

CALCULATIONS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		



LAKE COUNTY
LAK. 44-3.79

T-3 BITUMINOUS SURFACE TREATMENT

BITUMINOUS MATERIAL AS PER PLAN (ONE APPLICATION) @ 0.25 GAL./SQ.YD.
NO. 6 AGGREGATE @ 0.008 CU.YD./SQ.YD.

	PAVED BERM AREA SQ. YD.	BITUMINOUS MATERIAL (=BERM AREA X 0.25) GALLONS	NO. 6 AGGREGATE (=BERM AREA X 0.008) CU. YDS.
U-388(12) RURAL	14136	3534	113
U-388(12) MUNICIPAL	5316	1329	43
UG-388(12) RURAL	2880	720	23
UG-388(12) MUNICIPAL	5078	1270	41
FG-388(12)	5784	1446	46
F-388(12)	1248	312	10

I-22 SUBBASE

U-388(12) RURAL

SUBBASE UNDER PAVEMENT

S.R. 44 NORTHBOUND & SOUTHBOUND	STA. 217 + 00	TO STA. 263 + 00	= 24533	x 6 + 36 =	4089 CU. YDS.
ACCELERATION & DECELERATION LANES			= 1718	x 6 + 36 =	286 CU. YDS.
RAMP A	STA. 0 + 63.65	TO STA. 8 + 22.70	= 1349	x 6 + 36 =	225 CU. YDS.
RAMP B	STA. 0 + 70.90	TO STA. 7 + 25	= 1163	x 6 + 36 =	194 CU. YDS.
ADD FOR SOFT SUBGRADE	STA. 217 + 00	TO STA. 223 + 00	= 3200	x 12 + 36 =	1067 CU. YDS.

SUB-TOTAL I-22 SUBBASE UNDER PAVEMENT U-388(12) RURAL = 5861 CU. YDS.

SUBBASE UNDER PAVED BERMS*

S.R. 44 NORTHBOUND	STA. 217 + 00	TO STA. 225 + 73	= 873	x 5 + 27 =	162 CU. YDS.
" " "	STA. 227 + 90	TO STA. 237 + 10	= 920	x 4 + 27 =	136 CU. YDS.
" " "	STA. 237 + 10	TO STA. 237 + 90	= 80	x 4.5 + 27 =	14 CU. YDS.
" " "	STA. 237 + 90	TO STA. 255 + 79.39	= 1789.39	x 5 + 27 =	331 CU. YDS.
" " "	STA. 255 + 79.39	TO STA. 263 + 00	= 720.61	x 4.17 + 27 =	111 CU. YDS.
" " "	STA. 217 + 00	TO STA. 255 + 79.39	= 3879.39	x 2 + 27 =	287 CU. YDS.
" " "	STA. 255 + 79.39	TO STA. 263 + 00	= 720.61	x 2 + 27 =	53 CU. YDS.
S.R. 44 SOUTHBOUND	STA. 217 + 00	TO STA. 225 + 28.95	= 828.95	x 5 + 27 =	154 CU. YDS.
" " "	STA. 230 + 48.76	TO STA. 233 + 28.95	= 280.19	x 4 + 27 =	42 CU. YDS.
" " "	STA. 233 + 28.95	TO STA. 234 + 28.95	= 100	x 4.5 + 27 =	17 CU. YDS.
" " "	STA. 234 + 28.95	TO STA. 255 + 79.39	= 2150.44	x 5 + 27 =	398 CU. YDS.
" " "	STA. 255 + 79.39	TO STA. 263 + 00	= 720.61	x 5 + 27 =	133 CU. YDS.
" " "	STA. 217 + 00	TO STA. 255 + 79.39	= 3879.39	x 2 + 27 =	287 CU. YDS.
" " "	STA. 255 + 79.39	TO STA. 263 + 00	= 720.61	x 1.54 + 27 =	41 CU. YDS.
RAMP A	STA. 0 + 63.65	TO STA. 8 + 22.70	= 759.05	x 3 + 27 =	84 CU. YDS.
RAMP B	STA. 0 + 70.90	TO STA. 7 + 25	= 654.10	x 3 + 27 =	73 CU. YDS.
ADD FOR SOFT SUBGRADE	STA. 217 + 00	TO STA. 223 + 00	= 600	x 29 + 27 =	644 CU. YDS.

