in
cross section	=	47.000 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.393 SF
bearing stiff width	=	6.000 in
bearing stiff height	=	33.960 in
		5.660 SF
bearing	=	4.000 SF
Total	=	45.053 SF
note: add an additional 5%		
Rounded Total	=	47 SF

Span 19 - Floorbeam 8 -

Beam Section: W36x194		
depth	=	36.500 in
web thickness	=	0.765 in
flange width	=	12.100 in
flange thickness	=	1.260 in
cross section	=	57.000 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.815 SF
bearing stiff width	=	6.000 in
bearing stiff height	=	33.980 in
		5.663 SF
bearing	=	4.000 SF
Total	=	45.478 SF
note: add an additional 5%		
Rounded Total	=	48 SF

Span 19 - Floorbeam 9 -

Beam Section: W36x150		
depth	=	35.900 in
web thickness	=	0.625 in
flange width	=	12.000 in
flange thickness	=	0.940 in
cross section	=	44.300 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.324 SF

End Abutment	Concrete Pier
0	40.0

End Abutment	Concrete Pier
0	44.0

End Abutment	Concrete Pier
0	47.0

End Abutment	Concrete Pier
0	47.0

End Abutment	Concrete Pier
0	48.0

bearing stiff width	=	6.000 in
bearing stiff height	=	34.020 in
		5.670 SF
bearing	=	4.000 SF
Total	=	44.994 SF
note: add an additional 5%		
Rounded Total	=	47 SF

Span 19 - Floorbeam 10 -

Beam Section: W36x160		
depth	=	36.000 in
web thickness	=	0.650 in
flange width	=	12.000 in
flange thickness	=	1.020 in
cross section	=	47.000 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.393 SF
bearing stiff width	=	6.000 in
bearing stiff height	=	33.960 in
		5.660 SF
bearing	=	4.000 SF
Total	=	45.053 SF
note: add an additional 5%		
Rounded Total	=	47 SF

Span 19 - Floorbeam 11 -

Beam Section: W36x194		
depth	=	36.500 in
web thickness	=	0.765 in
flange width	=	12.100 in
flange thickness	=	1.260 in
cross section	=	57.000 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.815 SF
bearing stiff width	=	6.000 in
bearing stiff height	=	33.980 in
		5.663 SF
bearing	=	4.000 SF
Total	=	45.478 SF
note: add an additional 5%		
Rounded Total	=	48 SF

Span 19 - Floorbeam 12 -

Beam Section: W36x230		
depth	=	35.880 in
web thickness	=	0.765 in
flange width	=	16.500 in
flange thickness	=	1.260 in
cross section	=	67.730 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		39.693 SF
bearing stiff width	=	8.000 in
bearing stiff height	=	33.360 in
		7.413 SF
bearing	=	4.000 SF
Total	=	51.106 SF
note: add an additional 5%		
Rounded Total	=	54 SF

Span 19 - Floorbeam 13 - At Bearing

Beam Section: Built-Up Riveted		
section depth	=	48.500 in
web depth	=	48.000 in
web thickness	=	0.375 in
flange width	=	16.375 in
flange thickness	=	0.625 in
flange angle area	=	9.690 in^2
cross section	=	56.948 in^2
bearing sole plt. length	=	8.000 in
length	=	4.000 ft
		47.944 SF
bearing stiff width	=	6.000 in
bearing stiff height	=	47.250 in
		7.875 SF
int stiff width	=	6.000 in
int stiff height	=	47.250
		7.875 SF
bearing	=	4.000 SF
Total	=	67.694 SF
note: add an additional 5%		
Rounded Total	=	71 SF

Span 19 - Floorbeam 13 - At Thru-Girder

Beam Section: Built-Up Riveted		
section depth	=	48.500 in
web depth	=	48.000 in

End Abutment	Concrete Pier
0	47.0

End Abutment	Concrete Pier
0	47.0

End Abutment	Concrete Pier
0	48.0

End Abutment	Concrete Pier
0	54.0

End Abutment	Concrete Pier
0	71.0

web thickness	=	0.375 in
flange width	=	16.375 in
flange thickness	=	0.625 in
flange angle area	=	9.690 in^2
cross section	=	56.948 in^2
bearing sole plt. length	=	0.000 in
length	=	4.000 ft
		48.854 SF
bearing stiff width	=	0.000 in
bearing stiff height	=	47.250 in
		0.000 SF
int stiff width	=	6.000 in
int stiff height	=	47.250
		7.875 SF
bearing	=	4.000 SF
Total	=	60.729 SF
note: add an additional 5%		
Rounded Total	=	64 SF

End Abutment	Concrete Pier
64	0.0

Span 19 - Floorbeam 14 -

Beam Section: Built-Up Riveted		
section depth	=	54.500 in
web depth	=	54.000 in
web thickness	=	0.375 in
flange width	=	16.375 in
flange thickness	=	0.625 in
flange angle area	=	9.690 in^2
cross section	=	59.198 in^2
bearing sole plt. length	=	8.000 in
length	=	4.000 ft
		51.960 SF
bearing stiff width	=	6.000 in
bearing stiff height	=	53.250 in
		8.875 SF
int stiff width	=	6.000 in
int stiff height	=	53.250
		8.875 SF
bearing	=	4.000 SF
Total	=	73.710 SF
note: add an additional 5%		
Rounded Total	=	77 SF

