KS650.980 Vegetated diversion design example

(a) Design tables

To use Tables KS9-1 through KS9-6, the design discharge must be known. The Hydrologic Summary Sheet and the Acres and Curve Number Sheet in the Gradient Diversion Spreadsheet located in the Kansas electronic Field Office Technical Guide (eFOTG) > Section IV > Diversion > Job Sheet can be used to determine the peak discharge for a diversion. By referring to the Kansas tables in Chapter 2 of National Engineering Handbook Part 650 (NEH 650), *Engineering Field Handbook*, Form KS-ENG-137a (located in eFOTG > Section IV > Diversion > Work Sheet) can be completed manually for the same information.

With the rate of runoff determined as described above, the required size of the diversion can be found directly by using Tables KS9-1 through KS9-6 in this section. The choice of retardance B, C, or D will depend upon the vegetation and maintenance planned for the diversion channel. The Handbook of Channel Design for Soil and Water Conservation (SCS-TP-61) or similar information in eFOTG should be used in selecting the vegetal retardance.

Select a bottom width to fit the method of construction and grade to suit the site conditions. Directly under the bottom width and grade and in line with runoff, read the depth of flow and velocity in the channel. If the dimensions or depth of flow and velocity are undesirable, choose another bottom width or grade.

Given: A discharge of 50 cubic feet per second (cfs) is to be handled by a diversion. This will be constructed on clay soil with a dozer. The best layout has a channel grade of 0.5 foot per 100 feet. It is to be vegetated with brome grass that will be mowed annually.

Solution: The dozer can construct 4:1 side slopes with a 10-foot bottom.

When evaluating the maximum velocity in the diversion channel, a vegetal retardance of D was used to simulate the vegetative conditions that would be expected when the channel would be the most susceptible to erosion. Refer to Table KS9-6 with a 10-foot channel bottom width and a runoff of 50 cfs. In the row for a runoff of 50 cfs, read across to the 0.5 percent grade column. The diversion would have a velocity (V) of 2.4 feet per second (ft/s). Compare the velocity obtained from Table KS9-6 with the permissible velocities for diversions in Table KS9-1. A velocity of 2.4 ft/s is a safe velocity for clay soils even under poor cover conditions. If the velocity in the diversion channel exceeded the values recommended in Table KS9-1, adjustments may need to be made to the design of the diversion such as providing a wider channel or a flatter grade.

The depth of water in the diversion channel was determined using the vegetal retardance that would be expected when the plant growth in the diversion is the tallest and densest. The vegetal retardance of B was used to determine the design depth of water in the diversion. Refer to Table KS9-2 with a 10-foot channel bottom width and a runoff of 50 cfs. In the row for a

runoff of 50 cfs, read across to the 0.5 percent grade column. The diversion would have a design depth (d) of 2.1 feet.

In this example, the freeboard desired is 0.5 foot. The designed settled height is equal to the design depth plus the freeboard.

Designed Settled Height =
2.1 ft + 0.5 ft = 2.6 ft

The designed settled height is multiplied by 1.1 to obtain a total diversion height which accounts for additional overbuild needed for settlement in addition to the depth required to contain the maximum expected water depth and the desired freeboard.

Total Diversion Height =
1.1 x 2.6 ft = 2.9 ft

(b) Quantity tables

The channel centerline depth of fill and area of earthfill can be determined using Tables KS9-10 through KS9-14. These tables assume a cut-fill ratio of 1.35:1, a diversion top width of 4 feet, and that the cut and fill slopes are the same.

Given: The diversion is constructed with 4:1 side slopes and a channel bottom width of 10 feet. The land slope is 5 percent. The total length of the diversion to be constructed is 1100 feet. The total diversion height was determined to be 2.9 feet.

Solution: In Table KS9-11, select 5 percent land slope. Find the row for a total diversion height of 2.9 feet. Read across the row to the column for a 10-foot channel bottom width. The fill depth at the centerline of the channel would be 1.6 feet, and the fill area would be 24.8 square feet.

The total volume of earthfill in the ridge is equal to the fill area multiplied by the length of the diversion.

Volume of Earthfill =

$$\frac{(24.8 \text{ sq ft}) \times (1100 \text{ ft})}{27} = 1010 \text{ cu yd}$$

The volume of excavation in the channel is equal to the volume of fill in the ridge multiplied by the cut/fill ratio.

Volume of Excavation =
(1010 cu yd) x (1.35) = 1360 cu yd

Table KS9-1 Design depth (d) and velocity (V) for diversion - gradient (with **3:1** side slopes and permanently vegetated channels with **"B"** retardance)

6-Foot Channel Bottom Width

Discharge,	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
Q (cfs)	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	1.8	0.5	1.4	0.7	1.2	0.8	1.1	1.0	1.0	1.2	0.9	1.3	0.8	1.5	0.8	1.6
15	1.9	0.7	1.5	1.0	1.3	1.2	1.2	1.3	1.0	1.6	0.9	1.8	0.9	2.0	0.8	2.1
20	2.0	0.9	1.6	1.2	1.4	1.4	1.3	1.6	1.1	2.0	1.0	2.2	0.9	2.4	0.9	2.6
25	2.0	1.0	1.6	1.4	1.5	1.7	1.3	1.9	1.2	2.3	1.1	2.6	1.0	2.8	0.9	3.0
30	2.1	1.1	1.7	1.6	1.5	1.9	1.4	2.1	1.2	2.5	1.1	2.9	1.0	3.2	1.0	3.4
35	2.2	1.3	1.8	1.7	1.6	2.1	1.4	2.4	1.3	2.8	1.2	3.1	1.1	3.5	1.0	3.7
40	2.3	1.4	1.9	1.9	1.6	2.3	1.5	2.5	1.3	3.0	1.2	3.4	1.1	3.8		
45	2.3	1.5	1.9	2.0	1.7	2.4	1.6	2.7	1.4	3.2	1.3	3.7				
50	2.4	1.6	2.0	2.1	1.7	2.6	1.6	2.9	1.4	3.5	1.3	3.9				
55	2.5	1.7	2.0	2.3	1.8	2.7	1.6	3.1	1.5	3.6						
60	2.5	1.7	2.1	2.4	1.8	2.8	1.7	3.2	1.5	3.8						
65	2.6	1.8	2.1	2.5	1.9	3.0	1.7	3.4	1.5	4.0						
70	2.6	1.9	2.2	2.6	1.9	3.1	1.8	3.5								
75	2.7	2.0	2.2	2.7	2.0	3.2	1.8	3.6								
80	2.7	2.1	2.3	2.8	2.0	3.3	1.9	3.7								
85	2.8	2.1	2.3	2.9	2.1	3.4	1.9	3.9								
90	2.8	2.2	2.3	3.0	2.1	3.5	1.9	4.0								
95	2.9	2.3	2.4	3.0	2.1	3.6										
100	2.9	2.3	2.4	3.1	2.2	3.7										

8-Foot Channel Bottom Width

	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	1.6	0.5	1.3	0.7	1.1	0.8	1.0	0.9	0.9	1.1	0.8	1.2	0.8	1.3	0.7	1.4
15	1.7	0.7	1.4	0.9	1.2	1.1	1.1	1.2	1.0	1.5	0.9	1.6	0.8	1.8	0.8	1.9
20	1.8	0.8	1.5	1.1	1.3	1.3	1.2	1.5	1.0	1.8	0.9	2.0	0.9	2.2	0.8	2.4
25	1.9	1.0	1.5	1.3	1.3	1.6	1.2	1.8	1.1	2.1	1.0	2.4	0.9	2.6	0.9	2.8
30	2.0	1.1	1.6	1.5	1.4	1.8	1.3	2.0	1.1	2.4	1.0	2.7	1.0	2.9	0.9	3.2
35	2.0	1.2	1.6	1.7	1.4	2.0	1.3	2.2	1.2	2.6	1.1	3.0	1.0	3.2	0.9	3.5
40	2.1	1.3	1.7	1.8	1.5	2.1	1.4	2.4	1.2	2.8	1.1	3.2	1.0	3.5	1.0	3.8
45	2.2	1.4	1.8	1.9	1.6	2.3	1.4	2.6	1.3	3.1	1.1	3.5	1.1	3.8		
50	2.2	1.5	1.8	2.1	1.6	2.5	1.5	2.8	1.3	3.3	1.2	3.7				
55	2.3	1.6	1.9	2.2	1.6	2.6	1.5	2.9	1.3	3.4	1.2	3.9				
60	2.3	1.7	1.9	2.3	1.7	2.7	1.5	3.1	1.4	3.6						
65	2.4	1.8	2.0	2.4	1.7	2.8	1.6	3.2	1.4	3.8						
70	2.5	1.9	2.0	2.5	1.8	3.0	1.6	3.4	1.4	3.9						
75	2.5	1.9	2.0	2.6	1.8	3.1	1.7	3.5								
80	2.6	2.0	2.1	2.7	1.9	3.2	1.7	3.6								
85	2.6	2.1	2.1	2.8	1.9	3.3	1.7	3.7								
90	2.6	2.1	2.2	2.9	1.9	3.4	1.8	3.9								
95	2.7	2.2	2.2	3.0	2.0	3.5	1.8	3.9								
100	2.7	2.3	2.2	3.0	2.0	3.6										

10-Foot Channel Bottom Width

Discharge,	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
Q (cfs)	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	1.6	0.4	1.2	0.6	1.1	0.7	1.0	0.8	0.8	1.0	0.8	1.1	0.7	1.2	0.7	1.2
15	1.6	0.6	1.3	0.8	1.1	1.0	1.0	1.1	0.9	1.3	0.8	1.5	0.8	1.6	0.7	1.7
20	1.7	0.8	1.4	1.1	1.2	1.2	1.1	1.4	1.0	1.6	0.9	1.8	0.8	2.0	0.8	2.1
25	1.8	0.9	1.4	1.2	1.2	1.5	1.1	1.7	1.0	1.9	0.9	2.2	0.8	2.4	0.8	2.6
30	1.9	1.0	1.5	1.4	1.3	1.7	1.2	1.9	1.0	2.2	1.0	2.5	0.9	2.7	0.8	2.9
35	1.9	1.2	1.5	1.6	1.4	1.8	1.2	2.1	1.1	2.4	1.0	2.8	0.9	3.0	0.9	3.2
40	2.0	1.3	1.6	1.7	1.4	2.0	1.3	2.3	1.1	2.7	1.0	3.0	1.0	3.3	0.9	3.5
45	2.0	1.4	1.6	1.9	1.4	2.2	1.3	2.5	1.2	2.9	1.1	3.2	1.0	3.5	0.9	3.8
50	2.1	1.5	1.7	2.0	1.5	2.3	1.4	2.6	1.2	3.1	1.1	3.5	1.0	3.8		
55	2.1	1.6	1.7	2.1	1.5	2.5	1.4	2.8	1.2	3.3	1.1	3.7	1.1	4.0		
60	2.2	1.6	1.8	2.2	1.6	2.6	1.4	2.9	1.3	3.5	1.2	3.8				
65	2.3	1.7	1.8	2.3	1.6	2.7	1.5	3.1	1.3	3.6						
70	2.3	1.8	1.9	2.4	1.6	2.9	1.5	3.2	1.3	3.8						
75	2.3	1.9	1.9	2.5	1.7	3.0	1.5	3.3	1.4	3.9						
80	2.4	1.9	1.9	2.6	1.7	3.1	1.6	3.5								
85	2.4	2.0	2.0	2.7	1.8	3.2	1.6	3.6								
90	2.5	2.1	2.0	2.8	1.8	3.3	1.6	3.7								
95	2.5	2.1	2.1	2.9	1.8	3.4	1.7	3.8								
100	2.6	2.2	2.1	2.9	1.9	3.5	1.7	3.9								

12-Foot Channel Bottom Width

	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	1.5	0.4	1.2	0.6	1.0	0.7	0.9	0.7	0.8	0.9	0.7	1.0	0.7	1.0	0.6	1.1
15	1.6	0.6	1.2	0.8	1.1	0.9	1.0	1.0	0.9	1.2	0.8	1.3	0.7	1.5	0.7	1.6
20	1.6	0.7	1.3	1.0	1.1	1.2	1.0	1.3	0.9	1.5	0.8	1.7	0.8	1.8	0.7	2.0
25	1.7	0.9	1.3	1.2	1.2	1.4	1.1	1.5	0.9	1.8	0.9	2.0	0.8	2.2	0.8	2.3
30	1.8	1.0	1.4	1.3	1.2	1.6	1.1	1.8	1.0	2.0	0.9	2.3	0.8	2.5	0.8	2.7
35	1.8	1.1	1.5	1.5	1.3	1.7	1.2	1.9	1.0	2.3	0.9	2.5	0.9	2.8	0.8	3.0
40	1.9	1.2	1.5	1.6	1.3	1.9	1.2	2.1	1.1	2.5	1.0	2.8	0.9	3.0	0.9	3.2
45	1.9	1.3	1.5	1.8	1.4	2.1	1.2	2.3	1.1	2.7	1.0	3.0	0.9	3.3	0.9	3.5
50	2.0	1.4	1.6	1.9	1.4	2.2	1.3	2.5	1.1	2.9	1.0	3.3	1.0	3.5	0.9	3.8
55	2.0	1.5	1.6	2.0	1.4	2.4	1.3	2.6	1.2	3.1	1.1	3.5	1.0	3.8	0.9	4.0
60	2.1	1.6	1.7	2.1	1.5	2.5	1.3	2.8	1.2	3.2	1.1	3.6	1.0	4.0		
65	2.1	1.7	1.7	2.2	1.5	2.6	1.4	2.9	1.2	3.4	1.1	3.8				
70	2.2	1.7	1.8	2.3	1.5	2.7	1.4	3.1	1.2	3.6	1.1	4.0				
75	2.2	1.8	1.8	2.4	1.6	2.8	1.4	3.2	1.3	3.7						
80	2.3	1.9	1.8	2.5	1.6	3.0	1.5	3.3	1.3	3.9						
85	2.3	2.0	1.9	2.6	1.6	3.1	1.5	3.4	1.3	4.0						
90	2.3	2.0	1.9	2.7	1.7	3.2	1.5	3.5								
95	2.4	2.1	1.9	2.8	1.7	3.2	1.6	3.7								
100	2.4	2.1	2.0	2.9	1.7	3.3	1.6	3.8								

Based on Agriculture Handbook Number 667, *Stability Design of Grass-Lined Open Channels*
d is in feet
V is in feet per second

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-1 (continued) Design depth (d) and velocity (V) for diversion - gradient (with **3:1** side slopes and permanently vegetated channels with **"B"** retardance)

14-Foot Channel Bottom Width

Discharge,	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
Q (cfs)	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	1.4	0.4	1.1	0.5	1.0	0.6	0.9	0.7	0.8	0.8	0.7	0.9	0.7	0.9	0.6	1.0
15	1.5	0.5	1.2	0.7	1.0	0.9	0.9	0.9	0.8	1.1	0.8	1.2	0.7	1.3	0.7	1.4
20	1.6	0.7	1.2	0.9	1.1	1.1	1.0	1.2	0.9	1.4	0.8	1.6	0.7	1.7	0.7	1.8
25	1.6	0.8	1.3	1.1	1.1	1.3	1.0	1.4	0.9	1.7	0.8	1.9	0.8	2.0	0.7	2.1
30	1.7	0.9	1.3	1.3	1.2	1.5	1.1	1.6	0.9	1.9	0.9	2.1	0.8	2.3	0.8	2.5
35	1.7	1.1	1.4	1.4	1.2	1.6	1.1	1.8	1.0	2.1	0.9	2.4	0.8	2.6	0.8	2.7
40	1.8	1.2	1.4	1.5	1.3	1.8	1.1	2.0	1.0	2.4	0.9	2.6	0.9	2.8	0.8	3.0
45	1.8	1.3	1.5	1.7	1.3	2.0	1.2	2.2	1.0	2.6	0.9	2.8	0.9	3.1	0.8	3.3
50	1.9	1.4	1.5	1.8	1.3	2.1	1.2	2.3	1.1	2.7	1.0	3.0	0.9	3.3	0.9	3.5
55	1.9	1.4	1.6	1.9	1.4	2.2	1.2	2.5	1.1	2.9	1.0	3.2	0.9	3.5	0.9	3.8
60	2.0	1.5	1.6	2.0	1.4	2.4	1.3	2.7	1.1	3.1	1.0	3.4	1.0	3.7	0.9	4.0
65	2.0	1.6	1.6	2.1	1.4	2.5	1.3	2.8	1.2	3.2	1.1	3.6	1.0	3.9		
70	2.1	1.7	1.7	2.2	1.5	2.6	1.3	2.9	1.2	3.4	1.1	3.8				
75	2.1	1.8	1.7	2.3	1.5	2.7	1.4	3.0	1.2	3.6	1.1	3.9				
80	2.1	1.8	1.7	2.4	1.5	2.8	1.4	3.2	1.2	3.7						
85	2.2	1.9	1.8	2.5	1.6	2.9	1.4	3.3	1.3	3.8						
90	2.2	2.0	1.8	2.6	1.6	3.0	1.5	3.4	1.3	3.9						
95	2.3	2.0	1.8	2.7	1.6	3.1	1.5	3.5								
100	2.3	2.1	1.9	2.7	1.6	3.2	1.5	3.6								

16-Foot Channel Bottom Width

	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	1.4	0.4	1.1	0.5	1.0	0.6	0.9	0.6	0.8	0.7	0.7	0.8	0.7	0.9	0.6	0.9
15	1.4	0.5	1.1	0.7	1.0	0.8	0.9	0.9	0.8	1.0	0.7	1.1	0.7	1.2	0.6	1.3
20	1.5	0.7	1.2	0.9	1.0	1.0	1.0	1.1	0.8	1.3	0.8	1.4	0.7	1.6	0.7	1.7
25	1.6	0.8	1.2	1.0	1.1	1.2	1.0	1.3	0.9	1.5	0.8	1.7	0.7	1.9	0.7	2.0
30	1.6	0.9	1.3	1.2	1.1	1.4	1.0	1.5	0.9	1.8	0.8	2.0	0.8	2.2	0.7	2.3
35	1.7	1.0	1.3	1.3	1.2	1.5	1.1	1.7	0.9	2.0	0.9	2.2	0.8	2.4	0.8	2.6
40	1.7	1.1	1.4	1.5	1.2	1.7	1.1	1.9	1.0	2.2	0.9	2.4	0.8	2.6	0.8	2.8
45	1.8	1.2	1.4	1.6	1.2	1.9	1.1	2.1	1.0	2.4	0.9	2.7	0.8	2.9	0.8	3.1
50	1.8	1.3	1.4	1.7	1.3	2.0	1.2	2.2	1.0	2.6	0.9	2.9	0.9	3.1	0.8	3.3
55	1.8	1.4	1.5	1.8	1.3	2.1	1.2	2.4	1.1	2.7	1.0	3.0	0.9	3.3	0.8	3.5
60	1.9	1.5	1.5	1.9	1.3	2.3	1.2	2.5	1.1	2.9	1.0	3.2	0.9	3.5	0.9	3.8
65	1.9	1.5	1.6	2.0	1.4	2.4	1.3	2.6	1.1	3.1	1.0	3.4	0.9	3.7	0.9	4.0
70	2.0	1.6	1.6	2.1	1.4	2.5	1.3	2.8	1.1	3.2	1.0	3.6	1.0	3.9		
75	2.0	1.7	1.6	2.2	1.4	2.6	1.3	2.9	1.2	3.4	1.1	3.7				
80	2.1	1.8	1.7	2.3	1.5	2.7	1.3	3.0	1.2	3.5	1.1	3.9				
85	2.1	1.8	1.7	2.4	1.5	2.8	1.4	3.1	1.2	3.6						
90	2.1	1.9	1.7	2.5	1.5	2.9	1.4	3.2	1.2	3.8						
95	2.2	2.0	1.7	2.6	1.5	3.0	1.4	3.3	1.2	3.9						
100	2.2	2.0	1.8	2.7	1.6	3.1	1.4	3.4								

18-Foot Channel Bottom Width

Discharge,	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
Q (cfs)	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	1.4	0.3	1.1	0.4	0.9	0.5	0.9	0.6	0.8	0.7	0.7	0.7	0.6	0.8	0.6	0.8
15	1.4	0.5	1.1	0.6	1.0	0.7	0.9	0.8	0.8	0.9	0.7	1.0	0.7	1.1	0.6	1.2
20	1.5	0.6	1.2	0.8	1.0	0.9	0.9	1.0	0.8	1.2	0.7	1.3	0.7	1.4	0.7	1.5
25	1.5	0.7	1.2	1.0	1.1	1.1	1.0	1.2	0.8	1.5	0.8	1.6	0.7	1.7	0.7	1.9
30	1.6	0.9	1.2	1.1	1.1	1.3	1.0	1.4	0.9	1.7	0.8	1.9	0.7	2.0	0.7	2.1
35	1.6	1.0	1.3	1.3	1.1	1.5	1.0	1.6	0.9	1.9	0.8	2.1	0.8	2.3	0.7	2.4
40	1.6	1.1	1.3	1.4	1.2	1.6	1.1	1.8	0.9	2.1	0.9	2.3	0.8	2.5	0.7	2.7
45	1.7	1.2	1.4	1.5	1.2	1.8	1.1	2.0	1.0	2.3	0.9	2.5	0.8	2.7	0.8	2.9
50	1.7	1.2	1.4	1.6	1.2	1.9	1.1	2.1	1.0	2.4	0.9	2.7	0.8	2.9	0.8	3.1
55	1.8	1.3	1.4	1.7	1.3	2.0	1.1	2.3	1.0	2.6	0.9	2.9	0.9	3.1	0.8	3.3
60	1.8	1.4	1.5	1.8	1.3	2.1	1.2	2.4	1.0	2.8	0.9	3.1	0.9	3.3	0.8	3.5
65	1.9	1.5	1.5	1.9	1.3	2.3	1.2	2.5	1.1	2.9	1.0	3.2	0.9	3.5	0.9	3.7
70	1.9	1.6	1.5	2.0	1.3	2.4	1.2	2.6	1.1	3.1	1.0	3.4	0.9	3.7	0.9	3.9
75	1.9	1.6	1.6	2.1	1.4	2.5	1.3	2.8	1.1	3.2	1.0	3.5	0.9	3.8		
80	2.0	1.7	1.6	2.2	1.4	2.6	1.3	2.9	1.1	3.3	1.0	3.7	1.0	4.0		
85	2.0	1.8	1.6	2.3	1.4	2.7	1.3	3.0	1.1	3.5	1.1	3.8				
90	2.0	1.8	1.6	2.4	1.5	2.8	1.3	3.1	1.2	3.6	1.1	4.0				
95	2.1	1.9	1.7	2.5	1.5	2.9	1.4	3.2	1.2	3.7						
100	2.1	2.0	1.7	2.5	1.5	3.0	1.4	3.3	1.2	3.8						

20-Foot Channel Bottom Width

	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	1.3	0.3	1.1	0.4	0.9	0.5	0.8	0.5	0.7	0.6	0.7	0.7	0.6	0.7	0.6	0.8
15	1.4	0.5	1.1	0.6	1.0	0.7	0.9	0.8	0.8	0.9	0.7	1.0	0.7	1.1	0.6	1.1
20	1.4	0.6	1.1	0.8	1.0	0.9	0.9	1.0	0.8	1.1	0.7	1.3	0.7	1.4	0.6	1.5
25	1.5	0.7	1.2	0.9	1.0	1.1	0.9	1.2	0.8	1.4	0.8	1.5	0.7	1.6	0.7	1.7
30	1.5	0.8	1.2	1.1	1.1	1.2	1.0	1.4	0.9	1.6	0.8	1.7	0.7	1.9	0.7	2.0
35	1.6	0.9	1.2	1.2	1.1	1.4	1.0	1.5	0.9	1.8	0.8	2.0	0.7	2.1	0.7	2.3
40	1.6	1.0	1.3	1.3	1.1	1.5	1.0	1.7	0.9	2.0	0.8	2.2	0.8	2.3	0.7	2.5
45	1.6	1.1	1.3	1.4	1.2	1.7	1.1	1.9	0.9	2.1	0.8	2.4	0.8	2.5	0.7	2.7
50	1.7	1.2	1.3	1.6	1.2	1.8	1.1	2.0	1.0	2.3	0.9	2.5	0.8	2.8	0.8	3.0
55	1.7	1.3	1.4	1.7	1.2	1.9	1.1	2.1	1.0	2.5	0.9	2.7	0.8	2.9	0.8	3.2
60	1.8	1.4	1.4	1.8	1.2	2.0	1.1	2.3	1.0	2.6	0.9	2.9	0.9	3.1	0.8	3.3
65	1.8	1.4	1.4	1.9	1.3	2.2	1.2	2.4	1.0	2.8	0.9	3.1	0.9	3.3	0.8	3.5
70	1.8	1.5	1.5	2.0	1.3	2.3	1.2	2.5	1.0	2.9	1.0	3.2	0.9	3.5	0.8	3.7
75	1.9	1.6	1.5	2.0	1.3	2.4	1.2	2.6	1.1	3.1	1.0	3.4	0.9	3.6	0.9	3.9
80	1.9	1.6	1.5	2.1	1.3	2.5	1.2	2.7	1.1	3.2	1.0	3.5	0.9	3.8		
85	1.9	1.7	1.6	2.2	1.4	2.6	1.3	2.9	1.1	3.3	1.0	3.7	0.9	4.0		
90	2.0	1.8	1.6	2.3	1.4	2.7	1.3	3.0	1.1	3.4	1.0	3.8				
95	2.0	1.8	1.6	2.4	1.4	2.8	1.3	3.1	1.1	3.6	1.1	3.9				
100	2.0	1.9	1.6	2.5	1.4	2.9	1.3	3.2	1.2	3.7						

Based on Agriculture Handbook Number 667, *Stability Design of Grass-Lined Open Channels*
d is in feet
V is in feet per second

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-2 Design depth (d) and velocity (V) for diversion - gradient (with **4:1** side slopes and permanently vegetated channels with **"B"** retardance)

6-Foot Channel Bottom Width

Discharge,	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
Q (cfs)	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	1.8	0.4	1.4	0.6	1.3	0.7	1.1	0.8	1.0	1.0	0.9	1.2	0.8	1.3	0.8	1.4
15	1.9	0.6	1.5	0.8	1.3	1.0	1.2	1.2	1.1	1.4	1.0	1.6	0.9	1.8	0.8	1.9
20	2.0	0.7	1.6	1.0	1.4	1.2	1.3	1.4	1.1	1.7	1.0	1.9	1.0	2.1	0.9	2.4
25	2.0	0.9	1.7	1.2	1.5	1.5	1.3	1.7	1.2	2.0	1.1	2.3	1.0	2.5	0.9	2.7
30	2.1	1.0	1.7	1.4	1.5	1.7	1.4	1.9	1.2	2.3	1.1	2.6	1.0	2.8	1.0	3.0
35	2.2	1.1	1.8	1.5	1.6	1.8	1.4	2.1	1.3	2.5	1.2	2.8	1.1	3.1	1.0	3.4
40	2.2	1.2	1.8	1.7	1.6	2.0	1.5	2.3	1.3	2.7	1.2	3.1	1.1	3.4	1.1	3.6
45	2.3	1.3	1.9	1.8	1.7	2.1	1.5	2.4	1.4	2.9	1.3	3.3	1.2	3.6	1.1	3.9
50	2.4	1.4	1.9	1.9	1.7	2.3	1.6	2.6	1.4	3.1	1.3	3.5	1.2	3.9		
55	2.4	1.5	2.0	2.0	1.8	2.4	1.6	2.7	1.4	3.2	1.3	3.7				
60	2.5	1.5	2.0	2.1	1.8	2.5	1.7	2.9	1.5	3.4	1.4	3.9				
65	2.5	1.6	2.1	2.2	1.8	2.6	1.7	3.0	1.5	3.6						
70	2.6	1.7	2.1	2.3	1.9	2.8	1.7	3.1	1.5	3.7						
75	2.6	1.7	2.2	2.4	1.9	2.9	1.8	3.2	1.6	3.9						
80	2.7	1.8	2.2	2.5	2.0	2.9	1.8	3.4	1.6	4.0						
85	2.7	1.9	2.2	2.6	2.0	3.1	1.8	3.5								
90	2.7	1.9	2.3	2.6	2.0	3.1	1.9	3.6								
95	2.8	2.0	2.3	2.7	2.1	3.2	1.9	3.7								
100	2.8	2.1	2.3	2.8	2.1	3.3	1.9	3.8								

8-Foot Channel Bottom Width

Grade (%)																
0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0		
d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
1.7	0.4	1.3	0.6	1.2	0.7	1.1	0.8	0.9	0.9	0.8	1.1	0.8	1.2	0.7	1.3
1.8	0.6	1.4	0.8	1.2	1.0	1.1	1.1	1.0	1.3	0.9	1.5	0.8	1.6	0.8	1.8
1.8	0.7	1.5	1.0	1.3	1.2	1.2	1.3	1.0	1.6	0.9	1.8	0.9	2.0	0.8	2.2
1.9	0.8	1.5	1.2	1.3	1.4	1.2	1.6	1.1	1.9	1.0	2.1	0.9	2.4	0.9	2.5
2.0	1.0	1.6	1.3	1.4	1.6	1.3	1.8	1.1	2.1	1.0	2.4	1.0	2.6	0.9	2.9
2.0	1.1	1.6	1.5	1.5	1.7	1.3	2.0	1.2	2.4	1.1	2.7	1.0	3.0	0.9	3.2
2.1	1.2	1.7	1.6	1.5	1.9	1.4	2.2	1.2	2.6	1.1	2.9	1.0	3.2	1.0	3.4
2.2	1.3	1.8	1.7	1.5	2.1	1.4	2.3	1.3	2.8	1.1	3.1	1.1	3.4	1.0	3.7
2.2	1.3	1.8	1.8	1.6	2.2	1.5	2.5	1.3	2.9	1.2	3.3	1.1	3.7	1.0	4.0
2.3	1.4	1.8	1.9	1.6	2.3	1.5	2.6	1.3	3.1	1.2	3.5	1.1	3.9		
2.3	1.5	1.9	2.1	1.7	2.4	1.5	2.8	1.4	3.3	1.2	3.7				
2.4	1.6	1.9	2.1	1.7	2.6	1.6	2.9	1.4	3.4	1.3	3.9				
2.4	1.6	2.0	2.2	1.8	2.7	1.6	3.0	1.4	3.6						
2.5	1.7	2.0	2.3	1.8	2.8	1.6	3.1	1.5	3.7						
2.5	1.8	2.0	2.4	1.8	2.9	1.7	3.3	1.5	3.9						
2.5	1.8	2.1	2.5	1.9	3.0	1.7	3.4								
2.6	1.9	2.1	2.6	1.9	3.1	1.7	3.5								
2.6	2.0	2.2	2.7	1.9	3.2	1.8	3.6								
2.7	2.0	2.2	2.7	2.0	3.2	1.8	3.7								

10-Foot Channel Bottom Width

Discharge,	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
Q (cfs)	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	1.6	0.4	1.3	0.5	1.1	0.6	1.0	0.7	0.9	0.9	0.8	1.0	0.7	1.1	0.7	1.1
15	1.7	0.5	1.3	0.7	1.2	0.9	1.1	1.0	0.9	1.2	0.8	1.4	0.8	1.5	0.7	1.6
20	1.7	0.7	1.4	0.9	1.2	1.1	1.1	1.3	1.0	1.5	0.9	1.7	0.8	1.9	0.8	2.0
25	1.8	0.8	1.4	1.1	1.3	1.3	1.2	1.5	1.0	1.8	0.9	2.0	0.9	2.2	0.8	2.3
30	1.9	0.9	1.5	1.3	1.3	1.5	1.2	1.7	1.1	2.0	1.0	2.3	0.9	2.5	0.8	2.7
35	1.9	1.0	1.5	1.4	1.4	1.7	1.2	1.9	1.1	2.2	1.0	2.5	0.9	2.7	0.9	2.9
40	2.0	1.1	1.6	1.5	1.4	1.8	1.3	2.1	1.1	2.4	1.0	2.8	1.0	3.0	0.9	3.2
45	2.0	1.2	1.6	1.7	1.5	2.0	1.3	2.2	1.2	2.6	1.1	3.0	1.0	3.3	0.9	3.5
50	2.1	1.3	1.7	1.8	1.5	2.1	1.4	2.4	1.2	2.8	1.1	3.2	1.0	3.5	1.0	3.7
55	2.1	1.4	1.7	1.9	1.5	2.2	1.4	2.5	1.2	3.0	1.1	3.4	1.1	3.7	1.0	3.9
60	2.2	1.5	1.8	2.0	1.6	2.4	1.4	2.7	1.3	3.2	1.2	3.5	1.1	3.9		
65	2.2	1.5	1.8	2.1	1.6	2.6	1.5	2.8	1.3	3.3	1.2	3.7				
70	2.3	1.6	1.9	2.2	1.6	2.6	1.5	2.9	1.3	3.4	1.2	3.9				
75	2.3	1.7	1.9	2.3	1.7	2.7	1.5	3.0	1.4	3.6						
80	2.4	1.7	1.9	2.4	1.7	2.8	1.6	3.2	1.4	3.7						
85	2.4	1.8	2.0	2.4	1.7	2.9	1.6	3.3	1.4	3.9						
90	2.4	1.9	2.0	2.5	1.8	3.0	1.6	3.4	1.4	4.0						
95	2.5	1.9	2.0	2.6	1.8	3.1	1.7	3.5								
100	2.5	2.0	2.1	2.7	1.8	3.2	1.7	3.6								

