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Engineers, Surveyors, Planners, Scientists

Subject HAM-75-0791
Bridge Quantities
Date 11/12/14 Job No. 20110903
Computed by RMW Checked by G.B.

1/20

Item 202E11003 Structure Removed, Over 20' Span, As Per Plan

Removal of Concrete Deck ($15/SF)

Area = 14169.83 ft² Cost = 14169.83 × $15/SF = 212,547.45

say $213,000

Removal of Structural Steel ($250/ton)

Total weight of existing steel = 329000 + 27200 + 22680 + 28820 + 388 + 461
= 408549 lbs → 204.27 tons
- 8.5 tons From intermediate beam replacement
= 195.77 tons
say 196 tons

Cost = 196 × $250/ton = $49000

say $50,000

Abutment and Piers ($200/CY)

Per original Plans
V = 160 + 355 + 310 = 825 CY (Original Plans)
V = 40 + 56 + 10 + 12 + 12 + 11 = 141 CY
Total Weight = 825 CY + 141 CY
= 966 CY 960

Cost = 966 CY × $200/CY = $193,200

Total removal cost = $213000 + $50000 + $193200
= $456200

say $457,000

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Subject HAM - 75 - 0791
Bridge Quantities
Date 6/10/21 Job No. 20110903
Computed by RMW Checked by G.B.

2/20

Item 526E30001 Reinforced Concrete Approach Slabs (T=17"), As per plan

Left Bridge:
CAD AREA: 2334.66 ft² + 2344.70 ft² = 4679.36 ft²
= 519.93 SY
Say 520 SY

Right Bridge
CAD AREA: 2274.10 ft² + 2293.85 ft² = 4567.95 ft²
= 507.55 SY
Say 508 SY

Bridge Pair Total: 1028 SY

Item 511E53014, Class QC3 Concrete Misc.: Concrete with QC/QA, Bridge Deck As Per Plan

Left Bridge:
CAD AREA Typical Section = 59.86 ft²
V = 59.86 Ft² x (132.38 + 129.37)/2 = 7834.18 ft³
= 290.15 CY
Say 291 CY

Right Bridge:
CAD AREA Typical Section = 60.1634 ft²
V = 60.1634 x (129.37 + 126.75)/2 = 7704.52 ft³
= 285.35 CY
Say 286 CY

Bridge Pair Deck Total = 577 CY

Abutment Diaphragms

Left Bridge:
3'(613.37 ft² FWD + 597.89 ft² REAR) = 3633.78 ft³
= 134.58 CY
Say 135 CY

Right Bridge:
3'(607.62 ft² FWD + 586.57 ft² REAR) = 3582.57 ft³
= 132.68 CY
Say 133 CY

Totals
Left = 291 + 135 + 9
= 426 CY
Right = 286 + 133
= 419 CY
Total = 845 CY

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Subject HAM - 75-0791
Bridge Quantities
Date 6/22/21 Job No. 2011907
Computed by RMW Checked by G.B.

3/20

Item 511E53014, Class QC3 Concrete, Misc: Concrete with QC/QA, Bridge Deck (Median Parapet), As Per Plan

Median Parapets:

Type 1: $(13.875"/12)(4.75') /2 + \left(\frac{10.125}{12} + \frac{21.625}{12}\right)/2 * 4.75'$
$= 9.03\ ft^2$

Type 2 = $6.16\ ft^2$ (As to Cad Area)

Left Bridge:

$V = 9.03\ ft^2 \times 26.6875' + 6.16\ ft^2 \times 102.6875 = 873.54\ Ft^3$
$= 32.35\ CY$
say 33 CY

Right Bridge:

$V = 6.16\ Ft^2 \times 102.594 + 9.03\ Ft^2 \times 26.771' = 873.72\ Ft^3$
$= 32.36\ CY$
say 33 CY

Item 511E53014, Class QC3 Concrete, Misc: Concrete with QC/QA, Bridge Deck (Exterior Parapet), As Per Plan

