Gannett Fleming
Engineers and Architects, P.C.
Excellence Delivered As Promised

| Calculation | Bridge Quantities: SUM-77-3227L |
|---|---|
| Description | Stage 2 Quantities |

| GF Job No: | Bridge SFN | Calculated | Checked | Updated | Verified | Final Rev |
|---|---|---|---|---|---|---|
| 67490 | 7704712 | • RSN 10/20/21 | SAT 10/28/21 | RSN 01/09/22 | SAT 02/03/22 | RSN 04/29/2022 |

*This calculation will use ODOT Bid Elements.*
*Reinforcing ratios will be used to determine reinforcing until the Stage 3 reinforcing calculations are complete.*

## INPUT: Superstructure

### General and Existing Data

| | | | |
|---|---|---|---|
| Minimum Concrete Deck Thickness: | 8.500 in | Outside Parapet Area | 4.06 sf |
| Total Number of Girder Lines: | 3 Girders | | |
| Length of Bridge Limits | 233.94 ft | Approach Slab Parapet Perimeter | 7.82 ft |
| | | Outside Parapet/Deck Ovhg Perimeter | 9.44 ft |
| | | Right Parapet Length (not include App Slabs) | 233.95 |
| | | Right Parapet Length (include Approaches) | 272.95 |
| Existing Rear Abutment | 12 cy | Girder H Flange Width: | 12.10 in |
| Existing Forward Abutment | 12 cy | Girder H Flange Thickness: | 1.16 in |
| Existing Approach Slabs | | Girder H Web Depth: | 34.18 in |

CIP Deck Reinforcing Ratio: **270 lb/cy** — Abutment & W.W. Reinforcing Ratio: **120 lb/cy**
Pier Cap Reinforcing Ratio: **200 lb/cy** — Footing Reinforcing Ratio: **140 lb/cy**
Pier Wall & Abutment Backwall Reinforcing Ratio: **300 lb/cy** — Parapet/Curb Reinforcing Ratio: **170 lb/cy**

### Superstructure Specific Data

| | | | | | |
|---|---|---|---|---|---|
| Design Girder Length: | 227.33 ft | C/C Bearing | Deck Width, Out-Out: | 20.08 ft | normal to align. |
| Girder Projection Length after BRG: | 1.00 ft | | Skew: | 47.022 deg | *0.82069 rad* |

| | | | |
|---|---|---|---|
| Splice Top Flange External | 0.269 cf | Girder Flange Width: | 14.077 in |
| Splice Top Flange Internal | 0.264 cf | Girder Flange Thickness: | 1.283 in |
| Splice Bottom Flange External | 0.269 cf | Girder Web Depth: | 25.455 in |
| Splice Bottom Flange Internal | 0.264 cf | Girder Web Thickness: | 0.756 in |
| Splice Web | 0.209 cf | Girder Paint Perimeter | 94.2 in |
| Filler Plate Top Flange | 0.100 cf | Girder Weight | 189.40 plf |
| Filler Plate Bottom Flange | 0.100 cf | | |
| | | Intermediate Dprm Connx Plate Height: | 25.440 in |
| | | Intermediate Dprm Connx Plate Thickness: | 0.375 in |
| Concrete Deck CAD Area: | 4,698 sf | Intermediate Dprm Connx Plate Width: | 8.000 in |
| Concrete Haunch Area: | 0.20 sf | Typical Stiffener Clip Area | 1.250 SqIn |
| Overhang CAD Area: | 0.39 sf | Intermediate Dprm Connx Plate Paint Area: | 424 SqIn |
| End Area above Diaphragm | 1 sf | # of Intermediate Dprm Connx Plates: | 92 |
| APP Slab CAD Area: | 3,928 sf | | |
| | | Number of Int Diaphragms | 46 |

## INPUT: Substructure

### Rear Abutment

| | | | |
|---|---|---|---|
| Stem Thickness: | 3.75 ft | Wingwall Thickness: | 1.50 ft |
| Diaph Thickness: | 3.75 ft | Wingwall CAD Area: | 147 sf |
| RA Footing CAD Area | 205 sf | Wingwall Length: | 15.00 ft |
| RA Footing Thickness | 3.00 ft | RA Diaph CAD Sealing Area Limit | 95 sf |
| RA Stem CAD Plan Area | 100 sf | | |
| RA Diaph CAD Area | 86 sf | | |
| Beam Seat El.: | 1026.75 ft | | |
| Top/Footing El.: | 1021.68 ft | | |

### Forward Abutment

| | | | |
|---|---|---|---|
| Stem Thickness: | 3.75 ft | | |
| Diaph Thickness: | 3.75 ft | | |
| FA Footing CAD Area | 210 sf | Wingwall CAD Area: | 143 sf |
| FA Footing Thickness | 3.00 ft | Wingwall Thickness | 1.50 ft |
| RA Stem CAD Plan Area | 100 sf | Wingwall Length: | 15.00 ft |

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Calculation: **Bridge Quantities: SUM-77-3227L**

Description: *Stage 2 Quantities*

| GF Job No: | Bridge SFN | Calculated | Checked | Updated | Verified | Final Rev |
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| 67490 | 7704712 | • RSN 10/20/21 | SAT 10/28/21 | RSN 01/09/22 | SAT 02/03/22 | RSN 04/29/2022 |

| | | | |
|---|---|---|---|
| FA Diaph CAD Area | 86 sf | FA Diaph CAD Sealing Area Limit | 96 sf |
| Beam Seat El.: | 1030.15 ft | | |
| Top/Footing El.: | 1025.16 ft | | |

## Pier 1+2

| | | | |
|---|---|---|---|
| Cap thickness | 3.00 ft | | |
| Cap CAD Area: | 78.00 sf | Footing Length: | 21.00 ft |
| | | Foundation Width: | 8.50 ft |
| Wall Stem Thickness: | 3.00 ft | | |
| Wall Section CAD Area: | 46 sf | Foundation Thickness: | 3.00 ft |
| Bottom/Cap Pier 1 El.: | 1025.47 ft | Ex. Footing Width and Length: | 8.50 ft |
| Bottom/Cap Pier 2 El.: | 1026.75 ft | | |
| Top/Footing El. Pier 1: | 1005.50 ft | | |
| Top/Footing El. Pier 2: | 1012.20 ft | | |