End Abutment	Concrete Pier
77	77.0

Span 19 - Floorbeam 15 -

Beam Section: Built-Up Riveted		
section depth	=	54.500 in
web depth	=	54.000 in
web thickness	=	0.375 in
flange width	=	12.375 in
flange thickness	=	0.875 in
flange angle area	=	9.750 in^2
cross section	=	59.438 in^2
bearing sole plt. length	=	8.000 in
length	=	4.000 ft
		48.184 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	52.750 in
		7.326 SF
int stiff width	=	5.000 in
int stiff height	=	52.750
		7.326 SF
bearing	=	4.000 SF
Total	=	66.836 SF
note: add an additional 5%		
Rounded Total	=	70 SF

End Abutment	Concrete Pier
70	70.0

Span 19 - Floorbeam 16 -

Beam Section: Built-Up Riveted		
section depth	=	54.500 in
web depth	=	54.000 in
web thickness	=	0.375 in
flange width	=	12.375 in
flange thickness	=	0.875 in
flange angle area	=	9.750 in^2
cross section	=	59.438 in^2
bearing sole plt. length	=	8.000 in
length	=	4.000 ft
		48.184 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	52.750 in
		7.326 SF
int stiff width	=	5.000 in
int stiff height	=	52.750
		7.326 SF
bearing	=	4.000 SF
Total	=	66.836 SF
note: add an additional 5%		
Rounded Total	=	70 SF

End Abutment	Concrete Pier
70	70.0

Span 19 - Floorbeam 17 -

Beam Section: Built-Up Riveted		
section depth	=	54.500 in
web depth	=	54.000 in
web thickness	=	0.375 in
flange width	=	12.375 in
flange thickness	=	0.875 in
flange angle area	=	9.750 in^2
cross section	=	59.438 in^2
bearing sole plt. length	=	8.000 in
length	=	4.000 ft
		48.184 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	52.750 in
		7.326 SF
int stiff width	=	5.000 in
int stiff height	=	52.750
		7.326 SF
bearing	=	4.000 SF
Total	=	66.836 SF
note: add an additional 5%		
Rounded Total	=	70 SF

End Abutment	Concrete Pier
70	70.0

Span 19 - Floorbeam 18 -

Beam Section: Built-Up Riveted		
section depth	=	54.500 in
web depth	=	54.000 in
web thickness	=	0.375 in
flange width	=	12.375 in
flange thickness	=	0.875 in
flange angle area	=	9.750 in^2
cross section	=	59.438 in^2
bearing sole plt. length	=	8.000 in
length	=	4.000 ft
		48.184 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	52.750 in
		7.326 SF
int stiff width	=	5.000 in
int stiff height	=	52.750
		7.326 SF
bearing	=	4.000 SF
Total	=	66.836 SF
note: add an additional 5%		
Rounded Total	=	70 SF

End Abutment	Concrete Pier
70	70.0

Span 19 - Floorbeam 19 -

Beam Section: Built-Up Riveted		
section depth	=	54.500 in
web depth	=	54.000 in
web thickness	=	0.375 in
flange width	=	12.375 in
flange thickness	=	0.875 in
flange angle area	=	9.750 in^2
cross section	=	59.438 in^2
bearing sole plt. length	=	8.000 in
length	=	4.000 ft
		48.184 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	52.750 in
		7.326 SF
int stiff width	=	5.000 in
int stiff height	=	52.750
		7.326 SF
bearing	=	4.000 SF
Total	=	66.836 SF
note: add an additional 5%		
Rounded Total	=	70 SF

End Abutment	Concrete Pier
70	70.0

Span 19 - Floorbeam 20 -

Beam Section: Built-Up Riveted		
section depth	=	54.500 in
web depth	=	54.000 in
web thickness	=	0.375 in
flange width	=	12.375 in
flange thickness	=	0.875 in
flange angle area	=	9.750 in^2
cross section	=	59.438 in^2
bearing sole plt. length	=	8.000 in
length	=	4.000 ft
		48.184 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	52.750 in
		7.326 SF
int stiff width	=	5.000 in
int stiff height	=	52.750
		7.326 SF
bearing	=	4.000 SF
Total	=	66.836 SF
note: add an additional 5%		

End Abutment	Concrete Pier
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Rounded Total	=	70 SF
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	70	70.0
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Span 19 - Floorbeam 21 -

Beam Section: Built-Up Riveted

section depth	=	54.500 in
web depth	=	54.000 in
web thickness	=	0.375 in
flange width	=	12.375 in
flange thickness	=	0.750 in
flange angle area	=	8.460 in^2
cross section	=	54.278 in^2
bearing sole plt. length	=	8.000 in
length	=	4.000 ft
		48.148 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	53.000 in
		7.361 SF
int stiff width	=	5.000 in
int stiff height	=	53.000 in
		7.361 SF
bearing	=	4.000 SF

Total	=	66.870 SF
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note: add an additional 5%