Exterior Parapets

Type 1: $A = 4.92\ ft^2$
Type 2: $A = 6.0423\ Ft^2$

Left Bridge

$V = [4.92\ Ft^2 \times 5.75' + 6.0423\ Ft^2 \times 1.604'] \times 18 = 683.70\ Ft^3$
$= 25.32\ CY$
say 26 CY

Right Bridge

$V = [4.92 \times 5.75' + 6.0423 \times 1.6875] \times 17' = 654.27\ Ft^3$
$= 24.23\ CY$
say 25 CY

Bridge Pair Total = 33 + 33 + 26 + 25 = 117 CY

Item 511E33501 Semi-Integral Diaphragm Guide, As Per Plan
#=2 (rear abutment) + 2 (forward abutment) = 4 EACH

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Subject HAM-75-0791 Bridge Quantities

Date 2/16/21, Job No. 2011-0903

Computed by RJE Checked by RMW

Item 511E53014, Class QC3 Concrete, Misc.: Concrete with QC/QA, Abutment Not Including Footing, As Per Plan

Left Bridge:

Rear Abutment:

Breastwall Elevational Area = 204.60 ft², V = 204.60 SF x 3' = 613.80 ft³

Northwest Wingwall Area = 99.04 ft², V = 99.04 ft² x 2.5' = 247 ft³

Rear Abutment Volume = 613.8 + 247 = 860.8 ft³

Forward Abutment:

Breastwall Elevational Area = 212.98 ft², V = 212.98 SF x 3' = 638.94 ft³

Northeast Wingwall: V = 207.74 ft² x 2.5' = 519.35 ft³

Forward Abutment Volume = 638.94 + 519.35 = 1158.29 ft³

Total Left Bridge Volume = 860.8 + 1158.29 = 2019.09 ft³ = 74.8, say 75 CY

Right Bridge:

Rear Abutment:

Breastwall: Elevational Area: 381.13 ft², V = 381.13 ft² x 3' = 1143.4 ft³

SW Wingwall, V = 193.87 ft² x 2.5' = 484.675 ft³

Rear Abutment Volume = 1143.4 + 484.68 = 1628.08 ft³

Forward Abutment:

Breastwall Elevational Area: 391.35 ft², V = 391.35 x 3' = 1174.06 ft³

SE Wingwall Area = 542.97 ft², V = 542.97 SF x 2.5' = 1357.43 ft³

Forward Abutment Volume = 1174.06 + 1357.43 = 2531.49 ft³

Total Right Bridge Volume = 1628.08 + 2531.49 = 4159.57 ft³ = 154.06

say 155 CY

Total Volume for both bridges = 75 CY + 155 CY = 230 CY

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Subject HAM-75-0791 Bridge Quantities

Date 2/16/21 Job No. 2011-0903

Computed by RJE Checked by RMW

Item 511E46512, Class QC1 Concrete with QC/QA, Footing

Left Bridge:

Rear Abutment:

Plan Area of Footing = 830.25 SF x 3' = 2490.75 ft³

Forward Abutment:

Plan Area of Footing = 998.57 SF x 3' = 2995.71 ft³

Total Left Bridge V = 2490.75 + 2995.71 = 5486.46 ft³ = 203.2, say 204 CY

Right Bridge:

Rear Abutment:

Plan Area of Footing = 869.116 SF x 3' = 2607.40 ft³

Forward Abutment:

Plan Area of Footing = 1021.40 SF x 3' = 3064.20 ft³

Total Right Bridge V = 2607.40 + 3064.20 = 5671.60 ft³ = 210.05, say 211 CY

Total Footing Concrete for both bridges = 204 CY + 211 CY = 415 CY

Item 509E10000, Epoxy Coated Steel Reinforcement

Left Bridge		Right Bridge	
Abutment	19,230 lb	Abutment	21,931
Superstructure	93,627 lb	Superstructure	91,752
	112,857 lb		113,683 lb

Total (Left & Right Bridges) = 226,540 lb

Item 509E30020, No. 4 GFRP Deformed Bars

Left Bridge		Right Bridge	
Superstructure	2364 lb	Superstructure	2258
General	1027 lb	General	986
	3391 lb		3244

Total (Left & Right Bridges) = 6635 lb

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Subject HAM-75-0791
Bridge Quantities
Date 6/10/21 Job No. 2016907
Computed by RMW Checked by G.B.