## Quantities

**202E 11003 STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN** — (LS) = 100,000 — 0

Structure Demolition

| | | | | | | |
|---|---|---|---|---|---|---|
| Deck: | 448 sf | X | $25 | /sf | $ | 12,000 |
| RA Removed: | 12 cy | X | $150 | /cy | $ | 2,000 |
| FA Removed: | 12 cy | X | $150 | /cy | $ | 2,000 |

**202E 22900 APPROACH SLAB REMOVED** — (SY) = 334 — 0

APP Slabs: 2999 sf (EXISTING CAD AREA) /(9 sf/sy)= 333 sy

**503E 21101 UNCLASSIFIED EXCAVATION, AS PER PLAN** — (CY) = 398 — (CHECK UNIT OF MEASURE)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Pier 1: | 10.50 ft (Width) | X | 23.00 ft (Length) | | 8.73 ft (Avg Depth) | /(27 cf/cy)= | 78.1 cy |
| Pier 2: | 10.50 ft (Width) | X | 23.00 ft (Length) | | 5.03 ft (Avg Depth) | /(27 cf/cy)= | 45.0 cy |
| FA+wingwall: | 7.75 ft (Width) | X | 28.25 ft (Length) | | 6.32 ft (Avg Depth) | /(27 cf/cy)= | 51.2 cy |
| | 5.75 ft (Width) | X | 7.50 ft (Length) | | 6.32 ft (Avg Depth) | /(27 cf/cy)= | 10.1 cy |
| RA+wingwall: | 7.75 ft (Width) | X | 31.00 ft (Length) | | 6.94 ft (Avg Depth) | /(27 cf/cy)= | 61.8 cy |
| | 5.75 ft (Width) | X | 11.00 ft (Length) | | 6.94 ft (Avg Depth) | /(27 cf/cy)= | 16.3 cy |

Existing Pier Excavation

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ex Pier 1: | 8.50 ft (Width) | X | 8.50 ft (Length) | 7.07 sf (Area of Pier Column) | 30.42 ft (Total Depth) | /(27 cf/cy)= | 73.4 cy |
| Ex Pier 2: | 8.50 ft (Width) | X | 8.50 ft (Length) | 7.07 sf (Area of Pier Column) | 25.44 ft (Total Depth) | /(27 cf/cy)= | 61.4 cy |

**507E 00500 12" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN** — (FT) = 850 — 0

| | | | | | | |
|---|---|---|---|---|---|---|
| FA: | 10 | X | 45 ft | Long | = | 450 ft |
| RA: | 10 | X | 40 ft | Long | = | 400 ft |

**507E 00550 12" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED** — (FT) = 950 — 0

| | | | | | | |
|---|---|---|---|---|---|---|
| FA: | 10 | X | 50 ft | Long | = | 500 ft |
| RA: | 10 | X | 45 ft | Long | = | 450 ft |

**507E 00600 14" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN** — (FT) = 840 — 0

| | | | | | | |
|---|---|---|---|---|---|---|
| Pier 1: | 12 | X | 35 ft | Long | = | 420 ft |
| Pier 2: | 12 | X | 35 ft | Long | = | 420 ft |

**507E 00650 14" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED** — (FT) = 960 — 0

| | | | | | |
|---|---|---|---|---|---|
| Pier 1: | 12 | X | 40 ft | Long | 480 ft |
| Pier 2: | 12 | X | 40 ft | Long | 480 ft |

**505E 11101 PILE DRIVING EQUIPMENT MOBILIZATION, AS PER PLAN** — (LS) — 0

All Piles: Lump Sum

**509E 10001 EPOXY COATED REINFORCING STEEL, AS PER PLAN** — (LB) = 76,765 — 0

| | | | | | |
|---|---|---|---|---|---|
| Deck: | X | 270 lb/cy | UPDATED FROM CALCULATED REINFORCING | = | 40,489 lb |
| Diaphragm: | X | 140 lb/cy | | = | 3,718 lb |
| Parapet: | X | 170 lb/cy | | = | 9,921 lb |
| RA, FA & Wingwalls (w/o footing): | X | 120 lb/cy | | = | 2,339 lb |
| RA, FA & Wingwalls (only footing): | X | 140 lb/cy | | = | 4,037 lb |
| Pier: | X | 200 lb/cy | | = | 10,438 lb |
| Pier Footing: | X | 140 lb/cy | | = | 5,823 lb |

**510E 20001** REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN — LB = 300 — #N/A

**510E 10001** DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT, AS PER PLAN — (EACH) = 22 — ()

| | |
|---|---|
| Rear Abutment: | 11 |
| Forward Abutment: | 11 |
| Deck: | 0 |
| Diaphragm: | 0 |

**511E 34446** CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK — (CY) = 158 — (CHECK UNIT OF MEASURE)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Deck - Above Haunch: | | | 4,698 sf (CAD Area) | X | 8.50 in (Thickness) | /(27 cf/cy)= | 123 cy |
| Deck - Haunch: | 229.33 ft (Length) | X | 0.20 sf (Area) | X | 3 (# of Haunches) | /(27 cf/cy)= | 5.0 cy |
| Deck - Overhang: | 229.33 ft (Length) | X | 0.39 sf (Area) | X | 1 (# of Haunches) | /(27 cf/cy)= | 3.3 cy |
| Deck - Ends above Diaphragm: | 29.79 ft (Length) | X | 1.00 sf (Area) | X | 2 (Rear and Forward) | /(27 cf/cy)= | 2.2 cy |
| RA, Diaph: | 86.00 sf (CAD Area) | X | 3.75 ft (Thickness) | | | /(27 cf/cy)= | 11.9 cy |
| FA, Diaph: | 86.00 sf (CAD Area) | X | 3.75 ft (Thickness) | | | /(27 cf/cy)= | 11.9 cy |

**511E 34451** CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET), AS PER PLAN — (CY) = 42 — (CHECK UNIT OF MEASURE)

| | | | | | |
|---|---|---|---|---|---|
| Curb/Parapet: | 272.95 ft | X | 4.06 sf | /(27 cf/cy)= | 41.0 cy |

**511E 40512** CLASS QC1 CONCRETE WITH QC/QA, PIER ABOVE FOOTINGS — (CY) = 77 — (WALLS)

| | | | | | |
|---|---|---|---|---|---|
| Pier Cap 1: | 3.00 ft (WIDTH) | X | 78.00 sf (CAD Area) | /(27 cf/cy)= | 8.7 cy |
| Pier Wall 1: | 19.97 ft (Height) | X | 46.00 sf (CAD Area) | /(27 cf/cy)= | 34.0 cy |
| Pier Cap 2: | 3.00 ft (WIDTH) | X | 78.00 sf (CAD Area) | /(27 cf/cy)= | 8.7 cy |
| Pier Wall 2: | 14.55 ft (Height) | X | 46.00 sf (CAD Area) | /(27 cf/cy)= | 24.8 cy |