12-Foot Channel Bottom Width

Grade (%)																
0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0		
d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
1.5	0.4	1.2	0.5	1.1	0.6	1.0	0.7	0.8	0.8	0.8	0.9	0.7	1.0	0.7	1.0
1.6	0.5	1.3	0.7	1.1	0.8	1.0	0.9	0.9	1.1	0.8	1.3	0.7	1.4	0.7	1.5
1.7	0.6	1.3	0.9	1.2	1.0	1.0	1.2	0.9	1.4	0.8	1.6	0.8	1.7	0.7	1.8
1.7	0.8	1.4	1.0	1.2	1.2	1.1	1.4	1.0	1.7	0.9	1.9	0.8	2.0	0.8	2.2
1.8	0.9	1.4	1.2	1.2	1.4	1.1	1.6	1.0	1.9	0.9	2.1	0.8	2.3	0.8	2.5
1.8	1.0	1.5	1.3	1.3	1.6	1.2	1.8	1.0	2.1	0.9	2.4	0.9	2.6	0.8	2.8
1.9	1.1	1.5	1.5	1.3	1.7	1.2	2.0	1.1	2.3	1.0	2.6	0.9	2.8	0.9	3.1
1.9	1.2	1.6	1.6	1.4	1.9	1.3	2.1	1.1	2.5	1.0	2.8	0.9	3.1	0.9	3.3
2.0	1.3	1.6	1.7	1.4	2.0	1.3	2.3	1.1	2.7	1.0	3.0	1.0	3.3	0.9	3.5
2.0	1.3	1.6	1.8	1.4	2.2	1.3	2.4	1.2	2.8	1.1	3.2	1.0	3.5	0.9	3.7
2.1	1.4	1.7	1.9	1.5	2.3	1.4	2.6	1.2	3.0	1.1	3.4	1.0	3.7	1.0	3.9
2.1	1.5	1.7	2.0	1.5	2.4	1.4	2.7	1.2	3.2	1.1	3.5	1.0	3.9		
2.2	1.6	1.8	2.1	1.5	2.5	1.4	2.8	1.3	3.3	1.1	3.7				
2.2	1.6	1.8	2.2	1.6	2.6	1.4	2.9	1.3	3.4	1.2	3.8				
2.2	1.7	1.8	2.3	1.6	2.7	1.5	3.0	1.3	3.6						
2.3	1.8	1.9	2.4	1.6	2.8	1.5	3.1	1.3	3.7						
2.3	1.8	1.9	2.5	1.7	2.9	1.5	3.2	1.4	3.8						
2.4	1.9	1.9	2.5	1.7	3.0	1.6	3.3	1.4	3.9						
2.4	1.9	2.0	2.6	1.7	3.1	1.6	3.5								

Based on Agriculture Handbook Number 667, *Stability Design of Grass-Lined Open Channels*
d is in feet
V is in feet per second

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-2 (continued) Design depth (d) and velocity (V) for diversion - gradient (with **4:1** side slopes and permanently vegetated channels with **"B"** retardance)

14-Foot Channel Bottom Width

Discharge,	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
Q (cfs)	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	1.5	0.3	1.2	0.5	1.0	0.5	0.9	0.6	0.8	0.7	0.7	0.8	0.7	0.9	0.6	0.9
15	1.5	0.5	1.2	0.7	1.1	0.8	1.0	0.9	0.8	1.0	0.8	1.2	0.7	1.3	0.7	1.3
20	1.6	0.6	1.3	0.8	1.1	1.0	1.0	1.1	0.9	1.3	0.8	1.5	0.7	1.6	0.7	1.7
25	1.7	0.7	1.3	1.0	1.2	1.2	1.0	1.3	0.9	1.6	0.8	1.7	0.8	1.9	0.7	2.0
30	1.7	0.8	1.4	1.1	1.2	1.3	1.1	1.5	1.0	1.8	0.9	2.0	0.8	2.2	0.8	2.3
35	1.8	1.0	1.4	1.3	1.2	1.5	1.1	1.7	1.0	2.0	0.9	2.2	0.8	2.4	0.8	2.6
40	1.8	1.0	1.4	1.4	1.3	1.7	1.2	1.9	1.0	2.2	0.9	2.4	0.9	2.7	0.8	2.9
45	1.9	1.1	1.5	1.5	1.3	1.8	1.2	2.0	1.0	2.4	1.0	2.7	0.9	2.9	0.8	3.1
50	1.9	1.2	1.5	1.6	1.3	1.9	1.2	2.2	1.1	2.6	1.0	2.8	0.9	3.1	0.9	3.3
55	1.9	1.3	1.6	1.7	1.4	2.1	1.3	2.3	1.1	2.7	1.0	3.0	0.9	3.3	0.9	3.5
60	2.0	1.4	1.6	1.8	1.4	2.2	1.3	2.5	1.1	2.9	1.0	3.2	1.0	3.5	0.9	3.7
65	2.0	1.5	1.6	1.9	1.4	2.3	1.3	2.6	1.2	3.0	1.1	3.4	1.0	3.7	0.9	3.9
70	2.1	1.5	1.7	2.0	1.5	2.4	1.3	2.7	1.2	3.2	1.1	3.5	1.0	3.8		
75	2.1	1.6	1.7	2.1	1.5	2.5	1.4	2.8	1.2	3.3	1.1	3.7				
80	2.1	1.7	1.7	2.2	1.5	2.6	1.4	2.9	1.2	3.4	1.1	3.8				
85	2.2	1.7	1.8	2.3	1.6	2.7	1.4	3.0	1.3	3.5	1.2	4.0				
90	2.2	1.8	1.8	2.4	1.6	2.8	1.5	3.1	1.3	3.7						
95	2.3	1.8	1.8	2.5	1.6	2.9	1.5	3.2	1.3	3.8						
100	2.3	1.9	1.9	2.5	1.6	3.0	1.5	3.3	1.3	3.9						

16-Foot Channel Bottom Width

	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	1.4	0.3	1.1	0.4	1.0	0.5	0.9	0.6	0.8	0.7	0.7	0.7	0.7	0.8	0.6	0.9
15	1.5	0.5	1.2	0.6	1.0	0.7	0.9	0.8	0.8	1.0	0.7	1.1	0.7	1.2	0.7	1.2
20	1.5	0.6	1.2	0.8	1.1	0.9	1.0	1.0	0.9	1.2	0.8	1.4	0.7	1.5	0.7	1.6
25	1.6	0.7	1.3	0.9	1.1	1.1	1.0	1.3	0.9	1.5	0.8	1.6	0.8	1.8	0.7	1.9
30	1.6	0.8	1.3	1.1	1.1	1.3	1.0	1.4	0.9	1.7	0.8	1.9	0.8	2.0	0.7	2.2
35	1.7	0.9	1.3	1.2	1.2	1.4	1.1	1.6	0.9	1.9	0.9	2.1	0.8	2.3	0.8	2.4
40	1.7	1.0	1.4	1.3	1.2	1.6	1.1	1.8	1.0	2.1	0.9	2.3	0.8	2.5	0.8	2.7
45	1.8	1.1	1.4	1.5	1.3	1.7	1.1	1.9	1.0	2.3	0.9	2.5	0.9	2.7	0.8	2.9
50	1.8	1.2	1.5	1.6	1.3	1.8	1.2	2.1	1.0	2.4	0.9	2.7	0.9	2.9	0.8	3.1
55	1.9	1.3	1.5	1.7	1.3	2.0	1.2	2.2	1.1	2.6	1.0	2.9	0.9	3.1	0.9	3.3
60	1.9	1.3	1.5	1.8	1.4	2.1	1.2	2.3	1.1	2.7	1.0	3.0	0.9	3.3	0.9	3.5
65	1.9	1.4	1.6	1.9	1.4	2.2	1.3	2.5	1.1	2.9	1.0	3.2	0.9	3.5	0.9	3.7
70	2.0	1.5	1.6	2.0	1.4	2.3	1.3	2.6	1.1	3.0	1.0	3.4	1.0	3.7	0.9	3.9
75	2.0	1.5	1.6	2.0	1.4	2.4	1.3	2.7	1.2	3.2	1.1	3.5	1.0	3.8		
80	2.1	1.6	1.7	2.1	1.5	2.5	1.3	2.8	1.2	3.3	1.1	3.6	1.0	4.0		
85	2.1	1.7	1.7	2.2	1.5	2.6	1.4	2.9	1.2	3.4	1.1	3.8				
90	2.1	1.7	1.7	2.3	1.5	2.7	1.4	3.0	1.2	3.5	1.1	3.9				
95	2.2	1.8	1.7	2.4	1.5	2.8	1.4	3.1	1.2	3.7						
100	2.2	1.8	1.8	2.4	1.6	2.9	1.4	3.2	1.3	3.7						

18-Foot Channel Bottom Width

Discharge,	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
Q (cfs)	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	1.4	0.3	1.1	0.4	1.0	0.5	0.9	0.5	0.8	0.6	0.7	0.7	0.7	0.7	0.6	0.8
15	1.4	0.4	1.1	0.6	1.0	0.7	0.9	0.8	0.8	0.9	0.7	1.0	0.7	1.1	0.6	1.2
20	1.5	0.6	1.2	0.7	1.0	0.9	0.9	1.0	0.8	1.1	0.8	1.3	0.7	1.4	0.7	1.5
25	1.5	0.7	1.2	0.9	1.1	1.0	1.0	1.2	0.9	1.4	0.8	1.5	0.7	1.7	0.7	1.8
30	1.6	0.8	1.3	1.0	1.1	1.2	1.0	1.3	0.9	1.6	0.8	1.7	0.8	1.9	0.7	2.0
35	1.6	0.9	1.3	1.2	1.1	1.4	1.0	1.5	0.9	1.8	0.8	2.0	0.8	2.2	0.7	2.3
40	1.7	1.0	1.3	1.3	1.2	1.5	1.1	1.7	0.9	2.0	0.9	2.2	0.8	2.4	0.8	2.5
45	1.7	1.1	1.4	1.4	1.2	1.6	1.1	1.8	1.0	2.1	0.9	2.4	0.8	2.6	0.8	2.7
50	1.8	1.1	1.4	1.5	1.2	1.8	1.1	2.0	1.0	2.3	0.9	2.5	0.8	2.8	0.8	2.9
55	1.8	1.2	1.4	1.6	1.3	1.9	1.2	2.1	1.0	2.4	0.9	2.7	0.9	2.9	0.8	3.2
60	1.8	1.3	1.5	1.7	1.3	2.0	1.2	2.2	1.0	2.6	1.0	2.9	0.9	3.1	0.8	3.3
65	1.9	1.4	1.5	1.8	1.3	2.1	1.2	2.4	1.1	2.8	1.0	3.1	0.9	3.3	0.9	3.5
70	1.9	1.4	1.5	1.9	1.4	2.2	1.2	2.5	1.1	2.9	1.0	3.2	0.9	3.5	0.9	3.7
75	1.9	1.5	1.6	2.0	1.4	2.3	1.3	2.6	1.1	3.0	1.0	3.4	1.0	3.6	0.9	3.9
80	2.0	1.6	1.6	2.1	1.4	2.4	1.3	2.7	1.1	3.1	1.0	3.5	1.0	3.8		
85	2.0	1.6	1.6	2.1	1.4	2.5	1.3	2.8	1.2	3.3	1.1	3.6	1.0	4.0		
90	2.1	1.7	1.7	2.2	1.5	2.6	1.3	2.9	1.2	3.4	1.1	3.8				
95	2.1	1.7	1.7	2.3	1.5	2.7	1.4	3.0	1.2	3.5	1.1	3.9				
100	2.1	1.8	1.7	2.4	1.5	2.8	1.4	3.1	1.2	3.6						

20-Foot Channel Bottom Width

	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	1.4	0.3	1.1	0.4	1.0	0.4	0.9	0.5	0.8	0.6	0.7	0.6	0.6	0.7	0.6	0.7
15	1.4	0.4	1.1	0.5	1.0	0.6	0.9	0.7	0.8	0.8	0.7	0.9	0.7	1.0	0.6	1.1
20	1.5	0.5	1.2	0.7	1.0	0.8	0.9	0.9	0.8	1.1	0.7	1.2	0.7	1.3	0.6	1.4
25	1.5	0.6	1.2	0.8	1.0	1.0	1.0	1.1	0.8	1.3	0.8	1.4	0.7	1.5	0.7	1.6
30	1.5	0.7	1.2	1.0	1.1	1.2	1.0	1.3	0.9	1.5	0.8	1.7	0.7	1.8	0.7	1.9
35	1.6	0.8	1.3	1.1	1.1	1.3	1.0	1.4	0.9	1.7	0.8	1.9	0.8	2.0	0.7	2.2
40	1.6	0.9	1.3	1.2	1.1	1.4	1.0	1.6	0.9	1.9	0.8	2.1	0.8	2.3	0.7	2.4
45	1.7	1.0	1.3	1.3	1.2	1.6	1.1	1.8	0.9	2.0	0.9	2.3	0.8	2.4	0.8	2.6
50	1.7	1.1	1.4	1.4	1.2	1.7	1.1	1.9	1.0	2.2	0.9	2.4	0.8	2.6	0.8	2.8
55	1.7	1.2	1.4	1.5	1.2	1.8	1.1	2.0	1.0	2.3	0.9	2.6	0.8	2.8	0.8	3.0
60	1.8	1.2	1.4	1.6	1.3	1.9	1.1	2.1	1.0	2.5	0.9	2.8	0.9	3.0	0.8	3.2
65	1.8	1.3	1.5	1.7	1.3	2.0	1.2	2.3	1.0	2.6	0.9	2.9	0.9	3.1	0.8	3.4
70	1.9	1.4	1.5	1.8	1.3	2.1	1.2	2.4	1.1	2.8	1.0	3.1	0.9	3.3	0.8	3.6
75	1.9	1.4	1.5	1.9	1.3	2.2	1.2	2.5	1.1	2.9	1.0	3.2	0.9	3.5	0.9	3.7
80	1.9	1.5	1.5	2.0	1.4	2.3	1.2	2.6	1.1	3.0	1.0	3.3	0.9	3.6	0.9	3.9
85	1.9	1.6	1.6	2.1	1.4	2.4	1.3	2.7	1.1	3.1	1.0	3.5	1.0	3.8		
90	2.0	1.6	1.6	2.1	1.4	2.5	1.3	2.8	1.1	3.2	1.0	3.6	1.0	3.9		
95	2.0	1.7	1.6	2.2	1.4	2.6	1.3	2.9	1.2	3.4	1.1	3.7				
100	2.0	1.7	1.6	2.3	1.5	2.7	1.3	3.0	1.2	3.5	1.1	3.8				

Based on Agriculture Handbook Number 667, *Stability Design of Grass-Lined Open Channels*
d is in feet
V is in feet per second

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-3 Design depth (d) and velocity (V) for diversion - gradient (with **3:1** side slopes and permanently vegetated channels with **"C"** retardance)

6-Foot Channel Bottom Width

Discharge,	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
Q (cfs)	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	1.1	0.9	0.9	1.3	0.8	1.5	0.7	1.7	0.6	2.0	0.6	2.2	0.6	2.4	0.5	2.5
15	1.3	1.2	1.0	1.6	0.9	1.9	0.8	2.1	0.7	2.5	0.7	2.8	0.6	3.1	0.6	3.3
20	1.4	1.4	1.1	1.9	1.0	2.3	0.9	2.5	0.8	3.0	0.7	3.3	0.7	3.6	0.7	3.9
25	1.5	1.6	1.2	2.2	1.1	2.5	1.0	2.9	0.9	3.4	0.8	3.8				
30	1.6	1.8	1.3	2.4	1.1	2.8	1.0	3.2	0.9	3.7						
35	1.7	1.9	1.4	2.6	1.2	3.0	1.1	3.4	1.0	4.0						
40	1.7	2.1	1.4	2.8	1.3	3.2	1.2	3.6								
45	1.8	2.2	1.5	2.9	1.3	3.5	1.2	3.9								
50	1.9	2.3	1.5	3.1	1.4	3.6										
55	1.9	2.4	1.6	3.2	1.4	3.8										
60	2.0	2.5	1.6	3.4	1.5	4.0										
65	2.0	2.6	1.7	3.5												
70	2.1	2.7	1.7	3.6												
75	2.2	2.8	1.8	3.7												
80	2.2	2.9	1.8	3.8												
85	2.3	3.0	1.9	3.9												
90	2.3	3.0														
95	2.3	3.1														
100	2.4	3.2														

8-Foot Channel Bottom Width

	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	1.0	0.9	0.8	1.1	0.7	1.3	0.7	1.5	0.6	1.8	0.5	2.0	0.5	2.1	0.5	2.3
15	1.2	1.1	0.9	1.5	0.8	1.7	0.8	2.0	0.7	2.3	0.6	2.6	0.6	2.8	0.5	3.0
20	1.3	1.4	1.0	1.8	0.9	2.1	0.8	2.3	0.7	2.7	0.7	3.0	0.6	3.3	0.6	3.5
25	1.4	1.5	1.1	2.0	1.0	2.4	0.9	2.7	0.8	3.1	0.7	3.5	0.7	3.7		
30	1.4	1.7	1.2	2.3	1.0	2.7	0.9	2.9	0.8	3.4	0.8	3.8				
35	1.5	1.9	1.2	2.5	1.1	2.9	1.0	3.2	0.9	3.7						
40	1.6	2.0	1.3	2.6	1.1	3.1	1.0	3.5								
45	1.6	2.1	1.3	2.8	1.2	3.3	1.1	3.7								
50	1.7	2.2	1.4	3.0	1.2	3.5	1.1	3.9								
55	1.8	2.4	1.4	3.1	1.3	3.6										
60	1.8	2.4	1.5	3.2	1.3	3.8										
65	1.9	2.6	1.5	3.4	1.4	4.0										
70	1.9	2.6	1.6	3.5												
75	2.0	2.7	1.6	3.6												
80	2.0	2.8	1.7	3.7												
85	2.1	2.9	1.7	3.8												
90	2.1	3.0	1.7	3.9												
95	2.2	3.0														
100	2.2	3.1														

10-Foot Channel Bottom Width

Discharge,	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
Q (cfs)	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	1.0	0.8	0.8	1.1	0.7	1.2	0.6	1.4	0.5	1.6	0.5	1.7	0.5	1.9	0.4	2.0
15	1.1	1.1	0.9	1.4	0.8	1.6	0.7	1.8	0.6	2.1	0.6	2.3	0.5	2.5	0.5	2.7
20	1.2	1.3	0.9	1.7	0.8	1.9	0.8	2.2	0.7	2.5	0.6	2.8	0.6	3.0	0.5	3.2
25	1.3	1.5	1.0	1.9	0.9	2.2	0.8	2.5	0.7	2.9	0.7	3.2	0.6	3.5	0.6	3.7
30	1.3	1.6	1.1	2.1	0.9	2.5	0.9	2.8	0.8	3.2	0.7	3.5	0.7	3.9		
35	1.4	1.8	1.1	2.3	1.0	2.7	0.9	3.0	0.8	3.5	0.7	3.9				
40	1.5	1.9	1.2	2.5	1.0	2.9	1.0	3.2	0.9	3.7						
45	1.5	2.0	1.2	2.7	1.1	3.1	1.0	3.5								
50	1.6	2.1	1.3	2.8	1.1	3.3	1.0	3.7								
55	1.6	2.3	1.3	3.0	1.2	3.4	1.1	3.8								
60	1.7	2.4	1.4	3.1	1.2	3.6										
65	1.7	2.5	1.4	3.2	1.3	3.8										
70	1.8	2.5	1.5	3.3	1.3	3.9										
75	1.8	2.6	1.5	3.4												
80	1.9	2.7	1.5	3.6												
85	1.9	2.8	1.6	3.7												
90	2.0	2.9	1.6	3.8												
95	2.0	2.9	1.6	3.9												
100	2.1	3.0	1.7	4.0												

12-Foot Channel Bottom Width

	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.9	0.8	0.7	1.0	0.6	1.1	0.6	1.3	0.5	1.4	0.5	1.6	0.4	1.7	0.4	1.8
15	1.0	1.0	0.8	1.3	0.7	1.5	0.7	1.7	0.6	1.9	0.5	2.1	0.5	2.3	0.5	2.4
20	1.1	1.2	0.9	1.6	0.8	1.8	0.7	2.0	0.6	2.3	0.6	2.6	0.5	2.8	0.5	3.0
25	1.2	1.4	0.9	1.8	0.8	2.1	0.8	2.3	0.7	2.7	0.6	3.0	0.6	3.2	0.5	3.4
30	1.2	1.5	1.0	2.0	0.9	2.3	0.8	2.6	0.7	3.0	0.7	3.3	0.6	3.6	0.6	3.8
35	1.3	1.7	1.1	2.2	0.9	2.5	0.9	2.8	0.8	3.3	0.7	3.6	0.6	3.9		
40	1.4	1.8	1.1	2.4	1.0	2.8	0.9	3.1	0.8	3.5	0.7	3.9				
45	1.4	1.9	1.2	2.5	1.0	2.9	0.9	3.3	0.8	3.8						
50	1.5	2.1	1.2	2.7	1.1	3.1	1.0	3.5	0.9	4.0						
55	1.5	2.2	1.2	2.8	1.1	3.3	1.0	3.7								
60	1.6	2.3	1.3	3.0	1.1	3.5	1.0	3.8								
65	1.6	2.4	1.3	3.1	1.2	3.6	1.1	4.0								
70	1.7	2.5	1.4	3.2	1.2	3.7										
75	1.7	2.6	1.4	3.3	1.2	3.8										
80	1.8	2.6	1.4	3.4	1.3	4.0										
85	1.8	2.7	1.5	3.5												
90	1.8	2.8	1.5	3.6												
95	1.9	2.9	1.5	3.7												
100	1.9	2.9	1.6	3.8												

Based on Agriculture Handbook Number 667, *Stability Design of Grass-Lined Open Channels*
d is in feet
V is in feet per second

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-3 (continued) Design depth (d) and velocity (V) for diversion - gradient (with **3:1** side slopes and permanently vegetated channels with **"C"** retardance)

14-Foot Channel Bottom Width

Discharge,	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
Q (cfs)	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.9	0.7	0.7	0.9	0.6	1.0	0.6	1.1	0.5	1.3	0.5	1.4	0.4	1.6	0.4	1.6
15	1.0	0.9	0.8	1.2	0.7	1.4	0.6	1.5	0.5	1.8	0.5	1.9	0.5	2.1	0.4	2.2
20	1.0	1.1	0.8	1.5	0.7	1.7	0.7	1.9	0.6	2.1	0.5	2.4	0.5	2.5	0.5	2.7
25	1.1	1.3	0.9	1.7	0.8	1.9	0.7	2.1	0.6	2.5	0.6	2.7	0.5	3.0	0.5	3.2
30	1.2	1.5	0.9	1.9	0.8	2.2	0.8	2.4	0.7	2.8	0.6	3.1	0.6	3.3	0.5	3.6
35	1.2	1.6	1.0	2.1	0.9	2.4	0.8	2.7	0.7	3.1	0.7	3.4	0.6	3.6	0.6	3.9
40	1.3	1.7	1.0	2.2	0.9	2.6	0.8	2.9	0.7	3.3	0.7	3.7	0.6	3.9		
45	1.3	1.9	1.1	2.4	1.0	2.8	0.9	3.1	0.8	3.6	0.7	3.9				
50	1.4	2.0	1.1	2.5	1.0	2.9	0.9	3.3	0.8	3.8						
55	1.4	2.1	1.2	2.7	1.0	3.1	0.9	3.5								
60	1.5	2.2	1.2	2.8	1.1	3.3	1.0	3.6								
65	1.5	2.3	1.2	3.0	1.1	3.4	1.0	3.8								
70	1.6	2.4	1.3	3.1	1.1	3.6	1.0	3.9								
75	1.6	2.5	1.3	3.2	1.2	3.7										
80	1.7	2.5	1.4	3.3	1.2	3.8										
85	1.7	2.6	1.4	3.4	1.2	3.9										
90	1.7	2.7	1.4	3.5												
95	1.8	2.8	1.4	3.6												
100	1.8	2.8	1.5	3.7												

16-Foot Channel Bottom Width

	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.8	0.7	0.7	0.8	0.6	1.0	0.5	1.1	0.5	1.2	0.4	1.3	0.4	1.5	0.4	1.5
15	0.9	0.9	0.7	1.1	0.7	1.3	0.6	1.4	0.5	1.6	0.5	1.8	0.5	1.9	0.4	2.1
20	1.0	1.1	0.8	1.4	0.7	1.6	0.6	1.7	0.6	2.0	0.5	2.2	0.5	2.4	0.5	2.5
25	1.1	1.2	0.9	1.6	0.8	1.8	0.7	2.0	0.6	2.3	0.6	2.6	0.5	2.7	0.5	2.9
30	1.1	1.4	0.9	1.8	0.8	2.1	0.7	2.3	0.6	2.6	0.6	2.9	0.6	3.1	0.5	3.3
35	1.2	1.5	1.0	2.0	0.8	2.2	0.8	2.5	0.7	2.9	0.6	3.2	0.6	3.4	0.6	3.6
40	1.2	1.7	1.0	2.1	0.9	2.5	0.8	2.7	0.7	3.1	0.7	3.4	0.6	3.7	0.6	4.0
45	1.3	1.8	1.0	2.3	0.9	2.6	0.8	2.9	0.7	3.3	0.7	3.7	0.6	4.0		
50	1.3	1.9	1.1	2.4	1.0	2.8	0.9	3.1	0.8	3.6	0.7	3.9				
55	1.4	2.0	1.1	2.6	1.0	3.0	0.9	3.3	0.8	3.8						
60	1.4	2.1	1.1	2.7	1.0	3.1	0.9	3.4	0.8	4.0						
65	1.5	2.2	1.2	2.8	1.0	3.3	1.0	3.6								
70	1.5	2.3	1.2	2.9	1.1	3.4	1.0	3.8								
75	1.5	2.4	1.2	3.1	1.1	3.5	1.0	3.9								
80	1.6	2.5	1.3	3.2	1.1	3.7										
85	1.6	2.5	1.3	3.3	1.2	3.8										
90	1.7	2.6	1.3	3.4	1.2	3.9										
95	1.7	2.7	1.4	3.4	1.2	4.0										
100	1.7	2.7	1.4	3.6												

18-Foot Channel Bottom Width

Discharge,	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
Q (cfs)	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.8	0.6	0.7	0.8	0.6	0.9	0.5	1.0	0.5	1.1	0.4	1.2	0.4	1.3	0.4	1.4
15	0.9	0.8	0.7	1.0	0.6	1.2	0.6	1.3	0.5	1.5	0.5	1.7	0.4	1.8	0.4	1.9
20	1.0	1.0	0.8	1.3	0.7	1.5	0.6	1.6	0.6	1.9	0.5	2.1	0.5	2.2	0.4	2.4
25	1.0	1.2	0.8	1.5	0.7	1.7	0.7	1.9	0.6	2.2	0.5	2.4	0.5	2.6	0.5	2.7
30	1.1	1.3	0.9	1.7	0.8	1.9	0.7	2.1	0.6	2.4	0.6	2.7	0.5	2.9	0.5	3.1
35	1.1	1.5	0.9	1.9	0.8	2.1	0.7	2.4	0.7	2.7	0.6	3.0	0.6	3.2	0.5	3.4
40	1.2	1.6	1.0	2.0	0.8	2.3	0.8	2.6	0.7	2.9	0.6	3.2	0.6	3.5	0.6	3.7
45	1.2	1.7	1.0	2.2	0.9	2.5	0.8	2.8	0.7	3.2	0.6	3.5	0.6	3.8		
50	1.3	1.8	1.0	2.3	0.9	2.7	0.8	2.9	0.7	3.4	0.7	3.7	0.6	4.0		
55	1.3	1.9	1.1	2.4	0.9	2.8	0.9	3.1	0.8	3.6	0.7	4.0				
60	1.4	2.0	1.1	2.6	1.0	3.0	0.9	3.3	0.8	3.8						
65	1.4	2.1	1.1	2.7	1.0	3.1	0.9	3.4	0.8	4.0						
70	1.4	2.2	1.2	2.8	1.0	3.3	0.9	3.6								
75	1.5	2.3	1.2	2.9	1.1	3.4	1.0	3.7								
80	1.5	2.4	1.2	3.0	1.1	3.5	1.0	3.9								
85	1.5	2.4	1.3	3.1	1.1	3.6										
90	1.6	2.5	1.3	3.2	1.1	3.7										
95	1.6	2.6	1.3	3.3	1.2	3.9										
100	1.6	2.7	1.3	3.4	1.2	3.9										

20-Foot Channel Bottom Width

	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.8	0.6	0.6	0.7	0.6	0.8	0.5	0.9	0.5	1.0	0.4	1.1	0.4	1.2	0.4	1.3
15	0.9	0.8	0.7	1.0	0.6	1.1	0.6	1.2	0.5	1.4	0.5	1.6	0.4	1.7	0.4	1.8
20	0.9	1.0	0.7	1.2	0.7	1.4	0.6	1.5	0.5	1.7	0.5	1.9	0.5	2.1	0.4	2.2
25	1.0	1.1	0.8	1.4	0.7	1.6	0.6	1.8	0.6	2.1	0.5	2.3	0.5	2.4	0.5	2.6
30	1.0	1.3	0.8	1.6	0.7	1.9	0.7	2.0	0.6	2.3	0.5	2.6	0.5	2.7	0.5	2.9
35	1.1	1.4	0.9	1.8	0.8	2.0	0.7	2.2	0.6	2.6	0.6	2.8	0.5	3.1	0.5	3.3
40	1.1	1.5	0.9	1.9	0.8	2.2	0.7	2.4	0.7	2.8	0.6	3.1	0.6	3.3	0.5	3.5
45	1.2	1.6	1.0	2.1	0.8	2.4	0.8	2.6	0.7	3.0	0.6	3.3	0.6	3.6	0.6	3.8
50	1.2	1.7	1.0	2.2	0.9	2.5	0.8	2.8	0.7	3.2	0.6	3.6	0.6	3.8		
55	1.3	1.8	1.0	2.3	0.9	2.7	0.8	3.0	0.7	3.4	0.7	3.7				
60	1.3	1.9	1.1	2.5	0.9	2.8	0.9	3.1	0.8	3.6	0.7	3.9				
65	1.3	2.0	1.1	2.6	1.0	3.0	0.9	3.3	0.8	3.8						
70	1.4	2.1	1.1	2.7	1.0	3.1	0.9	3.4	0.8	4.0						
75	1.4	2.2	1.1	2.8	1.0	3.2	0.9	3.6								
80	1.4	2.3	1.2	2.9	1.0	3.4	0.9	3.7								
85	1.5	2.4	1.2	3.0	1.1	3.5	1.0	3.8								
90	1.5	2.4	1.2	3.1	1.1	3.6	1.0	4.0								
95	1.5	2.5	1.3	3.2	1.1	3.7										
100	1.6	2.6	1.3	3.3	1.1	3.8										

Based on Agriculture Handbook Number 667, *Stability Design of Grass-Lined Open Channels*
d is in feet
V is in feet per second

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-4 Design depth (d) and velocity (V) for diversion - gradient (with **4:1** side slopes and permanently vegetated channels with **"C"** retardance)

6-Foot Channel Bottom Width

Discharge,	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
Q (cfs)	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	1.1	0.8	0.9	1.1	0.8	1.4	0.7	1.5	0.7	1.8	0.6	2.0	0.6	2.2	0.5	2.4
15	1.3	1.1	1.0	1.5	0.9	1.7	0.8	1.9	0.7	2.3	0.7	2.6	0.6	2.9	0.6	3.0
20	1.4	1.3	1.1	1.7	1.0	2.1	0.9	2.3	0.8	2.7	0.7	3.1	0.7	3.4	0.7	3.6
25	1.5	1.5	1.2	2.0	1.1	2.3	1.0	2.6	0.9	3.1	0.8	3.5	0.7	3.8		
30	1.5	1.6	1.3	2.2	1.1	2.6	1.0	2.9	0.9	3.4	0.8	3.8				
35	1.6	1.7	1.3	2.4	1.2	2.8	1.1	3.1	1.0	3.7						
40	1.7	1.9	1.4	2.5	1.2	3.0	1.1	3.3	1.0	3.9						
45	1.8	2.0	1.4	2.7	1.3	3.2	1.2	3.6								
50	1.8	2.1	1.5	2.8	1.3	3.3	1.2	3.7								
55	1.9	2.2	1.5	2.9	1.4	3.5	1.3	3.9								
60	1.9	2.3	1.6	3.1	1.4	3.6										
65	2.0	2.4	1.6	3.2	1.5	3.8										
70	2.0	2.5	1.7	3.3	1.5	3.9										
75	2.1	2.5	1.7	3.4												
80	2.1	2.6	1.8	3.5												
85	2.2	2.7	1.8	3.6												
90	2.2	2.8	1.8	3.7												
95	2.3	2.8	1.9	3.8												
100	2.3	2.9	1.9	3.8												

8-Foot Channel Bottom Width

	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	1.0	0.8	0.8	1.1	0.7	1.3	0.7	1.4	0.6	1.6	0.5	1.8	0.5	2.0	0.5	2.2
15	1.2	1.0	0.9	1.4	0.8	1.6	0.8	1.8	0.7	2.1	0.6	2.4	0.6	2.6	0.5	2.8
20	1.3	1.2	1.0	1.6	0.9	1.9	0.8	2.2	0.7	2.6	0.7	2.8	0.6	3.1	0.6	3.3
25	1.3	1.4	1.1	1.9	1.0	2.2	0.9	2.5	0.8	2.9	0.7	3.2	0.7	3.5	0.6	3.8
30	1.4	1.5	1.2	2.1	1.0	2.4	0.9	2.7	0.8	3.2	0.8	3.6	0.7	3.9		
35	1.5	1.7	1.2	2.3	1.1	2.7	1.0	3.0	0.9	3.5	0.8	3.9				
40	1.6	1.8	1.3	2.4	1.1	2.8	1.0	3.2	0.9	3.7						
45	1.6	1.9	1.3	2.6	1.2	3.0	1.1	3.4	1.0	4.0						
50	1.7	2.0	1.4	2.7	1.2	3.2	1.1	3.6								
55	1.7	2.1	1.4	2.8	1.3	3.3	1.2	3.8								
60	1.8	2.2	1.5	3.0	1.3	3.5	1.2	3.9								
65	1.8	2.3	1.5	3.1	1.3	3.6										
70	1.9	2.4	1.6	3.2	1.4	3.8										
75	1.9	2.5	1.6	3.3	1.4	3.9										
80	2.0	2.6	1.6	3.4	1.5	4.0										
85	2.0	2.6	1.7	3.5												
90	2.1	2.7	1.7	3.6												
95	2.1	2.8	1.7	3.7												
100	2.1	2.8	1.8	3.8												

