

# CALCULATIONS

FHWA REGION	STATE	PROJECT
5	OHIO	

16  
114

LAKE COUNTY  
LAK-20-6...

CALC:         
CHK:       

ITEM 301 BITUMINOUS AGGREGATE BASE  
7-P V = 20 x 2 x .4167 ÷ 27 = 0.62 C.Y.

SHEET 35 STA. 90 + 00 TO STA. 94 + 00

ITEM 608 4" CONCRETE WALK

1-P STA. 90 + 00 TO STA. 90 + 18 LT.  
A = (18 x 8) - 1/2 (8 x 8) = 112 S.F.

2-P STA. 90 + 42 TO STA. 91 + 36 LT.  
A = (94 x 8) - 1/2 (8 x 8) 2 = 688 S.F.

3-P STA. 91 + 66 TO STA. 92 + 84 LT.  
A = (118 x 8) - 1/2 (8 x 8) 2 = 880 S.F.

4-P STA. 93 + 07 TO STA. 93 + 46 LT.  
A = (39 x 8) - 1/2 (8 x 8) 2 = 248 S.F.

5-P STA. 91 + 78 TO STA. 91 + 84 RT.  
A = (5 x 6.0) = 30 S.F.

6-P STA. 92 + 36 TO STA. 92 + 52 RT.  
A = (36 x 8) - 1/2 (8 x 8) 2 = 224 S.F.

7-P STA. 92 + 76 TO STA. 93 + 51 RT.  
A = (75 x 8) - 1/2 (8 x 8) 2 = 536 S.F.

16-P STA. 93 + 83 TO STA. 94 + 00 RT.  
A = (17 x 8) - 1/2 (8 x 8) = 104 S.F.  
= 248 S.F.

ITEM 452 8" PLAIN CONCRETE

8-P STA. 90 + 30 LT.  
A = 1/2 (24 + 40) 8 ÷ 9 = 28.4 S.Y.

9-P STA. 91 + 50 LT.  
A = 1/2 (32 + 48) 8 ÷ 9 = 35.6 S.Y.

10-P STA. 92 + 95 LT.  
A = 1/2 (23 + 39) 8 ÷ 9 = 27.6 S.Y.

11-P STA. 92 + 04 RT.  
A = 1/2 (32 + 48) 8 ÷ 9 = 35.6 S.Y.

15-P STA. 9 + 00 TO STA. 9 + 19 DARTMOOR  
A = (2 x 19) ÷ 9 = 4.2 S.Y.

12-P STA. 92 + 64 RT.  
A = 1/2 (24 + 40) 8 ÷ 9 = 28.4 S.Y.

17-P STA. 93 + 67 RT.  
A = 1/2 (32 + 48) 8 ÷ 9 = 35.6 S.Y.  
= 24.9 S.Y.

ITEM 404 1" ASPHALT CONCRETE

8-P V = (24 x 8) 0.0833 ÷ 27 = 0.59 C.Y.

9-P V = [(27 x 16) + (16 x 8) + (13 x 11 x .5)] 0.0833 ÷ 27 = 1.95 C.Y.

10-P V = (3 x 23) 0.0833 ÷ 27 = 0.21 C.Y.

11-P V = (32 x 7 x 0.0833) ÷ 27 = 0.69 C.Y.

12-P V = (24 x 11 x 0.0833) ÷ 27 = 0.81 C.Y.

17-P V = (32 x 7.5 x 0.0833) ÷ 27 = 0.74 C.Y.

ITEM 301 BITUMINOUS AGGREGATE BASE (5")

8-P V = (24 x 8) 0.4167 ÷ 27 = 2.96 C.Y.

9-P V = [(27 x 16) + (16 x 8) + (13 x 11 x .5)] 0.4167 ÷ 27 = 9.74 C.Y.

10-P V = (3 x 23) 0.4167 ÷ 27 = 1.06 C.Y.

11-P V = (32 x 7) 0.4167 ÷ 27 = 3.46 C.Y.

12-P V = (24 x 11) 0.4167 ÷ 27 = 4.07 C.Y.

17-P V = (32 x 7.5) 0.4167 ÷ 27 = 3.70 C.Y.

ITEM 608 CURB RAMP TYPE 2

13-P STA. 90 + 47 TO STA. 90 + 57 RT.  
A = 5 x 5 = 25 S.F.

ITEM 609 CURB, TYPE 7

14-P STA. 93 + 65 TO STA. 94 + 00 LT.  
L = 35 L.F.

