STRUCTURE ESTIMATED QUANTITIES

TANGENT DRILLED SHAFT WALL 4W2

NORTHSIDE OF I-70 EB FROM FRA-70-1395C TO FRA-70-1405C

FRA-70/71-12.68/14.86
PID No. 105523

Franklin County, Ohio

Prepared For:

The Ohio Department of Transportation
District 6

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Revised: November 29, 2021

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Job WALL 4W2
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WALL 4W2 QUANTITIES

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

PARTIAL WALL REMOVAL BEHIND PROPOSED WALL

APPROX. LENGTH ≈ 178 ft.

∴ AREA = (2.0')(178') = 356 SF

FULL REMOVAL IN FRONT OF PROPOSED WALL

APPROX. LENGTH ≈ 190 ft
APPROX. HEIGHT ≈ 25 ft.

∴ AREA = 4750 SF

TOTAL = (356 SF + 4750 SF) \$10.00/SF = \$51060
USE \$55,000
LUMP SUM

ITEM 503 - COFFERDAMS AND EXCAVATION BRACING

WOOD LAGGING = 148 SF
PRECAST PANELS = 514 SF
SHEETING (DRILLED SHAFTS) = (544 SF)(6) = 3264 SF
HP14×73 = [(36')(2) + 19']73 = 6643 lbs.

COST:

WOOD LAGGING	(148 SF)(\$10.00/SF)	=	\$1480
PRECAST PANELS	(514 SF)(\$50.00/SF)	=	\$25700
SHEETING	(3264 SF)(\$12.00/SF)	=	\$39168
HP14×73	(6643 lbs)(\$0.50/lb)	=	\$3322
			\$69670

TOTAL: \$70,000 LUMP SUM

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ITEM 503 - UNCLASSIFIED EXCAVATION

EXCAVATION REQUIRED TO CONSTRUCT DRILLED SHAFT CAP

CAP, POROUS BACKFILL, LENGTH

$(8.25' + 1' + 2' + 1')(5.5')(185)\left(\frac{CY}{27CF}\right) = \underline{462\ CY}$

ITEM 509 - EPOXY COATED REINFORCING STEEL

69,661 LBS

ITEM 511 - CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET), AS PER PLAN

KNEE WALL AREA = 3.62 SF

LENGTH = 57.1' + 11.3' + 113.1' + 6.1' + 122.1' = 309.7 ft.

VOLUME = $(3.62\ SF)(309.7')\frac{CY}{27CF}$ = $\underline{42\ CY}$

ITEM 511 - CLASS QC1 CONCRETE MISC.: CAST-IN-PLACE CONCRETE WALL

$(17')(13')(2')\frac{CY}{27CF}$ = $\underline{17\ CY}$

ITEM 511 - CLASS QC1 CONCRETE WITH QC/QA, FOOTING

~~[1728.5 SF - (25.5 SF)(37 DRILLED SHAFTS) - 7.3 SF (1 DRILLED SHAFT) - 35.6 SF] CY/27CF = 78 CY~~

See Page 7A/7.

ITEM 867 - TEMPORARY WIRE FACED MECHANICALLY STABILIZED EARTH WALL, AS PER PLAN

LUMP SUM

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ITEM 511 - CLASS QC2 CONCRETE WITH QC/QA, SIDEWALK, AS PER PLAN

AVG. LENGTH

VOLUME:

① (1.6')(13.83')(205') = 4536 CF
② (1.5')(8.25')(210') = 2599 CF
③ (0.5')(1025 SF) = 513 CF
④ (45.86 SF)(2.0') = 92 CF
7740 CF

TOTAL (7740 CF) $\frac{CY}{27 CF}$ = 287 CY

ITEM 511 - CLASS QC1 CONCRETE, MISC.: SUPPORT BRACKET AND DRILLED SHAFT CAP

SUPPORT BRACKETS:

DRILLED SHAFT #	VOLUME		
1	(63.3 SF)(2.83')	=	179 CF
2	(56 SF)(2.83')	=	159 CF
4	(42.3 SF)(2.83')	=	120 CF
7	(47.8 SF)(4.0')	=	191 CF
10	(54.2 SF)(4.0')	=	217 CF
13	" "	=	217 CF
16	" "	=	217 CF
19	" "	=	217 CF
			1517 CF

DRILLED SHAFT CAP

① (4')(8.25')(203' + 113') = 10428 CF
② (4')(8.25)(8.0')6 = 1584 CF
③ (4')(8.25)(8.0')6 = 1584 CF
COPING WALL = (1.75')(3.7')(113') = 732 CF
BTWN SHAFTS 1 + 2 = (8.25')(4')(26') = 858 CF
④ (1.25')(3.0')(314') = 1178 CF
16364 CF