**511E 46512** CLASS QC1 CONCRETE WITH QC/QA, FOOTING — (CY) = 86 — ()

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Pier 1 Footing: | 8.50 ft | X | 21.00 ft | X | 3.00 ft | /(27 cf/cy)= | 19.8 cy |
| Pier 2 Footing: | 8.50 ft | X | 21.00 ft | X | 3.00 ft | /(27 cf/cy)= | 19.8 cy |
| FA Footing (CAD area): | 210.00 sf | X | 3.00 ft | | | /(27 cf/cy)= | 23.3 cy |
| RA, Footing (CAD Area): | 205.25 sf | X | 3.00 ft | | | /(27 cf/cy)= | 22.8 cy |

**511E 44112** CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT NOT INCLUDING FOOTING — (CY) = 54 — ()

| | | | | | |
|---|---|---|---|---|---|
| RA, Stem: | 100.00 sf (CAD Area (Plan)) | X | 5.07 ft (Height of stem) | /(27 cf/cy)= | 18.8 cy |
| RA,Wingwall: | 146.85 sf (CAD Area) | X | 1.50 ft (Thickness) | /(27 cf/cy)= | 8.2 cy |
| FA, Stem: | 100.00 sf | X | 4.99 ft | /(27 cf/cy)= | 18.5 cy |

| | CAD Area (Plan) / CAD Area | | Height of stem / Thickness | | | | |
|---|---|---|---|---|---|---|---|
| FA,Wingwall | 143.00 sf | X | 1.50 ft | | | /(27 cf/cy)= | 7.9 *cy* |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **512E 10101** | **SEALING OF CONCRETE SURFACES (EPOXY-URETHANE), AS PER PLAN** | | | | | (SY) = | 651 | *()* |
| Parapet & Deck Underside: | 234.0 ft | | | X | 9.44 ft | /(9 sf/sy)= | 245 sy | |
| Approach Slab Parapets: | 39.0 ft | | | X | 7.82 ft | /(9 sf/sy)= | 34 sy | |
| RA, Stem: | 86 sf | | | | | /(9 sf/sy)= | 10 sy | |
| RA, WingWall: | 147 sf | | | | | /(9 sf/sy)= | 16.3 sy | |
| RA, Wingwall top + sides + back: | 23 sf | | | | | /(9 sf/sy)= | 3 sy | |
| RA, Diaphragm without fillet area: | 95 sf | | | | | /(9 sf/sy)= | 11 sy | |
| FA Stem + Diaphragm: | 55 sf | | | | | /(9 sf/sy)= | 6 sy | |
| FA, WingWall: | 33 sf | | | | | /(9 sf/sy)= | 4 sy | |
| FA, Wingwall top + sides + back: | 35 sf | | | | | /(9 sf/sy)= | 4 sy | |
| FA, Diaphragm without fillet area: | 104 sf | | | | | /(9 sf/sy)= | 12 sy | |
| Pier 1 - Wall: | 477 sf | | | | | /(9 sf/sy)= | 53 sy | |
| Pier 1 - Cap: | 156 sf | | | | | /(9 sf/sy)= | 17 sy | |
| | 2.55 ft | X | 3.00 ft | X | 2 | /(9 sf/sy)= | 2 sy | |
| Pier 2 - Wall: | 452 sf | | | | | /(9 sf/sy)= | 50 sy | |
| Pier 2 - Cap: | 156 sf | | | | | /(9 sf/sy)= | 17 sy | |
| | 2.55 ft | X | 3.00 ft | X | 2 | /(9 sf/sy)= | 2 sy | |