SHEET 36 STA. 94 + 00 TO STA. 98 + 00

ITEM 608 4" CONCRETE WALK

1-P STA. 94 + 00 TO STA. 97 + 36 LT.  
A = (336 x 8) - 1/2 (8 x 8) = 2656 S.F.

2-P STA. 97 + 60 TO STA. 98 + 00 LT.  
A = (40 x 8) - 1/2 (8 x 8) = 288 S.F.

3-P STA. 94 + 00 TO STA. 94 + 89 RT.  
A = (63 x 8) + 1/2 (8 + 6) 14 + 1/2 (6 x 12) + (6 x 8) = 686 S.F.

ITEM 452 8" PLAIN CONCRETE

4-P STA. 97 + 48 LT.  
A = 1/2 (24 + 40) 8 ÷ 9 = 28.4 S.Y.

5-P STA. 97 + 97 RT.  
A = 1/2 (23 + 15) 7.5 + (8 x 15) ÷ 9 = 29.4 S.Y.

6-P STA. 96 + 13 RT.  
A = 1/2 (24 + 40) 8 + (24 x 4) ÷ 9 = 39.1 S.Y.

ITEM 404 1" ASPHALT CONCRETE

4-P V = [(24 x 12) + 1/2 (11 x 11)] 0.0833 ÷ 27 = 1.08 C.Y.

ITEM 301 BITUMINOUS AGGREGATE BASE (5")

4-P V = [(24 x 12) + 1/2 (11 x 11)] 0.4167 ÷ 27 = 5.38 C.Y.

ITEM 608 CURB RAMP TYPE 2

1-P STA. 94 + 85 RT.  
= 1 EA.

7-P STA. 95 + 52 TO STA. 95 + 63 RT.  
A = 5 x 5 = 25 S.F.

ITEM 609 CURB TYPE 7

8-P STA. 94 + 00 TO STA. 97 + 36 LT.  
L = 336 L.F.

9-P STA. 97 + 60 TO STA. 98 + 00 LT.  
L = 40 L.F.

SHEET 37 STA. 98 + 00 TO STA. 102 + 00

ITEM 608 4" CONCRETE WALK

1-P STA. 98 + 00 TO STA. 98 + 57 LT.  
A = (57 x 8) - 1/2 (8 x 8) = 424 S.F.

2-P STA. 98 + 89 TO STA. 100 + 48 LT.  
A = (159 x 8) - 1/2 (3 x 8) 2 = 1208 S.F.

3-P STA. 101 + 08 TO STA. 102 + 00 LT.  
A = (92 x 8) - 1/2 (8 x 8) = 704 S.F.

4-P STA. 101 + 80 TO 101 + 98 A = (16 x 3) + (5 x 2) = 58 S.F.

12-P STA. 100 + 64 TO STA. 100 + 94 A = (30 x 8) - 1/2 (8 x 8) 2 = 176 S.F.

ITEM 608 CURB RAMP TYPE 2

4-P STA. 101 + 85 TO STA. 101 + 95 RT.  
A = (5 x 5) = 25 S.F.

ITEM 609 CURB TYPE 7

5-P STA. 98 + 00 TO STA. 98 + 57 LT.  
L = 57 L.F.

6-P STA. 98 + 89 TO STA. 100 + 48 LT.  
L = 159 L.F.

7-P STA. 101 + 08 TO STA. 102 + 00 LT.  
L = 92 L.F.

ITEM 452 8" PLAIN CONCRETE

8-P STA. 98 + 73 LT.  
A = 1/2 (32 + 48) 8 ÷ 9 = 35.6 S.Y.

9-P STA. 100 + 56 LT.  
A = 1/2 (32 + 16) 8 ÷ 9 = 21.3 S.Y.

10-P STA. 97 + 97 RT.  
A = [1/2 (9 + 17) 8 + (7.5 x 9)] ÷ 9 = 19.1 S.Y.

11-P STA. 99 + 48 RT.  
A = [1/2 (24 + 40) 8.0 + (24 x 7.5)] ÷ 9 = 48.4 S.Y.

13-P STA. 101 + 01 LT. A = 1/2 (16 + 32) 8 ÷ 9 = 21.3 S.Y.

ITEM 404 1" ASPHALT CONCRETE

8-P V = [(32 x 9.5) + 1/2 (6 x 9)] 0.0833 ÷ 27 = 1.02 C.Y.