6/20

Item 202E22900 Approach Slab Removal

Left Bridge: (1314.13 ft^2 + 1328.21) = 2642.34 sq ft
REAR FWD
= 293.55 SY
say 294 SY

Right Bridge: (1287.37 + 1304.67) = 2592.04 sq ft
REAR FWD
= 288.00 SY
say 288 SY

Bridge Pair Total = 582 SY

Item 509E30030, No 5 GFRP Deformed Bars

Left Bridge
Superstructure: 294 lb
General: 119 lb
413 lb

Right Bridge
Superstructure: 276 lb
General: 111 lb
387 lb

Total (Left & Right Bridges) = 800 lb

Item 509E30040, No 6 GFRP Deformed Bars

Left Bridge
Superstructure: 2061 lb
General: 1065 lb
3126 lb

Right Bridge
Superstructure: 2079
General: 1054
3133 lb

Total (Left & Right Bridges = 6259 lb

Item 507E00700 16" Cast-In-Place Reinforced Concrete Piles, Driven

Left Bridge
Total = 34 + 27 = 61
FA RA

RA Estimated length = 525.94 + 1 - 445.8 = 81.14' = 85'
Total length = 85' × 27 = 2295'

FA Estimated length = 526.57 + 1 - 458.6 = 68.97' = 70'
Total length = 70' × 34 = 2380'

Left Bridge Total = 4675'

Right Bridge
RA Estimated length 29 × 85' = 2465'
FA Estimated length 34 × 70' = 2380'

Right Bridge Total = 4845'

Bridge Pair Total = 9520'

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Subject 14A-75-0791

Date 6/10/21 Job No. 2011 0907

Computed by RMW Checked by G.B.

7/20

Item 507E00750 16" Cast in Place Reinforced Concrete Pile, Furnished

Left Bridge
RA = 27 × 90' = 2430'
FA = 34 × 75' = 2550'
Total = 4980

Right Bridge
RA = 29 × 90' = 2610'
FA = 34 × 75' = 2550'
Total = 5160'

Bridge Pier Total = 10,140'

Item 523E20000, Dynamic Load Testing
- Per Joe Smithson Stage 1 committ each substructure unit will have 4 dynamic load test and 1 Restrike item.

= 8
Left bridge = 4
Right bridge = 4

Item 523E20500 Restrike

= 8 See above
Left bridge = 4
right bridge = 4

Item 505E11100 Pile Driving Equipment Mobilization

Lump Sum Cost = $20000

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Subject HAM-75-0791

Date 11/12/14 Job No. 20110903

Computed by RMW Checked by G.B.

8/20

Item 513E10280, Structural Steel Members, Level 4

Beam Weights

Cross Sectional Beam Area:

Section 1 = .6181 ft^2

Left Bridge

V= .6181 ft^2 (129.2604' + 127.9167' × 8)

= 712.42 ft^3

W = 712.42 ft^3 × 490 lb/ft^3 = 349085.8 lbs

Right Bridge

V= .6181 ft^2 (127.9167' × 8 + 126.33')

= 710.61 ft^3

W = 710.61 ft^3 × 490 lb/ft^3 = 348197.46 lbs

Cross Frame Weights

L 5×5×3/8" = 12.3 lb/Ft

L 6×6×1/2" = 19.6 lb/Ft

Left Bridge:

Weight Per Section = 2(12.3 lb/Ft × 9.25' + 19.6 lb/Ft × 8.66')

= 567.28 lbs

Wt = 567.28 lbs × 75 sections = 42546 lbs

Right Bridge

Weight Per Section = 2(12.3 lb/Ft × 9.25' + 19.6 lb/Ft × 8.66')

= 567.28 lbs

Wt = 567.28 × 75 sections = 42546 lbs

Item 513B10280, Structural Steel Member, Level 4 contd...