10-Foot Channel Bottom Width

Discharge,	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
Q (cfs)	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	1.0	0.7	0.8	1.0	0.7	1.2	0.6	1.3	0.6	1.5	0.5	1.7	0.5	1.8	0.4	1.9
15	1.1	1.0	0.9	1.3	0.8	1.5	0.7	1.7	0.6	2.0	0.6	2.2	0.5	2.4	0.5	2.6
20	1.2	1.2	0.9	1.5	0.8	1.8	0.8	2.0	0.7	2.4	0.6	2.6	0.6	2.9	0.5	3.0
25	1.3	1.3	1.0	1.8	0.9	2.1	0.8	2.3	0.7	2.7	0.7	3.0	0.6	3.3	0.6	3.5
30	1.3	1.5	1.1	2.0	0.9	2.3	0.9	2.6	0.8	3.0	0.7	3.3	0.7	3.7	0.6	3.9
35	1.4	1.6	1.1	2.2	1.0	2.5	0.9	2.8	0.8	3.3	0.7	3.6	0.7	4.0		
40	1.5	1.7	1.2	2.3	1.0	2.7	1.0	3.0	0.9	3.5	0.8	4.0				
45	1.5	1.9	1.2	2.5	1.1	2.9	1.0	3.2	0.9	3.8						
50	1.6	2.0	1.3	2.6	1.1	3.0	1.0	3.4	0.9	4.0						
55	1.6	2.1	1.3	2.7	1.2	3.2	1.1	3.6								
60	1.7	2.2	1.4	2.9	1.2	3.3	1.1	3.7								
65	1.7	2.3	1.4	3.0	1.2	3.5	1.1	3.9								
70	1.8	2.3	1.4	3.1	1.3	3.6										
75	1.8	2.4	1.5	3.2	1.3	3.8										
80	1.8	2.5	1.5	3.3	1.3	3.9										
85	1.9	2.6	1.6	3.4	1.4	4.0										
90	1.9	2.7	1.6	3.5												
95	2.0	2.7	1.6	3.6												
100	2.0	2.8	1.7	3.7												

12-Foot Channel Bottom Width

	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.9	0.7	0.7	0.9	0.7	1.1	0.6	1.2	0.5	1.4	0.5	1.5	0.4	1.7	0.4	1.7
15	1.0	0.9	0.8	1.2	0.7	1.4	0.7	1.6	0.6	1.8	0.5	2.0	0.5	2.2	0.5	2.3
20	1.1	1.1	0.9	1.5	0.8	1.7	0.7	1.9	0.6	2.2	0.6	2.5	0.5	2.6	0.5	2.8
25	1.2	1.3	1.0	1.7	0.8	2.0	0.8	2.2	0.7	2.5	0.6	2.8	0.6	3.0	0.5	3.3
30	1.2	1.4	1.0	1.9	0.9	2.2	0.8	2.4	0.7	2.8	0.7	3.2	0.6	3.4	0.6	3.6
35	1.3	1.6	1.1	2.1	0.9	2.4	0.9	2.7	0.8	3.1	0.7	3.4	0.6	3.8	0.6	4.0
40	1.4	1.7	1.1	2.2	1.0	2.6	0.9	2.9	0.8	3.3	0.7	3.7	0.7	4.0		
45	1.4	1.8	1.2	2.4	1.0	2.7	0.9	3.1	0.8	3.6	0.8	4.0				
50	1.5	1.9	1.2	2.5	1.1	2.9	1.0	3.2	0.9	3.8						
55	1.5	2.0	1.2	2.6	1.1	3.1	1.0	3.4	0.9	4.0						
60	1.6	2.1	1.3	2.8	1.1	3.2	1.0	3.6								
65	1.6	2.2	1.3	2.9	1.2	3.4	1.1	3.7								
70	1.7	2.3	1.4	3.0	1.2	3.5	1.1	3.9								
75	1.7	2.3	1.4	3.1	1.2	3.6										
80	1.7	2.4	1.4	3.2	1.3	3.7										
85	1.8	2.5	1.5	3.3	1.3	3.8										
90	1.8	2.6	1.5	3.4	1.3	3.9										
95	1.9	2.6	1.5	3.5												
100	1.9	2.7	1.5	3.6												

Based on Agriculture Handbook Number 667, *Stability Design of Grass-Lined Open Channels*
d is in feet
V is in feet per second

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-4 (continued) Design depth (d) and velocity (V) for diversion - gradient (with **4:1** side slopes and permanently vegetated channels with **"C"** retardance)

14-Foot Channel Bottom Width

Discharge,	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
Q (cfs)	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.9	0.6	0.7	0.9	0.6	1.0	0.6	1.1	0.5	1.3	0.5	1.4	0.4	1.5	0.4	1.6
15	1.0	0.9	0.8	1.1	0.7	1.3	0.6	1.5	0.6	1.7	0.5	1.9	0.5	2.0	0.4	2.2
20	1.0	1.1	0.8	1.4	0.7	1.6	0.7	1.8	0.6	2.0	0.6	2.2	0.5	2.4	0.5	2.6
25	1.1	1.2	0.9	1.6	0.8	1.8	0.7	2.1	0.6	2.4	0.6	2.6	0.6	2.8	0.5	3.0
30	1.2	1.4	1.0	1.8	0.8	2.1	0.8	2.3	0.7	2.6	0.6	2.9	0.6	3.2	0.6	3.4
35	1.2	1.5	1.0	1.9	0.9	2.3	0.8	2.5	0.7	2.9	0.7	3.2	0.6	3.5	0.6	3.7
40	1.3	1.6	1.0	2.1	0.9	2.5	0.8	2.7	0.8	3.1	0.7	3.5	0.6	3.8		
45	1.3	1.7	1.1	2.2	1.0	2.6	0.9	2.9	0.8	3.4	0.7	3.8				
50	1.4	1.8	1.1	2.4	1.0	2.8	0.9	3.1	0.8	3.6	0.7	4.0				
55	1.4	1.9	1.2	2.5	1.0	2.9	1.0	3.3	0.8	3.8						
60	1.5	2.0	1.2	2.7	1.1	3.1	1.0	3.4								
65	1.5	2.1	1.2	2.8	1.1	3.2	1.0	3.6								
70	1.6	2.2	1.3	2.9	1.1	3.3	1.0	3.8								
75	1.6	2.3	1.3	3.0	1.2	3.5	1.1	3.9								
80	1.6	2.4	1.3	3.1	1.2	3.6	1.1	4.0								
85	1.7	2.4	1.4	3.2	1.2	3.7										
90	1.7	2.5	1.4	3.3	1.2	3.8										
95	1.8	2.6	1.4	3.4	1.3	3.9										
100	1.8	2.6	1.5	3.5												

16-Foot Channel Bottom Width

	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.8	0.6	0.7	0.8	0.6	0.9	0.5	1.0	0.5	1.2	0.4	1.3	0.4	1.4	0.4	1.5
15	0.9	0.8	0.7	1.1	0.7	1.2	0.6	1.4	0.5	1.6	0.5	1.7	0.5	1.9	0.4	2.0
20	1.0	1.0	0.8	1.3	0.7	1.5	0.7	1.7	0.6	1.9	0.5	2.1	0.5	2.3	0.5	2.4
25	1.1	1.2	0.9	1.5	0.8	1.7	0.7	1.9	0.6	2.2	0.6	2.4	0.5	2.7	0.5	2.8
30	1.1	1.3	0.9	1.7	0.8	2.0	0.7	2.2	0.7	2.5	0.6	2.8	0.6	3.0	0.5	3.2
35	1.2	1.4	1.0	1.9	0.8	2.2	0.8	2.4	0.7	2.7	0.6	3.1	0.6	3.3	0.6	3.5
40	1.2	1.6	1.0	2.0	0.9	2.3	0.8	2.6	0.7	3.0	0.7	3.3	0.6	3.6	0.6	3.8
45	1.3	1.7	1.0	2.2	0.9	2.5	0.8	2.8	0.7	3.2	0.7	3.5	0.6	3.9		
50	1.3	1.8	1.1	2.3	1.0	2.7	0.9	3.0	0.8	3.4	0.7	3.8				
55	1.4	1.9	1.1	2.4	1.0	2.8	0.9	3.1	0.8	3.6	0.7	4.0				
60	1.4	2.0	1.1	2.6	1.0	3.0	0.9	3.3	0.8	3.8						
65	1.5	2.1	1.2	2.7	1.0	3.1	1.0	3.5	0.8	4.0						
70	1.5	2.1	1.2	2.8	1.1	3.2	1.0	3.6								
75	1.5	2.2	1.2	2.9	1.1	3.3	1.0	3.7								
80	1.6	2.3	1.3	3.0	1.1	3.5	1.0	3.9								
85	1.6	2.4	1.3	3.1	1.2	3.6	1.1	4.0								
90	1.6	2.4	1.3	3.2	1.2	3.7										
95	1.7	2.5	1.4	3.3	1.2	3.8										
100	1.7	2.6	1.4	3.3	1.2	3.9										

18-Foot Channel Bottom Width

Discharge,	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
Q (cfs)	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.8	0.6	0.7	0.7	0.6	0.9	0.5	0.9	0.5	1.1	0.4	1.2	0.4	1.3	0.4	1.4
15	0.9	0.8	0.7	1.0	0.6	1.2	0.6	1.3	0.5	1.5	0.5	1.6	0.4	1.8	0.4	1.9
20	1.0	1.0	0.8	1.2	0.7	1.4	0.6	1.6	0.6	1.8	0.5	2.0	0.5	2.1	0.4	2.3
25	1.0	1.1	0.8	1.4	0.7	1.6	0.7	1.8	0.6	2.1	0.5	2.3	0.5	2.5	0.5	2.7
30	1.1	1.2	0.9	1.6	0.8	1.8	0.7	2.1	0.6	2.4	0.6	2.6	0.5	2.8	0.5	3.0
35	1.1	1.4	0.9	1.8	0.8	2.0	0.7	2.3	0.7	2.6	0.6	2.9	0.6	3.1	0.5	3.3
40	1.2	1.5	1.0	1.9	0.8	2.2	0.8	2.5	0.7	2.8	0.6	3.2	0.6	3.4	0.6	3.6
45	1.2	1.6	1.0	2.1	0.9	2.4	0.8	2.7	0.7	3.0	0.7	3.4	0.6	3.7	0.6	3.9
50	1.3	1.7	1.0	2.2	0.9	2.5	0.8	2.8	0.7	3.3	0.7	3.6	0.6	3.9		
55	1.3	1.8	1.1	2.3	0.9	2.7	0.9	3.0	0.8	3.4	0.7	3.8				
60	1.4	1.9	1.1	2.5	1.0	2.8	0.9	3.1	0.8	3.6	0.7	4.0				
65	1.4	2.0	1.1	2.6	1.0	3.0	0.9	3.3	0.8	3.8						
70	1.4	2.1	1.2	2.7	1.0	3.1	0.9	3.4	0.8	4.0						
75	1.5	2.2	1.2	2.8	1.1	3.2	1.0	3.6								
80	1.5	2.2	1.2	2.9	1.1	3.3	1.0	3.7								
85	1.5	2.3	1.2	3.0	1.1	3.4	1.0	3.8								
90	1.6	2.4	1.3	3.1	1.1	3.5	1.0	4.0								
95	1.6	2.4	1.3	3.1	1.2	3.7										
100	1.6	2.5	1.3	3.3	1.2	3.8										

20-Foot Channel Bottom Width

	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.8	0.5	0.6	0.7	0.6	0.8	0.5	0.9	0.5	1.0	0.4	1.1	0.4	1.2	0.4	1.3
15	0.9	0.7	0.7	0.9	0.6	1.1	0.6	1.2	0.5	1.4	0.5	1.5	0.4	1.6	0.4	1.7
20	0.9	0.9	0.8	1.2	0.7	1.3	0.6	1.5	0.5	1.7	0.5	1.9	0.5	2.0	0.4	2.1
25	1.0	1.1	0.8	1.3	0.7	1.6	0.6	1.7	0.6	2.0	0.5	2.2	0.5	2.4	0.5	2.5
30	1.0	1.2	0.8	1.5	0.7	1.8	0.7	1.9	0.6	2.2	0.6	2.5	0.5	2.7	0.5	2.9
35	1.1	1.3	0.9	1.7	0.8	1.9	0.7	2.2	0.6	2.5	0.6	2.8	0.5	2.9	0.5	3.1
40	1.1	1.4	0.9	1.8	0.8	2.1	0.7	2.4	0.7	2.7	0.6	3.0	0.6	3.2	0.5	3.4
45	1.2	1.5	1.0	2.0	0.8	2.3	0.8	2.5	0.7	2.9	0.6	3.2	0.6	3.5	0.6	3.7
50	1.2	1.6	1.0	2.1	0.9	2.4	0.8	2.7	0.7	3.1	0.7	3.4	0.6	3.7	0.6	3.9
55	1.3	1.7	1.0	2.2	0.9	2.6	0.8	2.8	0.7	3.3	0.7	3.6	0.6	3.9		
60	1.3	1.8	1.1	2.4	0.9	2.7	0.9	3.0	0.8	3.5	0.7	3.8				
65	1.3	1.9	1.1	2.5	1.0	2.8	0.9	3.1	0.8	3.7						
70	1.4	2.0	1.1	2.6	1.0	3.0	0.9	3.3	0.8	3.8						
75	1.4	2.1	1.1	2.7	1.0	3.1	0.9	3.4	0.8	3.9						
80	1.4	2.2	1.2	2.8	1.0	3.2	1.0	3.5								
85	1.5	2.2	1.2	2.9	1.1	3.3	1.0	3.7								
90	1.5	2.3	1.2	3.0	1.1	3.4	1.0	3.8								
95	1.5	2.4	1.3	3.0	1.1	3.5	1.0	3.9								
100	1.6	2.4	1.3	3.1	1.1	3.6										

Based on Agriculture Handbook Number 667, *Stability Design of Grass-Lined Open Channels*
d is in feet
V is in feet per second

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-5 Design depth (d) and velocity (V) for diversion - gradient (with **3:1** side slopes and permanently vegetated channels with **"D"** retardance)

6-Foot Channel Bottom Width

Discharge,	Grade (%)													
	0.5		1.0		1.5		2.0		3.0		4.0		5.0	
Q (cfs)	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.9	1.3	0.7	1.7	0.6	2.0	0.6	2.2	0.5	2.5	0.5	2.8	0.5	3.0
15	1.0	1.6	0.8	2.1	0.8	2.4	0.7	2.7	0.6	3.2	0.6	3.6	0.5	3.8
20	1.2	1.8	0.9	2.4	0.8	2.8	0.8	3.2	0.7	3.7				
25	1.3	2.1	1.0	2.7	0.9	3.1	0.8	3.5						
30	1.3	2.2	1.1	3.0	1.0	3.5	0.9	3.9						
35	1.4	2.4	1.2	3.2	1.0	3.7								
40	1.5	2.6	1.2	3.4	1.1	4.0								
45	1.6	2.7	1.3	3.6										
50	1.6	2.8	1.3	3.7										
55	1.7	2.9	1.4	3.9										
60	1.8	3.0												
65	1.8	3.2												
70	1.9	3.2												
75	1.9	3.3												
80	2.0	3.4												
85	2.0	3.5												
90	2.1	3.6												
95	2.1	3.7												
100	2.1	3.8												

8-Foot Channel Bottom Width

Grade (%)																
0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0		
d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
0.8	1.2	0.7	1.5	0.6	1.8	0.5	2.0	0.5	2.3	0.4	2.5	0.4	2.7	0.4	2.9
0.9	1.5	0.8	1.9	0.7	2.2	0.6	2.5	0.5	2.9	0.5	3.2	0.5	3.5	0.4	3.7
1.0	1.7	0.8	2.3	0.7	2.6	0.7	2.9	0.6	3.4	0.6	3.8				
1.1	1.9	0.9	2.6	0.8	3.0	0.7	3.3	0.7	3.8						
1.2	2.1	1.0	2.8	0.9	3.3	0.8	3.6								
1.3	2.3	1.0	3.0	0.9	3.5	0.9	3.9								
1.4	2.5	1.1	3.2	1.0	3.7										
1.4	2.6	1.2	3.4	1.0	3.9										
1.5	2.7	1.2	3.6												
1.5	2.9	1.3	3.7												
1.6	3.0	1.3	3.9												
1.6	3.1	1.4	4.0												
1.7	3.2														
1.7	3.3														
1.8	3.3														
1.8	3.4														
1.9	3.5														
1.9	3.6														
2.0	3.7														

10-Foot Channel Bottom Width

Discharge,	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
Q (cfs)	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.8	1.1	0.6	1.4	0.5	1.6	0.5	1.8	0.4	2.1	0.4	2.3	0.4	2.4	0.4	2.6
15	0.9	1.4	0.7	1.8	0.6	2.1	0.6	2.3	0.5	2.6	0.5	2.9	0.4	3.2	0.4	3.3
20	1.0	1.6	0.8	2.1	0.7	2.4	0.6	2.7	0.6	3.1	0.5	3.4	0.5	3.7	0.5	3.9
25	1.0	1.9	0.8	2.4	0.7	2.8	0.7	3.1	0.6	3.5	0.6	3.9				
30	1.1	2.0	0.9	2.6	0.8	3.0	0.7	3.4	0.7	3.9						
35	1.2	2.2	1.0	2.8	0.9	3.3	0.8	3.6								
40	1.2	2.4	1.0	3.0	0.9	3.5	0.8	3.9								
45	1.3	2.5	1.1	3.2	0.9	3.7										
50	1.4	2.6	1.1	3.4	1.0	3.9										
55	1.4	2.7	1.2	3.6												
60	1.5	2.9	1.2	3.7												
65	1.5	3.0	1.2	3.8												
70	1.6	3.1	1.3	4.0												
75	1.6	3.2														
80	1.7	3.2														
85	1.7	3.3														
90	1.7	3.4														
95	1.8	3.5														
100	1.8	3.6														

12-Foot Channel Bottom Width

Grade (%)																
0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0		
d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
0.7	1.0	0.6	1.3	0.5	1.5	0.5	1.6	0.4	1.9	0.4	2.1	0.3	2.3	0.3	2.3
0.8	1.3	0.7	1.7	0.6	1.9	0.5	2.1	0.5	2.4	0.4	2.7	0.4	2.8	0.4	3.1
0.9	1.5	0.7	2.0	0.6	2.3	0.6	2.5	0.5	2.9	0.5	3.2	0.4	3.4	0.4	3.6
1.0	1.8	0.8	2.2	0.7	2.6	0.6	2.9	0.6	3.3	0.5	3.6	0.5	3.9		
1.0	1.9	0.8	2.5	0.7	2.9	0.7	3.1	0.6	3.6	0.6	4.0				
1.1	2.1	0.9	2.7	0.8	3.1	0.7	3.4	0.6	3.9						
1.2	2.3	0.9	2.9	0.8	3.3	0.8	3.7								
1.2	2.4	1.0	3.1	0.9	3.5	0.8	3.9								
1.3	2.5	1.0	3.2	0.9	3.7										
1.3	2.6	1.1	3.4	1.0	3.9										
1.4	2.7	1.1	3.5												
1.4	2.8	1.2	3.7												
1.5	3.0	1.2	3.8												
1.5	3.1	1.2	3.9												
1.5	3.1														
1.6	3.2														
1.6	3.3														
1.7	3.4														
1.7	3.5														

Based on Agriculture Handbook Number 667, *Stability Design of Grass-Lined Open Channels*
d is in feet
V is in feet per second

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-5 (continued) Design depth (d) and velocity (V) for diversion - gradient (with **3:1** side slopes and permanently vegetated channels with **"D"** retardance)

14-Foot Channel Bottom Width

Discharge,	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
Q (cfs)	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.7	0.9	0.5	1.2	0.5	1.4	0.4	1.5	0.4	1.7	0.4	1.9	0.3	2.0	0.3	2.2
15	0.8	1.2	0.6	1.6	0.5	1.8	0.5	2.0	0.4	2.2	0.4	2.5	0.4	2.7	0.4	2.8
20	0.8	1.4	0.7	1.8	0.6	2.1	0.6	2.3	0.5	2.7	0.4	3.0	0.4	3.2	0.4	3.4
25	0.9	1.6	0.7	2.1	0.7	2.4	0.6	2.7	0.5	3.1	0.5	3.4	0.5	3.6	0.4	3.8
30	1.0	1.8	0.8	2.3	0.7	2.7	0.6	2.9	0.6	3.4	0.5	3.7				
35	1.0	2.0	0.8	2.6	0.7	2.9	0.7	3.2	0.6	3.7						
40	1.1	2.1	0.9	2.7	0.8	3.1	0.7	3.5	0.6	4.0						
45	1.1	2.3	0.9	2.9	0.8	3.3	0.8	3.7								
50	1.2	2.4	1.0	3.1	0.9	3.6	0.8	3.9								
55	1.2	2.5	1.0	3.2	0.9	3.7										
60	1.3	2.6	1.0	3.4	0.9	3.9										
65	1.3	2.7	1.1	3.5												
70	1.4	2.8	1.1	3.6												
75	1.4	2.9	1.1	3.8												
80	1.4	3.0	1.2	3.9												
85	1.5	3.1	1.2	4.0												
90	1.5	3.2														
95	1.6	3.3														
100	1.6	3.4														

16-Foot Channel Bottom Width

	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.6	0.9	0.5	1.1	0.5	1.3	0.4	1.4	0.4	1.6	0.3	1.8	0.3	1.9	0.3	2.0
15	0.7	1.1	0.6	1.5	0.5	1.7	0.5	1.8	0.4	2.1	0.4	2.3	0.4	2.4	0.3	2.6
20	0.8	1.4	0.6	1.7	0.6	2.0	0.5	2.2	0.5	2.5	0.4	2.8	0.4	3.0	0.4	3.2
25	0.9	1.6	0.7	2.0	0.6	2.3	0.6	2.5	0.5	2.9	0.5	3.1	0.4	3.4	0.4	3.6
30	0.9	1.7	0.7	2.2	0.7	2.5	0.6	2.8	0.5	3.2	0.5	3.5	0.5	3.8		
35	1.0	1.9	0.8	2.4	0.7	2.8	0.6	3.1	0.6	3.5	0.5	3.8				
40	1.0	2.0	0.8	2.6	0.7	3.0	0.7	3.3	0.6	3.7						
45	1.1	2.2	0.9	2.8	0.8	3.2	0.7	3.5	0.6	4.0						
50	1.1	2.3	0.9	2.9	0.8	3.3	0.7	3.7								
55	1.2	2.4	1.0	3.1	0.8	3.5	0.8	3.9								
60	1.2	2.5	1.0	3.2	0.9	3.7										
65	1.3	2.6	1.0	3.4	0.9	3.9										
70	1.3	2.7	1.1	3.5												
75	1.3	2.8	1.1	3.6												
80	1.4	2.9	1.1	3.7												
85	1.4	3.0	1.1	3.8												
90	1.4	3.1	1.2	3.9												
95	1.5	3.2														
100	1.5	3.3														

18-Foot Channel Bottom Width

Discharge,	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
Q (cfs)	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.6	0.8	0.5	1.0	0.4	1.2	0.4	1.3	0.4	1.5	0.3	1.6	0.3	1.8	0.3	1.8
15	0.7	1.1	0.6	1.4	0.5	1.6	0.5	1.7	0.4	2.0	0.4	2.1	0.3	2.3	0.3	2.5
20	0.8	1.3	0.6	1.7	0.5	1.9	0.5	2.1	0.4	2.4	0.4	2.6	0.4	2.7	0.4	2.9
25	0.8	1.5	0.7	1.9	0.6	2.1	0.5	2.4	0.5	2.7	0.4	2.9	0.4	3.2	0.4	3.3
30	0.9	1.7	0.7	2.1	0.6	2.4	0.6	2.6	0.5	3.0	0.5	3.3	0.4	3.5	0.4	3.8
35	0.9	1.8	0.8	2.3	0.7	2.6	0.6	2.9	0.5	3.3	0.5	3.7	0.5	3.9		
40	1.0	1.9	0.8	2.5	0.7	2.8	0.6	3.1	0.6	3.6	0.5	3.9				
45	1.0	2.1	0.8	2.6	0.7	3.1	0.7	3.4	0.6	3.8						
50	1.1	2.2	0.9	2.8	0.8	3.2	0.7	3.6								
55	1.1	2.3	0.9	3.0	0.8	3.4	0.7	3.7								
60	1.2	2.4	0.9	3.1	0.8	3.5	0.8	3.9								
65	1.2	2.5	1.0	3.2	0.9	3.7										
70	1.2	2.6	1.0	3.3	0.9	3.9										
75	1.3	2.7	1.0	3.5	0.9	4.0										
80	1.3	2.8	1.1	3.6												
85	1.3	2.9	1.1	3.7												
90	1.4	3.0	1.1	3.8												
95	1.4	3.1	1.1	3.9												
100	1.4	3.1														

20-Foot Channel Bottom Width

	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.6	0.8	0.5	1.0	0.4	1.1	0.4	1.2	0.3	1.4	0.3	1.5	0.3	1.7	0.3	1.7
15	0.7	1.0	0.5	1.3	0.5	1.5	0.4	1.6	0.4	1.8	0.4	2.0	0.3	2.2	0.3	2.3
20	0.7	1.2	0.6	1.6	0.5	1.8	0.5	1.9	0.4	2.2	0.4	2.4	0.4	2.6	0.3	2.8
25	0.8	1.4	0.6	1.8	0.6	2.1	0.5	2.2	0.5	2.5	0.4	2.8	0.4	3.0	0.4	3.2
30	0.8	1.6	0.7	2.0	0.6	2.3	0.6	2.5	0.5	2.9	0.5	3.1	0.4	3.4	0.4	3.5
35	0.9	1.7	0.7	2.2	0.6	2.5	0.6	2.7	0.5	3.1	0.5	3.5	0.4	3.7	0.4	3.9
40	0.9	1.9	0.8	2.4	0.7	2.7	0.6	3.0	0.5	3.4	0.5	3.7	0.5	4.0		
45	1.0	2.0	0.8	2.5	0.7	2.9	0.6	3.2	0.6	3.6						
50	1.0	2.1	0.8	2.7	0.7	3.1	0.7	3.4	0.6	3.9						
55	1.1	2.2	0.9	2.8	0.8	3.2	0.7	3.6								
60	1.1	2.3	0.9	3.0	0.8	3.4	0.7	3.8								
65	1.1	2.4	0.9	3.1	0.8	3.5	0.8	3.9								
70	1.2	2.5	1.0	3.2	0.8	3.7										
75	1.2	2.6	1.0	3.3	0.9	3.8										
80	1.2	2.7	1.0	3.4	0.9	4.0										
85	1.3	2.8	1.0	3.6												
90	1.3	2.9	1.1	3.7												
95	1.3	3.0	1.1	3.8												
100	1.4	3.1	1.1	3.9												

Based on Agriculture Handbook Number 667, *Stability Design of Grass-Lined Open Channels*
d is in feet
V is in feet per second

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-6 Design depth (d) and velocity (V) for diversion - gradient (with **4:1** side slopes and permanently vegetated channels with **"D"** retardance)

6-Foot Channel Bottom Width

Discharge,	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
Q (cfs)	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.9	1.2	0.7	1.5	0.6	1.8	0.6	2.0	0.5	2.4	0.5	2.6	0.5	2.8	0.4	3.1
15	1.0	1.5	0.8	1.9	0.7	2.3	0.7	2.5	0.6	3.0	0.6	3.3	0.5	3.6	0.5	3.8
20	1.1	1.7	0.9	2.2	0.8	2.6	0.8	2.9	0.7	3.4	0.6	3.8				
25	1.2	1.9	1.0	2.5	0.9	2.9	0.8	3.3	0.7	3.8						
30	1.3	2.1	1.1	2.7	1.0	3.2	0.9	3.6								
35	1.4	2.2	1.1	2.9	1.0	3.5	0.9	3.9								
40	1.5	2.3	1.2	3.1	1.1	3.6										
45	1.5	2.5	1.3	3.3	1.1	3.8										
50	1.6	2.6	1.3	3.4												
55	1.6	2.7	1.4	3.6												
60	1.7	2.8	1.4	3.7												
65	1.7	2.9	1.4	3.8												
70	1.8	3.0	1.5	4.0												
75	1.8	3.1														
80	1.9	3.1														
85	1.9	3.2														
90	2.0	3.3														
95	2.0	3.4														
100	2.0	3.5														

8-Foot Channel Bottom Width

Grade (%)																
0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0		
d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
0.8	1.1	0.7	1.4	0.6	1.7	0.5	1.9	0.5	2.2	0.4	2.4	0.4	2.6	0.4	2.8
0.9	1.4	0.8	1.8	0.7	2.1	0.6	2.4	0.5	2.7	0.5	3.0	0.5	3.3	0.4	3.5
1.0	1.6	0.8	2.1	0.7	2.5	0.7	2.7	0.6	3.2	0.6	3.6	0.5	3.8		
1.1	1.8	0.9	2.4	0.8	2.7	0.7	3.1	0.7	3.6						
1.2	2.0	1.0	2.6	0.9	3.0	0.8	3.4	0.7	4.0						
1.3	2.1	1.0	2.8	0.9	3.3	0.8	3.7								
1.3	2.3	1.1	3.0	1.0	3.5	0.9	3.9								
1.4	2.4	1.1	3.1	1.0	3.7										
1.4	2.5	1.2	3.3	1.1	3.9										
1.5	2.6	1.2	3.5												
1.6	2.7	1.3	3.6												
1.6	2.8	1.3	3.7												
1.6	2.9	1.4	3.8												
1.7	3.0	1.4	3.9												
1.7	3.1														
1.8	3.2														
1.8	3.2														
1.9	3.3														
1.9	3.4														

10-Foot Channel Bottom Width

Discharge,	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
Q (cfs)	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.8	1.0	0.6	1.3	0.5	1.6	0.5	1.7	0.4	2.0	0.4	2.2	0.4	2.4	0.4	2.5
15	0.9	1.3	0.7	1.7	0.6	2.0	0.6	2.2	0.5	2.5	0.5	2.8	0.4	3.0	0.4	3.2
20	1.0	1.5	0.8	2.0	0.7	2.3	0.6	2.6	0.6	3.0	0.5	3.3	0.5	3.6	0.5	3.8
25	1.0	1.7	0.8	2.2	0.7	2.6	0.7	2.9	0.6	3.4	0.6	3.7				
30	1.1	1.9	0.9	2.5	0.8	2.9	0.7	3.2	0.6	3.7						
35	1.2	2.0	1.0	2.7	0.8	3.1	0.8	3.5	0.7	4.0						
40	1.2	2.2	1.0	2.9	0.9	3.3	0.8	3.7								
45	1.3	2.3	1.1	3.0	0.9	3.5	0.9	3.9								
50	1.3	2.4	1.1	3.2	1.0	3.7										
55	1.4	2.5	1.1	3.3	1.0	3.9										
60	1.4	2.6	1.2	3.5												
65	1.5	2.8	1.2	3.6												
70	1.5	2.8	1.3	3.7												
75	1.6	2.9	1.3	3.8												
80	1.6	3.0	1.3	3.9												
85	1.7	3.1														
90	1.7	3.2														
95	1.7	3.2														
100	1.8	3.3														

12-Foot Channel Bottom Width

Grade (%)																
0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0		
d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
0.7	1.0	0.6	1.2	0.5	1.4	0.5	1.6	0.4	1.8	0.4	2.0	0.4	2.1	0.3	2.3
0.8	1.2	0.7	1.6	0.6	1.8	0.5	2.0	0.5	2.4	0.4	2.5	0.4	2.8	0.4	2.9
0.9	1.4	0.7	1.9	0.6	2.1	0.6	2.4	0.5	2.8	0.5	3.1	0.4	3.3	0.4	3.5
1.0	1.6	0.8	2.1	0.7	2.5	0.6	2.7	0.6	3.1	0.5	3.5	0.5	3.7		
1.0	1.8	0.8	2.4	0.7	2.7	0.7	3.0	0.6	3.5	0.6	3.8				
1.1	2.0	0.9	2.5	0.8	3.0	0.7	3.3	0.6	3.8						
1.2	2.1	0.9	2.7	0.8	3.1	0.8	3.5								
1.2	2.2	1.0	2.9	0.9	3.3	0.8	3.7								
1.3	2.4	1.0	3.0	0.9	3.6	0.8	3.9								
1.3	2.5	1.1	3.2	0.9	3.7										
1.4	2.6	1.1	3.3	1.0	3.8										
1.4	2.7	1.1	3.4												
1.4	2.8	1.2	3.6												
1.5	2.9	1.2	3.7												
1.5	2.9	1.2	3.8												
1.6	3.0	1.3	3.9												
1.6	3.1														
1.6	3.2														
1.7	3.2														

Based on Agriculture Handbook Number 667, *Stability Design of Grass-Lined Open Channels*
d is in feet
V is in feet per second

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-6 (continued) Design depth (d) and velocity (V) for diversion - gradient (with **4:1** side slopes and permanently vegetated channels with **"D"** retardance)

14-Foot Channel Bottom Width

Discharge,	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
Q (cfs)	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.7	0.9	0.5	1.1	0.5	1.3	0.4	1.5	0.4	1.7	0.4	1.9	0.3	2.0	0.3	2.1
15	0.8	1.2	0.6	1.5	0.5	1.7	0.5	1.9	0.4	2.2	0.4	2.4	0.4	2.5	0.4	2.7
20	0.8	1.4	0.7	1.8	0.6	2.0	0.6	2.2	0.5	2.6	0.4	2.9	0.4	3.0	0.4	3.3
25	0.9	1.6	0.7	2.0	0.7	2.3	0.6	2.5	0.5	2.9	0.5	3.3	0.5	3.5	0.4	3.7
30	1.0	1.7	0.8	2.2	0.7	2.6	0.6	2.8	0.6	3.3	0.5	3.6	0.5	3.9		
35	1.0	1.9	0.8	2.4	0.7	2.8	0.7	3.1	0.6	3.6	0.6	3.9				
40	1.1	2.0	0.9	2.6	0.8	3.0	0.7	3.3	0.6	3.8						
45	1.1	2.2	0.9	2.8	0.8	3.2	0.8	3.5								
50	1.2	2.3	1.0	2.9	0.9	3.4	0.8	3.7								
55	1.2	2.4	1.0	3.1	0.9	3.6	0.8	3.9								
60	1.3	2.5	1.0	3.2	0.9	3.7										
65	1.3	2.6	1.1	3.3	1.0	3.8										
70	1.4	2.7	1.1	3.5	1.0	4.0										
75	1.4	2.8	1.1	3.6												
80	1.4	2.8	1.2	3.7												
85	1.5	2.9	1.2	3.8												
90	1.5	3.0	1.2	3.9												
95	1.5	3.1	1.3	4.0												
100	1.6	3.1														