**Existing Pier Column Sealing**

| | | | | | | |
|---|---|---|---|---|---|---|
| Pier 1: | 9.42 ft (perimeter) | X | 82.44 ft (total height) | | /(9 sf/sy)= | 86 sy |
| Pier 2: | 9.42 ft (perimeter) | X | 76.02 ft (total height) | | /(9 sf/sy)= | 80 sy |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **512E 33000** | **TYPE 2 WATERPROOFING** | | | | (SY) = | 7 | *(CHECK UNIT OF MEASURE)* |
| Rear Wingwall: | 10 ft | Along WW | 3.0 ft | width of sealing | | = | 3.3 *SY* |
| Forward Wingwall: | 10 ft | Along WW | 3.0 ft | width of sealing | | = | 3.3 *SY* |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **512E 74000** | **REMOVAL OF EXISTING COATINGS FROM CONCRETE SURFACES** | | | | (SY) = | 357.0 | *()* |
| Pier 1 | 9.425 ft (perimeter) | X | 61.4 ft (height) | 579.1 | | | 193.0 *sy* |
| Pier 2 | 9.425 ft (perimeter) | X | 52.0 ft (height) | 490.3 | | | 163.4 *sy* |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **513E 10260** | **STRUCTURAL STEEL MEMBERS, LEVEL 3** | | | | | (LB) = | 151,800 | *(CHECK UNIT OF MEASURE)* |
| Girder Weight: | Length | | | | | | | |
| section 1,5,9 | 229 ft | X | 189.40 lb | X | 3 girder(s) | | | 130,304 |
| Bolts: | 1104 each | X | 109 lb/100 | | | | = | 1,203 |
| Washers: | 1104 each | X | 9 lb/100 | | | | = | 104 |
| Int Xframes(MC18x42.7): | 6.25 ft | X | X 43 lb/ft | X | 16 | | = | 4,270 |
| Int Xframes(4x4x1/2): | 12.00 ft | X | X 11.30 lb/ft | X | 30 | | = | 4,068 |
| Int Xframes Plate: | 0.04 cf (Volume) | | X 490 lb/cf | X | 92 (numbers) | | | 1,926 |
| Splice Weight: | 17.70 cf (Volume/all) | | X 490 lb/cf | | | | | 8,674.05 |
| Splice Bolts: | 1056 each | X | 109 lb/100 | | | | = | 1,151.04 |
| Splice Washers: | 1056 each | X | 9 lb/100 | | | | = | 99.26 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **513E 20000** | **WELDED STUD SHEAR CONNECTORS** | | | (EACH) = | 1,989 | *()* |
| G1: | 221 (Rows of studs) | X | 3 (Studs per Row) | | | 663 Each |
| G2: | 221 | X | 3 | | | 663 Each |
| G3: | 221 | X | 3 | | | 663 Each |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 513E 95020 | STRUCTURAL STEEL, MISC.: | | | | | (LS) = | | SUM-77-3227L SHOP DRAWINGS |
| 514E 00060 | FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT | | | | | (SF) = | 5,401 | () |
| Proposed Beams | 94.2 in | X | 229.33 ft | X | 3.0 each | | | |
| 514E 00066 | FIELD PAINTING STRUCTURAL STEEL, FINISH COAT | | | | | (SF) = | 5,401 | () |
| 514E 00504 | GRINDING FINS, TEARS, SLIVERS ON EXISTING STRUCTURAL STEEL | | | | | (MNHR) = | 2 | () |
| Grinding Time Per Foot | 30.0 sec/ft | X | 228.83 ft | | | | = | 1.9 ManHours |
| Time is halved since only one side of existing beam is used | | | Beam Length | | | | | |
| 514E 10000 | FINAL INSPECTION REPAIR | | | | | (EACH) = | 5 | () |
| | Inspection Repair per 150 ft. | | 4.58668 | | | | 5 | |
| 514E 27800 | FIELD PAINTING, MISC.: | | | | | (LS) = | 1 | (ADD SUPPLEMENTAL DESCRIPTION) |
| | | | | | | | 1 | |
| 516E 10010 | ARMORLESS PREFORMED JOINT SEAL | | | | | (FT) = | 227 | () |
| Rear Sleeper Slab: | 110 ft | | | | | | = | 110.0 ft |
| Forward Sleeper Slab: | 117 ft | | | | | | = | 117.0 ft |
| | Length | | | | | | | |
| 516E 13600 | 1" PREFORMED EXPANSION JOINT FILLER | | | | | (SF) = | 25 | () |
| App Slab Parapets: | 6.14 sf | X | 4 | | | | = | 24.6 sf |
| | CAD Area | | Number of Joints | | | | | |
| 516E 13900 | 2" PREFORMED EXPANSION JOINT FILLER | | | | | (SF) = | 99 | () |
| RA Wingwall:: | 17.81 sf | + | 26.875 sf | | | | = | 44.7 sf |
| FA Wingwall: | 17.81 sf | + | 28.750 sf | | | | = | 46.6 sf |
| FA Wingwall and Roadway Barrier: | 7.39 sf | | | | | | = | 7.4 sf |
| 516E 44100 | ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) | | | | | (EACH) = | 9 | (2"-3" TK, SPECIFY DIMENSIONS) |
| 14"x9.50x2.96 bearing with 15"x10.5" load plate | 3 | each | | | | | | |
| 18"x13"x.259" with 19"x14" load plate | 6 | each | | | | | | |
| 516E 44200 | ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) | | | | | (EACH) = | 3 | (3"-4" TK, SPECIFY DIMENSIONS) |
| Total # required: | 3 | each | | | | | | |
| 516E 14020 | SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL | | | | | (FT) = | 108 | () |
| RA Abutment: | 54 ft | | | | | | | |
| FA Abutment: | 54 ft | | | | | | | |
| 518E 21200 | POROUS BACKFILL WITH GEOTEXTILE FABRIC | | | | | (CY) = | 39 | (CHECK UNIT OF MEASURE) |
| Rear Abutment: | 200 sf | X | 2.0 ft | | | | /(27 cf/cy)= | 14.8 cy |
| | CAD Area | | width | | | | | |
| Rear Wingwall: | 60 sf | X | 2.0 ft | | | | /(27 cf/cy)= | 4.4 cy |
| | CAD Area | | width | | | | | |
| Forward Abutment: | 200 sf | X | 2.0 ft | | | | /(27 cf/cy)= | 14.8 cy |
| | CAD Area | | width | | | | | |
| Forward Wingwall: | 60 sf | X | 2.0 ft | | | | /(27 cf/cy)= | 4.4 cy |
| | CAD Area | | Width | | | | | |
| 518E 40000 | 6" PERFORATED CORRUGATED PLASTIC PIPE | | | | | (FT) = | 90 | () |
| FA+Wingwall: | 45 ft | | | | | | | 45 ft |
| RA+Wingwall: | 45 ft | | | | | | | 45 ft |
| 518E 40010 | 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS | | | | | (FT) = | 60 | () |
| RA Wingwall: | 30 ft | | | | | | | 30 ft |
| FA Wingwall: | 30 ft | | | | | | | 30 ft |
| 519E 00100 | SPECIAL - COMPOSITE FIBER WRAP SYSTEM | | | | | (SF) = | 2,020 | () |

| | | | | | | |
|---|---|---|---|---|---|---|
| Pier 1 | 9.425 ft (perimeter) | X | 112.9 ft (height) | | | 1,063.7 sf |
| Pier 2 | 9.425 ft (perimeter) | X | 101.4 ft (width) | | | 955.7 sf |
| **519E 11100** | **PATCHING CONCRETE STRUCTURE** | | | **(SF) =** | **202** | 0 |
| Existing Pier Columns | 2,020.0 sf | X | 10 % (10% of total column surface area) | | | 202.0 sf |
| **523E 20001** | **DYNAMIC LOAD TESTING, AS PER PLAN** | | | **(EACH) =** | **4** | 0 |
| RA: | 1 | | | | | 1 each |
| Pier 1: | 1 | | | | | 1 each |
| Pier 2: | 1 | | | | | 1 each |
| FA: | 1 | | | | | 1 each |
| **523E 20501** | **RESTRIKE, AS PER PLAN** | | | **(EACH) =** | **4** | 0 |
| RA: | 1 | | | | | 1 each |
| Pier 1: | 1 | | | | | 1 each |
| Pier 2: | 1 | | | | | 1 each |
| FA: | 1 | | | | | 1 each |
| **526E 25010** | **REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=15")** | | | **(SY) =** | **437** | 0 |
| App Slabs: | 3,928.00 sf | | | | /(9 sf/sy)= | 436.4 sy |
| **526E 90030** | **TYPE C INSTALLATION** | | | **(FT) =** | **227** | 0 |
| | 227.0 ft (Length) | RA & FA | | | | |
| **601E 20000** | **CRUSHED AGGREGATE SLOPE PROTECTION** | | | **(SY) =** | **487** | 0 |
| RA + Wingwall: | 2,501 sf | | | | /(9 sf/sy)= | 277.9 cy |
| FA + Wingwall: | 1,878 sf | | | | /(9 sf/sy)= | 208.6 cy |