Rounded Total	=	70 SF
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End Abutment	Concrete Pier
70	70.0

Span 19 - Floorbeam 22 -

Beam Section: Built-Up Riveted

section depth	=	54.500 in
web depth	=	54.000 in
web thickness	=	0.375 in
flange width	=	12.375 in
flange thickness	=	0.625 in
flange angle area	=	7.130 in^2
cross section	=	48.958 in^2
bearing sole plt. length	=	8.000 in
length	=	4.000 ft
		48.111 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	53.250 in
		7.396 SF
int stiff width	=	5.000 in
int stiff height	=	53.250 in
		7.396 SF
bearing	=	4.000 SF

Total	=	66.902 SF
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note: add an additional 5%

Rounded Total	=	70 SF
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End Abutment	Concrete Pier
70	70.0

Span 19 - Floorbeam 23 - At Bearing

Beam Section: Built-Up Riveted

section depth	=	48.500 in
web depth	=	48.000 in
web thickness	=	0.375 in
flange width	=	16.375 in
flange thickness	=	0.625 in
flange angle area	=	9.690 in^2
cross section	=	56.948 in^2
bearing sole plt. length	=	8.000 in
length	=	4.000 ft
		47.944 SF
bearing stiff width	=	7.000 in
bearing stiff height	=	47.250 in
		9.188 SF
int stiff width	=	6.000 in
int stiff height	=	47.250 in
		7.875 SF
bearing	=	4.000 SF

Total	=	69.007 SF
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note: add an additional 5%

Rounded Total	=	72 SF
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End Abutment	Concrete Pier
72	0.0

Span 19 - Floorbeam 23 - At Thru-Girder

Beam Section: Built-Up Riveted

section depth	=	48.500 in
web depth	=	48.000 in
web thickness	=	0.375 in
flange width	=	16.375 in
flange thickness	=	0.625 in
flange angle area	=	9.690 in^2
cross section	=	56.948 in^2
bearing sole plt. length	=	0.000 in
length	=	4.000 ft
		48.854 SF
bearing stiff width	=	0.000 in
bearing stiff height	=	47.250 in
		0.000 SF
int stiff width	=	6.000 in
int stiff height	=	47.250 in
		7.875 SF

bearing	=	4,000 SF
Total	=	60.729 SF
note: add an additional 5%		
Rounded Total	=	64 SF

End Abutment	Concrete Pier
0	64.0

Span 19 - Floorbeam 24 -

Beam Section: W36x230		
depth	=	35.880 in
web thickness	=	0.765 in
flange width	=	16.500 in
flange thickness	=	1.260 in
cross section	=	67.730 in ²
bearing sole plt. length	=	6.000 in
length	=	4,000 ft
		39.693 SF
bearing stiff width	=	8.000 in
bearing stiff height	=	33.360 in
		7.413 SF
bearing	=	4,000 SF
Total	=	51.106 SF
note: add an additional 5%		
Rounded Total	=	54 SF

End Abutment	Concrete Pier
54	0.0

Span 19 - Floorbeam 25 -

Beam Section: W36x194		
depth	=	36.500 in
web thickness	=	0.765 in
flange width	=	12.100 in
flange thickness	=	1.260 in
cross section	=	57.000 in ²
bearing sole plt. length	=	6.000 in
length	=	4,000 ft
		35.815 SF
bearing stiff width	=	6.000 in
bearing stiff height	=	33.980 in
		5.663 SF
bearing	=	4,000 SF
Total	=	45.478 SF
note: add an additional 5%		
Rounded Total	=	48 SF

End Abutment	Concrete Pier
48	0.0

Span 19 - Floorbeam 26 -

Beam Section: W36x170		
depth	=	36.200 in
web thickness	=	0.680 in
flange width	=	12.000 in
flange thickness	=	1.100 in
cross section	=	50.000 in ²
bearing sole plt. length	=	6.000 in
length	=	4,000 ft
		35.527 SF
bearing stiff width	=	5.500 in
bearing stiff height	=	34.000 in
		5.194 SF
bearing	=	4,000 SF
Total	=	44.722 SF
note: add an additional 5%		
Rounded Total	=	47 SF

End Abutment	Concrete Pier
47	0.0

Span 19 - Floorbeam 27 -

Beam Section: W36x170		
depth	=	36.200 in
web thickness	=	0.680 in
flange width	=	12.000 in
flange thickness	=	1.100 in
cross section	=	50.000 in ²
bearing sole plt. length	=	6.000 in
length	=	4,000 ft
		35.527 SF
bearing stiff width	=	5.500 in
bearing stiff height	=	34.000 in
		5.194 SF
bearing	=	4,000 SF
Total	=	44.722 SF
note: add an additional 5%		
Rounded Total	=	47 SF

End Abutment	Concrete Pier
47	0.0

Span 19 - Floorbeam 28 -

Beam Section: W36x150		
depth	=	35.900 in
web thickness	=	0.625 in
flange width	=	12.000 in
flange thickness	=	0.940 in
cross section	=	44.300 in ²
bearing sole plt. length	=	6.000 in
length	=	4,000 ft
		35.324 SF
bearing stiff width	=	5.500 in
bearing stiff height	=	34.020 in

bearing	=	5.198 SF
Total	=	44.522 SF
note: add an additional 5%		
Rounded Total	=	47 SF