SUB-TOTAL I-22 SUBBASE UNDER PAVED BERMS U-388(12) RURAL = 2967 CU. YDS.

SUBBASE UNDER PAVEMENT

SUBBASE UNDER PAVED BERMS = 5861 CU. YDS.

TOTAL I-22 SUBBASE U-388(12) RURAL = 2967 CU. YDS.

U-388(12) MUNICIPAL

SUBBASE UNDER PAVEMENT

S.R. 44 NORTHBOUND & SOUTHBOUND	STA. 281 + 50	TO STA. 296 + 00	= 7733	x 6 + 36 =	1289 CU. YDS.
ACCELERATION & DECELERATION LANES			= 2108	x 6 + 36 =	351 CU. YDS.
RAMP NO. 1	STA. 5 + 18.56	TO STA. 14 + 17.77	= 1599	x 6 + 36 =	267 CU. YDS.
RAMP NO. 2	STA. 3 + 75	TO STA. 13 + 15.34	= 1672	x 6 + 36 =	279 CU. YDS.

SUB-TOTAL I-22 SUBBASE UNDER PAVEMENT U-388(12) MUNICIPAL = 2186 CU. YDS.

SUBBASE UNDER APPROACH SLABS

LAK-44-0489 (WEST APPROACH SLAB)	= 156	x 6 + 36 =	26 CU. YDS.
LAK-44-0489 (EAST APPROACH SLAB)	= 145	x 6 + 36 =	24 CU. YDS.
LAK-44-0505 (WEST APPROACH SLAB)	= 90	x 6 + 36 =	15 CU. YDS.
LAK-44-0505 (EAST APPROACH SLAB)	= 78	x 6 + 36 =	13 CU. YDS.

SUB-TOTAL I-22 SUBBASE UNDER APPROACH SLABS U-388(12) MUNICIPAL = 78 CU. YDS.

I-22 SUBBASE (CONTINUED)

SUBBASE UNDER PAVED BERMS*

S.R. 44 NORTHBOUND	STA. 281 + 50	TO STA. 294 + 30	= 1280	x 5 + 27 =	237 CU. YDS.
" " "	STA. 281 + 50	TO STA. 296 + 00	= 1450	x 2 + 27 =	107 CU. YDS.
S.R. 44 SOUTHBOUND	STA. 281 + 50	TO STA. 293 + 80.64	= 1230.64	x 5 + 27 =	228 CU. YDS.
" " "	STA. 281 + 50	TO STA. 296 + 00	= 1450	x 2 + 27 =	107 CU. YDS.
RAMP NO. 1	STA. 5 + 18.56	TO STA. 14 + 17.77	= 899.21	x 3 + 27 =	100 CU. YDS.
RAMP NO. 2	STA. 3 + 75	TO STA. 13 + 15.34	= 940.34	x 3 + 27 =	104 CU. YDS.

SUB-TOTAL I-22 SUBBASE UNDER PAVED BERMS U-388(12) MUNICIPAL = 883 CU. YDS.

SUBBASE UNDER PAVEMENT

SUBBASE UNDER APPROACH SLABS = 2186 CU. YDS.
SUBBASE UNDER PAVED BERMS = 883 CU. YDS.

TOTAL I-22 SUBBASE U-388(12) MUNICIPAL = 3147 CU. YDS.

UG-388(12) RURAL

SUBBASE UNDER PAVEMENT

S.R. 44 NORTHBOUND & SOUTHBOUND	STA. 263 + 00	TO STA. 272 + 19.93	= 4906	x 6 + 36 =	818 CU. YDS.
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SUB-TOTAL I-22 SUBBASE UNDER PAVEMENT UG-388(12) RURAL = 818 CU. YDS.