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| Calculation | **Bridge Quantities: SUM-77-3227R** |
|---|---|
| Description | *Stage 2 Quantities* |

| GF Job No: | Bridge SFN | Calculated | Checked | Updated | Verified | Final Rev |
|---|---|---|---|---|---|---|
| 67490 | 7704747 | • RSN 10/27/21 | SAT 10/28/21 | RSN 01/10/22 | SAT 02/04/22 | RSN 04/29/2022 |

*This calculation will use ODOT Bid Elements.*
*Reinforcing ratios will be used to determine reinforcing until the Stage 3 reinforcing calculations are complete.*

## INPUT: Superstructure

### General and Existing Data

| | | | |
|---|---|---|---|
| **Minimum Concrete Deck Thickness:** | 8.500 in | **Outside Parapet Area** | 4.06 sf |
| **Total Number of Girder Lines:** | 3 Girders | | |
| **Length of Bridge Limits** | 216.83 ft | **Approach Slab Parapet Perimeter** | 7.82 ft |
| | | **Outside Parapet/Deck Ovhg Perimeter** | 9.44 ft |
| | | **Left Parapet Length (not include App Slabs)** | 216.83 |
| | | **Leftt Parapet Length (include Approaches)** | 244.82 |
| **Existing Rear Abutment** | 11 cy | **Girder J Flange Width:** | 12.10 in |
| **Existing Forward Abutment** | 12 cy | **Girder J Flange Thickness:** | 1.16 in |
| **Existing Approach Slabs** | | **Girder J Web Depth:** | 34.18 in |

CIP Deck Reinforcing Ratio: **270 lb/cy** — Abutment & W.W. Reinforcing Ratio: **120 lb/cy**
Pier Cap Reinforcing Ratio: **200 lb/cy** — Footing Reinforcing Ratio: **140 lb/cy**
Pier Wall & Abutment Backwall Reinforcing Ratio: **300 lb/cy** — Parapet/Curb Reinforcing Ratio: **170 lb/cy**

### Superstructure Specific Data

| | | | | | |
|---|---|---|---|---|---|
| **Design Girder Length:** | 210.75 ft | C/C Bearing | **Deck Width, Out-Out:** | 20.58 ft | normal to align. |
| **Girder Projection Length after BRG:** | 1.00 ft | | **Skew:** | 47.022 deg | *0.82069 rad* |

| | | | |
|---|---|---|---|
| **Splice Top Flange External** | 0.154 cf | **Girder Flange Width:** | 12.037 in |
| **Splice Top Flange Internal** | 0.145 cf | **Girder Flange Thickness:** | 0.965 in |
| **Splice Bottom Flange External** | 0.154 cf | **Girder Web Depth:** | 34.005 in |
| **Splice Bottom Flange Internal** | 0.145 cf | **Girder Web Thickness:** | 0.661 in |
| **Splice Web** | 0.243 cf | **Girder Paint Perimeter** | 104.7 in |
| **Filler Plate Top Flange** | 0.049 cf | **Girder Weight** | 156.91 plf |
| **Filler Plate Bottom Flange** | 0.049 cf | | |
| | | **Intermediate Dprm Connx Plate Height:** | 34.005 in |
| | | **Intermediate Dprm Connx Plate Thickness:** | 0.375 in |
| **Concrete Deck CAD Area:** | 4,463 sf | **Intermediate Dprm Connx Plate Width:** | 8.000 in |
| **Concrete Haunch Area:** | 0.17 sf | **Typical Stiffener Clip Area** | 1.250 SqIn |
| **Overhang CAD Area:** | 0.37 sf | **Intermediate Dprm Connx Plate Paint Area:** | 567 SqIn |
| **End Area above Diaphragm** | 1 sf | **# of Intermediate Dprm Connx Plates:** | 80 |
| **APP Slab CAD Area:** | 3,012 sf | | |
| | | **Number of Int Diaphragms** | 40 |

## INPUT: Substructure

### Rear Abutment

| | | | |
|---|---|---|---|
| **Stem Thickness:** | 3.75 ft | **Wingwall Thickness:** | 1.50 ft |
| **Diaph Thickness:** | 3.75 ft | **Wingwall CAD Area:** | 104 sf |
| **RA Footing CAD Area** | 188 sf | **Wingwall Length:** | 13.00 ft |
| **RA Footing Thickness** | 3.00 ft | **RA Diaph CAD Sealing Area Limit** | 92 sf |
| **RA Stem CAD Plan Area** | 92 sf | **Wingwall CAD Sealing Area:** | 37 sf |
| **RA Diaph CAD Area** | 102 sf | | |
| **Beam Seat El.:** | 1035.94 ft | | |
| **Top/Footing El.:** | 1032.67 ft | | |
| **RA Stem CAD Area** | 50 sf | | |

### Forward Abutment

| | | | |
|---|---|---|---|
| **Stem Thickness:** | 3.75 ft | | |
| **Diaph Thickness:** | 3.75 ft | **Wingwall CAD Sealing Area:** | 36 sf |
| **FA Footing CAD Area** | 206 sf | **Wingwall CAD Area:** | 104 sf |
| **FA Footing Thickness** | 3.00 ft | **Wingwall Thickness** | 1.50 ft |
| **RA Stem CAD Plan Area** | 95 sf | **Wingwall Length:** | 15.00 ft |

Gannett Fleming
Engineers and Architects, P.C.
*Excellence Delivered As Promised*

Calculation | **Bridge Quantities: SUM-77-3227R**

Description | *Stage 2 Quantities*

| GF Job No: | Bridge SFN | Calculated | Checked | Updated | Verified | Final Rev |
|---|---|---|---|---|---|---|
| 67490 | 7704747 | • RSN 10/27/21 | SAT 10/28/21 | RSN 01/10/22 | SAT 02/04/22 | RSN 04/29/2022 |

| | | | |
|---|---|---|---|
| FA Diaph CAD Area | 102 sf | FA Diaph CAD Sealing Area Limit | 88 sf |
| Beam Seat El.: | 1039.76 ft | | |
| Top/Footing El.: | 1036.17 ft | | |
| FA Diaph CAD Area | 75 sf | | |