Span 19 - Floorbeam 29 -

Beam Section: W36x150		
depth	=	35.900 in
web thickness	=	0.625 in
flange width	=	12.000 in
flange thickness	=	0.940 in
cross section	=	44.300 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.324 SF
bearing stiff width	=	5.500 in
bearing stiff height	=	34.020 in
		5.198 SF
bearing	=	4.000 SF
Total	=	44.522 SF
note: add an additional 5%		
Rounded Total	=	47 SF

Span 19 - Floorbeam 30 -

Beam Section: W36x194		
depth	=	36.500 in
web thickness	=	0.765 in
flange width	=	12.100 in
flange thickness	=	1.260 in
cross section	=	57.000 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.815 SF
bearing stiff width	=	5.500 in
bearing stiff height	=	33.980 in
		5.191 SF
bearing	=	4.000 SF
Total	=	45.006 SF
note: add an additional 5%		
Rounded Total	=	47 SF

Span 19 - Floorbeam 31 -

Beam Section: W36x170		
depth	=	36.200 in
web thickness	=	0.680 in
flange width	=	12.000 in
flange thickness	=	1.100 in
cross section	=	50.000 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.527 SF
bearing stiff width	=	5.500 in
bearing stiff height	=	34.000 in
		5.194 SF
bearing	=	4.000 SF
Total	=	44.722 SF
note: add an additional 5%		
Rounded Total	=	47 SF

Span 19 - Floorbeam 32 -

Beam Section: W36x150		
depth	=	35.900 in
web thickness	=	0.625 in
flange width	=	12.000 in
flange thickness	=	0.940 in
cross section	=	44.300 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.324 SF
bearing stiff width	=	5.500 in
bearing stiff height	=	34.020 in
		5.198 SF
bearing	=	4.000 SF
Total	=	44.522 SF
note: add an additional 5%		
Rounded Total	=	47 SF

Span 19 - Floorbeam 33 -

Beam Section: W36x170		
depth	=	36.200 in
web thickness	=	0.680 in
flange width	=	12.000 in
flange thickness	=	1.100 in
cross section	=	50.000 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.527 SF
bearing stiff width	=	5.500 in

End Abutment	Concrete Pier
47	0.0

End Abutment	Concrete Pier
47	0.0

End Abutment	Concrete Pier
47	0.0

End Abutment	Concrete Pier
47	0.0

End Abutment	Concrete Pier
47	0.0

bearing stiff height	=	34.000 in
		5.194 SF
bearing	=	4.000 SF
Total	=	44.722 SF
note: add an additional 5%		
Rounded Total	=	47 SF

End Abutment	Concrete Pier	
47		0.0

Span 19 - Floorbeam 34 -

Beam Section: W36x150		
depth	=	35.900 in
web thickness	=	0.625 in
flange width	=	12.000 in
flange thickness	=	0.940 in
cross section	=	44.300 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		35.324 SF
bearing stiff width	=	5.500 in
bearing stiff height	=	34.020 in
		5.198 SF
bearing	=	4.000 SF
Total	=	44.522 SF
note: add an additional 5%		
Rounded Total	=	47 SF

End Abutment	Concrete Pier	
47		0.0

Span 19 - Floorbeam 35 -

Beam Section: W33x141		
depth	=	33.300 in
web thickness	=	0.605 in
flange width	=	11.500 in
flange thickness	=	0.960 in
cross section	=	41.500 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		33.106 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	31.380 in
		4.358 SF
bearing	=	4.000 SF
Total	=	41.464 SF
note: add an additional 5%		
Rounded Total	=	44 SF

End Abutment	Concrete Pier	
44		0.0

Span 19 - Floorbeam 36 -

Beam Section: W30x124		
depth	=	30.200 in
web thickness	=	0.585 in
flange width	=	10.500 in
flange thickness	=	0.930 in
cross section	=	36.500 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		30.059 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	28.340 in
		3.936 SF
bearing	=	4.000 SF
Total	=	37.995 SF
note: add an additional 5%		
Rounded Total	=	40.0 SF

End Abutment	Concrete Pier	
40		0.0

Span 19 - Floorbeam 37 -

Beam Section: W30x116		
depth	=	30.000 in
web thickness	=	0.565 in
flange width	=	10.500 in
flange thickness	=	0.850 in
cross section	=	34.200 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		29.923 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	28.300 in
		3.931 SF
bearing	=	4.000 SF
Total	=	37.854 SF
note: add an additional 5%		
Rounded Total	=	40.0 SF

End Abutment	Concrete Pier	
40		0.0

Span 19 - Floorbeam 38 -

Beam Section: W30x108		
depth	=	29.800 in
web thickness	=	0.545 in
flange width	=	10.500 in
flange thickness	=	0.760 in
cross section	=	31.700 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		29.786 SF

bearing stiff width	=	5.000 in
bearing stiff height	=	28.280 in
		3.928 SF
bearing	=	4.000 SF
Total	=	37.714 SF
note: add an additional 5%		
Rounded Total	=	40.0 SF

