# MED-18-12.99

# CULVERT NO. 1

**SFN: 5200695**

**Medina County**

**PID No. 92953**

# CULVERT ESTIMATED QUANTITIES
# Stage 3 Submittal

**for**

**Ohio Department of Transportation – District 3**

Prepared by:

GPD GROUP®
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June 14, 2018

ESTIMATED QUANTITIES

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Job MED-18-12.99 - CULVERT NO. 1
Sheet No. 1 of
Calculated by DJC Date 6/8/18
Checked by Date

ITEM 202 - STRUCTURE REMOVED, AS PER PLAN

TOTAL = LUMP SUM (FOR REMOVAL OF EACH END)

ITEM 503 - UNCLASSIFIED EXCAVATION

TOTAL = LUMP SUM

ITEM 503 - COFFERDAMS & EXCAVATION BRACING, AS PER PLAN

TOTAL = LUMP SUM

ITEM 509 - EPOXY COATED REINFORCING STEEL

FROM REINFORCING STEEL LISTS = 1513# (WINGS) + 191# (HEADWALLS) + 4133# (FTG.) = 5837 LB

ITEM 511 - CLASS QC1 CONCRETE, RETAINING/WINGWALL NOT INCLUDING FOOTING

WINGWALLS = $\left[\left(\frac{1}{2}\times(975.00+970.50)-964.00\right)\times 11.833'\times 1.50' + \underbrace{(0.25'\times 0.50'\times 11.833')}_{\text{FTG. KEY}} + \underbrace{11.0'\times 0.81\square'}_{\text{CADD AREA - CORNER}}\right]\times 4 = 662.80\ CF$

HEADWALLS = $1.0'\times 12.0'\times 1.0'\times 2 = 24.0\ CF$

∴ TOTAL FOR ITEM = $(662.80+24.0)\div 27 = 25.44\ CY \Rightarrow$ SAY 26 CY

ITEM 511 - CLASS QC1 CONCRETE, FOOTING

CADD AREA OF FOOTING = $266.24\square'$ ; BOTTOM SHEAR KEY (CADD AREA) = $45.8\square'$
SLAB ON TOP OF FTG. TOE @ OUTLET/INLET = $1.0'\times 1.0'\times 3.4167' = 34.17\ CF$

∴ TOTAL FOR ITEM = $(266.24\square'\times 2.0' + 34.17\ CF + 45.8\square'\times 2.0')\times 2\div 27$
$= 48.8\ CY \Rightarrow$ SAY 49 CY

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Job MED-18-12.99 - CULVERT NO. 1
Sheet No. 2 of
Calculated by DJC Date 6/8/18
Checked by Date

## ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)

HEADWALL ⅔ TOP FRONT = (2.0' + 1.0' + 1.0') × 12.0' = 48 □'

WINGWALLS:
- TOP ⅔ BACK = $(\sqrt{4.5^2 + 11.83^2}) \times (1.5' + 0.50') = 25.31$ □'
- SHORT END = 1.0' × 1.5' = 1.50 □'
- TOP CORNER = 0.81 □' (CADD AREA)
- CORNER BY INLET/OUTLET = (11.0' - 1.0') × 1.15' = 11.5 □'
- FRONT = ½ × (11.0' - 1.0') × 11.833' = 59.2 □'

TOTAL FOR ITEM = [48.00 □' × 2 + (25.32 □' + 1.5 □' + 0.81 □' + 11.5 □' + 59.2 □') × 4] ÷ 9
= 54.37 SY ⇨ SAY **55 SY**

## ITEM 512 - TYPE 2 WATERPROOFING

PERIMETER ON CULVERT = 10.0' + 10.0' + (1.0' + 12.0' + 1.0') = 34.0'
∴ AREA = (30.0' + 1.0' + 1.0') × 34.0' = 1088 □'
(1.0' + 1.0' EXTENDS 1.0' ON TO EXISTING)

WINGWALL CORNERS = 11.0' × 3.0' × 4 = 132.0 □'

∴ TOTAL FOR ITEM = (1088 + 132) ÷ 9 = 135.56 SY ⇨ SAY **136 SY**

## ITEM 516 - 1" PREFORMED EXPANSION JOINT FILLER

TOTAL = 1.0' × 11.0' × 4 = **44 SF**

## ITEM 518 - POROUS BACKFILL WITH GEOTEXTILE FABRIC

AREA = ½ × 9.0' × 11.833' = 53.25 □'

∴ TOTAL FOR ITEM = 53.25 □' × 1.5' × 4 ÷ 27 = 11.833 CY ⇨ SAY **12 CY**

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Job MED-18-12.99 - CULVERT NO. 1
Sheet No. 3 of
Calculated by DJR Date 6/8/18
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ITEM 601 - ROCK CHANNEL PROTECTION, TYPE A, WITH FABRIC FILTER

CADD AREA @ OUTLET END = 691.99 SF
AVG. THICKNESS = 4.0'

∴ TOTAL = 691.99 SF × 4.0' ÷ 27 = 102.52 CY ⇨ SAY 103 CY

ITEM 611 - 10'x8' CONDUIT, TYPE A, 706.05, AS PER PLAN
(INLET) (OUTLET)
TOTAL = 12.0' + 18.0' = 30 FT.