## Pier 1+2

| | | | |
|---|---|---|---|
| Cap thickness | 3.00 ft | | |
| Cap CAD Area: | 80.30 sf | Footing Length: | 21.00 ft |
| Cap Length: | 20.00 ft | Foundation Width: | 8.50 ft |
| Wall Stem Thickness: | 3.00 ft | | |
| Wall Section CAD Area: | 43 sf | Foundation Thickness: | 3.00 ft |
| Bottom/Cap Pier 1 El.: | 1034.03 ft | Ex. Footing Width and Length: | 9.00 ft |
| Bottom/Cap Pier 2 El.: | 1035.52 ft | | |
| Top/Footing El. Pier 1: | 1010.40 ft | | |
| Top/Footing El. Pier 2: | 1016.90 ft | | |

## Quantities

**202E 11003 STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN** (LS) = 100,000 — 0

Structure Demolition

| | | | | | |
|---|---|---|---|---|---|
| Deck: | 527 sf | X | $25 | /sf | $ 14,000 |
| RA Removed: | 11 cy | X | $150 | /cy | $ 2,000 |
| FA Removed: | 12 cy | X | $150 | /cy | $ 2,000 |

**202E 22900 APPROACH SLAB REMOVED** (SY) = 235 — 0

APP Slabs: 2110 sf /(9 sf/sy)= 234 sy

**503E 21101 UNCLASSIFIED EXCAVATION, AS PER PLAN** (CY) = 449 — *(CHECK UNIT OF MEASURE)*

| | | | | | | |
|---|---|---|---|---|---|---|
| Pier 1: | 10.50 ft (Width) | X | 23.00 ft (Length) | 9.46 ft (Avg Depth) | /(27 cf/cy)= | 84.6 cy |
| Pier 2: | 10.50 ft (Width) | X | 23.00 ft (Length) | 6.42 ft (Avg Depth) | /(27 cf/cy)= | 57.4 cy |
| FA+wingwall: | 7.75 ft | X | 28.25 ft | 11.50 ft | /(27 cf/cy)= | 93.3 cy |
| | 5.75 ft (Width) | X | 7.50 ft (Length) | 11.50 ft (Avg Depth) | /(27 cf/cy)= | 18.4 cy |
| RA+wingwall: | 7.75 ft | X | 28.00 ft | 11.33 ft | /(27 cf/cy)= | 91.1 cy |
| | 5.75 ft (Width) | X | 11.00 ft (Length) | 11.33 ft (Avg Depth) | /(27 cf/cy)= | 26.5 cy |

Existing Pier Excavation

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ex Pier 1: | 9.00 ft (Width) | X | 9.00 ft (Length) | 7.07 sf (Area of Pier Column) | 15.52 ft (Total Depth) | /(27 cf/cy)= | 42.5 cy |
| Ex Pier 2: | 9.00 ft (Width) | X | 9.00 ft (Length) | 7.07 sf (Area of Pier Column) | 12.52 ft (Total Depth) | /(27 cf/cy)= | 34.3 cy |

**507E 00500 12" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN** (FT) = 840 — 0

| | | | | | | |
|---|---|---|---|---|---|---|
| FA: | 12 | X | 35 ft | Long | = | 420 ft |
| RA: | 12 | X | 35 ft | Long | = | 420 ft |

**507E 00550 12" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED** (FT) = 960 — 0

| | | | | | | |
|---|---|---|---|---|---|---|
| FA: | 12 | X | 40 ft | Long | = | 480 ft |
| RA: | 12 | X | 40 ft | Long | = | 480 ft |

**507E 00600 14" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN** (FT) = 840 — 0

| | | | | | | |
|---|---|---|---|---|---|---|
| Pier 1: | 12 | X | 35 ft | Long | = | 420 ft |
| Pier 2: | 12 | X | 35 ft | Long | = | 420 ft |

**507E 00650 14" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED** (FT) = 960 — 0

| | | | | | | |
|---|---|---|---|---|---|---|
| Pier 1: | 12 | X | 40 ft | Long | = | 480 ft |
| Pier 2: | 12 | X | 40 ft | Long | = | 480 ft |

**505E 11101 PILE DRIVING EQUIPMENT MOBILIZATION, AS PER PLAN** (LS)= — 0

All Piles: Lump Sum

**509E 10001 EPOXY COATED REINFORCING STEEL, AS PER PLAN** (LB) = 72,051 — 0

| | | | | | | |
|---|---|---|---|---|---|---|
| Deck: | | X | 270 lb/cy | | = | 35,962 lb |

| | | | | | | |
|---|---|---|---|---|---|---|
| Diaphragm: | X | 140 lb/cy | UPDATED FROM CALCULATED REINFORCING | = | | 3,477 lb |
| Parapet: | X | 170 lb/cy | | = | | 8,807 lb |
| RA, FA & Wingwalls (w/o footing): | X | 120 lb/cy | | = | | 1,958 lb |
| RA, FA & Wingwalls (only footing): | X | 140 lb/cy | | = | | 3,688 lb |
| Pier: | X | 200 lb/cy | | = | | 11,509 lb |
| Pier Footing: | X | 140 lb/cy | | = | | 6,650 lb |

**510E 10001 DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT, AS PER PLAN** (EACH) = 22 ()

| | |
|---|---|
| Rear Abutment: | 11 |
| Forward Abutment: | 11 |

**510E 20001 REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN** LB 300 #N/A

**511E 34446 CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK** (CY) = 155 (CHECK UNIT OF MEASURE)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Deck - Above Haunch: | | | 4,463 sf (CAD Area) | X | 8.50 in (Thickness) | /(27 cf/cy)= | 117 cy |
| Deck - Haunch: | 212.75 ft (Length) | X | 0.17 sf (Area) | X | 3 (# of Haunches) | /(27 cf/cy)= | 4.0 cy |
| Deck - Overhang: | 212.75 ft (Length) | X | 0.37 sf (Area) | X | 1 (# of Haunches) | /(27 cf/cy)= | 2.9 cy |
| Deck - Ends above Diaphragm: | 27.80 ft (Length) | X | 1.00 sf (Area) | X | 2 (Rear and Forward) | /(27 cf/cy)= | 2.1 cy |
| RA, Diaph: | 102.00 sf (CAD Area) | X | 3.75 ft (Thickness) | | | /(27 cf/cy)= | 14.2 cy |
| FA, Diaph: | 102.00 sf (CAD Area) | X | 3.75 ft (Thickness) | | | /(27 cf/cy)= | 14.2 cy |

**511E 34451 CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET), AS PER PLAN** (CY) = 37 (CHECK UNIT OF MEASURE)

| | | | | | | |
|---|---|---|---|---|---|---|
| Curb/Parapet: | 244.82 ft | X | 4.06 sf | /(27 cf/cy)= | 36.8 cy |