SUBBASE UNDER PAVED BERMS*

S.R. 44 NORTHBOUND	STA. 263 + 00	TO STA. 271 + 56.73	= 856.73	x 4.17 + 27 =	132 CU. YDS.
" " "	STA. 271 + 56.73	TO STA. 271 + 97	= 40.27	x 5 + 27 =	7 CU. YDS.
" " "	STA. 263 + 00	TO STA. 271 + 56.73	= 856.73	x 2 + 27 =	63 CU. YDS.
" " "	STA. 271 + 56.73	TO STA. 272 + 12	= 55.27	x 2 + 27 =	4 CU. YDS.
S.R. 44 SOUTHBOUND	STA. 263 + 00	TO STA. 271 + 56.73	= 856.73	x 5 + 27 =	159 CU. YDS.
" " "	STA. 271 + 56.73	TO STA. 272 + 48	= 91.27	x 5 + 27 =	17 CU. YDS.
" " "	STA. 263 + 00	TO STA. 271 + 56.73	= 856.73	x 1.54 + 27 =	49 CU. YDS.
" " "	STA. 271 + 56.73	TO STA. 272 + 32	= 75.27	x 2 + 27 =	6 CU. YDS.

SUB-TOTAL I-22 SUBBASE UNDER PAVED BERMS UG-388(12) RURAL = 437 CU. YDS.

SUBBASE UNDER PAVEMENT

SUBBASE UNDER PAVED BERMS = 818 CU. YDS.

TOTAL I-22 SUBBASE UG-388(12) RURAL = 1255 CU. YDS.

UG-388(12) MUNICIPAL

SUBBASE UNDER PAVEMENT

S.R. 44 NORTHBOUND & SOUTHBOUND	STA. 272 + 19.93	TO STA. 281 + 50	= 4960	x 6 + 36 =	827 CU. YDS.
" " "	STA. 296 + 00	TO STA. 305 + 47.27	= 5052	x 6 + 36 =	842 CU. YDS.

SUB-TOTAL I-22 SUBBASE UNDER PAVEMENT UG-388(12) MUNICIPAL = 1669 CU. YDS.

SUBBASE UNDER PAVED BERMS*

S.R. 44 NORTHBOUND	STA. 271 + 97	TO STA. 281 + 50	= 953	x 5 + 27 =	176 CU. YDS.
" " "	STA. 297 + 00	TO STA. 306 + 15	= 915	x 4 + 27 =	136 CU. YDS.
" " "	STA. 272 + 12	TO STA. 281 + 50	= 938	x 2 + 27 =	69 CU. YDS.
" " "	STA. 296 + 00	TO STA. 303 + 14.85	= 714.85	x 2 + 27 =	53 CU. YDS.
" " "	STA. 303 + 14.85	TO STA. 305 + 71	= 256.15	x 1.55 + 27 =	15 CU. YDS.
S.R. 44 SOUTHBOUND	STA. 272 + 48	TO STA. 281 + 50	= 902	x 2 + 27 =	167 CU. YDS.
" " "	STA. 299 + 00	TO STA. 301 + 00	= 281	x 4 + 27 =	42 CU. YDS.
" " "	STA. 301 + 81	TO STA. 302 + 81	= 100	x 4.5 + 27 =	17 CU. YDS.
" " "	STA. 302 + 81	TO STA. 303 + 14.85	= 33.85	x 5 + 27 =	6 CU. YDS.
" " "	STA. 303 + 14.85	TO STA. 304 + 98	= 183.15	x 4.23 + 27 =	29 CU. YDS.
" " "	STA. 272 + 32	TO STA. 281 + 50	= 918	x 2 + 27 =	68 CU. YDS.
" " "	STA. 296 + 00	TO STA. 305 + 32	= 932	x 2 + 27 =	69 CU. YDS.

SUB-TOTAL I-22 SUBBASE UNDER PAVED BERMS UG-388(12) MUNICIPAL = 847 CU. YDS.

SUBBASE UNDER PAVEMENT

SUBBASE UNDER PAVED BERMS = 1669 CU. YDS.

TOTAL I-22 SUBBASE UG-388(12) MUNICIPAL = 847 CU. YDS.

* QUANTITY = LENGTH X CONSTANT + 27

(CONSTANT IS VARIABLE AND DEPENDS ON WHETHER THE SECTION IS NORMAL OR SUPERELEVATED. NORMAL SECTIONS ARE TAKEN TO THE MIDDLE OF TRANSITIONS AND SUPERELEVATED SECTIONS FROM THE MIDDLE OF THE TRANSITIONS.)