TOTAL = (1517 CF + 16364 CF) $\frac{CY}{27 CF}$ = 663 CY

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ITEM 512 - SEALING CONCRETE SURFACES (NON-EPOXY)

KNEE WALL = (1.42' + 2.67')(310') = 1268 SF

SIDEWALK = (12.42)(114') + (8')(6') = 1464 SF

COPING WALL = (1.58')(113') = 179 SF

2911 SF

TOTAL (2911 SF) $\frac{SY}{9SF}$ = 323 SY

ITEM 512 - SEALING CONCRETE SURFACES (EPOXY - URETHANE)

KNEE WALL (2.67')(310') = 828 SF

AVG. DEPTH

FRONT FACE = (27.4')(315') = 8631 SF
(INCLUDES BRACKETS)

SIDES OF BRACKETS:
2 [63.3 + 56 + 42.3 + 47.8 + 4(54.2)] = 852 SF

UNDERSIDE/SIDEWALK = 1628 SF

11939 SF

TOTAL = (11939 SF) $\frac{SY}{9SF}$ = 1327 SY

ITEM 512 - TYPE 2 WATERPROOFING

[(2')(4') + 1234.5 SF + 624.5 SF
+ (58.5')(1.0') + 125.8'(1.0') + 112.7'(3.0')] $\frac{CY}{9CF}$ = 155 SY

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Job WALL 4W2
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ITEM 516 - 1" PREFORMED EXPANSION JOINT FILLER

END WALL

$(4')(4')(2) + (7.25')(4) + (3)(3.6') = \underline{\underline{72 \text{ SF}}}$

ITEM 518 - POROUS BACKFILL WITH GEOTEXTILE FABRIC

$[(4')(2') + (2.5')(2')](314') \frac{CY}{27CF} = \underline{152 \text{ CY}}$

ITEM 518 - 6" PERFORATED CORRUGATED PLASTIC PIPE

$(314')$(2 PIPES = ONE BEHIND WALL, ONE IN FRONT PANEL FOOTING) $= \underline{\underline{628 \text{ FT}}}$

ITEM 518 - 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS

$\underline{\underline{29 \text{ FT}}}$

Revised:	MOJ	3-15-20
Checked:	RHC	3-16-20

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ITEM 524 - DRILLED SHAFTS, 60" DIAMETER, ABOVE BEDROCK, WITH QC/QA

79 FT.

ITEM 524 - DRILLED SHAFTS, 96" DIAMETER, ABOVE BEDROCK, WITH QC/QA, AS PER PLAN

TOTAL = 2955 FT.

ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL 4

X-SECTIONAL AREA = (18")(1")(2) + (60")(5/8") = 73.5 IN²

UNIT WEIGHT = [(73.5 IN²)/144](490 PCF) = 250.1 PLF

TOTAL LENGTH = 1,300.93 FT (SUM OF PLAN TABLE)

TOTAL = (250.1 PLF)(1,300.93 FT) = 325,363 LBS

ITEM SPECIAL - ENGINEERED FILL: LIGHTWEIGHT CELLULAR CONCRETE FILL, PERVIOUS

AVERAGE DEPTH = 15 FT.
AVERAGE WIDTH = (4.2' + 9')(1/2) = 6.6 FT.

VOLUME (15')(6.6')(113')(CY/27CF) = 415 CY

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ITEM SPECIAL - STRUCTURES: PRECAST FACADE PANELS

See Page 7A/7.

~~TOTAL AREA = 4702 SF~~

ITEM 607 - FENCE MISC.: WALL MOUNTED TYPE A (WITH VANDAL MESH)

TOTAL LENGTH = 309 FT.

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Calculated by RFV Date 11/23/21
Checked by DJC Date 11/23/21

ITEM 511 - CLASS QC1 CONCRETE WITH QC/QA, TOOTHING

PLAN AREA (FACE OF WALL TO BACK OF FTG.) = 1728.5 sf

PLAN AREA (FRONT. FTG. TO FACE OF WALL) = $8''/12 \times 314.60' = 209.73$ sf

DRILLED SHAFT AREAS = $\frac{51.05 \text{ sf}}{2} \times 37 + \frac{20.13 \text{ sf}}{2} = 954.49$ f

PLAN AREA OF PANEL = $11''/12 \times 314.60' = 288.38$ sf

SUB-BASE AREA BTWN. D.S 1 & 2 = 26.17 sf

VOLUME 1 = (1728.5 sf - 954.49 sf - 26.17 sf) x 2.5'
- (288.38 sf x 0.5) = 1725.41 cf

VOLUME 2 = 209.73 sf x 2' = 419.46 cf

TOTAL = (1725.41 + 419.46) ÷ 27 = 79.43 | say 80 cy |

ITEM SPECIAL - STRUCTURES : PRECAST FACADE PANELS

CADD AREA = 9702.08 sf | say 9703 sf |