**511E 40512 CLASS QC1 CONCRETE WITH QC/QA, PIER ABOVE FOOTINGS** (CY) = 86 (WALLS)

| | | | | | | |
|---|---|---|---|---|---|---|
| Pier Cap 1: | 3.00 ft (WIDTH) | X | 80.30 sf (CAD Area) | /(27 cf/cy)= | 8.9 cy |
| Pier Wall 1: | 23.63 ft (Height) | X | 43.00 sf (CAD Area) | /(27 cf/cy)= | 37.6 cy |
| Pier Cap 2: | 3.00 ft (WIDTH) | X | 80.30 sf (CAD Area) | /(27 cf/cy)= | 8.9 cy |
| Pier Wall 2: | 18.62 ft (Height) | X | 43.00 sf (CAD Area) | /(27 cf/cy)= | 29.7 cy |

**511E 46512 CLASS QC1 CONCRETE WITH QC/QA, FOOTING** (CY) = 84 ()

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Pier 1 Footing: | 8.50 ft | X | 21.00 ft | X | 3.00 ft | /(27 cf/cy)= | 19.8 cy |
| Pier 2 Footing: | 8.50 ft | X | 21.00 ft | X | 3.00 ft | /(27 cf/cy)= | 19.8 cy |
| FA Footing: | 206.00 sf | X | 3.00 ft | | | /(27 cf/cy)= | 22.9 cy |
| RA, Footing: | 188.00 sf | X | 3.00 ft | | | /(27 cf/cy)= | 20.9 cy |

**511E 44112 CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT NOT INCLUDING FOOTING** (CY) = 38 ()

| | | | | | |
|---|---|---|---|---|---|
| RA, Stem: | 92.00 sf (CAD Area) | X | 3.75 ft (Thickness) | /(27 cf/cy)= | 12.8 cy |
| RA,Wingwall: | 104.00 sf (CAD Area) | X | 1.50 ft (Thickness) | /(27 cf/cy)= | 5.8 cy |
| FA, Stem: | 95.00 sf (CAD Area) | X | 3.75 ft (Thickness) | /(27 cf/cy)= | 13.2 cy |

| | CAD Area | | Thickness | | | |
|---|---|---|---|---|---|---|
| FA,Wingwall | 104.00 sf | X | 1.50 ft | | /(27 cf/cy)= | 5.8 *cy* |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **512E 10101** | **SEALING OF CONCRETE SURFACES (EPOXY-URETHANE), AS PER PLAN** | | | | | | **(SY) = 558** | *()* |
| Parapet & Deck Underside: | 216.8 ft | | | X | 9.44 ft | /(9 sf/sy)= | **227 sy** | |
| Approach Slab Parapets: | 28.0 ft | | | X | 7.82 ft | /(9 sf/sy)= | **24 sy** | |
| RA, Stem: | 40 sf | | | | | /(9 sf/sy)= | **4 sy** | |
| RA, WingWall: | 37 sf | | | | | /(9 sf/sy)= | **4.1 sy** | |
| RA, Wingwall top + sides + back: | 20 sf | | | | | /(9 sf/sy)= | **2 sy** | |
| RA, Diaphragm without fillet area: | 85 sf | | | | | /(9 sf/sy)= | **9 sy** | |
| FA Stem: | 25 sf | | | | | /(9 sf/sy)= | **3 sy** | |
| FA, WingWall: | 38 sf | | | | | /(9 sf/sy)= | **4 sy** | |
| FA, Wingwall top + sides + back: | 31 sf | | | | | /(9 sf/sy)= | **3 sy** | |
| FA, Diaphragm without fillet area: | 88 sf | | | | | | | |
| Pier 1 - Wall: | 569 sf | | | | | /(9 sf/sy)= | **63 sy** | |
| Pier 1 - Cap: | 161 sf | | | | | /(9 sf/sy)= | **18 sy** | |
| | 2.55 ft | X | 3.00 ft | X | 2 | /(9 sf/sy)= | **2 sy** | |
| Pier 2 - Wall: | 535 sf | | | | | /(9 sf/sy)= | **59 sy** | |
| Pier 2 - Cap: | 161 sf | | | | | /(9 sf/sy)= | **18 sy** | |
| | 2.55 ft | X | 3.00 ft | X | 2 | /(9 sf/sy)= | **2 sy** | |

