The Mannik & Smith Group
1800 Indian Wood Circle
Maumee, OH 43537
(419) 891-2222

SAN-19-15.31
SFN: 7201249

Job Number: 102932
Calc'd By: DRH 11/30/2020
Checked By: RJS 11/30/2020

ESTIMATED QUANTITIES
ODOT0072 - STATE ROUTE 19 OVER FISHING CREEK

Units and Definitions

$$\gamma_{conc} := 150 \, pcf \qquad dollars := 1 \qquad \gamma_{steel} := 490 \, pcf \qquad cy := yd^3 \qquad pcy := \frac{lbf}{cy} \qquad ton := 2kip$$

Bridge Data

$span_1 := 36.00 \, ft$

$L_{bridge} := 39.00 \cdot ft$ *Bridge Limits:*

$w_{bridge} := 30.29 \cdot ft$ *Bridge width (O/O Deck):*
(Including 1/2" Fit-Up between beams)

$\theta := 0.00 \, deg$ *Skew of Bridge*

$n_{Abuts} := 2$ *Number of Abutments*

$n_{Piers} := 0$ *Number of Piers*

Legend

INPUTS	*IMPORTANT VALUES*	*FINAL VALUE*

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ITEM 202E11203 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN　　LUMP

$\text{Rem}_{\text{Deck.Cost}} := 15\,\dfrac{\text{dollars}}{\text{ft}^2}$　　*Removal Cost of Deck*

$\text{Rem}_{\text{Sub.Cost}} := 200\,\dfrac{\text{dollars}}{\text{yd}^3}$　　*Removal Cost of Substructure (Above Average Complex)*

$\text{Rem}_{\text{Steel.Cost}} := 250\,\dfrac{\text{dollars}}{\text{ton}}$　　*Removal Cost of Structural Steel*

Abutment Removal　　*Values From Exist. Plans*

$A_{\text{L.Rear.Wing.Rem}} := 3.34\,\text{ft}^2$　　*Area of Left Rear Wingwall Face to be Removed*

$A_{\text{R.Rear.Wing.Rem}} := 3.68\,\text{ft}^2$　　*Area of Right Rear Wingwall Face to be Removed*

$A_{\text{L.Fwd.Wing.Rem}} := 3.50\,\text{ft}^2$　　*Area of Left Fwd Wingwall Face to be Removed*

$A_{\text{R.Fwd.Wing.Rem}} := 3.72\,\text{ft}^2$　　*Area of Right Fwd. Wingwall Face to be Removed*

$w_{\text{Wing}} := 1.50\,\text{ft}$　　*Width of Wingwall*

$V_{\text{Wing.Removal}} := w_{\text{Wing}} \cdot \left(A_{\text{L.Rear.Wing.Rem}} + A_{\text{R.Rear.Wing.Rem}} + A_{\text{L.Fwd.Wing.Rem}} + A_{\text{R.Fwd.Wing.Rem}}\right)$　　$V_{\text{Wing.Removal}} = 0.79 \cdot \text{yd}^3$

Deck Removal　　*Values From Exist. Plans*

$w_{\text{bridge}} = 30.29\ \text{ft}$　　*Width of Bridge*

$L_{\text{Ex.Bridge}} := 37.1667\,\text{ft}$　　*Length of Bridge*

$A_{\text{Bridge.Removal}} := w_{\text{bridge}} \cdot L_{\text{Ex.Bridge}}$　　$A_{\text{Bridge.Removal}} = 1125.78 \cdot \text{ft}^2$　　*Area of Bridge*

Total Removal Cost

$\text{Total}_{\text{202.Struc.Removal}} := \text{Ceil}\left(V_{\text{Wing.Removal}} \cdot \text{Rem}_{\text{Sub.Cost}} + A_{\text{Bridge.Removal}} \cdot \text{Rem}_{\text{Deck.Cost}}, 10000\right)$

$\text{Total}_{\text{202.Struc.Removal}} = 20000.00 \cdot \text{dollars}$

ITEM 202E22900 - APPROACH SLAB REMOVED　　　　　　SY

$w_{\text{Ex.Appr}} := 30.00\,\text{ft}$　　*Width of Exist. Approach Slab*

$L_{\text{Ex.Appr}} := 25.00\,\text{ft}$　　*Length of Exist Approach Slab*

$A_{\text{Appr}} := w_{\text{Ex.Appr}} \cdot L_{\text{Ex.Appr}}$　　$A_{\text{Appr}} = 750.00 \cdot \text{ft}^2$