9-P V = [(12 x 16) + 1/2 (5 x 12) 2] 0.0833 ÷ 27 = 0.78 C.Y.

13-P V = [(20 x 16) + 1/2 (20 x 12) 2] 0.0833 ÷ 27 = 1.73 C.Y.

ITEM 301 BITUMINOUS AGGREGATE BASE (5")

8-P V = [(32 x 9.5) + 1/2 (6 x 9)] 0.4167 ÷ 27 = 5.11 C.Y.

9-P V = [(12 x 16) + 1/2 (5 x 12) 2] 0.4167 ÷ 27 = 3.89 C.Y.

13-P V = [(20 x 16) + 1/2 (20 x 12) 2] 0.4167 ÷ 27 = 8.64 C.Y.

ITEM 304 10" AGGREGATE BASE

11-P [1/2 (24 + 26) 10 + (10 x 1)] 0.833 ÷ 27 = 8.02 C.Y.

SHEET 38 STA. 102 + 00 TO STA. 106 + 00

ITEM 608 4" CONCRETE WALK

1-P STA. 102 + 00 TO STA. 102 + 09 LT.  
A = (09 x 8) - 1/2 (8 x 8) = 40 S.F.

2-P STA. 102 + 90 TO STA. 103 + 49 LT.  
A = (59 x 8) - 1/2 (8 x 8) 2 = 408 S.F.

3-P STA. 103 + 73 TO STA. 104 + 53 LT.  
A = (80 x 8) - 1/2 (8 x 8) 2 = 576 S.F.

SHEET 39 STA. 106 + 00 TO STA. 110 + 00

ITEM 608 4" CONCRETE WALK

1-P STA. 106 + 00 TO STA. 106 + 54 LT.  
A = (54 x 8) - 1/2 (8 x 8) = 400 S.F.

2-P STA. 106 + 86 TO STA. 108 + 20 LT.  
A = (134 x 8) - 1/2 (8 x 8) 2 = 1008 S.F.

3-P STA. 108 + 73 TO STA. 110 + 01 LT.  
A = (128 x 8) - 1/2 (8 x 8) 2 = 960 S.F.

4-P STA. 107 + 58 TO STA. 107 + 76 RT.  
A = 1/2 (13 + 18) 5 = 77.5 S.F.

5-P STA. 109 + 03 TO STA. 109 + 78 RT.  
A = (75 x 8) - 1/2 (8 x 8) 2 = 536 S.F.

18-P STA. 108 + 38 TO STA. 108 + 53 LT.  
A = (15 x 8) - 1/2 (8 x 8) 2 = 56 S.F.

19-P STA. 108 + 38 TO STA. 108 + 83 RT.  
A = (45 x 8) - 1/2 (8 x 8) = 328 S.F.

ITEM 608 CURB RAMP TYPE 2

7-P STA. 107 + 72 LT.  
= 1 EA.

8-P STA. 108 + 43 LT.  
= 1 EA.

ITEM 609 CURB TYPE 7

9-P STA. 106 + 86 TO STA. 108 + 20 LT.  
L = 134 L.F.

10-P STA. 108 + 73 TO STA. 110 + 01 LT.  
L = 128 L.F.

15-P STA. 108 + 38 LT.  
L = 17.5 L.F.

17-P STA. 108 + 48 TO STA. 108 + 53 LT.  
L = 22.5 L.F.

4-P STA. 104 + 85 TO STA. 106 + 00 LT.  
A = (115 x 8) - 1/2 (8 x 8) 2 = 856 S.F.

15-P STA. 102 + 29 TO STA. 102 + 70 LT.  
A = (41 x 8) - 1/2 (8 x 8) 2 = 264 S.F.

18-P STA. 105 + 39 TO STA. 105 + 47.5 RT. = (8.5 x 5) = 42.5 S.F.

ITEM 608 CURB RAMP TYPE 2

6-P STA. 102 + 49.5 TO STA. 102 + 60.5  
A = 5 x 5 = 25 S.F.

ITEM 452 8" PLAIN CONCRETE

7-P STA. 102 + 80 LT.  
A = 1/2 (20 + 36) 8 ÷ 9 = 24.9 S.Y.

8-P STA. 103 + 61 LT.  
A = 1/2 (24 + 40) 8 ÷ 9 = 28.4 S.Y.

9-P STA. 104 + 69 LT.  
A = 1/2 (32 + 48) 8 ÷ 9 = 35.6 S.Y.