**Existing Pier Column Sealing**

| | | | | | |
|---|---|---|---|---|---|
| Pier 1: | 9.42 ft (perimeter) | X | 58.50 ft (total height) | /(9 sf/sy)= | **61 sy** |
| Pier 2: | 9.42 ft (perimeter) | X | 49.78 ft (total height) | /(9 sf/sy)= | **52 sy** |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **512E 33000** | **TYPE 2 WATERPROOFING** | | | | **(SY) = 7** | *(CHECK UNIT OF MEASURE)* | |
| Rear Wingwall: | 10 ft | Along WW | 3.0 ft | width of sealing | = | **3.3** *SY* | |
| Forward Wingwall: | 10 ft | Along WW | 3.0 ft | width of sealing | = | **3.3** *SY* | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **512E 74000** | **REMOVAL OF EXISTING COATINGS FROM CONCRETE SURFACES** | | | | **(SY) = 610.0** | *()* | |
| Pier 1 | 9.425 ft (perimeter) | X | 102.8 ft (height) | **968.4** | | **322.8** *sy* | |
| Pier 2 | 9.425 ft (perimeter) | X | 91.2 ft (height) | **859.3** | | **286.4** *sy* | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **513E 10260** | **STRUCTURAL STEEL MEMBERS, LEVEL 3** | | | | **(LB) = 115,881** | *(CHECK UNIT OF MEASURE)* | |
| Girder Weight: | Length | | | | | | |
| section 1,5,9 | 213 ft | X | 156.91 lb | X 3 girder(s) | | **100,147** | |
| Bolts: | 960 each | X | 109 lb/100 | | = | **1,046** | |
| Washers: | 960 each | X | 9 lb/100 | | = | **90** | |
| Int Xframes:(3.5x3.5x3/8) | 19.11 ft | X | **X 7.20 lb/ft** | X 27 | = | **3,715** | |
| Int Xframes(4x4x1/2): | 12.67 ft | X | **X 11.30 lb/ft** | X 13 | = | **1,861** | |
| Int Xframes Plate: | 0.06 cf (Volume) | | **X 490 lb/cf** | X 80 (numbers) | | **2,258** | |
| Splice Weight: | 11.25 cf (Volume/all) | | **X 490 lb/cf** | | | **5,513.78** | |
| Splice Bolts: | 1056 each | X | 109 lb/100 | | | = **1,151.04** | |
| Splice Washers: | 1056 each | X | 9 lb/100 | | | = **99.26** | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **513E 20000** | **WELDED STUD SHEAR CONNECTORS** | | | **(EACH) = 1,764** | *()* | |
| G4: | 196 (Rows of studs) | X | 3 (Studs per Row) | | **588** Each | |
| G5: | 196 | X | 3 | | **588** Each | |
| G6: | 196 | X | 3 | | **588** Each | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **514E 00060** | **FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT** | | | | **(SF) = 5,570** | *()* |
| 104.7 in | X | 212.75 ft | X | 3.0 each | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 514E 00066 | FIELD PAINTING STRUCTURAL STEEL, FINISH COAT | | | | | (SF) = | 5,570 | () |
| 514E 00504 | GRINDING FINS, TEARS, SLIVERS ON EXISTING STRUCTURAL STEEL | | | | | (MNHR) = | 2 | () |
| Grinding Time Per Foot | 30.0 sec/ft | X | 212.25 ft | | | | = | 1.8 *ManHours* |
| Time is halved since only one side of existing beam is used | | | Beam Length | | | | | |
| 514E 10000 | FINAL INSPECTION REPAIR | | | | | (EACH) = | 4 | () |
| | Inspection Repair per 150 ft. | | 4.255 | | | | 4 | |
| 514E 27800 | FIELD PAINTING, MISC.: | | | | | (LS) = | 1 | (ADD SUPPLEMENTAL DESCRIPTION) |
| | | | | | | | 1 | |
| 516E 10010 | ARMORLESS PREFORMED JOINT SEAL | | | | | (FT) = | 160 | () |
| Rear Sleeper Slab: | 80 ft | | | | | | = | 80.0 *ft* |
| Forward Sleeper Slab: | 80 ft | | | | | | = | 80.0 *ft* |
| | Length | | | | | | | |
| 516E 13600 | 1" PREFORMED EXPANSION JOINT FILLER | | | | | (SF) = | 25 | () |
| App Slab Parapets: | 6.14 sf | X | 4 | | | | = | 24.6 *sf* |
| | CAD Area | | Number of Joints | | | | | |
| 516E 13900 | 2" PREFORMED EXPANSION JOINT FILLER | | | | | (SF) = | 86 | () |
| RA Wingwall:: | 17.81 sf | + | 23.125 sf | | | | = | 40.9 *sf* |
| FA Wingwall: | 17.81 sf | + | 26.875 sf | | | | = | 44.7 *sf* |
| | | | | | | | = | 0.0 *sf* |
| 516E 44100 | ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) | | | | | (EACH) = | 12 | (2"-3" TK, SPECIFY DIMENSIONS) |
| Total # required: | 12 | each | piers | | | | | |
| | *pers* | | | | | | | |
| 516E 14020 | SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL | | | | | (FT) = | 66 | () |
| RA Abutment: | 33 ft | | | | | | | |
| FA Abutment: | 33 ft | | | | | | | |
| 518E 21200 | POROUS BACKFILL WITH GEOTEXTILE FABRIC | | | | | (CY) = | 39 | (CHECK UNIT OF MEASURE) |
| Rear Abutment: | 200 sf | X | 2.0 ft | | | | /(27 cf/cy)= | 14.8 *cy* |
| | CAD Area | | width | | | | | |
| Rear Wingwall: | 60 sf | X | 2.0 ft | | | | /(27 cf/cy)= | 4.4 *cy* |
| | CAD Area | | width | | | | | |
| Forward Abutment: | 200 sf | X | 2.0 ft | | | | /(27 cf/cy)= | 14.8 *cy* |
| | CAD Area | | width | | | | | |
| Forward Wingwall: | 60 sf | X | 2.0 ft | | | | /(27 cf/cy)= | 4.4 *cy* |
| | CAD Area | | Width | | | | | |
| 518E 40000 | 6" PERFORATED CORRUGATED PLASTIC PIPE | | | | | (FT) = | 78 | () |
| FA+Wingwall: | 38 ft | | | | | | | 38 *ft* |
| RA+Wingwall: | 40 ft | | | | | | | 40 *ft* |
| 518E 40010 | 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS | | | | | (FT) = | 60 | () |
| RA Wingwall: | 30 ft | | | | | | | 30 *ft* |
| FA Wingwall: | 30 ft | | | | | | | 30 *ft* |
| 519E 00100 | SPECIAL - COMPOSITE FIBER WRAP SYSTEM | | | | | (SF) = | 1,285 | () |
| Pier 1 | 9.425 ft | X | 74.0 ft | | | | | 697.4 *sf* |
| | perimeter | | height | | | | | |
| Pier 2 | 9.425 ft | X | 62.3 ft | | | | | 587.2 *sf* |
| | perimeter | | height | | | | | |
| 519E 11100 | PATCHING CONCRETE STRUCTURE | | | | | (SF) = | 129 | () |
| Existing Pier Columns | 1,285.0 sf | X | 10 % | | | | | 128.5 *sf* |
| | | | 10% of total column surface area | | | | | |
| 523E 20001 | DYNAMIC LOAD TESTING, AS PER PLAN | | | | | (EACH) = | 4 | () |

| | | | | | |
|---|---|---|---|---|---|
| | RA: | 1 | | | 1 *each* |
| | Pier 1: | 1 | | | 1 *each* |
| | Pier 2: | 1 | | | 1 *each* |
| | FA: | 1 | | | 1 *each* |
| 523E 20501 | RESTRIKE, AS PER PLAN | | (EACH) = | 4 | () |
| | RA: | 1 | | | 1 *each* |
| | Pier 1: | 1 | | | 1 *each* |
| | Pier 2: | 1 | | | 1 *each* |
| | FA: | 1 | | | 1 *each* |
| 526E 25010 | REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=15") | | (SY) = | 335 | () |
| | App Slabs: 3,012.00 sf | | | /(9 sf/sy)= | 334.7 *sy* |
| 526E 90030 | TYPE C INSTALLATION | | (FT) = | 160 | () |
| | | 160.0 ft (Length) RA & FA | | | |
| 601E 20000 | CRUSHED AGGREGATE SLOPE PROTECTION | | (SY) = | 430 | () |
| | RA + Wingwall: | 2,274 sf | | /(9 sf/sy)= | 252.6 *cy* |
| | FA + Wingwall: | 1,595 sf | | /(9 sf/sy)= | 177.2 *cy* |