$\text{Total}_{\text{202.Appr.Removal}} := \text{Ceil}\left(2 A_{\text{Appr}}, \text{yd}^2\right)$　　$\text{Total}_{\text{202.Appr.Removal}} = 167.00 \cdot \text{yd}^2$

ITEM 202E23500 - WEARING COURSE REMOVED　　　　　SY

$\text{Total}_{\text{202.Wearing.Removal}} := \text{Ceil}\left(A_{\text{Bridge.Removal}} + 2 \cdot A_{\text{Appr}}, \text{yd}^2\right)$　　$\text{Total}_{\text{202.Wearing.Removal}} = 292.00 \cdot \text{yd}^2$

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ITEM 503E21100 - UNCLASSIFIED EXCAVATION   CY

Abutments: Values From CSUB.dgn Basemap

$A_{Excav} := 3.94 ft^2$ *Section Area of Abutment Excavation*

$L_{Excav} := 36.50 ft$ *Length of Abutment Excavation (Between Wingwalls)*

$V_{Abut.Excav} := A_{Excav} \cdot L_{Excav}$ $V_{Abut.Excav} = 5.33 \cdot yd^3$

$Total_{503.Excavation} := Ceil(2 \cdot V_{Abut.Excav}, yd^3)$ $Total_{503.Excavation} = 11.00 \cdot yd^3$

ITEM 509E10001 - EPOXY COATED REINFORCING STEEL, AS PER PLAN   LB

$Total_{Abut.Steel} := 136 lbf$

$Total_{Super.Steel} := 4377 lbf$

$Total_{509.Reinf.Steel} := Total_{Abut.Steel} + Total_{Super.Steel}$ $Total_{509.Reinf.Steel} = 4513.00 \, lbf$

ITEM 509E20001 - REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN   LB

$Total_{509.Replace.Reinf.Steel} := 50 lbf$ $Total_{509.Replace.Reinf.Steel} = 50.00 \, lbf$

ITEM 510E10000 - DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT   EACH

$n_{Wing.Dowels.Typical} := 10$ *Number of Dowels for Typical Wingwall Detail*

$n_{Wing.Dowels.L.Rear} := 6$ *Number of Dowels for Left Rear Wingwall Detail*

$Total_{510.Dowels} := 3 \cdot n_{Wing.Dowels.Typical} + n_{Wing.Dowels.L.Rear}$ $Total_{510.Dowels} = 36.00$

ITEM 511E31611 - CLASS QC2 CONCRETE, SUPERSTRUCTURE, AS PER PLAN   CY

Deck:

$t_{Deck} := 6.625 in$ *Average Deck Thickness including additional haunch thickness*

$w_{bridge} = 30.29 \, ft$ *Width of Bridge*

$L_{bridge} = 39.00 \, ft$ *Length of Bridge*

$V_{Deck} := t_{Deck} \cdot w_{bridge} \cdot L_{bridge}$ $V_{Deck} = 24.15 \cdot yd^3$

Diaphragm:

$A_{Abut.Dia} := 1.875 ft^2$ *Section Area of Abutment Diaphragm*

$V_{Abut.Dia} := A_{Abut.Dia} \cdot w_{bridge}$ $V_{Abut.Dia} = 2.10 \cdot yd^3$

$Total_{511.Super} := Ceil(V_{Deck} + n_{Abuts} \cdot V_{Abut.Dia}, yd^3)$ $Total_{511.Super} = 29.00 \cdot yd^3$

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ITEM 511E45711 - CLASS QC1 CONCRETE, ABUTMENT, AS PER PLAN   *CY*

Wingwalls:

$A_{Rear.Wing.1} := 4.07ft^2$ *Face Area of Right Rear Wingwall (Measured from CSUB.dgn)*

$A_{Rear.Wing.2} := 4.00ft^2$ *Face Area of Left Rear Wingwall (Measured from CSUB.dgn)*

$A_{Fwd.Wing.1} := 4.07ft^2$ *Face Area of Left Fwd. Wingwall (Measured from CSUB.dgn)*

$A_{Fwd.Wing.2} := 4.09ft^2$ *Face Area of Right Fwd. Wingwall (Measured from CSUB.dgn)*

$w_{Wing} = 1.50 \ ft$ *Width of Wingwall*

$V_{Rear.Wing} := \left(A_{Rear.Wing.1} + A_{Rear.Wing.2}\right) \cdot w_{Wing}$ $V_{Rear.Wing} = 0.45 \cdot yd^3$