16-Foot Channel Bottom Width

	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.6	0.8	0.5	1.1	0.5	1.2	0.4	1.3	0.4	1.5	0.3	1.7	0.3	1.9	0.3	1.9
15	0.7	1.1	0.6	1.4	0.5	1.6	0.5	1.8	0.4	2.0	0.4	2.3	0.4	2.4	0.3	2.5
20	0.8	1.3	0.6	1.7	0.6	1.9	0.5	2.1	0.5	2.4	0.4	2.7	0.4	2.9	0.4	3.1
25	0.9	1.5	0.7	1.9	0.6	2.2	0.6	2.4	0.5	2.8	0.5	3.0	0.4	3.3	0.4	3.6
30	0.9	1.7	0.8	2.1	0.7	2.4	0.6	2.7	0.5	3.1	0.5	3.4	0.5	3.7	0.4	3.9
35	1.0	1.8	0.8	2.3	0.7	2.7	0.6	2.9	0.6	3.4	0.5	3.7	0.5	4.0		
40	1.0	1.9	0.8	2.5	0.7	2.9	0.7	3.1	0.6	3.6	0.6	4.0				
45	1.1	2.1	0.9	2.7	0.8	3.1	0.7	3.4	0.6	3.9						
50	1.1	2.2	0.9	2.8	0.8	3.3	0.7	3.6								
55	1.2	2.3	0.9	3.0	0.8	3.4	0.8	3.7								
60	1.2	2.4	1.0	3.1	0.9	3.5	0.8	3.9								
65	1.2	2.5	1.0	3.2	0.9	3.7										
70	1.3	2.6	1.0	3.3	0.9	3.9										
75	1.3	2.7	1.1	3.5	1.0	4.0										
80	1.4	2.8	1.1	3.6												
85	1.4	2.8	1.1	3.7												
90	1.4	2.9	1.2	3.8												
95	1.5	3.0	1.2	3.8												
100	1.5	3.1	1.2	4.0												

18-Foot Channel Bottom Width

Discharge,	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
Q (cfs)	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.6	0.8	0.5	1.0	0.4	1.2	0.4	1.3	0.4	1.5	0.3	1.6	0.3	1.7	0.3	1.8
15	0.7	1.0	0.6	1.3	0.5	1.5	0.5	1.7	0.4	1.9	0.4	2.1	0.3	2.3	0.3	2.4
20	0.8	1.3	0.6	1.6	0.6	1.8	0.5	2.0	0.4	2.3	0.4	2.6	0.4	2.7	0.4	2.9
25	0.8	1.4	0.7	1.8	0.6	2.1	0.5	2.3	0.5	2.6	0.4	2.9	0.4	3.1	0.4	3.3
30	0.9	1.6	0.7	2.0	0.6	2.3	0.6	2.5	0.5	2.9	0.5	3.2	0.4	3.5	0.4	3.7
35	0.9	1.7	0.8	2.2	0.7	2.5	0.6	2.8	0.5	3.2	0.5	3.5	0.5	3.8		
40	1.0	1.9	0.8	2.4	0.7	2.7	0.6	3.0	0.6	3.5	0.5	3.8				
45	1.0	2.0	0.8	2.5	0.7	2.9	0.7	3.2	0.6	3.7						
50	1.1	2.1	0.9	2.7	0.8	3.1	0.7	3.4	0.6	3.9						
55	1.1	2.2	0.9	2.8	0.8	3.2	0.7	3.6								
60	1.2	2.3	0.9	3.0	0.8	3.4	0.8	3.8								
65	1.2	2.4	1.0	3.1	0.9	3.6	0.8	3.9								
70	1.2	2.5	1.0	3.2	0.9	3.7										
75	1.3	2.6	1.0	3.3	0.9	3.8										
80	1.3	2.7	1.1	3.4	0.9	4.0										
85	1.3	2.8	1.1	3.5												
90	1.4	2.8	1.1	3.7												
95	1.4	2.9	1.1	3.7												
100	1.4	3.0	1.2	3.8												

20-Foot Channel Bottom Width

	Grade (%)															
	0.5		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.6	0.8	0.5	1.0	0.4	1.1	0.4	1.2	0.3	1.4	0.3	1.5	0.3	1.6	0.3	1.7
15	0.7	1.0	0.5	1.3	0.5	1.4	0.4	1.6	0.4	1.8	0.4	2.0	0.3	2.1	0.3	2.3
20	0.7	1.2	0.6	1.5	0.5	1.7	0.5	1.9	0.4	2.1	0.4	2.4	0.4	2.6	0.3	2.8
25	0.8	1.4	0.6	1.7	0.6	2.0	0.5	2.2	0.5	2.5	0.4	2.7	0.4	3.0	0.4	3.1
30	0.9	1.5	0.7	1.9	0.6	2.2	0.6	2.5	0.5	2.8	0.5	3.1	0.4	3.3	0.4	3.5
35	0.9	1.7	0.7	2.1	0.6	2.4	0.6	2.7	0.5	3.0	0.5	3.3	0.4	3.7	0.4	3.8
40	0.9	1.8	0.8	2.3	0.7	2.6	0.6	2.9	0.6	3.3	0.5	3.6	0.5	3.9		
45	1.0	1.9	0.8	2.4	0.7	2.8	0.7	3.1	0.6	3.5	0.5	3.9				
50	1.0	2.0	0.8	2.6	0.7	3.0	0.7	3.3	0.6	3.7						
55	1.1	2.1	0.9	2.7	0.8	3.1	0.7	3.4	0.6	3.9						
60	1.1	2.2	0.9	2.9	0.8	3.3	0.7	3.6								
65	1.1	2.3	0.9	3.0	0.8	3.4	0.8	3.8								
70	1.2	2.4	1.0	3.1	0.8	3.6	0.8	3.9								
75	1.2	2.5	1.0	3.2	0.9	3.7										
80	1.2	2.6	1.0	3.3	0.9	3.8										
85	1.3	2.7	1.0	3.4	0.9	4.0										
90	1.3	2.7	1.1	3.5												
95	1.3	2.8	1.1	3.6												
100	1.4	2.9	1.1	3.7												

Based on Agriculture Handbook Number 667, *Stability Design of Grass-Lined Open Channels*
d is in feet
V is in feet per second

(210-VI-EFH, Amend. KS13, Sept. 2006)

KS650.981 Farmed diversion design example

(a) Design tables

To use Tables KS9-7 through KS9-9, the design discharge must be known. The Hydrologic Summary Sheet and the Acres and Curve Number Sheet in the Gradient Diversion Spreadsheet located in the Kansas electronic Field Office Technical Guide (eFOTG) > Section IV > Diversion > Job Sheet can be used to determine the peak discharge for a diversion. By referring to the Kansas tables in Chapter 2 of National Engineering Handbook Part 650 (NEH 650), *Engineering Field Handbook*, Form KS-ENG-137a (located in eFOTG > Section IV > Diversion > Work Sheet) can be completed manually for the same information.

With the rate of runoff determined as described above, the required size of the diversion can be found directly by using Tables KS9-7 through KS9-9. Design depth (d) is calculated using a Manning's equation roughness coefficient "n" value of 0.06. Velocity (V) is calculated using a Manning's equation roughness coefficient "n" value of 0.035.

Select a bottom width to fit the method of construction and grade to suit the site conditions. Directly under the bottom width and grade and in line with the discharge, read the depth of flow and velocity in the channel. If the dimensions or depth of flow and velocity are undesirable, choose another bottom width or grade.

Given: A discharge of 30 cubic feet per second (cfs) is to be handled by a diversion. This will be constructed on clay soil with a dozer. The best layout has a channel grade of 0.4 foot per 100 feet.

Solution: The diversion will have 5:1 side slopes with a 10-foot bottom width.

Refer to Table KS9-7 with a 10-foot channel bottom width and a discharge of 30 cfs. In the row for a discharge of 30 cfs, read across to the 0.4 percent grade column. The diversion would have a design depth (d) of 1.3 feet and a velocity (V) of 2.1 feet per second (ft/s). Compare the velocity obtained from Table KS9-7 with the permissible velocities for diversions in Table KS9-1. A velocity of 2.1 ft/s is a safe velocity for bare channels constructed in clay soils. If the velocity in the diversion channel exceeded the values recommended in Table KS9-1, adjustments may need to be made to the design of the diversion such as providing a wider channel or a flatter grade.

In this example, the freeboard desired is 0.5 foot. The designed settled height is equal to the design depth plus the freeboard.

Designed Settled Height =
1.3 feet + 0.5 feet = 1.8 feet

The designed settled height is multiplied by 1.1 to obtain a total diversion height which accounts for additional overbuild needed for settlement in addition to the depth required to contain the maximum expected water depth and the desired freeboard.

Total Diversion Height =
1.1 x 1.8 feet = 2.0 feet

(b) Quantity tables

The channel centerline depth of fill and area of earthfill can be determined using Tables KS9-10 through KS9-14. These tables assume a cut-fill ratio of 1.35:1, a diversion top width of 4 feet, and that the cut and fill slopes are the same.

Given: The diversion is constructed with 5:1 side slopes and a channel bottom width of 10 feet. The land slope is 5 percent. The total length of diversion to be constructed is 1100 feet. The total diversion height was determined to be 2.0 feet.

Solution: In Table KS9-12, select 5 percent land slope. Find the row for a total diversion height of 2.0 feet. Read across the row to the column for a 10-foot channel bottom width. The fill depth at the centerline of the channel would be 1.1 feet, and the fill area would be 18.3 square feet.

The total volume of earthfill in the ridge is equal to the fill area multiplied by the length of the diversion.

$$\text{Volume of Earthfill} = \frac{(18.3 \text{ sq ft}) \times (1100 \text{ ft})}{27} = 745 \text{ cu yd}$$

The volume of excavation in the channel is equal to the volume of fill in the ridge multiplied by the cut/fill ratio.

$$\text{Volume of Excavation} = (745 \text{ cu yd}) \times (1.35) = 1005 \text{ cu yd}$$

Table KS9-7 Design depth (d) and velocity (V) for diversion - gradient (farmed diversions with **5:1** channel and ridge slopes)

Discharge, Q (cfs)	6-Foot Channel Bottom Width								8-Foot Channel Bottom Width								10-Foot Channel Bottom Width								12-Foot Channel Bottom Width							
	Grade (%)								Grade (%)								Grade (%)								Grade (%)							
	0.3		0.4		0.5		0.6		0.3		0.4		0.5		0.6		0.3		0.4		0.5		0.6		0.3		0.4		0.5		0.6	
	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.9	1.5	0.9	1.7	0.8	1.8	0.8	1.9	0.8	1.4	0.8	1.6	0.7	1.7	0.7	1.8	0.8	1.4	0.7	1.5	0.7	1.6	0.6	1.8	0.7	1.3	0.7	1.5	0.6	1.6	0.6	1.7
15	1.1	1.7	1.1	1.8	1.0	2.0	1.0	2.1	1.0	1.6	1.0	1.8	0.9	1.9	0.9	2.1	1.0	1.6	0.9	1.7	0.8	1.9	0.8	2.0	0.9	1.5	0.8	1.7	0.8	1.8	0.7	1.9
20	1.3	1.8	1.2	2.0	1.2	2.2	1.1	2.3	1.2	1.8	1.1	1.9	1.1	2.1	1.0	2.3	1.1	1.7	1.0	1.9	1.0	2.1	0.9	2.2	1.0	1.7	1.0	1.9	0.9	2.0	0.9	2.1
25	1.5	1.9	1.4	2.1	1.3	2.3	1.2	2.5	1.3	1.9	1.3	2.1	1.2	2.3	1.1	2.4	1.2	1.8	1.2	2.0	1.1	2.2	1.0	2.3	1.2	1.8	1.1	2.0	1.0	2.1	1.0	2.3
30	1.6	2.0	1.5	2.2	1.4	2.4			1.5	2.0	1.4	2.2	1.3	2.4			1.4	1.9	1.3	2.1	1.2	2.3	1.1	2.5	1.3	1.9	1.2	2.1	1.1	2.3	1.1	2.4
35	1.7	2.1	1.6	2.3					1.6	2.1	1.5	2.3	1.4	2.5			1.5	2.0	1.4	2.3	1.3	2.4			1.4	2.0	1.3	2.2	1.2	2.4		
40	1.8	2.2	1.7	2.4					1.7	2.1	1.6	2.4					1.6	2.1	1.5	2.3					1.5	2.1	1.4	2.3	1.3	2.5		
45	1.9	2.2	1.8	2.5					1.8	2.2	1.7	2.5					1.7	2.2	1.6	2.4					1.6	2.1	1.5	2.4				
50	2.0	2.3							1.9	2.3							1.8	2.2	1.6	2.5					1.7	2.2	1.5	2.4				
55	2.1	2.4							2.0	2.3							1.9	2.3							1.7	2.3						
60	2.2	2.4							2.1	2.4							1.9	2.4							1.8	2.3						
65	2.3	2.5							2.1	2.4							2.0	2.4							1.9	2.4						
70									2.2	2.5							2.1	2.5							2.0	2.4						
75																									2.0	2.5						

Discharge, Q (cfs)	14-Foot Channel Bottom Width								16-Foot Channel Bottom Width								18-Foot Channel Bottom Width								20-Foot Channel Bottom Width							
	Grade (%)								Grade (%)								Grade (%)								Grade (%)							
	0.3		0.4		0.5		0.6		0.3		0.4		0.5		0.6		0.3		0.4		0.5		0.6		0.3		0.4		0.5		0.6	
	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.7	1.3	0.6	1.4	0.6	1.5	0.5	1.6	0.6	1.3	0.6	1.4	0.5	1.5	0.5	1.6	0.6	1.2	0.5	1.3	0.5	1.4	0.5	1.5	0.5	1.2	0.5	1.3	0.5	1.4	0.4	1.5
15	0.8	1.5	0.8	1.6	0.7	1.8	0.7	1.9	0.8	1.4	0.7	1.6	0.7	1.7	0.6	1.8	0.7	1.4	0.7	1.5	0.6	1.7	0.6	1.7	0.7	1.4	0.6	1.5	0.6	1.6	0.6	1.7
20	1.0	1.6	0.9	1.8	0.8	1.9	0.8	2.1	0.9	1.6	0.8	1.7	0.8	1.9	0.7	2.0	0.9	1.5	0.8	1.7	0.7	1.8	0.7	1.9	0.8	1.5	0.7	1.6	0.7	1.8	0.7	1.9
25	1.1	1.7	1.0	1.9	0.9	2.1	0.9	2.2	1.0	1.7	0.9	1.9	0.9	2.0	0.8	2.2	1.0	1.7	0.9	1.8	0.8	2.0	0.8	2.1	0.9	1.6	0.8	1.8	0.8	1.9	0.8	2.0
30	1.2	1.9	1.1	2.0	1.0	2.2	1.0	2.3	1.1	1.8	1.0	2.0	1.0	2.1	0.9	2.3	1.1	1.8	1.0	1.9	0.9	2.1	0.9	2.2	1.0	1.7	0.9	1.9	0.9	2.0	0.8	2.2
35	1.3	1.9	1.2	2.1	1.1	2.3	1.1	2.5	1.2	1.9	1.1	2.1	1.1	2.3	1.0	2.4	1.2	1.9	1.1	2.0	1.0	2.2	1.0	2.3	1.1	1.8	1.0	2.0	1.0	2.2	0.9	2.3
40	1.4	2.0	1.3	2.2	1.2	2.4			1.3	2.0	1.2	2.2	1.1	2.4	1.1	2.5	1.2	1.9	1.2	2.1	1.1	2.3	1.0	2.5	1.2	1.9	1.1	2.1	1.0	2.3	1.0	2.4
45	1.5	2.1	1.4	2.3	1.3	2.5			1.4	2.1	1.3	2.3	1.2	2.4			1.3	2.0	1.2	2.2	1.2	2.4			1.3	2.0	1.2	2.2	1.1	2.3	1.0	2.5
50	1.6	2.2	1.5	2.4					1.5	2.1	1.4	2.3					1.4	2.1	1.3	2.3	1.2	2.5			1.3	2.0	1.2	2.2	1.2	2.4		
55	1.6	2.2	1.5	2.5					1.6	2.2	1.4	2.4					1.5	2.1	1.4	2.4					1.4	2.1	1.3	2.3				
60	1.7	2.3							1.6	2.2	1.5	2.5					1.6	2.2	1.4	2.4					1.5	2.2	1.4	2.4				
65	1.8	2.3							1.7	2.3							1.6	2.3	1.5	2.5					1.5	2.2	1.4	2.4				
70	1.9	2.4							1.8	2.4							1.7	2.3							1.6	2.3						
75	1.9	2.4							1.8	2.4							1.7	2.4							1.7	2.3						
80	2.0	2.5							1.9	2.4							1.8	2.4							1.7	2.4						
85									2.0	2.5							1.9	2.5							1.8	2.4						
90																	1.9	2.5							1.8	2.5						
95																									1.9	2.5						

Based on Manning's equation, $Q = \frac{1.486}{n} A r^{2/3} s^{1/2}$
d is in feet and is calculated using a Manning's equation roughness coefficient "n" value of 0.06
V is in feet per second and is calculated using a Manning's equation roughness coefficient "n" value of 0.035

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-8 Design depth (d) and velocity (V) for diversion - gradient (farmed diversions with **6:1** channel and ridge slopes slopes)

Discharge, Q (cfs)	6-Foot Channel Bottom Width								8-Foot Channel Bottom Width								10-Foot Channel Bottom Width								12-Foot Channel Bottom Width							
	Grade (%)								Grade (%)								Grade (%)								Grade (%)							
	0.3		0.4		0.5		0.6		0.3		0.4		0.5		0.6		0.3		0.4		0.5		0.6		0.3		0.4		0.5		0.6	
	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.9	1.4	0.8	1.6	0.8	1.7	0.8	1.8	0.8	1.4	0.8	1.5	0.7	1.7	0.7	1.8	0.8	1.4	0.7	1.5	0.7	1.6	0.6	1.7	0.7	1.3	0.6	1.4	0.6	1.6	0.6	1.7
15	1.1	1.6	1.0	1.8	1.0	1.9	0.9	2.1	1.0	1.6	0.9	1.7	0.9	1.9	0.9	2.0	0.9	1.5	0.9	1.7	0.8	1.8	0.8	2.0	0.9	1.5	0.8	1.6	0.8	1.8	0.7	1.9
20	1.3	1.7	1.2	1.9	1.1	2.1	1.1	2.2	1.2	1.7	1.1	1.9	1.0	2.1	1.0	2.2	1.1	1.7	1.0	1.8	0.9	2.0	0.9	2.1	1.0	1.6	0.9	1.8	0.9	1.9	0.8	2.1
25	1.4	1.9	1.3	2.1	1.3	2.2	1.2	2.4	1.3	1.8	1.2	2.0	1.2	2.2	1.1	2.3	1.2	1.8	1.1	2.0	1.1	2.1	1.0	2.3	1.1	1.7	1.1	1.9	1.0	2.1	0.9	2.2
30	1.5	1.9	1.4	2.2	1.4	2.3			1.4	1.9	1.3	2.1	1.3	2.3	1.2	2.4	1.3	1.9	1.2	2.1	1.2	2.3	1.1	2.4	1.2	1.8	1.2	2.0	1.1	2.2	1.0	2.4
35	1.6	2.0	1.5	2.2	1.5	2.4			1.5	2.0	1.4	2.2	1.4	2.4			1.4	2.0	1.3	2.2	1.3	2.3			1.3	1.9	1.3	2.1	1.2	2.3	1.1	2.5
40	1.7	2.1	1.6	2.3					1.6	2.1	1.5	2.3	1.4	2.5			1.5	2.0	1.4	2.3	1.3	2.4			1.4	2.0	1.3	2.2	1.3	2.4		
45	1.8	2.2	1.7	2.4					1.7	2.1	1.6	2.4					1.6	2.1	1.5	2.3					1.5	2.1	1.4	2.3	1.3	2.5		
50	1.9	2.2	1.8	2.5					1.8	2.2	1.7	2.4					1.7	2.2	1.6	2.4					1.6	2.1	1.5	2.4				
55	2.0	2.3							1.9	2.2							1.8	2.2	1.7	2.5					1.7	2.2	1.6	2.4				
60	2.1	2.3							2.0	2.3							1.9	2.3							1.8	2.2	1.6	2.5				
65	2.2	2.4							2.0	2.4							1.9	2.3							1.8	2.3						
70	2.2	2.4							2.1	2.4							2.0	2.4							1.9	2.3						
75	2.3	2.5							2.2	2.4							2.1	2.4							2.0	2.4						
80									2.2	2.5							2.1	2.5							2.0	2.4						
85																	2.2	2.5							2.1	2.5						

Discharge, Q (cfs)	14-Foot Channel Bottom Width								16-Foot Channel Bottom Width								18-Foot Channel Bottom Width								20-Foot Channel Bottom Width							
	Grade (%)								Grade (%)								Grade (%)								Grade (%)							
	0.3		0.4		0.5		0.6		0.3		0.4		0.5		0.6		0.3		0.4		0.5		0.6		0.3		0.4		0.5		0.6	
	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.6	1.3	0.6	1.4	0.6	1.5	0.5	1.6	0.6	1.2	0.6	1.4	0.5	1.5	0.5	1.5	0.6	1.2	0.5	1.3	0.5	1.4	0.5	1.5	0.5	1.2	0.5	1.3	0.5	1.4	0.4	1.5
15	0.8	1.5	0.7	1.6	0.7	1.7	0.7	1.8	0.8	1.4	0.7	1.5	0.7	1.7	0.6	1.8	0.7	1.4	0.7	1.5	0.6	1.6	0.6	1.7	0.7	1.3	0.6	1.5	0.6	1.6	0.6	1.7
20	0.9	1.6	0.9	1.8	0.8	1.9	0.8	2.0	0.9	1.6	0.8	1.7	0.8	1.8	0.7	2.0	0.8	1.5	0.8	1.7	0.7	1.8	0.7	1.9	0.8	1.5	0.7	1.6	0.7	1.7	0.7	1.9
25	1.1	1.7	1.0	1.9	0.9	2.0	0.9	2.2	1.0	1.7	0.9	1.8	0.9	2.0	0.8	2.1	0.9	1.6	0.9	1.8	0.8	1.9	0.8	2.1	0.9	1.6	0.8	1.8	0.8	1.9	0.7	2.0
30	1.2	1.8	1.1	2.0	1.0	2.2	1.0	2.3	1.1	1.8	1.0	2.0	1.0	2.1	0.9	2.2	1.0	1.7	1.0	1.9	0.9	2.0	0.9	2.2	1.0	1.7	0.9	1.9	0.9	2.0	0.8	2.1
35	1.3	1.9	1.2	2.1	1.1	2.3	1.1	2.4	1.2	1.8	1.1	2.1	1.0	2.2	1.0	2.4	1.1	1.8	1.1	2.0	1.0	2.2	0.9	2.3	1.1	1.8	1.0	2.0	0.9	2.1	0.9	2.2
40	1.4	2.0	1.3	2.2	1.2	2.4			1.3	1.9	1.2	2.1	1.1	2.3	1.1	2.4	1.2	1.9	1.1	2.1	1.1	2.3	1.0	2.4	1.2	1.9	1.1	2.1	1.0	2.2	1.0	2.3
45	1.4	2.0	1.3	2.3	1.3	2.4			1.4	2.0	1.3	2.2	1.2	2.4			1.3	2.0	1.2	2.2	1.1	2.3	1.1	2.5	1.2	1.9	1.2	2.1	1.1	2.3	1.0	2.4
50	1.5	2.1	1.4	2.3					1.4	2.1	1.3	2.3	1.3	2.5			1.4	2.0	1.3	2.2	1.2	2.4			1.3	2.0	1.2	2.2	1.1	2.4		
55	1.6	2.2	1.5	2.4					1.5	2.1	1.4	2.4					1.5	2.1	1.3	2.3	1.3	2.5			1.4	2.1	1.3	2.3	1.2	2.4		
60	1.7	2.2	1.6	2.4					1.6	2.2	1.5	2.4					1.5	2.1	1.4	2.4					1.5	2.1	1.3	2.3				
65	1.7	2.3							1.7	2.2	1.5	2.5					1.6	2.2	1.5	2.4					1.5	2.2	1.4	2.4				
70	1.8	2.3							1.7	2.3							1.6	2.2	1.5	2.5					1.6	2.2	1.5	2.4				
75	1.9	2.4							1.8	2.3							1.7	2.3							1.6	2.3	1.5	2.5				
80	1.9	2.4							1.8	2.4							1.8	2.3							1.7	2.3						
85	2.0	2.4							1.9	2.4							1.8	2.4							1.7	2.3						
90	2.1	2.5							2.0	2.5							1.9	2.4							1.8	2.4						
95									2.0	2.5							1.9	2.5							1.9	2.4						
100																	2.0	2.5							1.9	2.5						

Based on Manning's equation, $Q = \frac{1.486}{n} A r^{2/3} s^{1/2}$
d is in feet and is calculated using a Manning's equation roughness coefficient "n" value of 0.06
V is in feet per second and is calculated using a Manning's equation roughness coefficient "n" value of 0.035

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-9 Design depth (d) and velocity (V) for diversion - gradient (farmed diversions with **8:1** channel and ridge slopes slopes)

	6-Foot Channel Bottom Width								8-Foot Channel Bottom Width								10-Foot Channel Bottom Width								12-Foot Channel Bottom Width							
	Grade (%)								Grade (%)								Grade (%)								Grade (%)							
Discharge,	0.3		0.4		0.5		0.6		0.3		0.4		0.5		0.6		0.3		0.4		0.5		0.6		0.3		0.4		0.5		0.6	
Q (cfs)	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.9	1.4	0.8	1.5	0.8	1.6	0.7	1.8	0.8	1.3	0.7	1.5	0.7	1.6	0.7	1.7	0.7	1.3	0.7	1.4	0.6	1.6	0.6	1.6	0.7	1.3	0.6	1.4	0.6	1.5	0.6	1.6
15	1.0	1.5	1.0	1.7	0.9	1.8	0.9	2.0	1.0	1.5	0.9	1.7	0.9	1.8	0.8	1.9	0.9	1.5	0.8	1.6	0.8	1.8	0.8	1.9	0.8	1.4	0.8	1.6	0.7	1.7	0.7	1.8
20	1.2	1.6	1.1	1.8	1.1	2.0	1.0	2.1	1.1	1.6	1.0	1.8	1.0	1.9	0.9	2.1	1.0	1.6	1.0	1.8	0.9	1.9	0.9	2.0	1.0	1.6	0.9	1.7	0.9	1.9	0.8	2.0
25	1.3	1.7	1.2	1.9	1.2	2.1	1.1	2.2	1.2	1.7	1.1	1.9	1.1	2.1	1.0	2.2	1.2	1.7	1.1	1.9	1.0	2.0	1.0	2.2	1.1	1.7	1.0	1.8	1.0	2.0	0.9	2.1
30	1.4	1.8	1.3	2.0	1.3	2.2	1.2	2.4	1.3	1.8	1.3	2.0	1.2	2.2	1.1	2.3	1.3	1.8	1.2	2.0	1.1	2.1	1.1	2.3	1.2	1.7	1.1	1.9	1.0	2.1	1.0	2.2
35	1.5	1.9	1.4	2.1	1.4	2.3	1.3	2.5	1.4	1.9	1.3	2.1	1.3	2.3	1.2	2.4	1.4	1.9	1.3	2.1	1.2	2.2	1.1	2.4	1.3	1.8	1.2	2.0	1.1	2.2	1.1	2.3
40	1.6	2.0	1.5	2.2	1.4	2.4			1.5	1.9	1.4	2.2	1.4	2.3			1.4	1.9	1.4	2.1	1.3	2.3	1.2	2.5	1.4	1.9	1.3	2.1	1.2	2.3	1.2	2.4
45	1.7	2.0	1.6	2.3	1.5	2.4			1.6	2.0	1.5	2.2	1.4	2.4			1.5	2.0	1.4	2.2	1.4	2.4			1.5	2.0	1.4	2.2	1.3	2.4		
50	1.8	2.1	1.7	2.3					1.7	2.1	1.6	2.3	1.5	2.5			1.6	2.0	1.5	2.3	1.4	2.5			1.5	2.0	1.4	2.2	1.4	2.4		
55	1.9	2.1	1.8	2.4					1.8	2.1	1.7	2.4					1.7	2.1	1.6	2.3					1.6	2.1	1.5	2.3	1.4	2.5		
60	1.9	2.2	1.8	2.4					1.8	2.2	1.7	2.4					1.8	2.1	1.6	2.4					1.7	2.1	1.6	2.4				
65	2.0	2.2	1.9	2.5					1.9	2.2	1.8	2.5					1.8	2.2	1.7	2.4					1.7	2.2	1.6	2.4				
70	2.1	2.3							2.0	2.3							1.9	2.2	1.8	2.5					1.8	2.2	1.7	2.5				
75	2.1	2.3							2.0	2.3							1.9	2.3							1.9	2.3						
80	2.2	2.3							2.1	2.3							2.0	2.3							1.9	2.3						
85	2.2	2.4							2.1	2.4							2.1	2.4							2.0	2.3						
90	2.3	2.4							2.2	2.4							2.1	2.4							2.0	2.4						
95	2.4	2.4							2.3	2.4							2.2	2.4							2.1	2.4						
100	2.4	2.5							2.3	2.5							2.2	2.5							2.1	2.4						

	14-Foot Channel Bottom Width								16-Foot Channel Bottom Width								18-Foot Channel Bottom Width								20-Foot Channel Bottom Width							
	Grade (%)								Grade (%)								Grade (%)								Grade (%)							
Discharge,	0.3		0.4		0.5		0.6		0.3		0.4		0.5		0.6		0.3		0.4		0.5		0.6		0.3		0.4		0.5		0.6	
Q (cfs)	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V	d	V
10	0.6	1.2	0.6	1.4	0.6	1.5	0.5	1.5	0.6	1.2	0.5	1.3	0.5	1.4	0.5	1.5	0.6	1.2	0.5	1.3	0.5	1.4	0.5	1.5	0.5	1.1	0.5	1.3	0.5	1.4	0.4	1.4
15	0.8	1.4	0.7	1.5	0.7	1.7	0.7	1.8	0.7	1.4	0.7	1.5	0.6	1.6	0.6	1.7	0.7	1.3	0.6	1.5	0.6	1.6	0.6	1.7	0.7	1.3	0.6	1.4	0.6	1.5	0.6	1.6
20	0.9	1.5	0.8	1.7	0.8	1.8	0.8	1.9	0.9	1.5	0.8	1.6	0.8	1.8	0.7	1.9	0.8	1.5	0.8	1.6	0.7	1.7	0.7	1.9	0.8	1.4	0.7	1.6	0.7	1.7	0.6	1.8
25	1.0	1.6	1.0	1.8	0.9	1.9	0.9	2.1	1.0	1.6	0.9	1.8	0.9	1.9	0.8	2.0	0.9	1.6	0.9	1.7	0.8	1.9	0.8	2.0	0.9	1.5	0.8	1.7	0.8	1.8	0.7	2.0
30	1.1	1.7	1.0	1.9	1.0	2.1	0.9	2.2	1.1	1.7	1.0	1.9	0.9	2.0	0.9	2.1	1.0	1.7	0.9	1.8	0.9	2.0	0.8	2.1	1.0	1.6	0.9	1.8	0.8	1.9	0.8	2.1
35	1.2	1.8	1.1	2.0	1.1	2.2	1.0	2.3	1.2	1.8	1.1	2.0	1.0	2.1	1.0	2.3	1.1	1.7	1.0	1.9	1.0	2.1	0.9	2.2	1.1	1.7	1.0	1.9	0.9	2.0	0.9	2.2
40	1.3	1.9	1.2	2.1	1.1	2.2	1.1	2.4	1.2	1.8	1.2	2.0	1.1	2.2	1.0	2.4	1.2	1.8	1.1	2.0	1.0	2.2	1.0	2.3	1.1	1.8	1.1	2.0	1.0	2.1	0.9	2.3
45	1.4	1.9	1.3	2.1	1.2	2.3	1.2	2.5	1.3	1.9	1.2	2.1	1.2	2.3	1.1	2.4	1.3	1.9	1.2	2.1	1.1	2.2	1.1	2.4	1.2	1.8	1.1	2.0	1.1	2.2	1.0	2.4
50	1.5	2.0	1.4	2.2	1.3	2.4			1.4	2.0	1.3	2.2	1.2	2.4			1.3	1.9	1.2	2.2	1.2	2.3	1.1	2.5	1.3	1.9	1.2	2.1	1.1	2.3	1.1	2.4
55	1.5	2.0	1.4	2.3	1.3	2.5			1.5	2.0	1.4	2.2	1.3	2.4			1.4	2.0	1.3	2.2	1.2	2.4			1.3	2.0	1.2	2.2	1.2	2.4	1.1	2.5
60	1.6	2.1	1.5	2.3					1.5	2.1	1.4	2.3	1.3	2.5			1.5	2.0	1.4	2.3	1.3	2.4			1.4	2.0	1.3	2.2	1.2	2.4		
65	1.7	2.1	1.5	2.4					1.6	2.1	1.5	2.4					1.5	2.1	1.4	2.3					1.5	2.1	1.4	2.3	1.3	2.5		
70	1.7	2.2	1.6	2.4					1.6	2.2	1.5	2.4					1.6	2.1	1.5	2.4					1.5	2.1	1.4	2.3				
75	1.8	2.2	1.7	2.5					1.7	2.2	1.6	2.4					1.6	2.2	1.5	2.4					1.6	2.2	1.5	2.4				
80	1.8	2.3							1.8	2.3	1.6	2.5					1.7	2.2	1.6	2.5					1.6	2.2	1.5	2.4				
85	1.9	2.3							1.8	2.3							1.7	2.3							1.7	2.2	1.6	2.5				
90	1.9	2.3							1.9	2.3							1.8	2.3							1.7	2.3						
95	2.0	2.4							1.9	2.4							1.8	2.3							1.8	2.3						
100	2.0	2.4							2.0	2.4							1.9	2.4							1.8	2.3						

Based on Manning's equation, $Q = \frac{1.486}{n} A r^{2/3} s^{1/2}$

d is in feet and is calculated using a Manning's equation roughness coefficient "n" value of 0.06

V is in feet per second and is calculated using a Manning's equation roughness coefficient "n" value of 0.035

Table KS9-10 Channel centerline depth of fill and area of earthfill for diversion (diversions with cut-fill ratio of 1.35:1, **3:1** channel and ridge slopes and 4-foot top width)

3% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)															
	6		8		10		12		14		16		18		20	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.8	5.9	0.8	6.7	0.9	7.5	1.0	8.2	1.0	8.9	1.1	9.6	1.1	10.2	1.2	10.9
1.6	0.8	6.4	0.9	7.3	1.0	8.1	1.0	8.9	1.1	9.6	1.1	10.3	1.2	11.0	1.2	11.7
1.7	0.8	6.9	0.9	7.8	1.0	8.7	1.1	9.5	1.1	10.3	1.2	11.1	1.2	11.8	1.3	12.5
1.8	0.9	7.4	1.0	8.4	1.1	9.3	1.1	10.2	1.2	11.0	1.2	11.8	1.3	12.6	1.4	13.3
1.9	0.9	8.0	1.0	9.0	1.1	9.9	1.2	10.9	1.2	11.7	1.3	12.6	1.4	13.4	1.4	14.2
2.0	1.0	8.5	1.1	9.6	1.2	10.6	1.2	11.6	1.3	12.5	1.4	13.4	1.4	14.2	1.5	15.1
2.1	1.0	9.1	1.1	10.2	1.2	11.3	1.3	12.3	1.3	13.2	1.4	14.2	1.5	15.1	1.5	15.9
2.2	1.1	9.7	1.2	10.8	1.3	12.0	1.3	13.0	1.4	14.0	1.5	15.0	1.5	15.9	1.6	16.8
2.3	1.1	10.3	1.2	11.5	1.3	12.7	1.4	13.7	1.5	14.8	1.5	15.8	1.6	16.8	1.6	17.8
2.4	1.2	10.9	1.3	12.2	1.4	13.4	1.4	14.5	1.5	15.6	1.6	16.7	1.6	17.7	1.7	18.7
2.5	1.2	11.5	1.3	12.8	1.4	14.1	1.5	15.3	1.6	16.5	1.6	17.6	1.7	18.6	1.8	19.7
2.6	1.3	12.2	1.4	13.5	1.5	14.8	1.5	16.1	1.6	17.3	1.7	18.4	1.7	19.5	1.8	20.6
2.7	1.3	12.8	1.4	14.3	1.5	15.6	1.6	16.9	1.7	18.2	1.7	19.3	1.8	20.5	1.9	21.6
2.8	1.4	13.5	1.5	15.0	1.6	16.4	1.6	17.7	1.7	19.0	1.8	20.3	1.9	21.5	1.9	22.6
2.9	1.4	14.2	1.5	15.7	1.6	17.2	1.7	18.6	1.8	19.9	1.8	21.2	1.9	22.5	2.0	23.7
3.0	1.5	14.9	1.6	16.5	1.7	18.0	1.7	19.4	1.8	20.8	1.9	22.2	2.0	23.4	2.0	24.7

4% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)															
	6		8		10		12		14		16		18		20	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.8	6.4	0.8	7.3	0.9	8.2	1.0	9.0	1.0	9.9	1.1	10.7	1.2	11.5	1.2	12.2
1.6	0.8	6.9	0.9	7.9	1.0	8.8	1.0	9.7	1.1	10.6	1.2	11.4	1.2	12.3	1.3	13.1
1.7	0.9	7.4	0.9	8.5	1.0	9.5	1.1	10.4	1.2	11.3	1.2	12.2	1.3	13.1	1.3	14.0
1.8	0.9	8.0	1.0	9.1	1.1	10.1	1.1	11.1	1.2	12.1	1.3	13.0	1.3	13.9	1.4	14.9
1.9	0.9	8.6	1.0	9.7	1.1	10.8	1.2	11.8	1.3	12.9	1.3	13.9	1.4	14.8	1.5	15.8
2.0	1.0	9.2	1.1	10.4	1.2	11.5	1.2	12.6	1.3	13.7	1.4	14.7	1.4	15.7	1.5	16.7
2.1	1.0	9.8	1.1	11.0	1.2	12.2	1.3	13.4	1.4	14.5	1.4	15.5	1.5	16.6	1.6	17.6
2.2	1.1	10.4	1.2	11.7	1.3	12.9	1.3	14.1	1.4	15.3	1.5	16.4	1.6	17.5	1.6	18.6
2.3	1.1	11.0	1.2	12.4	1.3	13.7	1.4	14.9	1.5	16.1	1.5	17.3	1.6	18.5	1.7	19.6
2.4	1.2	11.7	1.3	13.1	1.4	14.4	1.4	15.7	1.5	17.0	1.6	18.2	1.7	19.4	1.7	20.6
2.5	1.2	12.4	1.3	13.8	1.4	15.2	1.5	16.6	1.6	17.9	1.7	19.2	1.7	20.4	1.8	21.6
2.6	1.3	13.1	1.4	14.6	1.5	16.0	1.5	17.4	1.6	18.8	1.7	20.1	1.8	21.4	1.8	22.7
2.7	1.3	13.8	1.4	15.3	1.5	16.8	1.6	18.3	1.7	19.7	1.8	21.1	1.8	22.4	1.9	23.7
2.8	1.4	14.5	1.5	16.1	1.6	17.6	1.7	19.2	1.7	20.6	1.8	22.0	1.9	23.4	1.9	24.8
2.9	1.4	15.2	1.5	16.9	1.6	18.5	1.7	20.1	1.8	21.6	1.9	23.0	1.9	24.5	2.0	25.9
3.0	1.5	16.0	1.6	17.7	1.7	19.4	1.8	21.0	1.8	22.5	1.9	24.1	2.0	25.5	2.1	27.0

Fill Depth is in feet, measured from no-cut, no-fill point on diversion ridge.
Fill Area is in square feet per foot

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-10 (continued) Channel centerline depth of fill and area of earthfill for diversion (diversions with cut-fill ratio of 1.35:1, **3:1** channel and ridge slopes and 4-foot top width)

5% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)															
	6		8		10		12		14		16		18		20	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.8	6.9	0.8	7.9	0.9	8.9	1.0	9.9	1.1	10.9	1.1	11.8	1.2	12.8	1.3	13.7
1.6	0.8	7.5	0.9	8.6	1.0	9.6	1.1	10.6	1.1	11.7	1.2	12.6	1.3	13.6	1.3	14.6
1.7	0.9	8.0	0.9	9.2	1.0	10.3	1.1	11.4	1.2	12.4	1.2	13.5	1.3	14.5	1.4	15.6
1.8	0.9	8.6	1.0	9.8	1.1	11.0	1.2	12.1	1.2	13.3	1.3	14.3	1.4	15.4	1.4	16.5
1.9	0.9	9.2	1.0	10.5	1.1	11.7	1.2	12.9	1.3	14.1	1.4	15.2	1.4	16.4	1.5	17.5
2.0	1.0	9.9	1.1	11.2	1.2	12.5	1.3	13.7	1.3	14.9	1.4	16.1	1.5	17.3	1.5	18.5
2.1	1.0	10.5	1.1	11.9	1.2	13.2	1.3	14.5	1.4	15.8	1.5	17.0	1.5	18.3	1.6	19.5
2.2	1.1	11.2	1.2	12.6	1.3	14.0	1.4	15.3	1.4	16.7	1.5	18.0	1.6	19.3	1.7	20.5
2.3	1.1	11.9	1.2	13.3	1.3	14.8	1.4	16.2	1.5	17.6	1.6	18.9	1.6	20.3	1.7	21.6
2.4	1.2	12.6	1.3	14.1	1.4	15.6	1.5	17.1	1.5	18.5	1.6	19.9	1.7	21.3	1.8	22.6
2.5	1.2	13.3	1.3	14.9	1.4	16.4	1.5	17.9	1.6	19.4	1.7	20.9	1.7	22.3	1.8	23.7
2.6	1.3	14.0	1.4	15.7	1.5	17.3	1.6	18.8	1.6	20.4	1.7	21.9	1.8	23.4	1.9	24.8
2.7	1.3	14.8	1.4	16.5	1.5	18.1	1.6	19.8	1.7	21.3	1.8	22.9	1.9	24.5	1.9	26.0
2.8	1.4	15.5	1.5	17.3	1.6	19.0	1.7	20.7	1.7	22.3	1.8	23.9	1.9	25.6	2.0	27.1
2.9	1.4	16.3	1.5	18.1	1.6	19.9	1.7	21.6	1.8	23.3	1.9	25.0	2.0	26.7	2.0	28.3
3.0	1.5	17.1	1.6	19.0	1.7	20.8	1.8	22.6	1.9	24.4	1.9	26.1	2.0	27.8	2.1	29.5

6% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)													
	6		8		10		12		14		16		18	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.8	7.5	0.9	8.6	0.9	9.7	1.0	10.9	1.1	12.0	1.2	13.1	1.2	14.2
1.6	0.8	8.0	0.9	9.3	1.0	10.5	1.1	11.6	1.1	12.8	1.2	14.0	1.3	15.1
1.7	0.9	8.7	0.9	9.9	1.0	11.2	1.1	12.4	1.2	13.6	1.3	14.9	1.3	16.1
1.8	0.9	9.3	1.0	10.6	1.1	11.9	1.2	13.2	1.2	14.5	1.3	15.8	1.4	17.0
1.9	0.9	9.9	1.0	11.3	1.1	12.7	1.2	14.0	1.3	15.4	1.4	16.7	1.5	18.0
2.0	1.0	10.6	1.1	12.1	1.2	13.5	1.3	14.9	1.4	16.3	1.4	17.7	1.5	19.0
2.1	1.0	11.3	1.1	12.8	1.2	14.3	1.3	15.8	1.4	17.2	1.5	18.6	1.6	20.1
2.2	1.1	12.0	1.2	13.6	1.3	15.1	1.4	16.6	1.5	18.1	1.5	19.6	1.6	21.1
2.3	1.1	12.7	1.2	14.4	1.3	16.0	1.4	17.5	1.5	19.1	1.6	20.7	1.7	22.2
2.4	1.2	13.5	1.3	15.2	1.4	16.8	1.5	18.5	1.6	20.1	1.6	21.7	1.7	23.3
2.5	1.2	14.2	1.3	16.0	1.4	17.7	1.5	19.4	1.6	21.1	1.7	22.7	1.8	24.4
2.6	1.3	15.0	1.4	16.8	1.5	18.6	1.6	20.4	1.7	22.1	1.7	23.8	1.8	25.5
2.7	1.3	15.8	1.4	17.7	1.5	19.5	1.6	21.3	1.7	23.1	1.8	24.9	1.9	26.7
2.8	1.4	16.6	1.5	18.6	1.6	20.5	1.7	22.3	1.8	24.2	1.9	26.0	1.9	27.8
2.9	1.4	17.4	1.5	19.4	1.6	21.4	1.7	23.3	1.8	25.3	1.9	27.1	2.0	29.0
3.0	1.5	18.3	1.6	20.4	1.7	22.4	1.8	24.4	1.9	26.3	2.0	28.3	2.0	30.2

Fill Depth is in feet, measured from no-cut, no-fill point on diversion ridge.
Fill Area is in square feet per foot

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-10 (continued) Channel centerline depth of fill and area of earthfill for diversion (diversions with cut-fill ratio of 1.35:1, **3:1** channel and ridge slopes and 4-foot top width)

7% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)													
	6		8		10		12		14		16		18	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.8	8.0	0.9	9.3	0.9	10.6	1.0	11.9	1.1	13.2	1.2	14.4	1.3	15.7
1.6	0.8	8.7	0.9	10.0	1.0	11.4	1.1	12.7	1.2	14.0	1.2	15.4	1.3	16.7
1.7	0.9	9.3	1.0	10.8	1.0	12.1	1.1	13.5	1.2	14.9	1.3	16.3	1.4	17.7
1.8	0.9	10.0	1.0	11.5	1.1	12.9	1.2	14.4	1.3	15.8	1.3	17.3	1.4	18.8
1.9	1.0	10.7	1.1	12.2	1.1	13.8	1.2	15.3	1.3	16.8	1.4	18.3	1.5	19.8
2.0	1.0	11.4	1.1	13.0	1.2	14.6	1.3	16.2	1.4	17.7	1.5	19.3	1.5	20.9
2.1	1.0	12.1	1.1	13.8	1.2	15.5	1.3	17.1	1.4	18.7	1.5	20.4	1.6	22.0
2.2	1.1	12.9	1.2	14.6	1.3	16.3	1.4	18.0	1.5	19.7	1.6	21.4	1.6	23.1
2.3	1.1	13.6	1.2	15.5	1.3	17.2	1.4	19.0	1.5	20.8	1.6	22.5	1.7	24.3
2.4	1.2	14.4	1.3	16.3	1.4	18.2	1.5	20.0	1.6	21.8	1.7	23.6	1.7	25.4
2.5	1.2	15.2	1.3	17.2	1.4	19.1	1.5	21.0	1.6	22.9	1.7	24.7	1.8	26.6
2.6	1.3	16.1	1.4	18.1	1.5	20.0	1.6	22.0	1.7	23.9	1.8	25.9	1.9	27.8
2.7	1.3	16.9	1.4	19.0	1.5	21.0	1.6	23.0	1.7	25.0	1.8	27.0	1.9	29.0
2.8	1.4	17.8	1.5	19.9	1.6	22.0	1.7	24.1	1.8	26.2	1.9	28.2	2.0	30.3
2.9	1.4	18.7	1.5	20.9	1.6	23.0	1.7	25.2	1.8	27.3	1.9	29.4	2.0	31.5
3.0	1.5	19.6	1.6	21.8	1.7	24.1	1.8	26.3	1.9	28.5	2.0	30.7	2.1	32.8

8% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)											
	6		8		10		12		14		16	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.8	8.7	0.9	10.1	1.0	11.5	1.0	13.0	1.1	14.4	1.2	15.9
1.6	0.8	9.4	0.9	10.8	1.0	12.3	1.1	13.9	1.2	15.4	1.3	16.9
1.7	0.9	10.1	1.0	11.6	1.1	13.2	1.1	14.7	1.2	16.3	1.3	17.9
1.8	0.9	10.8	1.0	12.4	1.1	14.0	1.2	15.7	1.3	17.3	1.4	19.0
1.9	1.0	11.5	1.1	13.2	1.2	14.9	1.2	16.6	1.3	18.3	1.4	20.0
2.0	1.0	12.3	1.1	14.0	1.2	15.8	1.3	17.6	1.4	19.3	1.5	21.1
2.1	1.0	13.0	1.2	14.9	1.3	16.7	1.3	18.5	1.4	20.4	1.5	22.2
2.2	1.1	13.8	1.2	15.7	1.3	17.7	1.4	19.6	1.5	21.5	1.6	23.4
2.3	1.1	14.7	1.2	16.6	1.4	18.6	1.4	20.6	1.5	22.5	1.6	24.5
2.4	1.2	15.5	1.3	17.5	1.4	19.6	1.5	21.6	1.6	23.6	1.7	25.7
2.5	1.2	16.4	1.3	18.5	1.4	20.6	1.5	22.7	1.6	24.8	1.7	26.9
2.6	1.3	17.3	1.4	19.4	1.5	21.6	1.6	23.8	1.7	25.9	1.8	28.1
2.7	1.3	18.2	1.4	20.4	1.5	22.7	1.6	24.9	1.7	27.1	1.8	29.3
2.8	1.4	19.1	1.5	21.4	1.6	23.7	1.7	26.0	1.8	28.3	1.9	30.6
2.9	1.4	20.0	1.5	22.4	1.6	24.8	1.7	27.2	1.8	29.5	1.9	31.9
3.0	1.5	21.0	1.6	23.4	1.7	25.9	1.8	28.3	1.9	30.8	2.0	33.2

Fill Depth is in feet, measured from no-cut, no-fill point on diversion ridge.
Fill Area is in square feet per foot

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-10 (continued) Channel centerline depth of fill and area of earthfill for diversion (diversions with cut-fill ratio of 1.35:1, **3:1** channel and ridge slopes and 4-foot top width)

9% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)											
	6		8		10		12		14		16	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.8	9.4	0.9	11.0	1.0	12.6	1.1	14.2	1.1	15.8	1.2	17.5
1.6	0.8	10.1	0.9	11.8	1.0	13.4	1.1	15.1	1.2	16.8	1.3	18.5
1.7	0.9	10.8	1.0	12.6	1.1	14.3	1.2	16.1	1.3	17.8	1.3	19.6
1.8	0.9	11.6	1.0	13.4	1.1	15.2	1.2	17.0	1.3	18.9	1.4	20.8
1.9	1.0	12.4	1.1	14.3	1.2	16.1	1.3	18.0	1.4	20.0	1.4	21.9
2.0	1.0	13.2	1.1	15.1	1.2	17.1	1.3	19.1	1.4	21.0	1.5	23.1
2.1	1.0	14.0	1.2	16.0	1.3	18.1	1.4	20.1	1.5	22.2	1.5	24.2
2.2	1.1	14.9	1.2	17.0	1.3	19.1	1.4	21.2	1.5	23.3	1.6	25.5
2.3	1.1	15.8	1.3	17.9	1.4	20.1	1.5	22.3	1.6	24.5	1.7	26.7
2.4	1.2	16.7	1.3	18.9	1.4	21.1	1.5	23.4	1.6	25.6	1.7	27.9
2.5	1.2	17.6	1.3	19.9	1.5	22.2	1.6	24.5	1.7	26.9	1.8	29.2
2.6	1.3	18.5	1.4	20.9	1.5	23.3	1.6	25.7	1.7	28.1	1.8	30.5
2.7	1.3	19.5	1.4	21.9	1.6	24.4	1.7	26.9	1.8	29.4	1.9	31.9
2.8	1.4	20.5	1.5	23.0	1.6	25.5	1.7	28.1	1.8	30.6	1.9	33.2
2.9	1.4	21.5	1.5	24.1	1.7	26.7	1.8	29.3	1.9	31.9	2.0	34.6
3.0	1.5	22.5	1.6	25.2	1.7	27.9	1.8	30.6	1.9	33.2	2.0	36.0

10% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)											
	6		8		10		12		14		16	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.8	10.1	0.9	11.9	1.0	13.7	1.1	15.5	1.2	17.3	1.3	19.2
1.6	0.8	10.9	0.9	12.7	1.0	14.6	1.1	16.5	1.2	18.4	1.3	20.3
1.7	0.9	11.7	1.0	13.6	1.1	15.5	1.2	17.5	1.3	19.5	1.4	21.5
1.8	0.9	12.5	1.0	14.5	1.1	16.5	1.2	18.5	1.3	20.6	1.4	22.7
1.9	1.0	13.4	1.1	15.4	1.2	17.5	1.3	19.6	1.4	21.8	1.5	23.9
2.0	1.0	14.2	1.1	16.4	1.2	18.5	1.3	20.7	1.4	22.9	1.5	25.2
2.1	1.1	15.1	1.2	17.3	1.3	19.5	1.4	21.8	1.5	24.1	1.6	26.4
2.2	1.1	16.0	1.2	18.3	1.3	20.6	1.4	22.9	1.5	25.3	1.6	27.7
2.3	1.1	16.9	1.3	19.3	1.4	21.7	1.5	24.1	1.6	26.6	1.7	29.1
2.4	1.2	17.9	1.3	20.3	1.4	22.8	1.5	25.3	1.6	27.8	1.7	30.4
2.5	1.2	18.9	1.4	21.4	1.5	24.0	1.6	26.5	1.7	29.1	1.8	31.8
2.6	1.3	19.9	1.4	22.5	1.5	25.1	1.6	27.8	1.7	30.5	1.8	33.1
2.7	1.3	20.9	1.4	23.6	1.6	26.3	1.7	29.0	1.8	31.8	1.9	34.6
2.8	1.4	22.0	1.5	24.7	1.6	27.5	1.7	30.3	1.8	33.1	1.9	36.0
2.9	1.4	23.0	1.5	25.9	1.7	28.7	1.8	31.6	1.9	34.5	2.0	37.5
3.0	1.5	24.1	1.6	27.1	1.7	30.0	1.8	33.0	1.9	35.9	2.0	39.0

Fill Depth is in feet, measured from no-cut, no-fill point on diversion ridge.
Fill Area is in square feet per foot

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-11 Channel centerline depth of fill and area of earthfill for diversion (diversions with cut-fill ratio of 1.35:1, **4:1** channel and ridge slopes and 4-foot top width)

3% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)															
	6		8		10		12		14		16		18		20	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.7	6.9	0.8	7.8	0.9	8.6	0.9	9.4	1.0	10.2	1.0	11.0	1.1	11.8	1.1	12.5
1.6	0.8	7.5	0.9	8.4	0.9	9.3	1.0	10.2	1.0	11.1	1.1	11.9	1.1	12.7	1.2	13.5
1.7	0.8	8.1	0.9	9.1	1.0	10.1	1.0	11.0	1.1	11.9	1.1	12.8	1.2	13.6	1.2	14.4
1.8	0.9	8.8	1.0	9.8	1.0	10.8	1.1	11.8	1.1	12.7	1.2	13.7	1.2	14.6	1.3	15.5
1.9	0.9	9.4	1.0	10.5	1.1	11.6	1.1	12.6	1.2	13.6	1.3	14.6	1.3	15.5	1.4	16.5
2.0	1.0	10.1	1.1	11.3	1.1	12.4	1.2	13.5	1.2	14.5	1.3	15.5	1.4	16.6	1.4	17.5
2.1	1.0	10.9	1.1	12.1	1.2	13.2	1.2	14.4	1.3	15.5	1.4	16.5	1.4	17.6	1.5	18.6
2.2	1.1	11.6	1.2	12.9	1.2	14.1	1.3	15.3	1.3	16.4	1.4	17.5	1.5	18.6	1.5	19.7
2.3	1.1	12.4	1.2	13.7	1.3	14.9	1.3	16.2	1.4	17.4	1.5	18.6	1.5	19.7	1.6	20.8
2.4	1.2	13.1	1.2	14.5	1.3	15.8	1.4	17.1	1.5	18.4	1.5	19.6	1.6	20.8	1.6	21.9
2.5	1.2	14.0	1.3	15.4	1.4	16.8	1.4	18.1	1.5	19.4	1.6	20.7	1.6	21.9	1.7	23.1
2.6	1.3	14.8	1.3	16.3	1.4	17.7	1.5	19.1	1.6	20.4	1.6	21.8	1.7	23.0	1.7	24.3
2.7	1.3	15.6	1.4	17.2	1.5	18.7	1.5	20.1	1.6	21.5	1.7	22.9	1.7	24.2	1.8	25.5
2.8	1.4	16.5	1.4	18.1	1.5	19.6	1.6	21.1	1.7	22.6	1.7	24.0	1.8	25.4	1.8	26.8
2.9	1.4	17.4	1.5	19.0	1.6	20.6	1.6	22.2	1.7	23.7	1.8	25.2	1.8	26.6	1.9	28.0
3.0	1.4	18.3	1.5	20.0	1.6	21.6	1.7	23.2	1.8	24.8	1.8	26.3	1.9	27.8	1.9	29.3

4% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)															
	6		8		10		12		14		16		18		20	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.7	7.6	0.8	8.6	0.9	9.6	0.9	10.6	1.0	11.5	1.1	12.5	1.1	13.4	1.2	14.3
1.6	0.8	8.2	0.9	9.3	0.9	10.4	1.0	11.4	1.1	12.4	1.1	13.4	1.2	14.4	1.2	15.4
1.7	0.8	8.9	0.9	10.1	1.0	11.2	1.0	12.3	1.1	13.3	1.2	14.4	1.2	15.4	1.3	16.4
1.8	0.9	9.6	1.0	10.8	1.0	12.0	1.1	13.1	1.2	14.3	1.2	15.4	1.3	16.4	1.3	17.5
1.9	0.9	10.4	1.0	11.6	1.1	12.8	1.2	14.0	1.2	15.2	1.3	16.4	1.3	17.5	1.4	18.6
2.0	1.0	11.1	1.1	12.4	1.1	13.7	1.2	15.0	1.3	16.2	1.3	17.4	1.4	18.6	1.4	19.8
2.1	1.0	11.9	1.1	13.3	1.2	14.6	1.3	15.9	1.3	17.2	1.4	18.5	1.4	19.7	1.5	20.9
2.2	1.1	12.7	1.2	14.1	1.2	15.5	1.3	16.9	1.4	18.2	1.4	19.6	1.5	20.9	1.5	22.1
2.3	1.1	13.5	1.2	15.0	1.3	16.5	1.3	17.9	1.4	19.3	1.5	20.7	1.5	22.0	1.6	23.4
2.4	1.2	14.4	1.3	15.9	1.3	17.4	1.4	18.9	1.5	20.4	1.5	21.8	1.6	23.2	1.7	24.6
2.5	1.2	15.2	1.3	16.9	1.4	18.4	1.4	20.0	1.5	21.5	1.6	22.9	1.6	24.4	1.7	25.9
2.6	1.3	16.1	1.3	17.8	1.4	19.4	1.5	21.0	1.6	22.6	1.6	24.1	1.7	25.7	1.8	27.2
2.7	1.3	17.1	1.4	18.8	1.5	20.5	1.5	22.1	1.6	23.8	1.7	25.3	1.7	26.9	1.8	28.5
2.8	1.4	18.0	1.4	19.8	1.5	21.5	1.6	23.2	1.7	24.9	1.7	26.6	1.8	28.2	1.9	29.8
2.9	1.4	19.0	1.5	20.8	1.6	22.6	1.6	24.4	1.7	26.1	1.8	27.8	1.9	29.5	1.9	31.2
3.0	1.4	20.0	1.5	21.9	1.6	23.7	1.7	25.6	1.8	27.3	1.8	29.1	1.9	30.8	2.0	32.6

Fill Depth is in feet, measured from no-cut, no-fill point on diversion ridge.
Fill Area is in square feet per foot

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-11 (continued) Channel centerline depth of fill and area of earthfill for diversion (diversions with cut-fill ratio of 1.35:1, **4:1** channel and ridge slopes and 4-foot top width)

5% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)															
	6		8		10		12		14		16		18		20	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.7	8.3	0.8	9.5	0.9	10.7	1.0	11.8	1.0	12.9	1.1	14.1	1.1	15.2	1.2	16.3
1.6	0.8	9.1	0.9	10.3	0.9	11.5	1.0	12.7	1.1	13.9	1.1	15.1	1.2	16.3	1.3	17.5
1.7	0.8	9.8	0.9	11.1	1.0	12.4	1.1	13.6	1.1	14.9	1.2	16.1	1.3	17.4	1.3	18.6
1.8	0.9	10.6	1.0	11.9	1.0	13.3	1.1	14.6	1.2	15.9	1.2	17.2	1.3	18.5	1.4	19.8
1.9	0.9	11.4	1.0	12.8	1.1	14.2	1.2	15.6	1.2	16.9	1.3	18.3	1.4	19.7	1.4	21.0
2.0	1.0	12.2	1.1	13.7	1.1	15.1	1.2	16.6	1.3	18.0	1.3	19.4	1.4	20.9	1.5	22.3
2.1	1.0	13.0	1.1	14.6	1.2	16.1	1.3	17.6	1.3	19.1	1.4	20.6	1.5	22.1	1.5	23.6
2.2	1.1	13.9	1.2	15.5	1.2	17.1	1.3	18.7	1.4	20.2	1.4	21.8	1.5	23.3	1.6	24.8
2.3	1.1	14.8	1.2	16.5	1.3	18.1	1.4	19.8	1.4	21.4	1.5	23.0	1.6	24.6	1.6	26.2
2.4	1.2	15.7	1.3	17.5	1.3	19.2	1.4	20.9	1.5	22.5	1.6	24.2	1.6	25.9	1.7	27.5
2.5	1.2	16.7	1.3	18.5	1.4	20.3	1.5	22.0	1.5	23.7	1.6	25.5	1.7	27.2	1.7	28.9
2.6	1.3	17.7	1.4	19.5	1.4	21.4	1.5	23.2	1.6	25.0	1.7	26.8	1.7	28.5	1.8	30.3
2.7	1.3	18.7	1.4	20.6	1.5	22.5	1.6	24.4	1.6	26.2	1.7	28.1	1.8	29.9	1.8	31.7
2.8	1.4	19.7	1.4	21.7	1.5	23.7	1.6	25.6	1.7	27.5	1.8	29.4	1.8	31.3	1.9	33.2
2.9	1.4	20.8	1.5	22.8	1.6	24.8	1.7	26.8	1.7	28.8	1.8	30.8	1.9	32.8	1.9	34.7
3.0	1.5	21.8	1.5	23.9	1.6	26.0	1.7	28.1	1.8	30.1	1.9	32.2	1.9	34.2	2.0	36.2

6% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)													
	6		8		10		12		14		16		18	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.8	9.2	0.8	10.5	0.9	11.8	1.0	13.2	1.0	14.5	1.1	15.8	1.2	17.2
1.6	0.8	10.0	0.9	11.4	1.0	12.8	1.0	14.2	1.1	15.5	1.2	16.9	1.2	18.4
1.7	0.8	10.8	0.9	12.3	1.0	13.7	1.1	15.2	1.1	16.6	1.2	18.1	1.3	19.6
1.8	0.9	11.6	1.0	13.2	1.1	14.7	1.1	16.2	1.2	17.7	1.3	19.3	1.3	20.8
1.9	0.9	12.5	1.0	14.1	1.1	15.7	1.2	17.3	1.2	18.9	1.3	20.5	1.4	22.1
2.0	1.0	13.4	1.1	15.0	1.1	16.7	1.2	18.4	1.3	20.0	1.4	21.7	1.4	23.4
2.1	1.0	14.3	1.1	16.0	1.2	17.8	1.3	19.5	1.3	21.2	1.4	23.0	1.5	24.7
2.2	1.1	15.3	1.2	17.1	1.2	18.9	1.3	20.7	1.4	22.5	1.5	24.3	1.5	26.0
2.3	1.1	16.2	1.2	18.1	1.3	20.0	1.4	21.8	1.4	23.7	1.5	25.6	1.6	27.4
2.4	1.2	17.2	1.3	19.2	1.3	21.1	1.4	23.1	1.5	25.0	1.6	26.9	1.6	28.8
2.5	1.2	18.3	1.3	20.3	1.4	22.3	1.5	24.3	1.5	26.3	1.6	28.3	1.7	30.3
2.6	1.3	19.3	1.4	21.4	1.4	23.5	1.5	25.6	1.6	27.6	1.7	29.7	1.7	31.7
2.7	1.3	20.4	1.4	22.6	1.5	24.7	1.6	26.9	1.6	29.0	1.7	31.1	1.8	33.2
2.8	1.4	21.5	1.4	23.8	1.5	26.0	1.6	28.2	1.7	30.4	1.8	32.6	1.8	34.8
2.9	1.4	22.7	1.5	25.0	1.6	27.3	1.7	29.5	1.7	31.8	1.8	34.1	1.9	36.3
3.0	1.5	23.8	1.5	26.2	1.6	28.6	1.7	30.9	1.8	33.3	1.9	35.6	1.9	37.9

Fill Depth is in feet, measured from no-cut, no-fill point on diversion ridge
Fill Area is in square feet per foot

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-11 (continued) Channel centerline depth of fill and area of earthfill for diversion (diversions with cut-fill ratio of 1.35:1, **4:1** channel and ridge slopes and 4-foot top width)

7% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)													
	6		8		10		12		14		16		18	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.8	10.1	0.8	11.7	0.9	13.2	1.0	14.7	1.1	16.2	1.1	17.8	1.2	19.4
1.6	0.8	11.0	0.9	12.6	1.0	14.2	1.0	15.8	1.1	17.4	1.2	19.0	1.2	20.7
1.7	0.8	11.9	0.9	13.5	1.0	15.2	1.1	16.9	1.2	18.6	1.2	20.3	1.3	22.0
1.8	0.9	12.8	1.0	14.5	1.1	16.3	1.1	18.0	1.2	19.8	1.3	21.6	1.4	23.4
1.9	0.9	13.7	1.0	15.5	1.1	17.3	1.2	19.2	1.3	21.0	1.3	22.9	1.4	24.7
2.0	1.0	14.7	1.1	16.6	1.2	18.5	1.2	20.4	1.3	22.3	1.4	24.2	1.5	26.2
2.1	1.0	15.7	1.1	17.7	1.2	19.6	1.3	21.6	1.4	23.6	1.4	25.6	1.5	27.6
2.2	1.1	16.8	1.2	18.8	1.3	20.8	1.3	22.9	1.4	24.9	1.5	27.0	1.6	29.1
2.3	1.1	17.8	1.2	19.9	1.3	22.0	1.4	24.1	1.5	26.3	1.5	28.4	1.6	30.6
2.4	1.2	18.9	1.3	21.1	1.3	23.3	1.4	25.5	1.5	27.7	1.6	29.9	1.7	32.1
2.5	1.2	20.0	1.3	22.3	1.4	24.5	1.5	26.8	1.6	29.1	1.6	31.4	1.7	33.7
2.6	1.3	21.2	1.4	23.5	1.4	25.8	1.5	28.2	1.6	30.5	1.7	32.9	1.8	35.3
2.7	1.3	22.4	1.4	24.8	1.5	27.2	1.6	29.6	1.7	32.0	1.7	34.5	1.8	36.9
2.8	1.4	23.6	1.5	26.1	1.5	28.6	1.6	31.1	1.7	33.5	1.8	36.1	1.9	38.6
2.9	1.4	24.8	1.5	27.4	1.6	30.0	1.7	32.5	1.8	35.1	1.8	37.7	1.9	40.3
3.0	1.5	26.1	1.5	28.7	1.6	31.4	1.7	34.0	1.8	36.7	1.9	39.3	2.0	42.0

8% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)											
	6		8		10		12		14		16	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.8	11.2	0.8	12.9	0.9	14.6	1.0	16.4	1.1	18.2	1.1	20.0
1.6	0.8	12.1	0.9	13.9	1.0	15.7	1.0	17.6	1.1	19.4	1.2	21.4
1.7	0.8	13.1	0.9	15.0	1.0	16.8	1.1	18.8	1.2	20.7	1.2	22.7
1.8	0.9	14.1	1.0	16.0	1.1	18.0	1.1	20.0	1.2	22.1	1.3	24.1
1.9	0.9	15.1	1.0	17.2	1.1	19.2	1.2	21.3	1.3	23.4	1.3	25.5
2.0	1.0	16.2	1.1	18.3	1.2	20.4	1.2	22.6	1.3	24.8	1.4	27.0
2.1	1.0	17.3	1.1	19.5	1.2	21.7	1.3	23.9	1.4	26.2	1.5	28.5
2.2	1.1	18.4	1.2	20.7	1.3	23.0	1.3	25.3	1.4	27.7	1.5	30.1
2.3	1.1	19.6	1.2	21.9	1.3	24.3	1.4	26.7	1.5	29.2	1.6	31.6
2.4	1.2	20.8	1.3	23.2	1.4	25.7	1.4	28.2	1.5	30.7	1.6	33.2
2.5	1.2	22.0	1.3	24.5	1.4	27.1	1.5	29.7	1.6	32.2	1.6	34.9
2.6	1.3	23.2	1.4	25.9	1.4	28.5	1.5	31.2	1.6	33.8	1.7	36.5
2.7	1.3	24.6	1.4	27.2	1.5	30.0	1.6	32.7	1.7	35.5	1.7	38.2
2.8	1.4	25.9	1.5	28.6	1.5	31.4	1.6	34.3	1.7	37.1	1.8	40.0
2.9	1.4	27.2	1.5	30.1	1.6	33.0	1.7	35.9	1.8	38.8	1.8	41.7
3.0	1.5	28.6	1.5	31.6	1.6	34.5	1.7	37.5	1.8	40.5	1.9	43.5