End Abutment	Concrete Pier
40	0.0

Span 19 - Floorbeam 39 -

Beam Section: W30x108		
depth	=	29.800 in
web thickness	=	0.545 in
flange width	=	10.500 in
flange thickness	=	0.760 in
cross section	=	31.700 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		29.786 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	28.280 in
		3.928 SF
bearing	=	4.000 SF
Total	=	37.714 SF
note: add an additional 5%		
Rounded Total	=	40.0 SF

End Abutment	Concrete Pier
40	0.0

Span 19 - Floorbeam 40 -

Beam Section: W30x108		
depth	=	29.800 in
web thickness	=	0.545 in
flange width	=	10.500 in
flange thickness	=	0.760 in
cross section	=	31.700 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		29.786 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	28.280 in
		3.928 SF
bearing	=	4.000 SF
Total	=	37.714 SF
note: add an additional 5%		
Rounded Total	=	40.0 SF

End Abutment	Concrete Pier
40	0.0

Span 19 - Floorbeam 41 -

Beam Section: W30x108		
depth	=	29.800 in
web thickness	=	0.545 in
flange width	=	10.500 in
flange thickness	=	0.760 in
cross section	=	31.700 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		29.786 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	28.280 in
		3.928 SF
bearing	=	4.000 SF
Total	=	37.714 SF
note: add an additional 5%		
Rounded Total	=	40.0 SF

End Abutment	Concrete Pier
40	0.0

Span 19 - Floorbeam 42 -

Beam Section: W30x108		
depth	=	29.800 in
web thickness	=	0.545 in
flange width	=	10.500 in
flange thickness	=	0.760 in
cross section	=	31.700 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		29.786 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	28.280 in
		3.928 SF
bearing	=	4.000 SF
Total	=	37.714 SF
note: add an additional 5%		
Rounded Total	=	40.0 SF

End Abutment	Concrete Pier
40	0.0

Span 19 - Floorbeam 43 -

Beam Section: W30x108		
depth	=	29.800 in
web thickness	=	0.545 in
flange width	=	10.500 in
flange thickness	=	0.760 in
cross section	=	31.700 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft

		29.786 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	28.280 in
		3.928 SF
bearing	=	4.000 SF
Total	=	37.714 SF
note: add an additional 5%		
Rounded Total	=	40.0 SF

End Abutment	Concrete Pier	
40	0.0	

Span 19 - Floorbeam 44 -

Beam Section: W30x108		
depth	=	29.800 in
web thickness	=	0.545 in
flange width	=	10.500 in
flange thickness	=	0.760 in
cross section	=	31.700 in^2
bearing sole plt. length	=	6.000 in
length	=	4.000 ft
		29.786 SF
bearing stiff width	=	5.000 in
bearing stiff height	=	28.280 in
		3.928 SF
bearing	=	4.000 SF
Total	=	37.714 SF
note: add an additional 5%		
Rounded Total	=	40.0 SF

End Abutment	Concrete Pier	
40	0.0	

Span 19 - Thru Girder 1 - At Expansion Bearing

Beam Section: Built-Up Riveted		
section depth	=	139.250 in
web depth	=	138.000 in
web thickness	=	0.625 in
top flange width	=	18.000 in
top flange thickness	=	1.625 in
bot flange width	=	16.625 in
bot flange thickness	=	0.875 in
bearing sole plt. length	=	14.500 in
length	=	4.000 ft
		115.326 SF
bearing stiff width	=	7.000 in
bearing stiff height	=	136.000 in
		26.444 SF
int stiff width	=	6.000 in
int stiff height	=	136.000
		22.667 SF
long stiff width	=	5.000 in
		3.333 SF
seat plate width	=	4.000 in
		4.667 SF
bearing	=	4.000 SF
Total	=	176.437 SF
note: add an additional 5%		
Rounded Total	=	185 SF

note: thru girder will only be painted in areas not requiring a lane closure / wztc

- outside face of web
- inside face of web under the deck (assume 4 ft)
- all of bottom flange
- outside bottom of top flange
- all of top of top flange
- all of back face of girder

End Abutment	Concrete Pier	
185	0.0	

Span 19 - Thru Girder 1 - At Fixed Bearing

Beam Section: Built-Up Riveted		
section depth	=	139.250 in
web depth	=	138.000 in
web thickness	=	0.625 in
top flange width	=	18.000 in
top flange thickness	=	1.625 in
bot flange width	=	16.625 in
bot flange thickness	=	0.875 in
bearing sole plt. length	=	14.000 in
length	=	4.000 ft
		115.384 SF
bearing stiff width	=	7.000 in
bearing stiff height	=	136.000 in
		26.444 SF
int stiff width	=	6.000 in
int stiff height	=	136.000
		22.667 SF
long stiff width	=	5.000 in
		3.333 SF
seat plate width	=	4.000 in
		4.667 SF
bearing	=	4.000 SF
Total	=	176.495 SF
note: add an additional 5%		
Rounded Total	=	185 SF

note: thru girder will only be painted in areas not requiring a lane closure / wztc