$V_{Fwd.Wing} := \left(A_{Fwd.Wing.1} + A_{Fwd.Wing.2}\right) \cdot w_{Wing}$ $V_{Fwd.Wing} = 0.45 \cdot yd^3$

$V_{Total.Wing} := V_{Rear.Wing} + V_{Fwd.Wing}$ $V_{Total.Wing} = 0.90 \cdot yd^3$

Total Abument Concrete:

$Total_{511.Abutment} := Ceil\left(V_{Total.Wing}, yd^3\right)$ $Total_{511.Abutment} = 1.00 \cdot yd^3$

ITEM 512E10100 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)   *SY*

Abutment Sealing   *(Areas Measured from CSUB.dgn Basemap)*

Rear Abutment:

Stem:

$A_{Rear.Face.Stem} := 97.45ft^2$ *Front Face of Cap and Stem Between Ground Line and Abutment Seat including the face of wingwalls*

Wingwalls:

$A_{Wing.Side} := 3.10ft^2$ *Interior Face Area of Wingwall on Beam Seat Side*

$A_{Left.Rear.Wing.Top} := 6.00ft^2$ *Plan Area of Left Rear Wing Sealing Area including Beam Seat Outside of Beam Limits*

$A_{Right.Rear.Wing.Top} := 18.13ft^2$ *Plan Area of Right Rear Wing Sealing Area including Beam Seat Outside of Beam Limits*

$L_{Left.Rear.Wing} := 2.00ft$ *Length of Left Rear Wingwall Top*

$L_{Right.Rear.Wing} := 6.04ft$ *Length of Right Rear Wingwall Top*

$h_{Back.Wing.Seal} := 6.00in$ *Height of Sealing on Backside of Wingwall*

$w_{Wing} = 1.50 \ ft$ *Width of the Wingwall*

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$$A_{Wing.Rear.1.Back} := L_{Left.Rear.Wing} \cdot h_{Back.Wing.Seal} \qquad A_{Wing.Rear.1.Back} = 1.00 \cdot ft^2$$

$$A_{Wing.Rear.2.Back} := L_{Right.Rear.Wing} \cdot h_{Back.Wing.Seal} \qquad A_{Wing.Rear.2.Back} = 3.02 \cdot ft^2$$

$$A_{RA.Seal} := A_{Rear.Face.Stem} + 2(A_{Wing.Side}) + A_{Left.Rear.Wing.Top} + A_{Right.Rear.Wing.Top} + A_{Wing.Rear.1.Back} + A_{Wing.Rear.2.Back}$$

$$A_{RA.Seal} = 131.80 \cdot ft^2$$

Forward Abutment:

Stem:

$$A_{Fwd.Face.Stem} := 108.69 ft^2$$

Front Face of Cap and Stem Between Ground Line and Abutment Seat including the face of wingwalls

Wingwalls:

$$A_{Wing.Side} = 3.10 \cdot ft^2$$

Interior Face Area of Wingwall on Beam Seat Side

$$A_{Left.Fwd.Wing.Top} := 24.87 ft^2$$

Plan Area of Left Fwd Wing Sealing Area including Beam Seat Outside of Beam Limits

$$A_{Right.Fwd.Wing.Top} := 18.13 ft^2$$

Plan Area of Right Fwd Wing Sealing Area including Beam Seat Outside of Beam Limits

$$L_{Left.Fwd.Wing} := 7.76 ft$$

Length of Left Fwd Wingwall Top

$$L_{Right.Fwd.Wing} := 6.04 ft$$

Length of Right Fwd Wingwall Top

$$h_{Back.Wing.Seal} = 0.50 \ ft$$

Height of Sealing on Backside of Wingwall

$$w_{Wing} = 1.50 \ ft$$

Width of the Wingwall

$$A_{Wing.Fwd.1.Back} := L_{Left.Fwd.Wing} \cdot h_{Back.Wing.Seal} \qquad A_{Wing.Fwd.1.Back} = 3.88 \cdot ft^2$$

$$A_{Wing.Fwd.2.Back} := L_{Right.Fwd.Wing} \cdot h_{Back.Wing.Seal} \qquad A_{Wing.Fwd.2.Back} = 3.02 \cdot ft^2$$

$$A_{FA.Seal} := A_{Fwd.Face.Stem} + 2 \cdot A_{Wing.Side} + A_{Left.Fwd.Wing.Top} + A_{Right.Fwd.Wing.Top} + A_{Wing.Fwd.1.Back} + A_{Wing.Fwd.2.Back}$$

$$A_{FA.Seal} = 164.79 \cdot ft^2$$

$$Total_{Abut.Seal} := Ceil(A_{RA.Seal} + A_{FA.Seal}, yd^2) \qquad Total_{Abut.Seal} = 33.00 \cdot yd^2$$

