LUMP SUM - ITEM 202 - STRUCTURE REMOVED, OVER 20FT SPAN, AS PER PLAN

ABUTMENTS:

EAST

TOP SEAT: [(0.67' × 1.0') + (0.625' × 1.33')] 51.3 FT LENGTH = 77 FT³

EXIST. ABUT: (7.17' × 2.917') + (1.83' × 4.917') = 29.91 FT²

AND, 29.91 FT² × 22.25 FT (LENGTH) = 665.5 FT³

FACING: (2'×2') + (1.83'× 0.5') + (5.67' × 1.0')

= 10.6 FT² × 22.25 FT = 236 FT³

[SEE ORIG. DWGS DATED 1966, SHT. 3/9]

SECT. E: (6.25'× 2') + (9.88' × 2') = 32.26 FT²

AND, 32.26 FT² × 15.42 FT (LENGTH) = 497.45 FT³

SECT. D: (2'× 6.75') + (13.53' × 1.42') − (1.875' × 0.25')

= 32.24 FT² × 5.17 FT (LENGTH) = 166.7 FT³

SECT. C: (1.75'× 6.75') + (9.66'× 1.42') − 0.4688 FT²

= 25.1 FT² × 5.5 FT (LENGTH) = 13.8 FT³

END SECTION: 7.9' (AVG. HT) × 1.42' (W) × 8' (L) = 89.74 FT³

SOUTH END (EXIST ABUT + FACING OVER 2.33' (L))

= 40.51 FT² × 2.33 FT = 94.4 FT³

SUB TOTAL, EAST = 1965.0 FT³

WEST

TOP SEAT: SAME AS ABOVE = 1.5 FT²

OVER 39.62 FT LENGTH = 59.5 FT³

EXIST. ABUT: 3' (AVG WIDTH), ∴

(3'× 7') + (4.917'× 2') = 30.83 FT²

AND, 30.83 FT² × 20.8 FT (LENGTH) = 641.3 FT³

S. FACING: 1.33'× 4.25' × 9.5' (LENGTH) = 53.7 FT³

[SEE ORIG. DWGS DATED 1966, SHT. 4/9]

SECT. H: (6.25'× 2') + (2'× 9.28') = 31.1 FT²

AND, 31.1 FT² × 15.9 FT (LENGTH) = 494.5 FT³

SECT. J: FOOTER = 33.22 FT² × 4.67 FT = 155 FT³

WALL = (8.92' + 55.9 + 79.65 + 56.3) FT²

AND, 200.77 FT² × 1.42 FT (W) = 285 FT³

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SOUTH END : 3.2' × 10.9' × 2'(W) = 69.8 FT³

SUB TOTAL, WEST = 1699.0 FT³

TOTAL ABUTMENT VOLUME = 3664 FT³

THEREFORE, 3664 FT³/27 = **136 CU YDS**

BOX BEAMS :

- B17-48 BEAMS Length = 32'-2" 4 EACH
- B17-36 BEAMS Length = 32'-2" 6 EACH

SIDEWALKS :

- NOTE: 3/8" CURB PL INCLUDED WITH WALK REMOVALS

(1.44' + 1.26')/2 × 1.17' = 1.57 FT²

1.17' (AVG) × 4.0' = 4.68 FT²

TOTAL SF = 6.25 FT²

- ASSUME SIMILAR CONFIGURATION OVER APPROACHES

∴ LENGTH = 62.33 FT

AND, 6.25 FT² × 62.33 FT × 2 SIDES = 779.13 FT³

TOTAL WALKS = 779.13 FT³/27 = **29 CU YDS**

PARAPETS :

MAIN SECTION - 1.5' × 1.17' × 70.33 FT (L) × 2 SIDES = 247 FT³

END TERMINAL POSTS : (EACH)

0.94' × 0.833' × 4.667' - (curvature × width)

+ 0.896' × 1.17' × 7' - (curvature × width)

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- assume an elliptical complement and calc. area

- FROM SHT. 7/9 OF ORIG. PLANS

AREA OF COMPLEMENT =

$$ab\left(1 - \frac{\pi}{4}\right)$$

$$= 2.33'(0.896')\,0.2146$$

$$= 0.448\ ft^2$$

THEN,

$$3.654\ ft^3 - 0.448(0.833) + 7.338\ ft^3 - 0.448(1.17)$$

$$= 10.1\ ft^3 \text{ EACH}$$

AND,

$$10.1\ ft^3 \times 4 \text{ ENDS} = \underline{40.4\ ft^3}$$

TOTAL PARAPETS = $287.26\ ft^3/27$

= **11 cu yds**

ASPHALT W.S.:

- FROM GEOTECH REPORT, 4" THICK & 6" THICK
  USE 5" AVG. - ASSUME SAME ACROSS APPROACHES

$\therefore$ 28 ft (W) × 62.33 ft (L) × 0.4167 ft (THICK)

$= 727.24\ ft^3$

AND,

TOTAL W.S. = $727.24\ ft^3/27$ = **27 cu yds**

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