Intermediate cross frame stiffeners

Wt per stiffener = (56" × 9 3/4" × 5/8") / 1728 × 490 lb/cf = 96.77 lbs
= 262.01 lbs

Left Bridge: wt = 96.77 × 2 × 75 = 14515.5 lbs

Right Bridge: wt = 96.77 × 2 × 75 = 14515.5 lbs

Bearing Stiffeners

Wt per stiffener = (56" × 11" × 1.5") / 1728 × 490 lb/cf
= 262.01 lbs

Left bridge: wt = 262.01 × 9 × 4 = 9432.36 lbs

right bridge: wt = 262.01 × 9 × 4 9432.36 lbs

Filler Plate

W = (6" × .6" × 3/8") / 1728 × 490 = 3.83 lbs

Left bridge

w = 3.83 lbs × 75 = 287.25 lbs

Right bridge

w = 3.83 lbs × 75 = 287.25 lbs

Total Weight For Bridge Pair

Left = (349085.8 + 42546 + 14515.5 + 9432.36 + 287.25) 1.01
= 415869.78

say 415870 lbs

Right = (348197.46 + 42546 + 14515.5 + 9432.36 + 287.25) 1.01
= 419128.36 lbs

say 419129 lbs

Bridge Pair total = 834999 lbs

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Subject H&M 75-0791

Date 6/10/21 Job No. 2011907

Computed by RMW Checked by G.B.

10/20

Item 514E00061 Field Painting Structural Steel, Intermediate Coat, As Per Plan

Item 514E00062 Field Painting Structural Steel, Finish Coat, As Per Plan

Applied only to outside face and lower flange of fascia beams and 6" up back of web

Beam 1 Perimeter = 10.14 ft

Stiffener = 1.9583'

Left Bridge:

$A = (10.14\text{ ft} \times 129.2604' + 2 \times 1.95833 \times 4.66')$

$= 1328.97\text{ ft}^2$

say 1329 ft^2

Right Bridge:

$A = (10.14\text{ ft} \times 126.33' + 2 \times 1.9583' \times 4.66')$

$= 1299.26\text{ ft}^2$

say 1300 ft^2

Bridge Pair Total = 2629 ft^2

Item 513E20000 Welded Shear Stud Connectors

Left Bridge:

$\# = 3[21 \times 2\text{ ends} \times 9 + 83 + 82 \times 8]$

$\# =$ 3351 each

Right Bridge

$\# = 3[21 \times 2\text{ ends} \times 9 + 81 + 82 \times 8]$

$\# =$ 3345 each

Bridge Pair total = 6696

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Subject HAM 75-0791

Date 6/10/21 Job No. 20110903

Computed by RMW Checked by G.B.

11/20

Item 512E10100 Sealing of Concrete Surfaces (Epoxy Urethane)

Left Bridge

Rear Abutment

= 210.60 ft^2 + 597.89 ft^2 + 158.4 ft^2 = 966.89 ft^2
(beam seat) (diaphragm) (top of footing)

Northwest Wingwall

= 87.97 ft^2 + (2.5' + .25')(24') + 39.75 ft^2 = 193.72 ft^2
(WW Face) (top end beam) (top of footing)

Forward Abutment

= 218.98 + 613.37 + 170.37 ft^2 = 1002.72 ft^2
(beam seat) (diaphragm) (top of footing)

