# PARABOLIC WATERWAY DESIGN, WITHOUT FREEBOARD

RETARDANCE - D & C
GRADE, % - 0.25 to 2.0

| | Grade, 0.25% | | | Grade, 0.50% | | | Grade, 0.75% | | | Grade, 1.0% | | | Grade, 1.25% | | | Grade, 1.50% | | | Grade, 2.0% | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| V | 0.5 | 1.0 | 1.5 | 0.5 | 1.0 | 1.5 | 0.5 | 1.0 | 1.5 | 0.5 | 1.0 | 1.5 | 0.5 | 1.0 | 1.5 | 0.5 | 1.0 | 1.5 | 0.5 | 1.0 | 1.5 |
| D | 1.3 | 1.5 | 1.8 | 1.0 | 1.1 | 1.3 | 0.8 | 1.0 | 1.1 | 0.7 | 0.9 | 1.0 | 0.6 | 0.8 | 0.9 | 0.6 | 0.8 | 0.8 | 0.5 | 0.7 | 0.8 |
| Q | | | | | | | | | | Top Width | | | | | | | | | | | |
| 5 | 20 | | | 26 | 9 | | 30 | 12 | 6 | 33 | 13 | 7 | 35 | 15 | 8 | 37 | 16 | 8 | 41 | 18 | 10 |
| 10 | 40 | 13 | | 53 | 19 | 10 | 61 | 23 | 12 | 65 | 27 | 14 | 70 | 30 | 16 | 74 | 32 | 17 | 82 | 36 | 20 |
| 15 | 60 | 20 | 10 | 79 | 29 | 15 | 91 | 35 | 18 | 98 | 40 | 21 | 105 | 44 | 24 | 111 | 48 | 26 | 123 | 54 | 29 |
| 20 | 81 | 27 | 14 | 106 | 39 | 20 | 121 | 47 | 24 | | 53 | 28 | | 59 | 32 | | 63 | 34 | | 72 | 39 |
| 25 | 101 | 34 | 17 | | 48 | 25 | | 58 | 30 | | 66 | 35 | | 74 | 39 | | 79 | 43 | | 90 | 49 |
| 30 | | 41 | 21 | | 58 | 30 | | 70 | 36 | | 80 | 42 | | 89 | 47 | | 95 | 52 | | 108 | 59 |
| 35 | | 48 | 25 | | 68 | 35 | | 82 | 42 | | 93 | 49 | | 103 | 55 | | 111 | 60 | | | 69 |
| 40 | | 55 | 28 | | 77 | 40 | | 93 | 49 | | 106 | 56 | | | 63 | | | 69 | | | 79 |
| 45 | | 62 | 32 | | 87 | 45 | | 105 | 55 | | | 63 | | | 71 | | | 77 | | | 88 |
| 50 | | 69 | 35 | | 97 | 50 | | | 61 | | | 70 | | | 79 | | | 86 | | | 98 |
| 55 | | 75 | 39 | | 106 | 55 | | | 67 | | | 77 | | | 87 | | | 95 | | | 108 |
| 60 | | 82 | 43 | | | 60 | | | 73 | | | 84 | | | 95 | | | 103 | | | |
| 65 | | 89 | 46 | | | 65 | | | 79 | | | 91 | | | 102 | | | | | | |
| 70 | | 96 | 50 | | | 71 | | | 85 | | | 98 | | | | | | | | | |
| 75 | | 103 | 53 | | | 76 | | | 91 | | | 105 | | | | | | | | | |
| 80 | | | 57 | | | 81 | | | 97 | | | | | | | | | | | | |
| 90 | | | 64 | | | 91 | | | 109 | | | | | | | | | | | | |
| 100 | | | 71 | | | 101 | | | | | | | | | | | | | | | |
| 110 | | | 78 | | | | | | | | | | | | | | | | | | |
| 120 | | | 85 | | | | | | | | | | | | | | | | | | |
| 130 | | | 93 | | | | | | | | | | | | | | | | | | |
| 140 | | | 100 | | | | | | | | | | | | | | | | | | |

V, permissible velocity of soil with vegetative retardance "D"
Depth and top width are for cross section with retardance "C"

Q, in cfs
V, in fps
D, depth in ft.
Top Width, in ft.

Exhibit 7-5.1

7-28.2

REFERENCE
SCS - TP - 61

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703
SHEET 1 OF 1

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