- outside face of web
- inside face of web under the deck (assume 4 ft)
- all of bottom flange
- outside bottom of top flange
- all of top of top flange
- all of back face of girder

End Abutment	Concrete Pier	
0	185.0	

Span 19 - Thru Girder 2 - At Expansion Bearing

Beam Section: Built-Up Riveted		
section depth	=	145.500 in
web depth	=	144.000 in
web thickness	=	0.625 in
top flange width	=	20.000 in
top flange thickness	=	1.875 in
bot flange width	=	16.625 in

note: thru girder will only be painted in areas not requiring a lane closure / wztc

- outside face of web
- inside face of web under the deck (assume 4 ft)
- all of bottom flange
- outside bottom of top flange
- all of top of top flange

bot flange thickness	=	1.125 in
bearing sole plt. length	=	14.500 in
length	=	4.000 ft
		124.013 SF
bearing stiff width	=	7.000 in
bearing stiff height	=	141.750 in
		27.563 SF
int stiff width	=	6.000 in
int stiff height	=	141.750 in
		23.625 SF
long stiff width	=	5.000 in
		3.333 SF
seat plate width	=	4.000 in
		4.667 SF
bearing	=	4.000 SF
Total	=	187.201 SF
note: add an additional 5%		
Rounded Total	=	197 SF

- all of back face of girder

End Abutment	Concrete Pier
0	197.0

Span 19 - Thru Girder 2 - At Fixed Bearing

Beam Section: Built-Up Riveted		
section depth	=	145.500 in
web depth	=	144.000 in
web thickness	=	0.625 in
top flange width	=	20.000 in
top flange thickness	=	1.875 in
bot flange width	=	16.625 in
bot flange thickness	=	1.125 in
bearing sole plt. length	=	14.500 in
length	=	4.000 ft
		124.013 SF
bearing stiff width	=	7.000 in
bearing stiff height	=	141.750 in
		27.563 SF
int stiff width	=	6.000 in
int stiff height	=	141.750 in
		23.625 SF
long stiff width	=	5.000 in
		3.333 SF
seat plate width	=	4.000 in
		4.667 SF
bearing	=	4.000 SF
Total	=	187.201 SF
note: add an additional 5%		
Rounded Total	=	197 SF

note: thru girder will only be painted in areas not requiring a lane closure / wztc

- outside face of web
- inside face of web under the deck (assume 4 ft)
- all of bottom flange
- outside bottom of top flange
- all of top of top flange
- all of back face of girder

End Abutment	Concrete Pier
197	0.0

Span 19 - Floorbeam 23 New Bearing Stiffener

Beam Section: Built-Up Riveted		
section depth	=	48.500 in
web depth	=	48.000 in
web thickness	=	0.375 in
flange width	=	16.375 in
flange thickness	=	0.625 in
flange leg length	=	8.000 in
New Bearing Stiffener Angle Size: L7x4x5/8		
long leg	=	7.000 in
short leg	=	4.000 in
thickness	=	0.625 in
angle cross section	=	6.500 in^2
bearing stiff height	=	47.250 in
note: there are 4 angles total		
		28.875 SF
New Bearing Stiffener Fill Plate:		
plate height	=	32.500 in
plate width	=	8.000 in
plate thickness	=	0.625 in
note: there are 2 fill plates		
total fill plate weight	=	7.925 SF
FB23 Web		
width	=	8.000 in
height	=	47.250 in
		5.250 SF
FB23 Flanges		
flange leg length	=	8.000 in
		1.778 SF
Total	=	43.828 SF
note: add an additional 5%		
Rounded Total	=	46 SF



NEW ENGLAND VIADUCT - SPAN 19 - SUBSTRUCTURE REPAIRS

MP N.E. 5.09

D214945

WESTCHESTER COUNTY

TANE 24-19

DATE:

08/26/2024

PREPARED BY:

S. HANSEN

CHECKED BY:

P. MULKERN

COMP DATE:

05/08/2024

ITEM 582.0051 (CY)

REMOVAL AND REPLACEMENT OF STRUCTURAL CONCRETE

DESCRIPTION					Volume (CY)
End Abutment					61.10
Concrete Pier					38.40
Total:					99.50

SAY: 100

NOTES:

Plan Sheet ST1-10

LOCATION	LENGTH (FT)	HEIGHT (FT)	ASSUMED DEPTH (FT)	AREA (SF)	VOLUME (CY)
1	9.0	0.5	0.5	4.5	0.1
2	4.0	4.0	0.5	16.0	0.3
3	3.0	2.5	0.5	7.5	0.2
4	6.0	7.0	0.5	42.0	0.8
5	12.0	7.0	0.5	84.0	1.6
6	5.0	8.0	0.5	40.0	0.8
7	5.0	8.0	0.5	40.0	0.8
8	2.0	2.0	0.5	4.0	0.1
9	2.0	2.0	0.5	4.0	0.1
10	7.0	13.5	0.5	94.5	1.8
11	7.0	13.0	0.5	91.0	1.7
12	2.0	8.0	0.5	16.0	0.3
13	3.0	9.0	0.5	27.0	0.5
14	1.5	3.5	0.5	5.5	0.1
15	4.0	26.0	0.5	104.0	2.0
16	26.0	15.0	0.5	390.0	7.3
17	3.0	15.0	0.5	45.0	0.9
SUBTOTAL					19.4