10-P STA. 102 + 80 LT.  
A = 1/2 (20 + 36) 8 ÷ 9 = 24.9 S.Y.

11-P STA. 103 + 19 RT.  
A = [1/2 (14 + 30) 8 + (14 x 7)] ÷ 9 = 30.4 S.Y.

12-P STA. 103 + 75 RT.  
A = [1/2 (24 + 40) 8 + (24 x 7)] ÷ 9 = 47.1 S.Y.

13-P STA. 105 + 63.5 RT.  
A = [1/2 (32 + 48) 8 + (32 x 8)] ÷ 9 = 64.0 S.Y.

ITEM 404 1" ASPHALT CONCRETE

7-P V = (20 x 16.5) 0.0833 ÷ 27 = 1.02 C.Y.

8-P V = (24 x 15.0 x 0.0833) ÷ 27 = 1.11 C.Y.

9-P V = [(36 x 17.5 + (7 x 17) 1/2 + 1/2 (4 + 12) 14 + (12 x 12)] 0.0833 ÷ 27 = 2.92 C.Y.

10-P V = (20 x 16.5) 0.0833 ÷ 27 = 1.02 C.Y.

13-P V = [(12 x 14) + (5 x 4)] 0.0833 ÷ 27 = 0.58 C.Y.

12-P V = (24 x 6) 0.0833 ÷ 27 = 0.44 C.Y.

ITEM 301 5" BITUMINOUS AGGREGATE BASE

7-P V = (20 x 16.5) 0.4167 ÷ 27 = 5.09 C.Y.

8-P V = (24 x 15.0 x 0.4167) ÷ 27 = 5.56 C.Y.

9-P V = [(36 x 17.5 + (7 x 17) 1/2 + 1/2 (4 + 12) 14 + (12 x 12)] 0.4167 ÷ 27 = 14.59 C.Y.

10-P V = (20 x 16.5) 0.4167 ÷ 27 = 5.09 C.Y.

13-P V = [(12 x 14) + (5 x 4)] 0.4167 ÷ 27 = 2.90 C.Y.

12-P V = (24 x 6) 0.4167 ÷ 27 = 2.22 C.Y.

ITEM 609 CURB, TYPE 7

14-P STA. 102 + 00 TO STA. 102 + 09 LT.  
L = 9 L.F.

16-P STA. 104 + 28 TO STA. 104 + 53 LT.  
L = 25 L.F.

17-P STA. 104 + 85 TO STA. 106 + 00 LT.  
L = 115 L.F.

20-P STA. 102 + 29 TO STA. 102 + 51 LT.  
L = 22 L.F.

SHEET 39 STA. 106 + 00 TO STA. 110 + 00

ITEM 608 4" CONCRETE WALK

1-P STA. 106 + 00 TO STA. 106 + 54 LT.  
A = (54 x 8) - 1/2 (8 x 8) = 400 S.F.

2-P STA. 106 + 86 TO STA. 108 + 20 LT.  
A = (134 x 8) - 1/2 (8 x 8) 2 = 1008 S.F.

3-P STA. 108 + 73 TO STA. 110 + 01 LT.  
A = (128 x 8) - 1/2 (8 x 8) 2 = 960 S.F.

4-P STA. 107 + 58 TO STA. 107 + 76 RT.  
A = 1/2 (13 + 18) 5 = 77.5 S.F.

5-P STA. 109 + 03 TO STA. 109 + 78 RT.  
A = (75 x 8) - 1/2 (8 x 8) 2 = 536 S.F.

18-P STA. 108 + 38 TO STA. 108 + 53 LT.  
A = (15 x 8) - 1/2 (8 x 8) 2 = 56 S.F.

19-P STA. 108 + 38 TO STA. 108 + 83 RT.  
A = (45 x 8) - 1/2 (8 x 8) = 328 S.F.

ITEM 608 CURB RAMP TYPE 2

7-P STA. 107 + 72 LT.  
= 1 EA.

8-P STA. 108 + 43 LT.  
= 1 EA.

ITEM 609 CURB TYPE 7

9-P STA. 106 + 86 TO STA. 108 + 20 LT.  
L = 134 L.F.

10-P STA. 108 + 73 TO STA. 110 + 01 LT.  
L = 128 L.F.

15-P STA. 108 + 38 LT.  
L = 17.5 L.F.

17-P STA. 108 + 48 TO STA. 108 + 53 LT.  
L = 22.5 L.F.