Fill Depth is in feet, measured from no-cut, no-fill point on diversion ridge
Fill Area is in square feet per foot

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-11 (continued) Channel centerline depth of fill and area of earthfill for diversion (diversions with cut-fill ratio of 1.35:1, **4:1** channel and ridge slopes and 4-foot top width)

9% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)											
	6		8		10		12		14		16	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.8	12.4	0.8	14.3	0.9	16.3	1.0	18.3	1.1	20.4	1.2	22.5
1.6	0.8	13.4	0.9	15.4	1.0	17.5	1.1	19.6	1.1	21.8	1.2	24.0
1.7	0.8	14.5	0.9	16.6	1.0	18.7	1.1	20.9	1.2	23.2	1.3	25.5
1.8	0.9	15.5	1.0	17.7	1.1	20.0	1.2	22.3	1.2	24.6	1.3	27.0
1.9	0.9	16.7	1.0	19.0	1.1	21.3	1.2	23.7	1.3	26.1	1.4	28.6
2.0	1.0	17.8	1.1	20.2	1.2	22.6	1.3	25.1	1.3	27.6	1.4	30.2
2.1	1.0	19.0	1.1	21.5	1.2	24.0	1.3	26.6	1.4	29.2	1.5	31.8
2.2	1.1	20.3	1.2	22.8	1.3	25.4	1.4	28.1	1.4	30.8	1.5	33.5
2.3	1.1	21.6	1.2	24.2	1.3	26.9	1.4	29.6	1.5	32.4	1.6	35.2
2.4	1.2	22.8	1.3	25.6	1.4	28.4	1.4	31.2	1.5	34.1	1.6	37.0
2.5	1.2	24.2	1.3	27.0	1.4	29.9	1.5	32.8	1.6	35.8	1.7	38.8
2.6	1.3	25.6	1.4	28.5	1.5	31.5	1.5	34.5	1.6	37.5	1.7	40.6
2.7	1.3	27.0	1.4	30.0	1.5	33.1	1.6	36.2	1.7	39.3	1.8	42.5
2.8	1.4	28.5	1.5	31.6	1.6	34.7	1.6	37.9	1.7	41.1	1.8	44.4
2.9	1.4	29.9	1.5	33.1	1.6	36.4	1.7	39.7	1.8	43.0	1.9	46.3
3.0	1.5	31.5	1.6	34.8	1.6	38.1	1.7	41.5	1.8	44.9	1.9	48.3

10% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)											
	6		8		10		12		14		16	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.8	13.7	0.8	15.9	0.9	18.2	1.0	20.5	1.1	22.9	1.2	25.3
1.6	0.8	14.8	0.9	17.1	1.0	19.5	1.1	21.9	1.1	24.4	1.2	26.9
1.7	0.9	16.0	0.9	18.4	1.0	20.8	1.1	23.3	1.2	25.9	1.3	28.6
1.8	0.9	17.2	1.0	19.7	1.1	22.2	1.2	24.8	1.2	27.5	1.3	30.3
1.9	0.9	18.4	1.0	21.0	1.1	23.7	1.2	26.4	1.3	29.2	1.4	32.0
2.0	1.0	19.7	1.1	22.4	1.2	25.2	1.3	27.9	1.3	30.8	1.4	33.8
2.1	1.0	21.0	1.1	23.8	1.2	26.7	1.3	29.6	1.4	32.6	1.5	35.6
2.2	1.1	22.4	1.2	25.3	1.3	28.2	1.4	31.2	1.4	34.3	1.5	37.4
2.3	1.1	23.8	1.2	26.8	1.3	29.8	1.4	32.9	1.5	36.1	1.6	39.3
2.4	1.2	25.2	1.3	28.3	1.4	31.5	1.5	34.6	1.5	37.9	1.6	41.3
2.5	1.2	26.7	1.3	29.9	1.4	33.1	1.5	36.4	1.6	39.8	1.7	43.2
2.6	1.3	28.2	1.4	31.5	1.5	34.9	1.6	38.2	1.6	41.7	1.7	45.2
2.7	1.3	29.8	1.4	33.2	1.5	36.6	1.6	40.1	1.7	43.6	1.8	47.3
2.8	1.4	31.4	1.5	34.9	1.6	38.4	1.6	42.0	1.7	45.7	1.8	49.4
2.9	1.4	33.0	1.5	36.6	1.6	40.2	1.7	43.9	1.8	47.7	1.9	51.5
3.0	1.5	34.7	1.6	38.4	1.6	42.1	1.7	45.9	1.8	49.8	1.9	53.7

Fill Depth is in feet, measured from no-cut, no-fill point on diversion ridge.
Fill Area is in square feet per foot

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-12 Channel centerline depth of fill and area of earthfill for diversion (diversions with cut-fill ratio of 1.35:1, **5:1** channel and ridge slopes and 4-foot top width)

1% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)															
	6		8		10		12		14		16		18		20	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.7	6.3	0.8	7.0	0.8	7.6	0.9	8.2	0.9	8.8	1.0	9.3	1.0	9.9	1.0	10.3
1.6	0.8	6.9	0.8	7.6	0.9	8.3	0.9	9.0	1.0	9.6	1.0	10.2	1.0	10.7	1.1	11.2
1.7	0.8	7.5	0.9	8.3	0.9	9.0	1.0	9.7	1.0	10.4	1.1	11.0	1.1	11.6	1.1	12.2
1.8	0.9	8.2	0.9	9.0	1.0	9.8	1.0	10.5	1.1	11.2	1.1	11.9	1.2	12.5	1.2	13.1
1.9	0.9	8.9	1.0	9.7	1.0	10.5	1.1	11.3	1.1	12.1	1.2	12.8	1.2	13.5	1.2	14.1
2.0	1.0	9.5	1.0	10.5	1.1	11.3	1.1	12.2	1.2	12.9	1.2	13.7	1.3	14.4	1.3	15.1
2.1	1.0	10.3	1.1	11.2	1.1	12.2	1.2	13.0	1.2	13.8	1.3	14.6	1.3	15.4	1.4	16.1
2.2	1.1	11.0	1.1	12.0	1.2	13.0	1.2	13.9	1.3	14.8	1.3	15.6	1.4	16.4	1.4	17.2
2.3	1.1	11.8	1.2	12.8	1.2	13.8	1.3	14.8	1.3	15.7	1.4	16.6	1.4	17.4	1.5	18.3
2.4	1.2	12.6	1.2	13.7	1.3	14.7	1.3	15.7	1.4	16.7	1.4	17.6	1.5	18.5	1.5	19.4
2.5	1.2	13.4	1.3	14.5	1.3	15.6	1.4	16.7	1.4	17.7	1.5	18.7	1.5	19.6	1.6	20.5
2.6	1.2	14.2	1.3	15.4	1.4	16.6	1.4	17.7	1.5	18.7	1.5	19.7	1.6	20.7	1.6	21.6
2.7	1.3	15.1	1.4	16.3	1.4	17.5	1.5	18.7	1.5	19.8	1.6	20.8	1.6	21.8	1.7	22.8
2.8	1.3	16.0	1.4	17.3	1.5	18.5	1.5	19.7	1.6	20.8	1.6	22.0	1.7	23.0	1.7	24.0
2.9	1.4	16.9	1.5	18.2	1.5	19.5	1.6	20.8	1.6	21.9	1.7	23.1	1.7	24.2	1.8	25.2
3.0	1.4	17.8	1.5	19.2	1.6	20.5	1.6	21.8	1.7	23.1	1.7	24.2	1.8	25.4	1.8	26.5

2% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)															
	6		8		10		12		14		16		18		20	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.7	7.1	0.8	7.9	0.8	8.7	0.9	9.4	0.9	10.1	1.0	10.8	1.0	11.5	1.1	12.2
1.6	0.8	7.8	0.8	8.6	0.9	9.4	0.9	10.2	1.0	11.0	1.0	11.7	1.1	12.5	1.1	13.2
1.7	0.8	8.4	0.9	9.4	0.9	10.2	1.0	11.1	1.0	11.9	1.1	12.7	1.1	13.5	1.2	14.2
1.8	0.9	9.2	0.9	10.1	1.0	11.1	1.0	12.0	1.1	12.8	1.1	13.7	1.2	14.5	1.2	15.3
1.9	0.9	9.9	1.0	10.9	1.0	11.9	1.1	12.9	1.1	13.8	1.2	14.6	1.2	15.5	1.3	16.3
2.0	1.0	10.7	1.0	11.7	1.1	12.8	1.1	13.8	1.2	14.7	1.2	15.7	1.3	16.6	1.3	17.5
2.1	1.0	11.5	1.1	12.6	1.1	13.7	1.2	14.7	1.2	15.7	1.3	16.7	1.3	17.7	1.4	18.6
2.2	1.1	12.3	1.1	13.5	1.2	14.6	1.2	15.7	1.3	16.8	1.3	17.8	1.4	18.8	1.4	19.8
2.3	1.1	13.2	1.2	14.4	1.2	15.6	1.3	16.7	1.3	17.8	1.4	18.9	1.4	20.0	1.5	21.0
2.4	1.2	14.0	1.2	15.3	1.3	16.5	1.3	17.7	1.4	18.9	1.4	20.0	1.5	21.1	1.5	22.2
2.5	1.2	14.9	1.3	16.3	1.3	17.6	1.4	18.8	1.4	20.0	1.5	21.2	1.5	22.3	1.6	23.4
2.6	1.3	15.9	1.3	17.2	1.4	18.6	1.4	19.9	1.5	21.1	1.5	22.4	1.6	23.5	1.6	24.7
2.7	1.3	16.8	1.4	18.2	1.4	19.6	1.5	21.0	1.5	22.3	1.6	23.6	1.6	24.8	1.7	26.0
2.8	1.3	17.8	1.4	19.3	1.5	20.7	1.5	22.1	1.6	23.5	1.6	24.8	1.7	26.1	1.7	27.4
2.9	1.4	18.8	1.5	20.3	1.5	21.8	1.6	23.3	1.6	24.7	1.7	26.1	1.7	27.4	1.8	28.7
3.0	1.4	19.8	1.5	21.4	1.6	23.0	1.6	24.5	1.7	25.9	1.7	27.3	1.8	28.8	1.8	30.1

Fill Depth is in feet, measured from no-cut, no-fill point on diversion ridge.
Fill Area is in square feet per foot

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-12 (continued) Channel centerline depth of fill and area of earthfill for diversion (diversions with cut-fill ratio of 1.35:1, **5:1** channel and ridge slopes and 4-foot top width)

3% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)															
	6		8		10		12		14		16		18		20	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.7	8.0	0.8	8.9	0.9	9.9	0.9	10.8	1.0	11.7	1.0	12.5	1.0	13.4	1.1	14.2
1.6	0.8	8.7	0.8	9.7	0.9	10.7	1.0	11.7	1.0	12.6	1.1	13.5	1.1	14.5	1.1	15.3
1.7	0.8	9.5	0.9	10.5	1.0	11.6	1.0	12.6	1.1	13.6	1.1	14.6	1.2	15.5	1.2	16.5
1.8	0.9	10.2	0.9	11.4	1.0	12.5	1.1	13.6	1.1	14.6	1.2	15.6	1.2	16.7	1.3	17.7
1.9	0.9	11.1	1.0	12.3	1.1	13.4	1.1	14.6	1.2	15.7	1.2	16.8	1.3	17.8	1.3	18.9
2.0	1.0	11.9	1.0	13.2	1.1	14.4	1.2	15.6	1.2	16.7	1.3	17.9	1.3	19.0	1.4	20.1
2.1	1.0	12.8	1.1	14.1	1.1	15.4	1.2	16.6	1.3	17.8	1.3	19.1	1.4	20.2	1.4	21.4
2.2	1.1	13.7	1.1	15.1	1.2	16.4	1.3	17.7	1.3	19.0	1.4	20.2	1.4	21.5	1.5	22.7
2.3	1.1	14.7	1.2	16.1	1.2	17.5	1.3	18.8	1.4	20.2	1.4	21.5	1.5	22.8	1.5	24.0
2.4	1.2	15.6	1.2	17.1	1.3	18.5	1.4	20.0	1.4	21.4	1.5	22.7	1.5	24.1	1.6	25.4
2.5	1.2	16.6	1.3	18.2	1.3	19.7	1.4	21.1	1.5	22.6	1.5	24.0	1.6	25.4	1.6	26.8
2.6	1.3	17.7	1.3	19.3	1.4	20.8	1.4	22.3	1.5	23.8	1.6	25.3	1.6	26.7	1.7	28.2
2.7	1.3	18.7	1.4	20.4	1.4	22.0	1.5	23.6	1.6	25.1	1.6	26.6	1.7	28.2	1.7	29.6
2.8	1.3	19.8	1.4	21.5	1.5	23.2	1.5	24.8	1.6	26.4	1.7	28.0	1.7	29.6	1.8	31.1
2.9	1.4	20.9	1.5	22.7	1.5	24.4	1.6	26.1	1.7	27.8	1.7	29.4	1.8	31.0	1.8	32.6
3.0	1.4	22.1	1.5	23.9	1.6	25.7	1.6	27.4	1.7	29.1	1.8	30.8	1.8	32.5	1.9	34.2

4% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)															
	6		8		10		12		14		16		18		20	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.7	8.9	0.8	10.1	0.9	11.2	0.9	12.3	1.0	13.3	1.0	14.4	1.1	15.5	1.1	16.6
1.6	0.8	9.7	0.9	10.9	0.9	12.1	1.0	13.3	1.0	14.4	1.1	15.5	1.1	16.7	1.2	17.8
1.7	0.8	10.6	0.9	11.9	1.0	13.1	1.0	14.3	1.1	15.5	1.1	16.7	1.2	17.9	1.2	19.1
1.8	0.9	11.5	0.9	12.8	1.0	14.1	1.1	15.4	1.1	16.6	1.2	17.9	1.2	19.2	1.3	20.4
1.9	0.9	12.4	1.0	13.8	1.1	15.1	1.1	16.5	1.2	17.8	1.2	19.1	1.3	20.4	1.3	21.8
2.0	1.0	13.3	1.0	14.8	1.1	16.2	1.2	17.6	1.2	19.0	1.3	20.4	1.3	21.8	1.4	23.1
2.1	1.0	14.3	1.1	15.8	1.2	17.3	1.2	18.8	1.3	20.2	1.3	21.7	1.4	23.1	1.4	24.5
2.2	1.1	15.3	1.1	16.9	1.2	18.4	1.3	20.0	1.3	21.5	1.4	23.0	1.4	24.5	1.5	26.0
2.3	1.1	16.4	1.2	18.0	1.3	19.6	1.3	21.2	1.4	22.8	1.4	24.3	1.5	25.9	1.5	27.5
2.4	1.2	17.5	1.2	19.2	1.3	20.8	1.4	22.5	1.4	24.1	1.5	25.7	1.5	27.4	1.6	29.0
2.5	1.2	18.6	1.3	20.3	1.3	22.1	1.4	23.8	1.5	25.5	1.5	27.2	1.6	28.8	1.6	30.5
2.6	1.3	19.7	1.3	21.5	1.4	23.3	1.5	25.1	1.5	26.9	1.6	28.6	1.6	30.4	1.7	32.1
2.7	1.3	20.9	1.4	22.7	1.4	24.6	1.5	26.5	1.6	28.3	1.6	30.1	1.7	31.9	1.7	33.7
2.8	1.3	22.1	1.4	24.0	1.5	26.0	1.6	27.9	1.6	29.7	1.7	31.6	1.7	33.5	1.8	35.3
2.9	1.4	23.3	1.5	25.3	1.5	27.3	1.6	29.3	1.7	31.2	1.7	33.2	1.8	35.1	1.8	37.0
3.0	1.4	24.6	1.5	26.6	1.6	28.7	1.7	30.7	1.7	32.7	1.8	34.7	1.8	36.7	1.9	38.7

Fill Depth is in feet, measured from no-cut, no-fill point on diversion ridge.
Fill Area is in square feet per foot

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-12 (continued) Channel centerline depth of fill and area of earthfill for diversion (diversions with cut-fill ratio of 1.35:1, **5:1** channel and ridge slopes and 4-foot top width)

5% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)															
	6		8		10		12		14		16		18		20	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.7	10.0	0.8	11.4	0.9	12.7	0.9	14.0	1.0	15.3	1.0	16.6	1.1	17.9	1.2	19.2
1.6	0.8	11.0	0.9	12.3	0.9	13.7	1.0	15.1	1.0	16.5	1.1	17.8	1.2	19.2	1.2	20.6
1.7	0.8	11.9	0.9	13.3	1.0	14.8	1.0	16.2	1.1	17.7	1.1	19.1	1.2	20.6	1.3	22.1
1.8	0.9	12.9	1.0	14.4	1.0	15.9	1.1	17.4	1.1	18.9	1.2	20.5	1.3	22.0	1.3	23.5
1.9	0.9	13.9	1.0	15.5	1.1	17.1	1.1	18.7	1.2	20.2	1.2	21.8	1.3	23.4	1.4	25.0
2.0	1.0	15.0	1.0	16.6	1.1	18.3	1.2	19.9	1.2	21.6	1.3	23.2	1.4	24.9	1.4	26.5
2.1	1.0	16.0	1.1	17.8	1.2	19.5	1.2	21.2	1.3	22.9	1.3	24.7	1.4	26.4	1.5	28.1
2.2	1.1	17.2	1.1	19.0	1.2	20.7	1.3	22.6	1.3	24.3	1.4	26.1	1.5	27.9	1.5	29.7
2.3	1.1	18.3	1.2	20.2	1.3	22.1	1.3	23.9	1.4	25.8	1.4	27.6	1.5	29.5	1.6	31.3
2.4	1.2	19.5	1.2	21.4	1.3	23.4	1.4	25.3	1.4	27.3	1.5	29.2	1.6	31.1	1.6	33.0
2.5	1.2	20.7	1.3	22.7	1.4	24.8	1.4	26.8	1.5	28.7	1.5	30.8	1.6	32.8	1.7	34.7
2.6	1.3	22.0	1.3	24.1	1.4	26.2	1.5	28.2	1.5	30.3	1.6	32.4	1.7	34.4	1.7	36.5
2.7	1.3	23.3	1.4	25.5	1.4	27.6	1.5	29.8	1.6	31.9	1.6	34.0	1.7	36.2	1.8	38.3
2.8	1.3	24.6	1.4	26.9	1.5	29.1	1.6	31.3	1.6	33.5	1.7	35.7	1.8	37.9	1.8	40.1
2.9	1.4	26.0	1.5	28.3	1.5	30.6	1.6	32.9	1.7	35.1	1.7	37.4	1.8	39.7	1.9	42.0
3.0	1.4	27.4	1.5	29.8	1.6	32.2	1.7	34.5	1.7	36.9	1.8	39.2	1.9	41.5	1.9	43.9

6% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)													
	6		8		10		12		14		16		18	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.7	11.3	0.8	12.8	0.9	14.4	0.9	15.9	1.0	17.5	1.1	19.0	1.1	20.7
1.6	0.8	12.3	0.9	13.9	0.9	15.5	1.0	17.2	1.1	18.8	1.1	20.5	1.2	22.1
1.7	0.8	13.4	0.9	15.1	1.0	16.8	1.0	18.5	1.1	20.1	1.2	21.9	1.2	23.7
1.8	0.9	14.5	1.0	16.2	1.0	18.0	1.1	19.8	1.2	21.6	1.2	23.4	1.3	25.2
1.9	0.9	15.6	1.0	17.5	1.1	19.3	1.1	21.1	1.2	23.0	1.3	24.9	1.3	26.8
2.0	1.0	16.8	1.0	18.7	1.1	20.6	1.2	22.6	1.3	24.5	1.3	26.4	1.4	28.4
2.1	1.0	18.0	1.1	20.0	1.2	22.0	1.2	24.0	1.3	26.0	1.4	28.1	1.4	30.1
2.2	1.1	19.2	1.1	21.3	1.2	23.4	1.3	25.5	1.3	27.6	1.4	29.7	1.5	31.8
2.3	1.1	20.5	1.2	22.7	1.3	24.8	1.3	27.0	1.4	29.2	1.5	31.4	1.5	33.6
2.4	1.2	21.9	1.2	24.1	1.3	26.3	1.4	28.6	1.4	30.8	1.5	33.1	1.6	35.4
2.5	1.2	23.2	1.3	25.5	1.4	27.9	1.4	30.2	1.5	32.5	1.6	34.9	1.6	37.2
2.6	1.3	24.6	1.3	27.0	1.4	29.4	1.5	31.8	1.5	34.3	1.6	36.7	1.7	39.1
2.7	1.3	26.1	1.4	28.6	1.5	31.0	1.5	33.5	1.6	36.0	1.7	38.5	1.7	41.0
2.8	1.3	27.6	1.4	30.1	1.5	32.7	1.6	35.2	1.6	37.8	1.7	40.4	1.8	43.0
2.9	1.4	29.1	1.5	31.7	1.5	34.4	1.6	37.0	1.7	39.6	1.8	42.3	1.8	45.0
3.0	1.4	30.7	1.5	33.4	1.6	36.1	1.7	38.8	1.7	41.5	1.8	44.3	1.9	47.0

Fill Depth is in feet, measured from no-cut, no-fill point on diversion ridge.
Fill Area is in square feet per foot

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-12 (continued) Channel centerline depth of fill and area of earthfill for diversion (diversions with cut-fill ratio of 1.35:1, **5:1** channel and ridge slopes and 4-foot top width)

7% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)													
	6		8		10		12		14		16		18	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.7	12.8	0.8	14.6	0.9	16.3	1.0	18.2	1.0	20.0	1.1	21.9	1.1	23.8
1.6	0.8	13.9	0.9	15.8	0.9	17.7	1.0	19.6	1.1	21.5	1.1	23.5	1.2	25.5
1.7	0.8	15.1	0.9	17.0	1.0	19.0	1.0	21.0	1.1	23.0	1.2	25.1	1.2	27.2
1.8	0.9	16.3	1.0	18.4	1.0	20.4	1.1	22.5	1.2	24.6	1.2	26.8	1.3	28.9
1.9	0.9	17.6	1.0	19.7	1.1	21.9	1.1	24.0	1.2	26.2	1.3	28.4	1.3	30.7
2.0	1.0	18.9	1.1	21.1	1.1	23.3	1.2	25.6	1.3	27.9	1.3	30.2	1.4	32.5
2.1	1.0	20.3	1.1	22.5	1.2	24.9	1.2	27.2	1.3	29.6	1.4	32.0	1.4	34.4
2.2	1.1	21.6	1.1	24.0	1.2	26.5	1.3	28.9	1.4	31.3	1.4	33.8	1.5	36.4
2.3	1.1	23.1	1.2	25.6	1.3	28.1	1.3	30.6	1.4	33.1	1.5	35.7	1.5	38.3
2.4	1.2	24.6	1.2	27.1	1.3	29.7	1.4	32.3	1.5	35.0	1.5	37.6	1.6	40.3
2.5	1.2	26.1	1.3	28.8	1.4	31.4	1.4	34.1	1.5	36.8	1.6	39.6	1.6	42.4
2.6	1.3	27.7	1.3	30.4	1.4	33.2	1.5	36.0	1.6	38.8	1.6	41.6	1.7	44.5
2.7	1.3	29.3	1.4	32.1	1.5	35.0	1.5	37.8	1.6	40.8	1.7	43.7	1.7	46.7
2.8	1.3	31.0	1.4	33.9	1.5	36.8	1.6	39.8	1.6	42.8	1.7	45.8	1.8	48.9
2.9	1.4	32.7	1.5	35.7	1.6	38.7	1.6	41.8	1.7	44.8	1.8	48.0	1.8	51.1
3.0	1.4	34.4	1.5	37.5	1.6	40.7	1.7	43.8	1.7	46.9	1.8	50.1	1.9	53.4

8% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)											
	6		8		10		12		14		16	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.7	14.5	0.8	16.5	0.9	18.6	1.0	20.8	1.0	23.0	1.1	25.2
1.6	0.8	15.8	0.9	17.9	0.9	20.1	1.0	22.4	1.1	24.7	1.1	27.0
1.7	0.8	17.1	0.9	19.3	1.0	21.6	1.1	24.0	1.1	26.4	1.2	28.8
1.8	0.9	18.5	1.0	20.8	1.0	23.2	1.1	25.7	1.2	28.1	1.2	30.7
1.9	0.9	19.9	1.0	22.3	1.1	24.8	1.2	27.4	1.2	30.0	1.3	32.6
2.0	1.0	21.4	1.1	23.9	1.1	26.5	1.2	29.1	1.3	31.8	1.3	34.6
2.1	1.0	22.9	1.1	25.5	1.2	28.2	1.3	31.0	1.3	33.8	1.4	36.6
2.2	1.1	24.4	1.1	27.2	1.2	30.0	1.3	32.8	1.4	35.7	1.4	38.7
2.3	1.1	26.1	1.2	28.9	1.3	31.8	1.3	34.7	1.4	37.7	1.5	40.8
2.4	1.2	27.7	1.2	30.7	1.3	33.7	1.4	36.7	1.5	39.8	1.5	42.9
2.5	1.2	29.5	1.3	32.5	1.4	35.6	1.4	38.7	1.5	41.9	1.6	45.2
2.6	1.3	31.2	1.3	34.4	1.4	37.6	1.5	40.8	1.6	44.1	1.6	47.4
2.7	1.3	33.1	1.4	36.3	1.5	39.6	1.5	42.9	1.6	46.3	1.7	49.7
2.8	1.4	34.9	1.4	38.3	1.5	41.7	1.6	45.1	1.7	48.6	1.7	52.1
2.9	1.4	36.9	1.5	40.3	1.6	43.8	1.6	47.3	1.7	50.9	1.8	54.5
3.0	1.4	38.8	1.5	42.4	1.6	46.0	1.7	49.6	1.8	53.3	1.8	57.0

Fill Depth is in feet, measured from no-cut, no-fill point on diversion ridge.
Fill Area is in square feet per foot

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-13 Channel centerline depth of fill and area of earthfill for diversion (diversions with cut-fill ratio of 1.35:1, **6:1** channel and ridge slopes and 4-foot top width)

1% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)															
	6		8		10		12		14		16		18		20	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.7	7.0	0.8	7.7	0.8	8.3	0.9	9.0	0.9	9.6	0.9	10.2	1.0	10.7	1.0	11.3
1.6	0.8	7.7	0.8	8.4	0.9	9.1	0.9	9.8	1.0	10.5	1.0	11.1	1.0	11.7	1.1	12.3
1.7	0.8	8.4	0.9	9.2	0.9	9.9	1.0	10.7	1.0	11.4	1.0	12.0	1.1	12.7	1.1	13.3
1.8	0.9	9.1	0.9	10.0	1.0	10.8	1.0	11.6	1.1	12.3	1.1	13.0	1.1	13.7	1.2	14.4
1.9	0.9	9.9	1.0	10.8	1.0	11.7	1.1	12.5	1.1	13.3	1.1	14.0	1.2	14.8	1.2	15.4
2.0	1.0	10.7	1.0	11.7	1.1	12.6	1.1	13.4	1.2	14.3	1.2	15.1	1.2	15.8	1.3	16.6
2.1	1.0	11.5	1.1	12.5	1.1	13.5	1.2	14.4	1.2	15.3	1.2	16.1	1.3	16.9	1.3	17.7
2.2	1.1	12.4	1.1	13.4	1.2	14.5	1.2	15.4	1.3	16.3	1.3	17.2	1.3	18.1	1.4	18.9
2.3	1.1	13.3	1.2	14.4	1.2	15.4	1.3	16.4	1.3	17.4	1.3	18.3	1.4	19.3	1.4	20.1
2.4	1.2	14.2	1.2	15.4	1.3	16.5	1.3	17.5	1.4	18.5	1.4	19.5	1.4	20.5	1.5	21.4
2.5	1.2	15.2	1.3	16.4	1.3	17.5	1.4	18.6	1.4	19.7	1.4	20.7	1.5	21.7	1.5	22.6
2.6	1.2	16.1	1.3	17.4	1.4	18.6	1.4	19.7	1.4	20.8	1.5	21.9	1.5	23.0	1.6	23.9
2.7	1.3	17.2	1.3	18.4	1.4	19.7	1.5	20.9	1.5	22.0	1.5	23.2	1.6	24.2	1.6	25.3
2.8	1.3	18.2	1.4	19.5	1.4	20.8	1.5	22.0	1.5	23.3	1.6	24.4	1.6	25.5	1.7	26.7
2.9	1.4	19.3	1.4	20.6	1.5	22.0	1.5	23.3	1.6	24.5	1.6	25.7	1.7	26.9	1.7	28.1
3.0	1.4	20.3	1.5	21.8	1.5	23.2	1.6	24.5	1.6	25.8	1.7	27.1	1.7	28.3	1.8	29.5

2% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)															
	6		8		10		12		14		16		18		20	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.7	8.0	0.8	8.8	0.8	9.7	0.9	10.5	0.9	11.3	1.0	12.0	1.0	12.8	1.0	13.5
1.6	0.8	8.8	0.8	9.7	0.9	10.6	0.9	11.4	1.0	12.2	1.0	13.1	1.0	13.9	1.1	14.6
1.7	0.8	9.6	0.9	10.5	0.9	11.5	1.0	12.4	1.0	13.3	1.1	14.1	1.1	15.0	1.1	15.8
1.8	0.9	10.4	0.9	11.4	1.0	12.4	1.0	13.4	1.1	14.3	1.1	15.2	1.2	16.1	1.2	17.0
1.9	0.9	11.3	1.0	12.4	1.0	13.4	1.1	14.4	1.1	15.4	1.2	16.4	1.2	17.3	1.2	18.2
2.0	1.0	12.2	1.0	13.3	1.1	14.4	1.1	15.5	1.2	16.5	1.2	17.5	1.3	18.5	1.3	19.5
2.1	1.0	13.1	1.1	14.3	1.1	15.5	1.2	16.6	1.2	17.7	1.3	18.8	1.3	19.8	1.3	20.8
2.2	1.1	14.1	1.1	15.4	1.2	16.6	1.2	17.7	1.3	18.9	1.3	20.0	1.4	21.1	1.4	22.2
2.3	1.1	15.1	1.2	16.4	1.2	17.7	1.3	18.9	1.3	20.1	1.4	21.3	1.4	22.4	1.4	23.5
2.4	1.2	16.2	1.2	17.5	1.3	18.8	1.3	20.1	1.4	21.4	1.4	22.6	1.5	23.8	1.5	24.9
2.5	1.2	17.2	1.3	18.6	1.3	20.0	1.4	21.3	1.4	22.6	1.5	23.9	1.5	25.2	1.5	26.4
2.6	1.2	18.3	1.3	19.8	1.4	21.2	1.4	22.6	1.5	23.9	1.5	25.3	1.6	26.6	1.6	27.9
2.7	1.3	19.5	1.4	21.0	1.4	22.5	1.5	23.9	1.5	25.3	1.6	26.7	1.6	28.1	1.7	29.4
2.8	1.3	20.7	1.4	22.2	1.5	23.8	1.5	25.2	1.6	26.7	1.6	28.1	1.7	29.5	1.7	30.9
2.9	1.4	21.9	1.4	23.5	1.5	25.1	1.6	26.6	1.6	28.1	1.7	29.6	1.7	31.1	1.8	32.5
3.0	1.4	23.1	1.5	24.8	1.5	26.4	1.6	28.0	1.7	29.6	1.7	31.1	1.8	32.6	1.8	34.1

Fill Depth is in feet, measured from no-cut, no-fill point on diversion ridge.
Fill Area is in square feet per foot

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-13 (continued) Channel centerline depth of fill and area of earthfill for diversion (diversions with cut-fill ratio of 1.35:1, **6:1** channel and ridge slopes and 4-foot top width)

3% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)															
	6		8		10		12		14		16		18		20	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.7	9.2	0.8	10.2	0.8	11.2	0.9	12.2	0.9	13.2	1.0	14.1	1.0	15.1	1.1	16.0
1.6	0.8	10.0	0.8	11.1	0.9	12.2	0.9	13.2	1.0	14.3	1.0	15.3	1.1	16.3	1.1	17.3
1.7	0.8	10.9	0.9	12.1	0.9	13.2	1.0	14.3	1.0	15.5	1.1	16.5	1.1	17.6	1.2	18.7
1.8	0.9	11.9	0.9	13.1	1.0	14.3	1.0	15.5	1.1	16.6	1.1	17.8	1.2	18.9	1.2	20.0
1.9	0.9	12.9	1.0	14.2	1.0	15.4	1.1	16.7	1.1	17.9	1.2	19.1	1.2	20.3	1.3	21.4
2.0	1.0	13.9	1.0	15.2	1.1	16.6	1.1	17.9	1.2	19.1	1.2	20.4	1.3	21.6	1.3	22.9
2.1	1.0	15.0	1.1	16.4	1.1	17.7	1.2	19.1	1.2	20.4	1.3	21.8	1.3	23.1	1.4	24.4
2.2	1.1	16.1	1.1	17.5	1.2	19.0	1.2	20.4	1.3	21.8	1.3	23.2	1.4	24.5	1.4	25.9
2.3	1.1	17.2	1.2	18.7	1.2	20.2	1.3	21.7	1.3	23.2	1.4	24.6	1.4	26.0	1.5	27.4
2.4	1.2	18.4	1.2	20.0	1.3	21.5	1.3	23.1	1.4	24.6	1.4	26.1	1.5	27.6	1.5	29.1
2.5	1.2	19.6	1.3	21.3	1.3	22.9	1.4	24.5	1.4	26.1	1.5	27.6	1.5	29.2	1.6	30.7
2.6	1.2	20.9	1.3	22.6	1.4	24.2	1.4	25.9	1.5	27.5	1.5	29.2	1.6	30.8	1.6	32.3
2.7	1.3	22.1	1.4	23.9	1.4	25.7	1.5	27.4	1.5	29.1	1.6	30.7	1.6	32.4	1.7	34.1
2.8	1.3	23.5	1.4	25.3	1.5	27.1	1.5	28.9	1.6	30.6	1.6	32.4	1.7	34.1	1.7	35.8
2.9	1.4	24.8	1.4	26.7	1.5	28.6	1.6	30.4	1.6	32.2	1.7	34.1	1.7	35.8	1.8	37.6
3.0	1.4	26.2	1.5	28.2	1.6	30.1	1.6	32.0	1.7	33.9	1.7	35.7	1.8	37.6	1.8	39.4

4% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)															
	6		8		10		12		14		16		18		20	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.7	10.5	0.8	11.7	0.8	12.9	0.9	14.2	0.9	15.4	1.0	16.6	1.0	17.8	1.1	19.0
1.6	0.8	11.5	0.8	12.8	0.9	14.1	0.9	15.4	1.0	16.7	1.0	17.9	1.1	19.2	1.1	20.5
1.7	0.8	12.5	0.9	13.9	0.9	15.3	1.0	16.6	1.0	18.0	1.1	19.3	1.1	20.7	1.2	22.0
1.8	0.9	13.6	0.9	15.1	1.0	16.5	1.0	17.9	1.1	19.3	1.1	20.7	1.2	22.1	1.2	23.6
1.9	0.9	14.7	1.0	16.2	1.0	17.7	1.1	19.2	1.1	20.7	1.2	22.2	1.2	23.7	1.3	25.2
2.0	1.0	15.9	1.0	17.5	1.1	19.1	1.1	20.6	1.2	22.2	1.2	23.7	1.3	25.3	1.3	26.8
2.1	1.0	17.1	1.1	18.7	1.1	20.4	1.2	22.0	1.2	23.6	1.3	25.3	1.3	26.9	1.4	28.5
2.2	1.1	18.4	1.1	20.1	1.2	21.8	1.2	23.5	1.3	25.2	1.3	26.8	1.4	28.5	1.4	30.2
2.3	1.1	19.6	1.2	21.4	1.2	23.2	1.3	25.0	1.3	26.7	1.4	28.5	1.4	30.2	1.5	32.0
2.4	1.2	21.0	1.2	22.8	1.3	24.7	1.3	26.5	1.4	28.3	1.4	30.2	1.5	32.0	1.5	33.8
2.5	1.2	22.3	1.3	24.3	1.3	26.2	1.4	28.1	1.4	30.0	1.5	31.9	1.5	33.8	1.6	35.7
2.6	1.2	23.8	1.3	25.8	1.4	27.7	1.4	29.7	1.5	31.7	1.5	33.7	1.6	35.6	1.6	37.6
2.7	1.3	25.2	1.4	27.3	1.4	29.4	1.5	31.4	1.5	33.4	1.6	35.4	1.6	37.5	1.7	39.5
2.8	1.3	26.7	1.4	28.8	1.5	31.0	1.5	33.1	1.6	35.2	1.6	37.3	1.7	39.4	1.7	41.5
2.9	1.4	28.3	1.5	30.5	1.5	32.7	1.6	34.8	1.6	37.0	1.7	39.2	1.7	41.3	1.8	43.5
3.0	1.4	29.8	1.5	32.1	1.6	34.4	1.6	36.6	1.7	38.9	1.7	41.1	1.8	43.3	1.8	45.6

Fill Depth is in feet, measured from no-cut, no-fill point on diversion ridge.
Fill Area is in square feet per foot

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-13 (continued) Channel centerline depth of fill and area of earthfill for diversion (diversions with cut-fill ratio of 1.35:1, **6:1** channel and ridge slopes and 4-foot top width)

5% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)															
	6		8		10		12		14		16		18		20	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.7	12.1	0.8	13.5	0.9	15.0	0.9	16.5	1.0	18.0	1.0	19.5	1.1	21.0	1.1	22.5
1.6	0.8	13.2	0.8	14.8	0.9	16.3	1.0	17.9	1.0	19.4	1.1	21.0	1.1	22.6	1.2	24.2
1.7	0.8	14.4	0.9	16.0	0.9	17.6	1.0	19.3	1.1	20.9	1.1	22.6	1.2	24.2	1.2	25.9
1.8	0.9	15.6	0.9	17.3	1.0	19.0	1.1	20.7	1.1	22.4	1.2	24.2	1.2	25.9	1.3	27.7
1.9	0.9	16.9	1.0	18.7	1.0	20.4	1.1	22.3	1.2	24.0	1.2	25.9	1.3	27.7	1.3	29.5
2.0	1.0	18.2	1.0	20.1	1.1	21.9	1.1	23.8	1.2	25.7	1.3	27.6	1.3	29.5	1.4	31.4
2.1	1.0	19.6	1.1	21.5	1.1	23.5	1.2	25.4	1.3	27.4	1.3	29.4	1.4	31.3	1.4	33.3
2.2	1.1	21.0	1.1	23.0	1.2	25.1	1.2	27.1	1.3	29.1	1.4	31.2	1.4	33.2	1.5	35.3
2.3	1.1	22.5	1.2	24.6	1.2	26.7	1.3	28.8	1.4	30.9	1.4	33.0	1.5	35.2	1.5	37.3
2.4	1.2	24.0	1.2	26.2	1.3	28.4	1.3	30.5	1.4	32.7	1.5	34.9	1.5	37.2	1.6	39.4
2.5	1.2	25.6	1.3	27.8	1.3	30.1	1.4	32.3	1.4	34.6	1.5	36.9	1.6	39.2	1.6	41.5
2.6	1.2	27.2	1.3	29.5	1.4	31.9	1.4	34.2	1.5	36.5	1.6	38.9	1.6	41.3	1.7	43.7
2.7	1.3	28.8	1.4	31.2	1.4	33.7	1.5	36.1	1.5	38.5	1.6	40.9	1.7	43.4	1.7	45.9
2.8	1.3	30.5	1.4	33.0	1.5	35.5	1.5	38.0	1.6	40.6	1.6	43.1	1.7	45.6	1.8	48.1
2.9	1.4	32.3	1.5	34.9	1.5	37.4	1.6	40.0	1.6	42.6	1.7	45.2	1.8	47.8	1.8	50.4
3.0	1.4	34.1	1.5	36.7	1.6	39.4	1.6	42.1	1.7	44.7	1.7	47.4	1.8	50.1	1.9	52.8

Fill Depth is in feet, measured from no-cut, no-fill point on diversion ridge
Fill Area is in square feet per foot

Table KS9-14 Channel centerline depth of fill and area of earthfill for diversion (diversions with cut-fill ratio of 1.35:1, **8:1** channel and ridge slopes and 4-foot top width)

1% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)															
	6		8		10		12		14		16		18		20	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.7	8.4	0.8	9.1	0.8	9.9	0.8	10.6	0.9	11.2	0.9	11.9	0.9	12.5	1.0	13.1
1.6	0.8	9.3	0.8	10.1	0.8	10.8	0.9	11.6	0.9	12.3	0.9	13.0	1.0	13.7	1.0	14.3
1.7	0.8	10.2	0.9	11.0	0.9	11.9	0.9	12.6	1.0	13.4	1.0	14.2	1.0	14.9	1.1	15.6
1.8	0.9	11.1	0.9	12.0	0.9	12.9	1.0	13.8	1.0	14.6	1.1	15.4	1.1	16.1	1.1	16.9
1.9	0.9	12.1	1.0	13.1	1.0	14.0	1.0	14.9	1.1	15.8	1.1	16.6	1.1	17.4	1.2	18.2
2.0	1.0	13.2	1.0	14.2	1.0	15.1	1.1	16.1	1.1	17.0	1.1	17.9	1.2	18.8	1.2	19.6
2.1	1.0	14.2	1.0	15.3	1.1	16.3	1.1	17.3	1.2	18.3	1.2	19.2	1.2	20.1	1.3	21.0
2.2	1.0	15.3	1.1	16.4	1.1	17.5	1.2	18.6	1.2	19.6	1.2	20.6	1.3	21.5	1.3	22.5
2.3	1.1	16.5	1.1	17.6	1.2	18.8	1.2	19.9	1.3	20.9	1.3	22.0	1.3	23.0	1.4	24.0
2.4	1.1	17.7	1.2	18.9	1.2	20.1	1.3	21.2	1.3	22.3	1.3	23.4	1.4	24.5	1.4	25.5
2.5	1.2	18.9	1.2	20.2	1.3	21.4	1.3	22.6	1.4	23.8	1.4	24.9	1.4	26.0	1.5	27.1
2.6	1.2	20.2	1.3	21.5	1.3	22.8	1.4	24.0	1.4	25.2	1.4	26.4	1.5	27.6	1.5	28.7
2.7	1.3	21.5	1.3	22.9	1.4	24.2	1.4	25.5	1.5	26.7	1.5	28.0	1.5	29.2	1.6	30.4
2.8	1.3	22.9	1.4	24.3	1.4	25.7	1.5	27.0	1.5	28.3	1.5	29.6	1.6	30.8	1.6	32.1
2.9	1.4	24.3	1.4	25.7	1.5	27.2	1.5	28.5	1.5	29.9	1.6	31.2	1.6	32.5	1.7	33.8
3.0	1.4	25.7	1.5	27.2	1.5	28.7	1.6	30.1	1.6	31.5	1.6	32.9	1.7	34.3	1.7	35.6

2% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)															
	6		8		10		12		14		16		18		20	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.7	10.0	0.8	10.9	0.8	11.9	0.8	12.8	0.9	13.7	0.9	14.5	1.0	15.4	1.0	16.3
1.6	0.8	11.0	0.8	12.0	0.9	13.0	0.9	14.0	0.9	14.9	1.0	15.9	1.0	16.8	1.0	17.7
1.7	0.8	12.1	0.9	13.2	0.9	14.2	0.9	15.2	1.0	16.2	1.0	17.2	1.1	18.2	1.1	19.2
1.8	0.9	13.2	0.9	14.3	1.0	15.4	1.0	16.5	1.0	17.6	1.1	18.6	1.1	19.7	1.1	20.7
1.9	0.9	14.4	1.0	15.6	1.0	16.7	1.0	17.9	1.1	19.0	1.1	20.1	1.2	21.2	1.2	22.3
2.0	1.0	15.6	1.0	16.8	1.0	18.1	1.1	19.2	1.1	20.4	1.2	21.6	1.2	22.8	1.2	23.9
2.1	1.0	16.9	1.1	18.2	1.1	19.5	1.1	20.7	1.2	21.9	1.2	23.2	1.3	24.4	1.3	25.6
2.2	1.1	18.2	1.1	19.5	1.1	20.9	1.2	22.2	1.2	23.5	1.3	24.8	1.3	26.0	1.3	27.3
2.3	1.1	19.5	1.1	20.9	1.2	22.3	1.2	23.7	1.3	25.1	1.3	26.4	1.3	27.7	1.4	29.0
2.4	1.1	20.9	1.2	22.4	1.2	23.9	1.3	25.3	1.3	26.7	1.4	28.1	1.4	29.5	1.4	30.9
2.5	1.2	22.4	1.2	23.9	1.3	25.4	1.3	26.9	1.4	28.4	1.4	29.9	1.4	31.3	1.5	32.7
2.6	1.2	23.9	1.3	25.5	1.3	27.0	1.4	28.6	1.4	30.1	1.5	31.7	1.5	33.1	1.5	34.6
2.7	1.3	25.4	1.3	27.1	1.4	28.7	1.4	30.3	1.5	31.9	1.5	33.5	1.5	35.1	1.6	36.6
2.8	1.3	27.0	1.4	28.7	1.4	30.4	1.5	32.1	1.5	33.8	1.6	35.4	1.6	37.0	1.6	38.6
2.9	1.4	28.7	1.4	30.5	1.5	32.2	1.5	33.9	1.6	35.6	1.6	37.3	1.6	39.0	1.7	40.7
3.0	1.4	30.3	1.5	32.2	1.5	34.0	1.6	35.8	1.6	37.6	1.6	39.3	1.7	41.0	1.7	42.7

Fill Depth is in feet, measured from no-cut, no-fill point on diversion ridge
Fill Area is in square feet per foot

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-14 (continued) Channel centerline depth of fill and area of earthfill for diversion (diversions with cut-fill ratio of 1.35:1, **8:1** channel and ridge slopes and 4-foot top width)

3% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)															
	6		8		10		12		14		16		18		20	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.7	11.9	0.8	13.1	0.8	14.3	0.9	15.4	0.9	16.6	0.9	17.8	1.0	18.9	1.0	20.1
1.6	0.8	13.1	0.8	14.4	0.9	15.6	0.9	16.9	0.9	18.1	1.0	19.3	1.0	20.6	1.1	21.8
1.7	0.8	14.4	0.9	15.7	0.9	17.0	1.0	18.4	1.0	19.6	1.0	21.0	1.1	22.2	1.1	23.5
1.8	0.9	15.7	0.9	17.1	1.0	18.5	1.0	19.9	1.0	21.3	1.1	22.6	1.1	24.0	1.2	25.3
1.9	0.9	17.1	1.0	18.6	1.0	20.0	1.0	21.5	1.1	22.9	1.1	24.4	1.2	25.8	1.2	27.2
2.0	1.0	18.5	1.0	20.1	1.1	21.6	1.1	23.1	1.1	24.6	1.2	26.1	1.2	27.6	1.3	29.1
2.1	1.0	20.1	1.1	21.6	1.1	23.2	1.1	24.8	1.2	26.4	1.2	28.0	1.3	29.5	1.3	31.1
2.2	1.1	21.6	1.1	23.3	1.1	24.9	1.2	26.6	1.2	28.2	1.3	29.9	1.3	31.5	1.4	33.1
2.3	1.1	23.2	1.1	24.9	1.2	26.7	1.2	28.4	1.3	30.1	1.3	31.8	1.4	33.5	1.4	35.2
2.4	1.1	24.9	1.2	26.7	1.2	28.5	1.3	30.3	1.3	32.0	1.4	33.8	1.4	35.6	1.5	37.4
2.5	1.2	26.6	1.2	28.4	1.3	30.3	1.3	32.2	1.4	34.1	1.4	35.9	1.5	37.7	1.5	39.6
2.6	1.2	28.4	1.3	30.3	1.3	32.2	1.4	34.2	1.4	36.1	1.5	38.0	1.5	39.9	1.6	41.8
2.7	1.3	30.2	1.3	32.2	1.4	34.2	1.4	36.2	1.5	38.2	1.5	40.2	1.6	42.2	1.6	44.1
2.8	1.3	32.0	1.4	34.1	1.4	36.2	1.5	38.3	1.5	40.3	1.6	42.4	1.6	44.5	1.6	46.5
2.9	1.4	34.0	1.4	36.2	1.5	38.3	1.5	40.4	1.6	42.6	1.6	44.7	1.7	46.8	1.7	48.9
3.0	1.4	36.0	1.5	38.2	1.5	40.4	1.6	42.6	1.6	44.9	1.7	47.0	1.7	49.2	1.7	51.4

4% Land Slope

Total Height of Diversion Above Channel (ft)	Channel Bottom Width (ft)															
	6		8		10		12		14		16		18		20	
	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area	Fill Depth	Fill Area
1.5	0.7	14.3	0.8	15.8	0.8	17.2	0.9	18.7	0.9	20.3	0.9	21.8	1.0	23.3	1.0	24.8
1.6	0.8	15.8	0.8	17.3	0.9	18.9	0.9	20.4	1.0	22.0	1.0	23.6	1.0	25.2	1.1	26.8
1.7	0.8	17.3	0.9	18.9	0.9	20.5	1.0	22.2	1.0	23.9	1.0	25.5	1.1	27.2	1.1	28.9
1.8	0.9	18.8	0.9	20.6	1.0	22.3	1.0	24.0	1.1	25.8	1.1	27.6	1.1	29.3	1.2	31.1
1.9	0.9	20.5	1.0	22.3	1.0	24.1	1.1	25.9	1.1	27.8	1.1	29.6	1.2	31.4	1.2	33.3
2.0	1.0	22.2	1.0	24.1	1.1	26.0	1.1	27.9	1.1	29.8	1.2	31.7	1.2	33.7	1.3	35.6
2.1	1.0	24.0	1.1	25.9	1.1	27.9	1.1	29.9	1.2	31.9	1.2	33.9	1.3	35.9	1.3	37.9
2.2	1.1	25.8	1.1	27.9	1.2	29.9	1.2	32.0	1.2	34.1	1.3	36.1	1.3	38.3	1.4	40.4
2.3	1.1	27.7	1.1	29.9	1.2	32.0	1.2	34.2	1.3	36.3	1.3	38.5	1.4	40.7	1.4	42.9
2.4	1.1	29.7	1.2	31.9	1.2	34.2	1.3	36.4	1.3	38.6	1.4	40.9	1.4	43.1	1.5	45.4
2.5	1.2	31.7	1.2	34.1	1.3	36.4	1.3	38.7	1.4	41.0	1.4	43.3	1.5	45.7	1.5	48.0
2.6	1.2	33.8	1.3	36.2	1.3	38.6	1.4	41.0	1.4	43.4	1.5	45.9	1.5	48.3	1.6	50.7
2.7	1.3	36.0	1.3	38.5	1.4	41.0	1.4	43.4	1.5	45.9	1.5	48.4	1.6	50.9	1.6	53.5
2.8	1.3	38.3	1.4	40.8	1.4	43.4	1.5	45.9	1.5	48.5	1.6	51.1	1.6	53.7	1.7	56.3
2.9	1.4	40.6	1.4	43.2	1.5	45.9	1.5	48.5	1.6	51.2	1.6	53.8	1.7	56.5	1.7	59.2
3.0	1.4	43.0	1.5	45.7	1.5	48.4	1.6	51.1	1.6	53.9	1.7	56.6	1.7	59.3	1.8	62.1

Fill Depth is in feet, measured from no-cut, no-fill point on diversion ridge
Fill Area is in square feet per foot

(210-VI-EFH, Amend. KS13, Sept. 2006)

KS650.982 Level diversion design example

The level diversion design tables may be used to design a level diversion for a given drainage area and runoff amount. The tables are for 6:1 and 8:1 full slopes, with a 10:1 cut slope, 4-foot top width, and a 1.35:1 cut/fill ratio. Approved computer or calculator programs may be used to design diversions with other design parameters.

The constructed height is the vertical distance from the channel bottom to the top of the ridge. It is equal to the design water storage depth plus 0.5 foot of freeboard multiplied by 1.1 to allow for settlement. The cut depth is the vertical distance from the flag line to the channel bottom. The block height is the vertical distance from the flag line to the water line.

Given**:** Land slope at diversion equals 0.5%, drainage area (DA) above diversion equals 105 acres, diversion storage length (L_d) equals 2600 feet, and runoff (R) and sediment storage (SED) equals 2.0 inches (from the Kansas portion of Chapter 2 in the National Engineering Handbook Part 650, *Engineering Field Handbook*).

Solution**:**

Required Storage Area (A_s) =

$$\frac{DA \times (R + SED) \times 43{,}560}{L_d \times 12} =$$

$$\frac{105 \times 2.0 \times 43{,}560}{2600 \times 12} =$$

293 cubic feet/foot

Try a 100-foot channel width, 6:1 fill slope, 10:1 cut slope, and a 4-foot top width.

From Table KS9-15, construction height equals 2.6 feet, area of fill equals 43.70 cubic feet per foot, and block height equals 1.57 feet.

Volume of Fill in Storage Section of the Diversion =

$$\frac{2600 \times 43.7 \times 43{,}560}{27} = 4208 \text{ cu yd}$$

Table KS9-15 Level diversion design (diversions with a land slope of **0.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	0.50	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
10	1.50	16	8.19	11.06	0.21	0.65	0.86
10	1.60	19	9.00	12.14	0.25	0.70	0.95
10	1.70	22	9.88	13.27	0.30	0.75	1.05
10	1.80	26	10.69	14.44	0.34	0.80	1.14
10	1.90	31	11.59	15.65	0.38	0.85	1.23
10	2.00	35	12.52	16.90	0.42	0.89	1.32
10	2.10	41	13.43	18.20	0.47	0.94	1.41
10	2.20	46	14.48	19.54	0.51	0.99	1.50
10	2.30	52	15.50	20.93	0.55	1.04	1.59
10	2.40	59	16.56	22.36	0.59	1.09	1.68
10	2.50	65	17.65	23.83	0.63	1.14	1.77
10	2.60	73	18.77	25.34	0.68	1.19	1.86
10	2.70	80	19.93	26.90	0.72	1.24	1.95
10	2.80	88	21.11	28.50	0.76	1.28	2.05
10	2.90	97	22.33	30.14	0.80	1.33	2.14
10	3.00	105	23.58	31.83	0.84	1.38	2.23
10	3.10	115	24.96	33.50	0.89	1.43	2.32
10	3.20	124	26.18	35.34	0.93	1.48	2.41
10	3.30	134	27.52	37.15	0.97	1.53	2.50
10	3.40	144	28.90	39.01	1.01	1.58	2.59
10	3.50	155	30.31	40.92	1.05	1.63	2.68
10	3.60	166	31.75	42.86	1.10	1.68	2.77
10	3.70	178	33.22	44.85	1.14	1.73	2.86
10	3.80	190	34.73	46.89	1.18	1.78	2.95
10	3.90	202	36.27	48.96	1.22	1.83	3.05
10	4.00	215	37.84	51.08	1.26	1.87	3.14
10	4.10	228	39.44	53.25	1.30	1.92	3.23
10	4.20	242	41.07	55.45	1.34	1.97	3.32
10	4.30	256	42.74	57.70	1.39	2.02	3.41
10	4.40	270	44.44	59.99	1.43	2.07	3.50
10	4.50	285	46.17	62.33	1.47	2.12	3.59
20	1.50	27	10.54	14.28	0.36	0.51	0.86
20	1.60	32	11.53	15.61	0.40	0.55	0.95
20	1.70	39	12.54	16.99	0.45	0.59	1.05
20	1.80	44	13.59	18.41	0.50	0.64	1.14
20	1.90	51	14.68	19.87	0.55	0.68	1.23
20	2.00	57	15.79	21.33	0.59	0.73	1.32
20	2.10	65	16.94	22.93	0.64	0.77	1.41
20	2.20	73	18.13	24.53	0.68	0.82	1.50
20	2.30	81	19.34	26.17	0.73	0.86	1.59
20	2.40	90	20.59	27.86	0.77	0.91	1.68
20	2.50	99	21.87	29.59	0.82	0.95	1.77
20	2.60	108	23.18	31.36	0.86	1.00	1.86

Table KS9-15 (continued) Level diversion design (diversions with a land slope of **0.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	0.50	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
20	2.70	118	24.53	33.18	0.91	1.04	1.95
20	2.80	129	25.91	35.05	0.95	1.09	2.05
20	2.90	140	27.32	36.95	1.00	1.14	2.14
20	3.00	151	28.76	38.90	1.04	1.18	2.23
20	3.10	163	30.24	40.90	1.09	1.23	2.32
20	3.20	175	31.75	42.93	1.13	1.28	2.41
20	3.30	187	33.29	45.02	1.17	1.32	2.50
20	3.40	200	34.86	47.14	1.22	1.37	2.59
20	3.50	213	36.47	49.31	1.26	1.42	2.68
20	3.60	227	38.10	51.52	1.31	1.47	2.77
20	3.70	241	39.77	53.78	1.35	1.51	2.86
20	3.80	256	41.48	56.08	1.39	1.56	2.95
20	3.90	271	43.21	58.42	1.44	1.61	3.05
20	4.00	286	44.98	60.80	1.48	1.66	3.14
20	4.10	302	46.77	63.23	1.52	1.70	3.23
20	4.20	318	48.60	65.71	1.57	1.75	3.32
20	4.30	335	50.47	68.22	1.61	1.80	3.41
20	4.40	352	52.36	70.78	1.65	1.85	3.50
20	4.50	369	54.29	73.39	1.69	1.90	3.59
30	1.50	39	12.42	16.77	0.46	0.40	0.86
30	1.60	46	13.56	18.32	0.52	0.44	0.95
30	1.70	53	14.74	19.91	0.57	0.48	1.05
30	1.80	61	15.96	21.55	0.62	0.52	1.14
30	1.90	69	17.21	23.24	0.67	0.56	1.23
30	2.00	78	18.49	24.97	0.72	0.60	1.32
30	2.10	88	19.81	26.75	0.77	0.64	1.41
30	2.20	98	21.17	28.59	0.82	0.68	1.50
30	2.30	108	22.56	30.46	0.87	0.72	1.59
30	2.40	119	23.99	32.39	0.92	0.77	1.68
30	2.50	130	25.44	34.35	0.96	0.81	1.77
30	2.60	142	26.94	36.37	1.01	0.85	1.86
30	2.70	154	28.46	38.43	1.06	0.90	1.95
30	2.80	167	30.02	40.54	1.11	0.94	2.05
30	2.90	180	31.62	42.69	1.15	0.98	2.14
30	3.00	193	33.24	44.88	1.20	1.03	2.23
30	3.10	207	34.91	47.13	1.25	1.07	2.32
30	3.20	222	36.60	49.41	1.29	1.11	2.41
30	3.30	237	38.33	51.74	1.34	1.16	2.50
30	3.40	252	40.08	54.12	1.39	1.20	2.59
30	3.50	268	41.88	56.54	1.43	1.25	2.68
30	3.60	284	43.70	59.00	1.48	1.29	2.77
30	3.70	301	45.56	61.51	1.52	1.34	2.86
30	3.80	318	47.45	64.06	1.57	1.39	2.95
30	3.90	335	49.38	66.66	1.61	1.43	3.05

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-15 (continued) Level diversion design (diversions with a land slope of **0.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	0.50	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
30	4.00	353	51.33	69.30	1.66	1.48	3.14
30	4.10	371	53.32	71.99	1.70	1.52	3.23
30	4.20	390	55.34	74.72	1.75	1.57	3.32
30	4.30	409	57.40	77.49	1.79	1.61	3.41
30	4.40	429	59.48	80.31	1.84	1.66	3.50
30	4.50	449	61.60	83.17	1.88	1.71	3.59
40	1.50	50	14.01	18.87	0.55	0.32	0.86
40	1.60	58	15.28	20.61	0.60	0.35	0.95
40	1.70	67	16.60	22.40	0.66	0.39	1.05
40	1.80	76	17.95	24.25	0.71	0.42	1.14
40	1.90	86	19.35	24.14	0.76	0.46	1.23
40	2.00	97	20.78	28.09	0.82	0.50	1.32
40	2.10	108	22.25	30.08	0.87	0.54	1.41
40	2.20	120	23.76	32.13	0.92	0.58	1.50
40	2.30	132	25.30	34.22	0.97	0.61	1.59
40	2.40	145	26.88	36.36	1.03	0.65	1.68
40	2.50	158	28.50	38.55	1.08	0.69	1.77
40	2.60	172	30.15	40.79	1.13	0.73	1.86
40	2.70	186	31.84	43.07	1.18	0.77	1.95
40	2.80	201	33.57	45.41	1.23	0.82	2.05
40	2.90	216	35.33	47.78	1.28	0.86	2.14
40	3.00	232	37.12	50.21	1.33	0.90	2.23
40	3.10	248	38.95	52.69	1.38	0.94	2.32
40	3.20	265	40.82	55.21	1.43	0.98	2.41
40	3.30	282	42.72	57.77	1.48	1.02	2.50
40	3.40	300	44.65	60.38	1.52	1.07	2.59
40	3.50	318	46.62	63.04	1.57	1.11	2.68
40	3.60	336	48.62	65.75	1.62	1.15	2.77
40	3.70	355	50.65	68.50	1.67	1.20	2.86
40	3.80	374	52.72	71.29	1.72	1.24	2.95
40	3.90	394	54.82	74.13	1.76	1.28	3.05
40	4.00	414	56.96	77.02	1.81	1.33	3.14
40	4.10	435	59.13	79.95	1.86	1.37	3.23
40	4.20	456	61.33	82.92	1.90	1.41	3.32
40	4.30	478	63.57	85.94	1.95	1.46	3.41
40	4.40	500	65.84	89.01	2.00	1.50	3.50
40	4.50	522	68.14	92.12	2.04	1.55	3.59

Table KS9-15 (continued) Level diversion design (diversions with a land slope of **0.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	0.50	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
50	1.50	59	15.31	20.67	0.61	0.25	0.86
50	1.60	69	16.71	22.55	0.67	0.28	0.95
50	1.70	79	18.15	24.50	0.73	0.31	1.05
50	1.80	90	19.64	26.51	0.79	0.35	1.14
50	1.90	102	21.16	28.57	0.85	0.38	1.23
50	2.00	114	22.73	30.69	0.90	0.42	1.32
50	2.10	127	24.34	32.86	0.96	0.45	1.41
50	2.20	141	25.99	35.09	1.01	0.49	1.50
50	2.30	155	27.68	37.37	1.07	0.52	1.59
50	2.40	169	29.41	39.70	1.12	0.56	1.68
50	2.50	184	31.17	42.08	1.17	0.60	1.77
50	2.60	200	32.98	44.52	1.23	0.64	1.86
50	2.70	216	34.82	47.01	1.28	0.67	1.95
50	2.80	233	36.70	49.54	1.33	0.71	2.05
50	2.90	250	38.62	52.13	1.39	0.75	2.14
50	3.00	268	40.57	54.77	1.44	0.79	2.23
50	3.10	286	42.56	57.45	1.49	0.83	2.32
50	3.20	305	44.58	60.19	1.54	0.87	2.41
50	3.30	324	46.65	62.97	1.59	0.91	2.50
50	3.40	344	48.74	65.80	1.64	0.95	2.59
50	3.50	364	50.88	68.68	1.69	0.99	2.68
50	3.60	384	53.04	71.61	1.74	1.03	2.77
50	3.70	406	55.25	74.58	1.79	1.07	2.86
50	3.80	427	57.48	77.60	1.84	1.11	2.95
50	3.90	449	59.76	80.67	1.89	1.15	3.05
50	4.00	472	62.06	83.78	1.94	1.20	3.14
75	1.50	82	18.09	24.54	0.75	0.12	0.86
75	1.60	94	19.73	26.74	0.81	0.14	0.95
75	1.70	108	21.42	29.01	0.87	0.17	1.05
75	1.80	122	23.17	31.35	0.94	0.20	1.14
75	1.90	137	24.97	33.77	1.00	0.23	1.23
75	2.00	152	26.81	36.25	1.06	0.26	1.32
75	2.10	169	28.70	38.79	1.12	0.29	1.41
75	2.20	186	30.64	41.40	1.18	0.32	1.50
75	2.30	203	32.63	44.08	1.24	0.35	1.59
75	2.40	222	34.66	46.82	1.30	0.38	1.68
75	2.50	241	36.74	49.62	1.36	0.41	1.77
75	2.60	261	38.86	52.48	1.42	0.44	1.86
75	2.70	281	41.03	55.40	1.48	0.48	1.95
75	2.80	302	43.23	58.37	1.54	0.51	2.05
75	2.90	323	45.49	61.41	1.59	0.54	2.14
75	3.00	345	47.78	64.50	1.65	0.58	2.23
75	3.10	368	50.11	67.65	1.71	0.61	2.32

Table KS9-15 (continued) Level diversion design (diversions with a land slope of **0.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	0.50	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
75	3.20	391	52.48	70.86	1.76	0.64	2.41
75	3.30	415	54.90	74.11	1.82	0.68	2.50
75	3.40	440	57.35	77.43	1.88	0.72	2.59
75	3.50	465	59.85	80.80	1.93	0.75	2.68
75	3.60	490	62.38	84.22	1.99	0.79	2.77
75	3.70	516	64.96	87.69	2.04	0.82	2.86
75	3.80	543	67.57	91.22	2.09	0.86	2.95
75	3.90	570	70.22	94.79	2.15	0.90	3.05
75	4.00	598	72.91	98.42	2.20	0.94	3.14
100	1.50	102	20.44	27.78	0.85	0.01	0.86
100	1.60	117	22.28	30.20	0.92	0.04	0.95
100	1.70	133	24.17	32.71	0.99	0.06	1.05
100	1.80	150	26.13	35.32	1.05	0.08	1.14
100	1.90	167	28.14	38.01	1.12	0.11	1.23
100	2.00	186	30.20	40.79	1.19	0.13	1.32
100	2.10	205	32.32	43.64	1.25	0.16	1.41
100	2.20	225	34.49	46.56	1.32	0.18	1.50
100	2.30	246	36.72	49.56	1.38	0.21	1.59
100	2.40	267	39.00	52.64	1.44	0.24	1.68
100	2.50	290	41.32	55.78	1.51	0.27	1.77
100	2.60	313	43.70	58.99	1.57	0.29	1.86
100	2.70	336	46.13	62.26	1.63	0.32	1.95
100	2.80	361	48.60	65.60	1.69	0.35	2.05
100	2.90	386	51.13	69.01	1.75	0.38	2.14
100	3.00	412	53.70	72.48	1.82	0.41	2.23
100	3.10	438	56.31	76.02	1.88	0.44	2.32
100	3.20	465	58.98	79.61	1.94	0.47	2.41
100	3.30	493	61.69	83.27	2.00	0.50	2.50
100	3.40	522	64.44	86.99	2.05	0.54	2.59
100	3.50	551	67.24	90.77	2.11	0.57	2.68
100	3.60	580	70.08	94.61	2.17	0.60	2.77
100	3.70	611	72.97	98.50	2.23	0.63	2.86
100	3.80	642	75.90	102.46	2.29	0.67	2.95
100	3.90	673	78.87	106.47	2.35	0.70	3.05
100	4.00	705	81.88	110.54	2.40	0.73	3.14

Table KS9-15 (continued) Level diversion design (diversions with a land slope of **0.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	0.50	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
125	1.90	196	30.96	41.79	1.22	0.01	1.23
125	2.00	216	33.21	44.82	1.29	0.03	1.32
125	2.10	238	35.52	47.93	1.36	0.05	1.41
125	2.20	261	37.88	51.12	1.43	0.07	1.50
125	2.30	284	40.31	54.39	1.49	0.10	1.59
125	2.40	308	42.79	57.74	1.56	0.12	1.68
125	2.50	334	45.32	61.17	1.63	0.15	1.77
125	2.60	359	47.92	64.67	1.69	0.17	1.86
125	2.70	386	50.56	68.25	1.76	0.20	1.95
125	2.80	414	53.26	71.90	1.82	0.22	2.05
125	2.90	442	56.02	75.62	1.89	0.25	2.14
125	3.00	471	58.82	79.41	1.95	0.28	2.23
125	3.10	501	61.68	83.27	2.01	0.31	2.32
125	3.20	531	64.59	87.20	2.08	0.33	2.41
125	3.30	562	67.55	91.19	2.14	0.36	2.50
125	3.40	594	70.56	95.26	2.20	0.39	2.59
125	3.50	627	73.62	99.39	2.26	0.42	2.68
125	3.60	660	76.73	103.58	2.32	0.45	2.77
125	3.70	694	79.88	107.84	2.39	0.48	2.86
125	3.80	729	83.08	112.16	2.45	0.51	2.95
125	3.90	764	86.33	116.55	2.51	0.54	3.05
125	4.00	800	89.63	121.00	2.57	0.57	3.14