Plan Sheet ST1-11

LOCATION	LENGTH (FT)	HEIGHT (FT)	ASSUMED DEPTH (FT)	AREA (SF)	VOLUME (CY)
1	10.0	0.5	0.5	5.0	0.1
2	3.0	0.5	0.5	1.5	0.1
3	3.0	0.5	0.5	1.5	0.1
4	3.0	15.0	0.5	45.0	0.9
5	1.5	3.0	0.5	4.5	0.1
6	55.0	10.0	0.5	550.0	10.2
7	60.5	10.0	0.5	605.0	11.3
8	10.0	5.5	0.5	55.0	1.1
9	9.5	26.5	0.5	252.0	4.7
10	25.0	20.0	0.5	500.0	9.3
11	3.5	18.0	0.5	63.0	1.2
12	3.0	1.5	0.5	4.5	0.1
13	3.5	12.0	0.5	42.0	0.8
14	3.0	23.0	0.5	69.0	1.3
15	3.5	6.0	0.5	21.0	0.4
SUBTOTAL					41.7

Plan Sheet ST1-12

LOCATION	LENGTH (FT)	HEIGHT (FT)	ASSUMED DEPTH (FT)	AREA (SF)	VOLUME (CY)
1	1.0	3.0	0.5	3.0	0.1
2	2.0	2.0	0.5	4.0	0.1
3	1.5	3.0	0.5	4.5	0.1
4	2.5	5.0	0.5	12.5	0.3
5	1.5	1.5	0.5	2.5	0.1

6	3.0	3.0	0.5	9.0	0.2
7	3.0	3.0	0.5	9.0	0.2
8	1.5	3.0	0.5	4.5	0.1
9	2.0	8.0	0.5	16.0	0.3
10	2.0	2.0	0.5	4.0	0.1
11	2.0	2.0	0.5	4.0	0.1
12	2.0	2.0	0.5	4.0	0.1
13	4.0	4.0	0.5	16.0	0.3
14	1.0	1.5	0.5	1.5	0.1
15	1.5	3.0	0.5	4.5	0.1
16	6.0	3.0	0.5	18.0	0.4
17	3.0	2.0	0.5	6.0	0.2

SUBTOTAL	2.9
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Plan Sheet ST1-13

LOCATION	LENGTH (FT)	HEIGHT (FT)	ASSUMED DEPTH (FT)	AREA (SF)	VOLUME (CY)
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1	5.0	6.0	0.5	30.0	0.6
2	3.0	2.5	0.5	7.5	0.2
3	2.0	8.0	0.5	16.0	0.3
4	4.5	9.0	0.5	40.5	0.8
5	3.0	2.0	0.5	6.0	0.2
6	4.0	6.0	0.5	24.0	0.5
7	5.0	5.0	0.5	25.0	0.5
8	1.5	3.0	0.5	4.5	0.1
9	3.0	3.0	0.5	9.0	0.2
10	6.0	3.5	0.5	21.0	0.4
11	2.5	2.5	0.5	6.5	0.2
12	12.0	3.0	0.5	36.0	0.7
13	22.0	4.0	0.5	88.0	1.7
14	5.0	3.0	0.5	15.0	0.3
15	6.0	7.0	0.5	42.0	0.8
16	3.0	6.0	0.5	18.0	0.4
17	4.0	1.0	0.5	4.0	0.1
18	12.0	3.0	0.5	36.0	0.7
19	3.0	3.0	0.5	9.0	0.2
20	3.0	3.0	0.5	9.0	0.2
21	5.0	5.0	0.5	25.0	0.5
22	3.0	3.0	0.5	9.0	0.2
23	6.0	8.0	0.5	48.0	0.9
24	2.5	5.5	0.5	14.0	0.3
25	2.0	2.5	0.5	5.0	0.1
26	14.0	1.0	0.5	14.0	0.3

0.0

SUBTOTAL	11.4
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Plan Sheet ST1-14

LOCATION	LENGTH (FT)	HEIGHT (FT)	ASSUMED DEPTH (FT)	AREA (SF)	VOLUME (CY)
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1	4.0	2.0	0.5	8.0	0.2
2	8.0	4.0	0.5	32.0	0.6
3	2.5	2.5	0.5	6.5	0.2
4	3.5	8.0	0.5	28.0	0.6
5	25.0	5.0	0.5	125.0	2.4
6	6.0	6.0	0.5	36.0	0.7
7	4.0	3.0	0.5	12.0	0.3
8	3.5	5.5	0.5	19.5	0.4
9	6.0	7.0	0.5	42.0	0.8
10	4.5	5.0	0.5	22.5	0.5
11	5.0	1.5	0.5	7.5	0.2
12	2.5	4.0	0.5	10.0	0.2
13	1.5	2.5	0.5	4.0	0.1
14	3.5	2.5	0.5	9.0	0.2
15	4.5	2.5	0.5	11.5	0.3
16	3.5	2.0	0.5	7.0	0.2
17	3.5	1.5	0.5	5.5	0.1
18	2.0	2.0	0.5	4.0	0.1
19	10.0	5.0	0.5	50.0	1.0
20	2.0	1.0	0.5	2.0	0.1
21	1.5	4.0	0.5	6.0	0.2
22	6.0	3.5	0.5	21.0	0.4
23	3.5	3.0	0.5	10.5	0.2
24	1.0	3.0	0.5	3.0	0.1