Northeast Wingwall

= 227.46 ft^2 + (2.5' + .25)(46.05') + 90.38 ft^2 = 438.48 ft^2

Total = 2601.81 $ft^2/3^2$ = 289.1 SY Say 290 SY

Right Bridge

Rear Abutment

= 387.13 + 586.57 + 157.29 = 1130.99 ft^2

Southwest Wingwall

= 205.43 ft^2 + (2.5 + .25)(33.50) + 65.94 = 363.50

Forward Abutment

= 397.35 + 607.62 + 162.22 = 1167.19 ft^2

Southeast Wingwall

= 437.69 ft^2 + (2.5' + .25')(49.86') + 99.74 ft^2

= 674.55 ft^2

Total = 3336.23 $ft^2/3^2$ = 370.69 SY

Say 371 SY

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Subject Hsm-75-0791

Date 6/10/21 Job No. 2021090.3

Computed by RMW Checked by G.B.

12/20

Superstructure

Left Bridge: Outside Parapet = 10.88' x 132.34' = 1439.86 ft²

Median Parapet = 5.46' x 129.37' = 706.36 ft²

Left Bridge Total = 1439.86 + 706.36 = 2146.22 ft² → 238.5 SY

Say 239 SY

Right Bridge: Outside Parapet = 10.88' x 126.77' = 1379.26 ft²

Median Parapet = 5.46' x 129.37' = 706.36 ft²

Right Bridge Total = 1379.26 + 706.36 = 2085.62 ft² → 231.74 SY

Say 232 SY

General

Left Bridge: Outside Approach Parapet = $\left(\overset{J}{10.22} \times 1.797 + 5.75 \times \overset{I}{10.673}\right) \times 4 + 1.875(10.673) + 2(10.22 \times 1.797 + 5.75 \times 10.673) + 14(7.08)$

= 597.54 ft²

Median Approach Parapet = (6.39 + 7.77 + 7.45)/3 x 28.44' + 30' x 6.36'

= 397.56 ft²

Left Bridge Total = 995.1 sq ft → 110.57 SY Say 111 SY

Right Bridge: Outside Approach Parapet = 2 x 14 x 7.08 + 2(1.75' x 10.22 + 5.75 x 10.673) + 1.823 x 10.673 + 2(1.740 x 10.22 + 5.75 x 10.673) = 526.73

Median Approach Parapet = 7.27 x 31.33 + 30' x 6.36 = 418.57

Right Bridge Total = 944.9 sq ft → 104.98 SY Say 105 SY

Total sealing area = 290 + 371 + 239 + 232 + 111 + 105 = 1348 SY

Item 601E20000 Crushed Aggregate Slope Protection

Rear Abutment: Cad area = 4007.09 SF

Forward Abutment: Cad area = 4526.00 SF

8533.09 SF = 948.12, say 948 SY

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Subject HAM-75-0791

Date 6/10/21 Job No. 20110907

Computed by RMW Checked by G.B.

13/20

Item 516E44401 Elastomeric Bearing with internal laminates and load plate (NEOPRENE), 4" per plate

(14" x 17" x 2.90" Elastomeric Pad with 15" x 18" x 1 1/2" Load Plate)

Left Bridge

N = 9 x 2 = 18 each

Right Bridge

N = 9 x 2 = 18 each

Item 516E13900 2" Preformed Expansion Joint Filler

Left Bridge

NW wingwall: L = 3.4809', Height = 536.42 - 529.64 = 6.78"

Area = 3.4809 x 6.78' = 23.6 Ft²

NE wingwall: L = 4.352', Height = 537.05 - 530.33 = 6.72

Area = 4.352 x 6.72 = 29.25 Ft²

Diaphragm Cuts: A = 2(9 Ft² + 2[4.16' x 2]) = 51.28 SF

Total = 104.13 Ft² Say 105 Ft²

Right Bridge

SW wingwall: L = 3.3426', H = 540.0 - 533.24 = 6.76

Area = 3.3426 x 6.67 = 22.60 Ft²

SE Wingwall: L = 2.7304, H = 540.58 - 533.86 = 6.72

Area = 2.7304 x 6.72 = 18.35 Ft²

Diaphragm Cuts: 25.64 SF x 2 = 51.28

Total = 92.23 Ft² Say 93 Ft²

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14/20

Subject HAM-75-0791

Date 11/12/14 Job No. 2014-907

Computed by RMW Checked by G.B.