Superstructure Sealing   *(Measured from CSUPER.dgn Basemap)*

$$P_{Super.Seal} := 2.37 ft$$ *Perimeter of Sealing around Beam*

$$L_{bridge} = 39.00 \ ft$$ *Length of Bridge*

$$Total_{Super.Seal} := Ceil[2 \cdot (P_{Super.Seal}) \cdot L_{bridge}, yd^2] \qquad Total_{Super.Seal} = 21.00 \cdot yd^2$$

Total Epoxy Sealing

$$Total_{512.Epoxy} := Ceil(Total_{Abut.Seal} + Total_{Super.Seal}, yd^2) \qquad Total_{512.Epoxy} = 54.00 \cdot yd^2$$

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ITEM 512E10601 - CONCRETE REPAIR BY EPOXY INJECTION, AS PER PLAN   *FT*

$$L_{Crack.Repair} := 30.00\,ft$$ *Length of Crack Repair including Contingency From Plans*

$$Total_{512.Epoxy.Injection} := Ceil\left(L_{Crack.Repair}, ft\right)$$ $Total_{512.Epoxy.Injection} = 30.00\ ft$

ITEM 512E33000 - TYPE 2 WATERPROOFING   *SY*

$$w_{Type.2} := 3.00\,ft$$ *Width of Type 2 Waterproofing*

$$h_{CJ.Type.2} := 3.3333\,ft$$ *Height of Const.Joint*

$$Total_{512.Type.2} := Ceil\left[3\cdot\left(w_{Type.2}\cdot h_{CJ.Type.2}\right), yd^2\right]$$ $Total_{512.Type.2} = 4.00\cdot yd^2$

ITEM 512E74000 - REMOVAL OF EXISTING COATINGS FROM CONCRETE SURFACES   *SY*

Abutment Sealing Removal   *(Areas Measured from CSUB.dgn Basemap)*

Rear Abutment:

Stem:

$$A_{X.Rear.Face.Stem} := 89.29\,ft^2$$ *Front Face of Cap and Stem between Ground Line and Abutment Seat including the Face of the Wingwalls*

Wingwalls:

$$A_{X.Left.Rear.Wing.Top} := 3.00\,ft^2$$ *Plan Area of Left Rear Beam Seat outside of Beam Limits*

$$A_{X.Right.Rear.Wing.Top} := 15.13\,ft^2$$ *Plan Area of Right Rear Wingwall including Beam Seat outside of Beam Limits*

$$A_{X.Ext.Wing.Face} := 3.00\,ft^2$$ *Area of Exterior Wingwall Edge sealing removal*

$$A_{RA.Seal.Removed} := A_{X.Rear.Face.Stem} + A_{X.Left.Rear.Wing.Top} + A_{X.Right.Rear.Wing.Top} + A_{X.Ext.Wing.Face}$$

$$A_{RA.Seal.Removed} = 110.42\cdot ft^2$$

Forward Abutment:

Stem:

$$A_{X.Fwd.Face.Stem} := 100.53\,ft^2$$ *Front Face of Cap and Stem Between Ground Line and Abutment Seat including the face of wingwalls*

Wingwalls:

$$A_{X.Left.Fwd.Wing.Top} := 21.87\,ft^2$$ *Plan Area of Left Forward Wing Sealing Area including Beam Seat Outside of Beam Limits*

$$A_{X.Right.Fwd.Wing.Top} := 15.13\,ft^2$$ *Plan Area of Right Forward Wing Sealing Area including Beam Seat Outside of Beam Limits*

$$A_{X.Ext.Wing.Face} := 3.00\cdot ft^2$$ *Area of Exterior Wingwall Edge sealing removal*

$$A_{FA.Seal.Removed} := A_{X.Fwd.Face.Stem} + A_{X.Left.Fwd.Wing.Top} + A_{X.Right.Fwd.Wing.Top} + 2\cdot\left(A_{X.Ext.Wing.Face}\right)$$

$$A_{FA.Seal.Removed} = 143.53\cdot ft^2$$

$$Total_{Abut.Seal.Removed} := Ceil\left(A_{RA.Seal.Removed} + A_{FA.Seal.Removed}, yd^2\right)$$ $Total_{Abut.Seal.Removed} = 29.00\cdot yd^2$