25	1.5	3.5	0.5	5.5	0.1
26	4.0	1.0	0.5	4.0	0.1
27	8.0	1.0	0.5	8.0	0.2
28	12.0	3.0	0.5	36.0	0.7
29	3.0	0.5	0.5	1.5	0.1
30	6.0	3.0	0.5	18.0	0.4
31	4.0	1.0	0.5	4.0	0.1
32	2.0	3.5	0.5	7.0	0.2
33	10.0	2.5	0.5	25.0	0.5
34	11.0	3.0	0.5	33.0	0.7
35	2.5	2.5	0.5	6.5	0.2
36	1.0	14.5	0.5	14.5	0.3
37	3.0	4.0	0.5	12.0	0.3
38	1.5	1.5	0.5	2.5	0.1
39	6.0	2.5	0.5	15.0	0.3
40	16.0	4.0	0.5	64.0	1.2
41	6.0	1.5	0.5	9.0	0.2
42	24.0	5.0	0.5	120.0	2.3
43	7.0	1.5	0.5	10.5	0.2
44	2.0	4.0	0.5	8.0	0.2
45	2.5	3.5	0.5	9.0	0.2
46	1.0	1.0	0.5	1.0	0.1
47	1.0	9.5	0.5	9.5	0.2
48	2.5	5.5	0.5	14.0	0.3
49	1.5	6.5	0.5	10.0	0.2
50	2.5	5.5	0.5	14.0	0.3
51	2.5	12.0	0.5	30.0	0.6
52	3.0	3.0	0.5	9.0	0.2
53	2.0	23.5	0.5	47.0	0.9
54	4.0	19.0	0.5	76.0	1.5
55	1.5	8.0	0.5	12.0	0.3
56	1.5	1.5	0.5	2.5	0.1
57	2.0	8.0	0.5	16.0	0.3
58	2.0	2.0	0.5	4.0	0.1
59	2.0	2.0	0.5	4.0	0.1
60	2.0	2.0	0.5	4.0	0.1
61	2.0	2.0	0.5	4.0	0.1
0.0					
SUBTOTAL					24.1



NEW ENGLAND VIADUCT - SPAN 19 - SUBSTRUCTURE REPAIRS

MP N.E. 5.09
D214945
WESTCHESTER COUNTY
TANE 24-19

DATE: 08/26/2024
PREPARED BY: S. HANSEN
CHECKED BY: P. MULKERN
COMP DATE: 05/08/2024

ITEM 582.99 (QU)

PERFORMANCE CONCRETE QUALITY ADJUSTMENT - REMOVAL AND REPLACEMENT OF
STRUCTURAL CONCRETE

DESCRIPTION					SUM
					1.00
Total:					1.00

SAY:	1
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NOTES:



NEW ENGLAND VIADUCT - SPAN 19 - SUBSTRUCTURE REPAIRS

MP N.E. 5.09
D214945
WESTCHESTER COUNTY
TANE 24-19

DATE: 08/26/2024
PREPARED BY: S. HANSEN
CHECKED BY: P. MULKERN
COMP DATE: 05/08/2024

ITEM 585.01 (EACH)					
STRUCTURAL LIFTING OPERATIONS - TYPE A					
DESCRIPTION					TOTAL
End Abutment - FB 23					1
Total:					1.00

SAY:	1
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NOTES:

FB 23 will need to be lifted during the pedestal repair



NEW ENGLAND VIADUCT - SPAN 19 - SUBSTRUCTURE REPAIRS

MP N.E. 5.09
D214945
WESTCHESTER COUNTY
TANE 24-19

DATE: 08/26/2024
PREPARED BY: S. HANSEN
CHECKED BY: P. MULKERN
COMP DATE: 05/08/2024

ITEM 586.0201 (EACH)					
DRILLING AND GROUTING BOLTS OR REINFORCEMENT BARS					
DESCRIPTION					TOTAL
End Abutment - FB 23 Pedestal					8
Total:					8.00
SAY:					8

NOTES:

The vertical bars of the FB 23 pedestal will need to be drilled and grouted into the abutment



NEW ENGLAND VIADUCT - SPAN 19 - SUBSTRUCTURE REPAIRS

MP N.E. 5.09
D214945
WESTCHESTER COUNTY
TANE 24-19

DATE: 08/26/2024
PREPARED BY: S. HANSEN
CHECKED BY: P. MULKERN
COMP DATE: 05/08/2024

ITEM 586.10 (EACH)					
FIELD DRILL HOLES IN EXISTING STRUCTURAL STEEL					
DESCRIPTION					TOTAL
FB23 new bearing stiffener					30
Total:					30.00
SAY:					30

NOTES:

Holes need to be drilled in the web of the floorbeam during the installation of the new bearing stiffener used during lifting operations