Item 512E10300, Sealing Concrete Bridge Deck with HAMWM Resin

Left Bridge

A= 2' wide × (2 joints (130.73) + 30.29 + 30.75)
= 644.20 FT² → 71.58 SY

Say 72 SY

Item 516E14020 Semi-Integral Abutment Expansion Joint Seal

Left Bridge: (asphalt surface)

FWD Abutment: L= 7.6' (vert) + 113.47' (horiz) + (3.33' + 1.5 × 2) = 127.40 33'

Rear Abutment L= 6.98' (vert) + 107.03 (horiz) + 6.33' = 120.94 33'

248.75

Say 249 LF

Right Bridge:

FWD Abutment: L= 7.25' (vert) + 109.3' (horiz) + 6.33' = 122.88

Rear Abutment: L= 6.94' (vert) + 105.52 (horiz) + 6.33' = 118.79

241.67

Bridge Pair Total: 491 LF Say 242 LF

Item 518E21200 Porous Backfill with Filter Fabric

Left Bridge:

FWD Abutment & Wingwalls: Area: 110.53 × 7 + 164.47 = 938.18 FT² V= 938.18 × 2' = 1876.36 FT³

Say 70 CY

Right Bridge:

FWD Abutment & Wingwalls: Area: 980.77 + 497.77 = 1478.54 V= 1478.54 × 2 = 2957.08

Say 110 CY

Bridge Pair Total: 180 CY

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Subject HAM-75-0791

Date 11/12/14 Job No. 2011a903

Computed by RMW Checked by G.B.

Item 518E40000 6" Perforated Corrugated Plastic Pipe

Left Bridge:

L = 113.4863 ft + 44.2468' = 157.73 Ft

Say 159 FT

Right Bridge

L = 106.30 + 52.3128 = 158.61 Ft

Say 159 FT

Bridge Pipe Total = 317 LF

Item 518E40010 6" Non Perforated Corrugated Plastic Pipe, Jacked (Sleeves)

Left Bridge:

Formed Abutment: L = 5.75 Say L=6 FT
90° Bend to ditch

Right Bridge

Formed Abutment: L = 64.18' Say L=65 FT
90° bend to elevation of 530'

Bridge Pipe Total = 6'+65' = 71 LF

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Subject HAM-75-0791 Bridge Quantities

Date 11/12/14 Job No. 20110903

Computed by RMW Checked by G.B.

Item 516E13600 1" Preformed Expansion Joint Filler

Left Bridge

Rear Abutment [Footing] [Stem] [Diaphragm] [Median Barrier]

Area = (8.86' × 3' + 4.09' × 3.00' + 4.09 × 6.583') / 2 + 12.64 Ft² + 6.84 Ft² + 17.3594 × (4.75' + 1.4166') / 2
[Exterior Barrier] [Median approach]

= 105.89 ft²

Forward Abutment

Area = (9.20' × 3' + 4.24' × (2.9' + 6.583' + 4.583') / 2 + 7.08 Ft² + 7.0401 Ft² + 31.62' × (4.75 + 1.4166) / 2

= 155.24 ft²

Total Left Bridge = 261.13 Ft² → Say 262 Ft²

Right Bridge

Rear Abutment

Area = (8.86 × 3 + 4.09 × 3.00' + 4.09 × 6.583') / 2 + 13.84 + 6.678 + 17.3594 × (4.75' + 1.4166') / 2