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ITEM 515E12020 - PRESTRESSED CONCRETE COMPOSITE BOX BEAM BRIDGE MEMBERS, LEVEL 1, CB17-36 (37'-0" LONG)

EACH

$n_{CB17.36.Beams} := 2$

$Total_{515.CB17.36.Beams} := n_{CB17.36.Beams}$

$Total_{515.CB17.36.Beams} = 2.00$

ITEM 515E12030 - PRESTRESSED CONCRETE COMPOSITE BOX BEAM BRIDGE MEMBERS, LEVEL 1, CB17-48 (37'-0" LONG)

EACH

$n_{CB17.48.Beams} := 6$

$Total_{515.CB17.48.Beams} := n_{CB17.48.Beams}$

$Total_{515.CB17.48.Beams} = 6.00$

ITEM 516E13600 - 1" PREFORMED EXPANSION JOINT FILLER

SF

$h_{1in.PEJF.Edge} := 2.00 ft$ *Height of PEJF at Joint between Deck and Wingwall*

$w_{1in.PEJF.Edge} := 1.50 ft$ *Width of PEJF at Joint between Deck and Wingwall*

$Total_{516.Joint.Fill.1in} := Ceil\left(4 \cdot h_{1in.PEJF.Edge} \cdot w_{1in.PEJF.Edge}, ft^2\right)$

$Total_{516.Joint.Fill.1in} = 13.00 \cdot ft^2$

ITEM 516E14020 - SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL

FT

$w_{bridge} = 30.29 ft$

$L_{Joint.Seal} := w_{bridge} + 3.00 ft$ $L_{Joint.Seal} = 33.29 ft$

$Total_{516.Joint.Seal} := Ceil\left(2 L_{Joint.Seal}, ft\right)$

$Total_{516.Joint.Seal} = 67.00 ft$

ITEM 516E41100 - 1/8 PREFORMED BEARING PAD

EACH

$n_{Beams} := 8$ *Number of Beams*

$n_{Pads.Beam} := 2$ *Number of Pads per Beam End*

$n_{Abuts} = 2.00$ *Number of Abutments*

$Total_{516.Shims} := n_{Beams} \cdot n_{Pads.Beam} \cdot n_{Abuts}$

$Total_{516.Shims} = 32.00$

ITEM 516E43100 - ELASTOMERIC BEARING WITH INTERNAL LAMINATES ONLY (NEOPRENE) (6"X9"X1")

EACH

$Total_{516.Bearing} := Total_{516.Shims}$

$Total_{516.Bearing} = 32.00$

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ITEM 517E70000 - RAILING (TWIN STEEL TUBE)   *FT*

$L_{Bridge.Railing} := 42.4167\,ft$ *Length of Bridge Railing*

$Total_{517.Railing} := Ceil(2 \cdot L_{Bridge.Railing}, ft)$ $Total_{517.Railing} = 85.00\,ft$

ITEM 518E21200 - POROUS BACKFILL WITH GEOTEXTILE FABRIC   *CY*

$A_{Porous.Fill} := 3.14\,ft^2$ *Section Area of Porous Backfill*

$L_{Excav} = 36.50\,ft$ *Width of Bridge Seat*

$Total_{518.Backfill} := Ceil(2 \cdot A_{Porous.Fill} \cdot L_{Excav}, yd^3)$ $Total_{518.Backfill} = 9.00 \cdot yd^3$

ITEM 518E22300 - SPECIAL - STEEL DRIP STRIP   *FT*

$L_{bridge} = 39.00\,ft$ *Length of Bridge*

$Total_{518.Drip.Strip} := Ceil(2 \cdot L_{bridge}, ft)$ $Total_{518.Drip.Strip} = 78.00\,ft$

ITEM 519E11101 - PATCHING CONCRETE STRUCTURE, AS PER PLAN   *SF*

$A_{Patching} := 3.00\,ft^2$ *Area of Patching from Plans including Contingency*

$Total_{519.Patching} := A_{Patching}$ $Total_{519.Patching} = 3.00 \cdot ft^2$

ITEM 526E10000 - REINFORCED CONCRETE APPROACH SLAB (T=12")   *SY*

Dimensions from Site Plan

$L_{Appr.Slab} := 15.00\,ft$ *Length of Approach Slab*

$w_{Appr.Slab} := w_{bridge}$ *Width of Approach Slab*

$A_{Appr.Slab} := L_{Appr.Slab} \cdot w_{Appr.Slab}$ $A_{Appr.Slab} = 50.48 \cdot yd^2$

$Total_{526.Appr.Slab} := Ceil(2 \cdot A_{Appr.Slab}, yd^2)$ $Total_{526.Appr.Slab} = 101.00 \cdot yd^2$

ITEM 526E90010 - TYPE A INSTALLATION   *FT*

$n_{Abuts} = 2.00$

$L_{Joint} := w_{bridge}$

$Total_{526.Type.A.Install} := Ceil(n_{Abuts} \cdot L_{Joint}, ft)$ $Total_{526.Type.A.Install} = 61.00\,ft$

ITEM 601E32211 - ROCK CHANNEL PROTECTION, TYPE C WITH AGGREGATE FILTER , AS PER PLAN

CY

$A_{RA.RCP} := 398.43 \text{ft}^2$　　　　　*Plan Area of RCP at Rear Abutment from Profile View*

$A_{FA.RCP} := 283.90 \text{ft}^2$　　　　　*Plan Area of RCP at Fwd. Abutment from Profile View*

$t_{RCP} := 2.00 \text{ft}$　　　　　*Thickness of Slope Protection*

$RCP_{RA.Adjust} := \dfrac{\sqrt{1^2 + 4.25^2}}{4.25}$　　　$RCP_{RA.Adjust} = 1.03$　　*Rear Abutment Slope is approximately 4.25:1*

$RCP_{FA.Adjust} := \dfrac{\sqrt{1^2 + 3^2}}{3}$　　　$RCP_{FA.Adjust} = 1.05$　　*Fwd Abutment Slope is approximately 3:1*

$V_{RA.RCP} := RCP_{RA.Adjust} \cdot A_{RA.RCP} \cdot t_{RCP}$　　　$V_{RA.RCP} = 30.32 \cdot \text{yd}^3$

$V_{FA.RCP} := RCP_{FA.Adjust} \cdot A_{FA.RCP} \cdot t_{RCP}$　　　$V_{FA.RCP} = 22.17 \cdot \text{yd}^3$

$Total_{601.RCP} := \text{Ceil}\left(V_{RA.RCP} + V_{FA.RCP}, \text{yd}^3\right)$　　　　　　　　$Total_{601.RCP} = 53.00 \cdot \text{yd}^3$

SUMMARY

$Total_{202.Struc.Removal} = 20000.00 \cdot \text{dollars}$

$Total_{202.Appr.Removal} = 167.00 \cdot \text{yd}^2$

$Total_{202.Wearing.Removal} = 292.00 \cdot \text{yd}^2$

$Total_{503.Excavation} = 11.00 \cdot \text{yd}^3$

$Total_{509.Reinf.Steel} = 4513.00 \text{ lbf}$

$Total_{509.Replace.Reinf.Steel} = 50.00 \text{ lbf}$

$Total_{510.Dowels} = 36.00$

$Total_{511.Super} = 29.00 \cdot \text{yd}^3$

$Total_{511.Abutment} = 1.00 \cdot \text{yd}^3$

$Total_{512.Epoxy} = 54.00 \cdot \text{yd}^2$

$Total_{512.Epoxy.Injection} = 30.00 \text{ ft}$

$Total_{512.Type.2} = 4.00 \cdot \text{yd}^2$

$Total_{Abut.Seal.Removed} = 29.00 \cdot \text{yd}^2$

$Total_{515.CB17.36.Beams} = 2.00$

$Total_{515.CB17.48.Beams} = 6.00$

$Total_{516.Joint.Fill.1in} = 13.00 \cdot \text{ft}^2$

$Total_{516.Joint.Seal} = 67.00 \text{ ft}$

$Total_{516.Shims} = 32.00$

$Total_{516.Bearing} = 32.00$

$Total_{517.Railing} = 85.00 \text{ ft}$

$Total_{518.Backfill} = 9.00 \cdot \text{yd}^3$

$Total_{518.Drip.Strip} = 78.00 \text{ ft}$

$Total_{519.Patching} = 3.00 \cdot \text{ft}^2$

$Total_{526.Appr.Slab} = 101.00 \cdot \text{yd}^2$

$Total_{526.Type.A.Install} = 61.00 \text{ ft}$

$Total_{601.RCP} = 53.00 \cdot \text{yd}^3$