= 106.93 Ft²

Forward Abutment

Area = (9.20' × 3' + 4.24' × (2.9' + 6.583' + 4.583') / 2 + 6.74 Ft² + 6.71 Ft² + 31.62' (4.75' + 1.4166') / 2

= 154.61 Ft²

Total Right Bridge = 261.54 Ft² → Say 262 Ft²

Total = 262 + 262 = 524 ft²

Item 503E21300 Unclassified Excavation

Left Bridge - Forward Abutment

Bottom of Footing Elev = 526.57 CAD Area of Excavation Footprint = 801.146 Ft²

Avg. Ex. Ground Elev = (526.57 + 531.57 + 531.14 + 535.53 + 536 + 536.27 + 536.23 + 535.92 + 535.44 + 530.42 + 532.81 + 526.57) / 12 = 532.87

Volume = (532.87 - 526.57)(801.146 Ft²) = 5048.56 Ft³ = 186.98 CY Say 187 CY

Right Bridge - Forward Abutment

Bottom of Footing Elev = 526.57 CAD Area of Excavation Footprint = 1344.16 Ft²

Avg. Ex. Ground Elev = (536.27 + 536.64 + 536.78 + 537.08 + 537.41 + 537.37 + 537.28 + 536.87 + 537.22 + 536.27 + 536.61 + 536.50 + 543.84 + 555.37 + 555.94 + 544.25 + 537.15 + 537.32 + 537.13 + 536.84) / 20 = 539.51

Volume = (539.51 - 526.57)(1344.16 Ft²) = 17386.71 Ft³ = 643.95 Say 644 CY

Total = 831 CY Use unit cost of 27.77 $/CY From Estimate Cost = 23082.39 Say $23100

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17/20

Subject HAM-75-0791
Bridge Quantities
Date 4/11/2023 Job No. 2011-0903
Computed by RJE Checked by TDA

Item 203E20001 - Embankment, As Per Plan
Left Bridge
Forward Abutment and Wingwall
Proposed bottom of footing = 526.57 Cad Area of Excavation Footprint = 521.1864
Avg Ex Ground Elev = (522.25+525.06+525.0+525+524.92+526.27 +526.18+521.38+521.66+522.24)/10 = 524.30
Volume = (526.57-524.30)(521.1864) = 1183.09 ft^3 = 43.82 CY, say 44 CY

use unit cost of $50/CY Cost = 44 CY x $50 = $2200
say $2,500

Item 867E00101 - Temporary Wire Faced Mechanically Stabilized Earth Wall (Wall D)
Elevational Area (Cad) = 296.9824 SF
Unit Cost = $40.00/SF
Total Cost = 296.9824 x $40/SF = $11,879, say $12,000

Item 867E00101 - Temporary Wire Faced Mechanically Stabilized Earth Wall (Wall E)
Elevational Area (Cad) = 311.3125 SF
Unit Cost = $40.00/SF
Total Cost = 311.3125 x $40/SF = $12,452, say $13,000

Item 867E00101 - Temporary Wire Faced Mechanically Stabilized Earth Wall (Wall F)
Elevational Area (Cad) = 93.2174 SF
Unit Cost = $40.00
Total Cost = 93.2174 x $40/SF = $3729, say $4000

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18/20

Subject HAM-75 0791

Date 11/12/14 Job No. 2011690J

Computed by RMW Checked by G.B.

Item 526E90010 - Type A Installation

Left Bridge: L = 101.64' + 110.77' = 212.41', say 213 LF

Right Bridge: L = 99.99' + 108.15' = 208.14', say 209 LF

Total Length = 213' + 209' = 422 LF

Item 512E33000 Type 2 Waterproofing

Left Bridge:

Rear: (2.12 + 2 + 3 + 2 × 5.5 + 22.7') × 3' = 122.46

Fwd: (2.2 + 2 + 3 + 2 × 5.5 + 41.34') × 3' = 178.62

301.08 SF = 33.45, say 34 SY

Right Bridge:

Rear: (3.32 + 2 + 3 + 22.3) × 3' = 91.86 SF

Fwd: (48.71) × 3' = 146.13 SF

237.99 SF = 26.44, say 27 SY

Item 516E13800, 1½" Preformed Expansion Joint Filler

Left Bridge:

A = 4.75' × 14.7916' = 70.26 ft²

say 71 SF

Right Bridge A = 4.75' × 14.802' = 70.31 ft²

say 71 SF

EMH&T
Evans, Mechwart, Hambleton & Tilton, Inc.
Engineers, Surveyors, Planners, Scientists

19/20

Subject HAM-75-0791
Bridge Quantities
Date 4/11/23 Job No. 2011-0903
Computed by RJE Checked by TDA

Item 503E11101 - Cofferdams & Excavation Bracing, As Per Plan (Wall A)

W21x68, 30" Drilled Shafts - Soldier Piles 1-7 & 13-17

Pile Number	Top of Soldier Pile Elevation	Top of Drilled Shaft Elevation	Wall Height Above Grade	Drilled Shaft Length (Below Grade)
1	515.33	514	1.33'	25'
2	519.86	514	5.86'	25'
3	521.87	514	7.87'	25'
4	523.46	514	9.46'	25'
5	525.06	514	11.06'	25'
6	526.66	514	12.66'	25'
7	527.33	514	13.33'	25'
13	534.58	495.73	13.85'	25'
14	534.58	494.19	11.39'	25'
15	534.57	500.64	8.73'	25'
16	534.56	503.09	6.47'	25'
17	534.5	505.54	3.96'	25'
			105.97'	300'

Total Length of Soldier Piles and Drilled Shafts (above & below grade)
= 105.97' + 300' = 405.97'

Assumed Unit Cost of W21x68 = $75/ft
Cost of W21x68 Soldier Piles = 405.97' x $75/ft = $30,447.75

Assumed Unit Cost of 30" Drilled Shafts = $100/ft
Cost of 30" Drilled Shafts = 405.97' x $100/ft = $40,597

Soldier Piles 8-12 (W24x176, 36" Drilled Shaft)

Pile Number	Top of Soldier Pile Elevation	Top of Drilled Shaft Elevation	Wall Height Above Grade	Drilled Shaft Length (Below Grade)
8	534.37	514.00	20.27'	35'
9	534.65	514.00	20.65'	35'
10	534.61	514.00	20.61'	35'
11	534.58	515.83	18.75'	35'
12	534.58	518.28	16.3'	35'
			96.58'	175'

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Evans, Mechwart, Hambleton & Tilton, Inc.
Engineers, Surveyors, Planners, Scientists

20/20

Subject HAM-75-0791
Bridge Quantities
Date 4/11/2023 Job No. 2011-0903
Computed by RJE Checked by TDA

Item 503E11101 - Cofferdams & Excavation Bracing, As Per Plans (Wall A) (Cont)
Total Length of Soldier Piles and Drilled Shafts (above and below grade)
= 96.58' + 175' = 271.58'

Assumed Unit Cost of W24x176 = $200 per ft
Cost of W24x176 Soldier Piles = 271.58' x $200/ft = $54,316

Assumed Unit Cost of 36" Drilled Shafts = $175/ft
Cost of 36" Drilled Shafts = 271.58' x $175/ft = $47,526.50

Timber Lagging Area (Csd) = 1000 SF
Unit Cost = $15/SF
Timber Lagging Cost = $15,000

Total Shoring Cost = $30,447.75 + $40,597 + $54,316 + $47,526.50 + $15,000
= $187,887 Say $188,000

Item 503E11101 - Cofferdams & Excavation Bracing, As Per Plan (Wall B)
Length = 10'
Height (Assume Buried Depth 2.5 times exposed height) = 4' + 2.5 x 4' = 14'
Area = 140 SF

Assume Unit Cost = $25/SF

Total Sheeting Cost = 140 SF x $25/SF = $3500