Table KS9-16 Level diversion design (diversions with a land slope of **0.75%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	0.75	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
10	1.50	15	8.55	11.54	0.21	0.65	0.86
10	1.60	17	9.38	12.66	0.26	0.70	0.95
10	1.70	20	10.24	13.82	0.30	0.74	1.05
10	1.80	23	11.14	15.03	0.34	0.79	1.14
10	1.90	27	12.07	16.29	0.39	0.84	1.23
10	2.00	30	13.03	17.59	0.43	0.89	1.32
10	2.10	34	14.03	18.94	0.47	0.94	1.41
10	2.20	39	15.06	20.33	0.51	0.99	1.50
10	2.30	43	16.12	21.76	0.56	1.03	1.58
10	2.40	48	17.22	23.24	0.60	1.08	1.68
10	2.50	53	18.34	24.76	0.64	1.13	1.77
10	2.60	59	19.51	26.33	0.68	1.18	1.86
10	2.70	65	20.70	27.95	0.73	1.23	1.95
10	2.80	71	21.93	29.61	0.77	1.28	2.05
10	2.90	77	23.19	31.31	0.81	1.33	2.14
10	3.00	84	24.49	33.06	0.85	1.38	2.23
10	3.10	90	25.82	34.85	0.89	1.42	2.32
10	3.20	98	27.18	36.69	0.94	1.47	2.41
10	3.30	105	28.57	38.57	0.98	1.52	2.50
10	3.40	113	30.00	40.50	1.02	1.57	2.59
10	3.50	121	31.46	42.47	1.06	1.62	2.68
10	3.60	129	32.96	44.49	1.10	1.67	2.77
10	3.70	138	34.48	46.55	1.14	1.72	2.86
10	3.80	147	36.04	48.66	1.19	1.77	2.95
10	3.90	156	37.64	50.81	1.23	1.82	3.05
10	4.00	165	39.26	53.01	1.27	1.87	3.14
10	4.10	175	40.92	55.25	1.31	1.92	3.23
10	4.20	185	42.62	57.53	1.35	1.97	3.32
10	4.30	195	44.34	59.86	1.39	2.01	3.41
10	4.40	206	46.10	62.24	1.44	2.06	3.50
10	4.50	217	47.90	64.66	1.48	2.11	3.59
20	1.50	25	11.11	14.99	0.37	0.49	0.86
20	1.60	29	12.13	16.37	0.42	0.54	0.95
20	1.70	33	13.19	17.79	0.46	0.58	1.05
20	1.80	38	14.28	19.26	0.51	0.62	1.14
20	1.90	42	15.40	20.78	0.56	0.67	1.23
20	2.00	48	16.56	22.34	0.60	0.71	1.32
20	2.10	53	17.75	23.95	0.65	0.76	1.41
20	2.20	59	18.98	25.61	0.70	0.80	1.50
20	2.30	66	20.24	27.31	0.74	0.85	1.59
20	2.40	72	21.53	29.06	0.79	0.89	1.68
20	2.50	79	22.86	30.85	0.83	0.94	1.77
20	2.60	86	24.22	32.69	0.88	0.99	1.86

Table KS9-16 (continued) Level diversion design (diversions with a land slope of **0.75%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	0.75	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
20	2.70	94	25.62	34.58	0.92	1.03	1.95
20	2.80	102	27.05	36.51	0.97	1.08	2.05
20	2.90	110	28.51	38.48	1.01	1.13	2.14
20	3.00	118	30.01	40.50	1.06	1.17	2.23
20	3.10	127	31.54	42.57	1.10	1.22	2.32
20	3.20	136	33.10	44.68	1.14	1.27	2.41
20	3.30	145	34.70	46.84	1.19	1.31	2.50
20	3.40	155	36.33	49.04	1.23	1.36	2.59
20	3.50	165	38.00	51.28	1.28	1.41	2.68
20	3.60	175	39.69	53.57	1.32	1.45	2.77
20	3.70	185	41.43	55.91	1.36	1.50	2.86
20	3.80	196	43.19	58.29	1.41	1.55	2.95
20	3.90	207	44.99	60.72	1.45	1.60	3.05
20	4.00	218	46.82	63.19	1.49	1.64	3.14
20	4.10	230	48.68	65.71	1.54	1.69	3.23
20	4.20	242	50.58	68.27	1.58	1.74	3.32
20	4.30	254	52.51	70.88	1.62	1.79	3.41
20	4.40	267	54.48	73.53	1.66	1.84	3.50
20	4.50	279	56.47	76.22	1.71	1.88	3.59
30	1.50	34	13.20	17.83	0.48	0.38	0.86
30	1.60	39	14.39	19.43	0.54	0.42	0.95
30	1.70	45	15.62	21.09	0.59	0.46	1.05
30	1.80	51	16.88	22.79	0.64	0.50	1.14
30	1.90	58	18.18	24.55	0.69	0.54	1.23
30	2.00	64	19.51	26.35	0.74	0.58	1.32
30	2.10	71	20.89	28.20	0.79	0.62	1.41
30	2.20	79	22.29	30.10	0.84	0.66	1.50
30	2.30	87	23.74	32.05	0.89	0.71	1.59
30	2.40	95	25.22	34.05	0.93	0.75	1.68
30	2.50	103	26.73	36.09	0.98	0.79	1.77
30	2.60	112	28.28	38.18	1.03	0.83	1.86
30	2.70	121	29.86	40.32	1.08	0.88	1.95
30	2.80	131	31.48	42.50	1.12	0.92	2.05
30	2.90	140	33.13	44.74	1.17	0.96	2.14
30	3.00	151	34.82	47.01	1.22	1.01	2.23
30	3.10	161	36.54	49.34	1.27	1.05	2.32
30	3.20	172	38.30	51.71	1.31	1.10	2.41
30	3.30	183	40.09	54.13	1.36	1.14	2.50
30	3.40	194	41.92	56.59	1.40	1.19	2.59
30	3.50	206	43.77	59.10	1.45	1.23	2.68
30	3.60	218	45.67	61.65	1.50	1.28	2.77
30	3.70	230	47.59	64.26	1.54	1.32	2.86
30	3.80	242	49.55	66.90	1.59	1.37	2.95
30	3.90	255	51.55	69.59	1.63	1.41	3.05

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-16 (continued) Level diversion design (diversions with a land slope of **0.75%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	0.75	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
30	4.00	268	53.58	72.33	1.68	1.46	3.14
30	4.10	282	55.64	75.12	1.72	1.50	3.23
30	4.20	296	57.74	77.95	1.77	1.55	3.32
30	4.30	310	59.86	80.82	1.81	1.60	3.41
30	4.40	324	62.03	83.74	1.86	1.64	3.50
30	4.50	339	64.22	86.71	1.90	1.69	3.59
40	1.50	43	14.99	20.23	0.58	0.29	0.86
40	1.60	50	16.33	22.03	0.63	0.32	0.95
40	1.70	57	17.71	23.89	0.69	0.36	1.05
40	1.80	64	19.13	25.80	0.74	0.40	1.14
40	1.90	72	20.59	27.76	0.79	0.43	1.23
40	2.00	80	22.08	29.78	0.85	0.47	1.32
40	2.10	88	23.62	31.85	0.90	0.51	1.41
40	2.20	97	25.19	33.97	0.95	0.55	1.50
40	2.30	106	26.80	36.14	1.00	0.59	1.59
40	2.40	116	28.45	38.36	1.05	0.63	1.68
40	2.50	126	30.13	40.64	1.11	0.67	1.77
40	2.60	136	31.85	42.96	1.16	0.71	1.86
40	2.70	147	33.61	45.33	1.21	0.75	1.95
40	2.80	158	35.41	47.76	1.26	0.79	2.05
40	2.90	169	37.24	50.23	1.31	0.83	2.14
40	3.00	181	39.10	52.74	1.36	0.87	2.23
40	3.10	193	41.00	55.31	1.40	0.91	2.32
40	3.20	205	42.94	57.93	1.45	0.96	2.41
40	3.30	218	44.91	60.59	1.50	1.00	2.50
40	3.40	231	46.92	63.30	1.55	1.04	2.59
40	3.50	244	48.96	66.06	1.60	1.08	2.68
40	3.60	258	51.04	68.86	1.65	1.13	2.77
40	3.70	272	53.16	71.71	1.69	1.17	2.86
40	3.80	286	55.30	74.61	1.74	1.21	2.95
40	3.90	300	57.49	77.56	1.79	1.26	3.05
40	4.00	315	59.70	80.55	1.84	1.30	3.14
40	4.10	330	61.95	83.59	1.88	1.34	3.23
40	4.20	346	64.24	86.68	1.93	1.39	3.32

Table KS9-16 (continued) Level diversion design (diversions with a land slope of **0.75%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	0.75	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
50	1.50	52	16.62	22.43	0.65	0.21	0.86
50	1.60	60	18.09	24.41	0.71	0.24	0.95
50	1.70	68	19.59	26.45	0.77	0.28	1.05
50	1.80	76	21.15	28.55	0.83	0.31	1.14
50	1.90	85	22.74	30.70	0.88	0.35	1.23
50	2.00	94	24.38	32.91	0.94	0.38	1.32
50	2.10	104	26.06	35.18	0.99	0.42	1.41
50	2.20	114	27.78	37.50	1.05	0.45	1.50
50	2.30	125	29.54	39.88	1.10	0.49	1.59
50	2.40	135	31.34	42.31	1.16	0.53	1.68
50	2.50	147	33.18	44.79	1.21	0.56	1.77
50	2.60	158	35.06	47.33	1.26	0.60	1.86
50	2.70	171	36.97	49.91	1.32	0.64	1.95
50	2.80	183	38.93	52.55	1.37	0.68	2.05
50	2.90	196	40.92	55.24	1.42	0.72	2.14
50	3.00	209	42.95	57.99	1.47	0.76	2.23
50	3.10	222	45.02	60.78	1.52	0.80	2.32
50	3.20	236	47.13	63.62	1.57	0.84	2.41
50	3.30	250	49.27	66.51	1.62	0.88	2.50
50	3.40	265	51.45	69.45	1.67	0.92	2.59
50	3.50	280	53.66	72.45	1.73	0.96	2.68
50	3.60	295	55.92	75.49	1.78	1.00	2.77
50	3.70	311	58.20	78.57	1.82	1.04	2.86
50	3.80	326	60.53	81.71	1.87	1.08	2.95
50	3.90	343	62.89	84.90	1.92	1.12	3.05
50	4.00	359	65.28	88.13	1.97	1.16	3.14
75	1.50	73	20.14	27.34	0.81	0.05	0.86
75	1.60	83	21.88	29.65	0.87	0.08	0.95
75	1.70	93	23.68	32.04	0.94	0.11	1.05
75	1.80	104	25.52	34.51	1.00	0.14	1.14
75	1.90	116	27.41	37.05	1.06	0.17	1.23
75	2.00	128	29.35	39.66	1.12	0.19	1.32
75	2.10	140	31.34	42.34	1.18	0.23	1.41
75	2.20	153	33.38	45.08	1.24	0.26	1.50
75	2.30	166	35.47	47.89	1.30	0.29	1.59
75	2.40	180	37.60	50.76	1.36	0.32	1.68
75	2.50	194	39.77	53.70	1.42	0.35	1.77
75	2.60	209	41.99	56.69	1.48	0.38	1.86
75	2.70	224	44.26	59.75	1.54	0.42	1.95
75	2.80	240	46.57	62.86	1.59	0.45	2.05
75	2.90	256	48.92	66.04	1.65	0.49	2.14
75	3.00	272	51.31	69.27	1.71	0.52	2.23
75	3.10	289	53.75	72.55	1.76	0.55	2.32
75	3.20	307	56.23	75.90	1.82	0.59	2.41
75	3.30	324	58.75	79.30	1.87	0.63	2.50

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-16 (continued) Level diversion design (diversions with a land slope of **0.75%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	0.75	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
75	3.40	342	61.31	82.76	1.93	0.66	2.59
75	3.50	361	63.91	86.27	1.98	0.70	2.68
75	3.60	379	66.55	89.83	2.04	0.73	2.77
75	3.70	399	69.23	93.45	2.09	0.77	2.86
75	3.80	418	71.95	97.18	2.15	0.81	2.95
75	3.90	438	74.71	100.85	2.20	0.85	3.05
75	4.00	458	77.51	104.63	2.25	0.88	3.14
100	1.90	144	31.55	42.58	1.21	0.02	1.23
100	2.00	159	33.74	45.53	1.27	0.04	1.32
100	2.10	173	35.93	48.56	1.34	0.07	1.41
100	2.20	189	38.28	51.66	1.40	0.10	1.50
100	2.30	204	40.63	54.83	1.47	0.13	1.59
100	2.40	221	43.03	58.08	1.53	0.15	1.68
100	2.50	238	45.49	61.39	1.59	0.18	1.77
100	2.60	255	47.99	64.77	1.65	0.21	1.86
100	2.70	273	50.55	68.22	1.71	0.24	1.95
100	2.80	291	53.15	71.74	1.78	0.27	2.05
100	2.90	310	55.80	75.32	1.84	0.30	2.14
100	3.00	329	58.50	78.97	1.90	0.33	2.23
100	3.10	349	61.25	82.68	1.96	0.36	2.32
100	3.20	369	64.04	86.45	2.02	0.39	2.41
100	3.30	390	66.88	90.28	2.07	0.43	2.50
100	3.40	411	69.77	94.13	2.13	0.46	2.59
100	3.50	433	72.70	98.14	2.19	0.49	2.68
100	3.60	455	75.67	102.15	2.25	0.52	2.77
100	3.70	477	78.69	106.23	2.31	0.56	2.86
100	3.80	500	81.75	110.37	2.36	0.59	2.95
100	3.90	523	84.86	114.56	2.42	0.62	3.05
100	4.00	547	88.01	118.81	2.48	0.66	3.14
125	2.40	259	48.01	64.80	1.67	0.01	1.68
125	2.50	279	50.71	68.44	1.74	0.04	1.77
125	2.60	298	53.46	72.16	1.80	0.06	1.86
125	2.70	318	56.26	75.95	1.87	0.09	1.95
125	2.80	339	59.12	79.81	1.93	0.12	2.05
125	2.90	361	62.03	83.74	1.99	0.14	2.14
125	3.00	382	64.99	87.74	2.06	0.17	2.23
125	3.10	405	68.01	91.82	2.12	0.20	2.32
125	3.20	427	71.08	95.96	2.18	0.23	2.41
125	3.30	451	74.20	100.17	2.24	0.26	2.50
125	3.40	475	77.37	104.45	2.31	0.29	2.59
125	3.50	499	80.58	108.79	2.37	0.32	2.68
125	3.60	524	83.85	113.20	2.43	0.35	2.77
125	3.70	549	87.17	117.68	2.49	0.38	2.86
125	3.80	575	90.53	122.22	2.55	0.41	2.95

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-17 Level diversion design (diversions with a land slope of **1.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	1.00	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
10	1.50	15	8.91	12.03	0.22	0.64	0.86
10	1.60	17	9.77	13.20	0.26	0.69	0.95
10	1.70	19	10.67	14.40	0.31	0.74	1.05
10	1.80	22	11.60	15.66	0.35	0.79	1.14
10	1.90	25	12.56	16.96	0.39	0.84	1.23
10	2.00	28	13.56	18.31	0.43	0.88	1.32
10	2.10	32	14.59	19.70	0.48	0.93	1.41
10	2.20	35	15.66	21.14	0.52	0.98	1.50
10	2.30	39	16.76	22.63	0.56	1.03	1.59
10	2.40	44	17.90	24.16	0.60	1.08	1.68
10	2.50	48	19.07	25.74	0.65	1.13	1.77
10	2.60	53	20.27	27.37	0.69	1.17	1.86
10	2.70	57	21.51	29.04	0.73	1.22	1.95
10	2.80	63	22.79	30.76	0.77	1.27	2.05
10	2.90	68	24.10	32.53	0.82	1.32	2.14
10	3.00	73	25.44	34.34	0.86	1.37	2.23
10	3.10	79	26.81	36.20	0.90	1.42	2.32
10	3.20	85	28.23	38.11	0.94	1.47	2.41
10	3.30	91	29.67	40.06	0.98	1.52	2.50
10	3.40	98	31.15	42.05	1.03	1.56	2.59
10	3.50	105	32.67	44.10	1.07	1.61	2.68
10	3.60	111	34.21	46.19	1.11	1.66	2.77
10	3.70	119	35.80	48.33	1.15	1.71	2.86
10	3.80	126	37.42	50.51	1.19	1.76	2.95
10	3.90	134	39.07	52.74	1.24	1.81	3.05
10	4.00	141	40.75	55.02	1.28	1.86	3.14
10	4.10	150	42.47	57.34	1.32	1.91	3.23
10	4.20	158	44.23	59.71	1.36	1.96	3.32
10	4.30	166	46.02	62.12	1.40	2.01	3.41
10	4.40	175	47.84	64.59	1.44	2.06	3.50
10	4.50	184	49.70	67.09	1.49	2.10	3.59
20	1.50	23	11.69	15.77	0.38	0.48	0.86
20	1.60	27	12.75	17.20	0.43	0.53	0.95
20	1.70	31	13.84	18.68	0.48	0.57	1.05
20	1.80	35	14.97	20.20	0.52	0.61	1.14
20	1.90	39	16.14	21.78	0.57	0.66	1.23
20	2.00	44	17.34	23.40	0.62	0.70	1.32
20	2.10	48	18.58	25.07	0.66	0.75	1.41
20	2.20	53	19.85	26.79	0.71	0.79	1.50
20	2.30	59	21.16	28.55	0.75	0.84	1.59
20	2.40	64	22.50	30.36	0.80	0.88	1.68
20	2.50	70	23.88	32.22	0.84	0.93	1.77
20	2.60	76	25.29	34.13	0.89	0.97	1.86
20	2.70	82	26.74	36.08	0.93	1.02	1.95

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-17 (continued) Level diversion design (diversions with a land slope of **1.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	1.00	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
20	2.80	89	28.22	38.09	0.98	1.07	2.05
20	2.90	96	29.74	40.13	1.02	1.11	2.14
20	3.00	103	31.29	42.23	1.07	1.16	2.23
20	3.10	110	32.87	44.37	1.11	1.21	2.32
20	3.20	117	34.50	46.56	1.16	1.25	2.41
20	3.30	125	36.15	48.79	1.20	1.30	2.50
20	3.40	133	37.84	51.07	1.24	1.35	2.59
20	3.50	141	39.57	53.40	1.29	1.39	2.68
20	3.60	150	41.33	55.78	1.33	1.44	2.77
20	3.70	158	43.12	58.20	1.37	1.49	2.86
20	3.80	167	44.95	60.67	1.42	1.54	2.95
20	3.90	176	46.81	63.19	1.46	1.58	3.05
20	4.00	186	48.71	65.75	1.50	1.63	3.14
20	4.10	195	50.65	68.36	1.55	1.68	3.23
20	4.20	205	52.61	71.01	1.59	1.73	3.32
20	4.30	215	54.61	73.71	1.63	1.77	3.41
20	4.40	226	56.65	76.46	1.68	1.82	3.50
20	4.50	236	58.72	79.26	1.72	1.87	3.59
30	1.50	32	14.03	18.93	0.50	0.36	0.86
30	1.60	37	15.26	20.60	0.56	0.40	0.95
30	1.70	42	16.54	22.32	0.61	0.44	1.05
30	1.80	47	17.85	24.09	0.66	0.48	1.14
30	1.90	52	19.20	25.91	0.71	0.52	1.23
30	2.00	58	20.59	27.79	0.76	0.56	1.32
30	2.10	64	22.01	29.71	0.81	0.60	1.41
30	2.20	70	23.47	31.68	0.86	0.64	1.50
30	2.30	77	24.97	33.71	0.90	0.69	1.59
30	2.40	84	26.51	35.78	0.95	0.73	1.68
30	2.50	91	28.08	37.90	1.00	0.77	1.77
30	2.60	98	29.69	40.07	1.05	0.82	1.86
30	2.70	106	31.33	42.29	1.10	0.86	1.95
30	2.80	114	33.01	44.56	1.14	0.90	2.05
30	2.90	122	34.72	46.87	1.19	0.95	2.14
30	3.00	130	36.47	49.24	1.24	0.99	2.23
30	3.10	139	38.26	51.65	1.28	1.03	2.32
30	3.20	148	40.08	54.11	1.33	1.08	2.41
30	3.30	157	41.94	56.62	1.38	1.12	2.50
30	3.40	166	43.83	59.17	1.42	1.17	2.59
30	3.50	176	45.76	61.77	1.47	1.21	2.68
30	3.60	186	47.72	64.42	1.51	1.26	2.77
30	3.70	196	49.72	67.12	1.56	1.30	2.86
30	3.80	206	51.75	69.87	1.60	1.35	2.95
30	3.90	217	53.82	72.66	1.65	1.40	3.05
30	4.00	228	55.92	75.50	1.70	1.44	3.14

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-17 (continued) Level diversion design (diversions with a land slope of **1.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	1.00	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
30	4.10	239	58.06	78.38	1.74	1.49	3.23
30	4.20	250	60.24	81.32	1.79	1.53	3.32
30	4.30	262	62.44	84.30	1.83	1.58	3.41
30	4.40	274	64.69	87.33	1.87	1.63	3.50
30	4.50	286	66.96	90.40	1.92	1.67	3.59
40	1.50	41	16.09	21.70	0.61	0.26	0.86
40	1.60	47	17.48	23.57	0.66	0.30	0.95
40	1.70	53	18.92	25.51	0.71	0.33	1.05
40	1.80	59	20.40	27.50	0.77	0.37	1.14
40	1.90	65	21.91	29.55	0.82	0.41	1.23
40	2.00	72	23.47	31.65	0.87	0.44	1.32
40	2.10	79	25.07	33.80	0.93	0.48	1.41
40	2.20	87	26.70	36.01	0.98	0.52	1.50
40	2.30	94	28.38	38.27	1.03	0.56	1.59
40	2.40	103	30.09	40.58	1.08	0.60	1.68
40	2.50	111	31.84	42.94	1.13	0.64	1.77
40	2.60	119	33.63	45.36	1.18	0.68	1.86
40	2.70	128	35.46	47.82	1.23	0.72	1.95
40	2.80	137	37.32	50.34	1.28	0.76	2.05
40	2.90	147	39.22	52.90	1.33	0.81	2.14
40	3.00	157	41.16	55.52	1.38	0.85	2.23
40	3.10	166	43.14	58.18	1.43	0.89	2.32
40	3.20	177	45.15	60.90	1.48	0.93	2.41
40	3.30	187	47.19	63.66	1.53	0.97	2.50
40	3.40	198	49.28	66.48	1.57	1.02	2.59
40	3.50	209	51.40	69.34	1.62	1.06	2.68
40	3.60	220	53.56	72.25	1.67	1.10	2.77
40	3.70	232	55.75	75.21	1.72	1.15	2.86
40	3.80	243	57.98	78.22	1.77	1.19	2.95
40	3.90	255	60.24	81.28	1.81	1.23	3.05
40	4.00	268	62.54	84.38	1.86	1.28	3.14
40	4.10	280	64.88	87.53	1.91	1.32	3.23
40	4.20	293	67.25	90.73	1.95	1.37	3.32
50	1.50	50	18.00	24.31	0.69	0.17	0.86
50	1.60	56	19.54	26.38	0.75	0.21	0.95
50	1.70	63	21.12	28.51	0.81	0.24	1.05
50	1.80	70	22.74	30.70	0.86	0.27	1.14
50	1.90	78	24.40	32.95	0.92	0.31	1.23
50	2.00	86	26.11	35.25	0.97	0.34	1.32
50	2.10	94	27.86	37.62	1.03	0.38	1.41
50	2.20	102	29.66	40.04	1.08	0.42	1.50
50	2.30	111	31.49	42.51	1.14	0.45	1.59
50	2.40	120	33.37	45.05	1.19	0.49	1.68

Table KS9-17 (continued) Level diversion design (diversions with a land slope of **1.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	1.00	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
50	2.50	130	35.28	47.63	1.24	0.53	1.77
50	2.60	139	37.24	50.27	1.30	0.57	1.86
50	2.70	149	39.23	52.96	1.35	0.60	1.95
50	2.80	160	41.27	55.71	1.40	0.64	2.05
50	2.90	170	43.34	58.51	1.45	0.68	2.14
50	3.00	181	45.45	63.36	1.50	0.72	2.23
50	3.10	193	47.60	64.26	1.56	0.76	2.32
50	3.20	204	49.79	67.22	1.61	0.80	2.41
50	3.30	216	52.02	70.22	1.66	0.84	2.50
50	3.40	228	54.28	73.28	1.71	0.88	2.59
50	3.50	240	56.58	76.39	1.76	0.92	2.68
50	3.60	253	58.92	79.54	1.81	0.97	2.77
50	3.70	265	61.30	82.75	1.86	1.01	2.86
50	3.80	279	63.71	86.01	1.91	1.05	2.95
50	3.90	292	66.16	89.32	1.95	1.09	3.05
50	4.00	305	68.65	92.67	2.00	1.13	3.14
75	1.60	79	24.22	32.60	0.94	0.02	0.95
75	1.70	88	26.11	35.17	1.00	0.04	1.05
75	1.80	98	28.04	37.81	1.06	0.07	1.14
75	1.90	107	30.02	40.50	1.12	0.10	1.23
75	2.00	118	32.06	43.26	1.18	0.13	1.32
75	2.10	128	34.15	46.09	1.24	0.16	1.41
75	2.20	139	36.28	48.98	1.30	0.20	1.50
75	2.30	150	38.46	51.93	1.36	0.23	1.59
75	2.40	162	40.69	54.94	1.42	0.26	1.68
75	2.50	174	42.97	58.02	1.48	0.29	1.77
75	2.60	186	45.29	61.15	1.54	0.33	1.86
75	2.70	199	47.66	64.35	1.59	0.36	1.95
75	2.80	212	50.07	67.60	1.65	0.39	2.05
75	2.90	225	52.53	70.92	1.71	0.43	2.14
75	3.00	239	55.03	74.29	1.76	0.46	2.23
75	3.10	253	57.57	77.73	1.82	0.50	2.32
75	3.20	267	60.16	81.22	1.87	0.54	2.41
75	3.30	282	62.78	84.76	1.93	0.57	2.50
75	3.40	297	65.45	88.37	1.98	0.61	2.59
75	3.50	312	68.16	92.03	2.04	0.64	2.68
75	3.60	328	70.92	95.74	2.09	0.68	2.77
75	3.70	344	73.71	99.51	2.15	0.72	2.86
75	3.80	360	76.54	103.34	2.20	0.76	2.95
75	3.90	376	79.42	107.22	2.25	0.79	3.05
75	4.00	393	82.33	111.15	2.31	0.83	3.14

Table KS9-17 (continued) Level diversion design (diversions with a land slope of **1.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	1.00	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
100	2.20	174	42.30	57.13	1.49	0.01	1.50
100	2.30	188	44.78	60.47	1.55	0.04	1.59
100	2.40	202	47.31	63.89	1.61	0.07	1.68
100	2.50	216	49.90	67.37	1.67	0.10	1.77
100	2.60	230	52.54	70.93	1.73	0.13	1.86
100	2.70	245	55.22	74.55	1.80	0.16	1.95
100	2.80	261	57.96	78.25	1.86	0.19	2.05
100	2.90	277	60.74	82.00	1.92	0.22	2.14
100	3.00	293	63.58	85.83	1.98	0.25	2.23
100	3.10	309	66.46	89.72	2.03	0.28	2.32
100	3.20	326	69.38	93.67	2.09	0.32	2.41
100	3.30	343	72.36	97.69	2.15	0.35	2.50
100	3.40	361	75.38	101.76	2.21	0.38	2.59
100	3.50	379	78.45	105.91	2.27	0.41	2.68
100	3.60	397	81.56	110.11	2.33	0.45	2.77
100	3.70	415	84.72	114.37	2.38	0.48	2.86
100	3.80	434	87.92	118.69	2.44	0.51	2.95
100	3.90	453	91.17	123.08	2.50	0.55	3.05
100	4.00	473	94.46	127.52	2.55	0.58	3.14
125	2.80	308	65.35	88.22	2.04	0.01	2.05
125	2.90	326	68.43	92.37	2.10	0.04	2.14
125	3.00	344	71.55	96.59	2.16	0.07	2.23
125	3.10	363	74.73	100.89	2.22	0.10	2.32
125	3.20	382	77.96	105.25	2.28	0.12	2.41
125	3.30	401	81.25	109.68	2.35	0.15	2.50
125	3.40	421	84.58	114.18	2.41	0.18	2.59
125	3.50	442	87.96	118.75	2.47	0.21	2.68
125	3.60	462	91.40	123.38	2.53	0.24	2.77
125	3.70	483	94.88	128.08	2.59	0.28	2.86
125	3.80	504	98.41	132.85	2.65	0.31	2.95
125	3.90	526	101.99	137.68	2.71	0.34	3.05
125	4.00	548	105.61	142.57	2.77	0.37	3.14

Table KS9-18 Level diversion design (diversions with a land slope of **1.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	1.50	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
10	1.50	15	9.70	13.09	0.23	0.63	0.86
10	1.60	17	10.62	14.34	0.27	0.68	0.95
10	1.70	19	11.59	15.64	0.32	0.73	1.05
10	1.80	22	12.59	16.99	0.36	0.78	1.14
10	1.90	24	13.62	18.39	0.40	0.82	1.23
10	2.00	27	14.70	19.84	0.45	0.87	1.32
10	2.10	30	15.81	21.34	0.49	0.92	1.41
10	2.20	33	16.96	22.89	0.53	0.97	1.50
10	2.30	37	18.14	24.49	0.58	1.02	1.59
10	2.40	40	19.36	26.14	0.62	1.06	1.68
10	2.50	44	20.62	27.84	0.66	1.11	1.77
10	2.60	48	21.92	29.59	0.70	1.16	1.86
10	2.70	52	23.25	31.39	0.75	1.21	1.95
10	2.80	56	24.62	33.24	0.79	1.26	2.05
10	2.90	60	26.03	35.13	0.83	1.31	2.14
10	3.00	65	27.47	37.08	0.87	1.35	2.23
10	3.10	69	28.95	39.08	0.91	1.40	2.32
10	3.20	74	30.47	41.13	0.96	1.45	2.41
10	3.30	80	32.02	43.23	1.00	1.50	2.50
10	3.40	85	33.61	45.38	1.04	1.55	2.59
10	3.50	90	35.24	47.58	1.08	1.60	2.68
10	3.60	96	36.91	49.82	1.13	1.65	2.77
10	3.70	102	38.61	52.12	1.17	1.70	2.86
10	3.80	108	40.35	54.47	1.21	1.74	2.95
10	3.90	114	42.12	56.87	1.25	1.79	3.05
10	4.00	120	43.94	59.32	1.29	1.84	3.14
10	4.10	127	45.79	61.81	1.34	1.89	3.23
10	4.20	133	47.67	64.36	1.38	1.94	3.32
10	4.30	140	49.60	66.96	1.42	1.99	3.41
10	4.40	147	51.56	69.61	1.46	2.04	3.50
10	4.50	155	53.56	72.30	1.50	2.09	3.59
20	1.50	23	12.93	17.43	0.41	0.46	0.86
20	1.60	26	14.07	18.97	0.45	0.50	0.95
20	1.70	30	15.25	20.56	0.50	0.55	1.05
20	1.80	33	16.46	22.21	0.55	0.59	1.14
20	1.90	37	17.72	23.90	0.59	0.63	1.23
20	2.00	41	19.01	25.65	0.64	0.68	1.32
20	2.10	45	20.35	27.45	0.69	0.72	1.41
20	2.20	49	21.72	29.29	0.73	0.77	1.50
20	2.30	53	23.12	31.19	0.78	0.81	1.59
20	2.40	58	24.57	33.14	0.82	0.86	1.68
20	2.50	62	26.05	35.15	0.87	0.91	1.77

Table KS9-18 (continued) Level diversion design (diversions with a land slope of **1.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	1.50	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
20	2.60	67	27.57	37.20	0.91	0.95	1.86
20	2.70	73	29.13	39.30	0.96	1.00	1.95
20	2.80	78	30.72	41.45	1.00	1.04	2.05
20	2.90	83	32.36	43.66	1.05	1.09	2.14
20	3.00	89	34.03	45.91	1.09	1.14	2.23
20	3.10	95	35.73	48.21	1.14	1.18	2.32
20	3.20	101	37.48	50.57	1.18	1.23	2.41
20	3.30	107	39.26	52.97	1.22	1.28	2.50
20	3.40	114	41.08	55.42	1.27	1.32	2.59
20	3.50	120	42.93	57.93	1.31	1.37	2.68
20	3.60	127	44.83	60.48	1.36	1.42	2.77
20	3.70	134	46.76	63.09	1.40	1.46	2.86
20	3.80	141	48.72	65.74	1.44	1.51	2.95
20	3.90	149	50.73	68.45	1.49	1.56	3.05
20	4.00	156	52.77	71.20	1.53	1.61	3.14
20	4.10	164	54.85	74.01	1.57	1.65	3.23
20	4.20	172	56.96	76.87	1.62	1.70	3.32
20	4.30	180	59.12	79.77	1.66	1.75	3.41
20	4.40	188	61.31	82.73	1.70	1.80	3.50
20	4.50	197	63.53	85.73	1.75	1.84	3.59
30	1.50	32	15.79	21.32	0.54	0.32	0.86
30	1.60	36	17.12	23.12	0.59	0.36	0.95
30	1.70	40	18.50	24.98	0.65	0.40	1.05
30	1.80	44	19.92	26.90	0.70	0.44	1.14
30	1.90	49	21.38	28.87	0.75	0.48	1.23
30	2.00	54	22.88	30.89	0.79	0.52	1.32
30	2.10	59	24.41	32.96	0.84	0.57	1.41
30	2.20	64	25.99	35.09	0.89	0.61	1.50
30	2.30	69	27.61	37.28	0.94	0.65	1.59
30	2.40	75	29.26	39.51	0.99	0.69	1.68
30	2.50	81	30.96	41.80	1.04	0.74	1.77
30	2.60	87	32.69	44.14	1.08	0.78	1.86
30	2.70	93	34.46	46.53	1.13	0.82	1.95
30	2.80	99	36.27	48.97	1.18	0.87	2.05
30	2.90	106	38.12	51.46	1.23	0.91	2.14
30	3.00	113	40.00	54.01	1.27	0.95	2.23
30	3.10	120	41.93	56.61	1.32	1.00	2.32
30	3.20	127	43.89	59.25	1.37	1.04	2.41
30	3.30	134	45.89	61.95	1.41	1.09	2.50
30	3.40	142	47.93	64.70	1.46	1.13	2.59
30	3.50	150	50.00	67.51	1.50	1.18	2.68
30	3.60	158	52.11	70.36	1.55	1.22	2.77
30	3.70	166	54.26	73.26	1.59	1.27	2.86

Table KS9-18 (continued) Level diversion design (diversions with a land slope of **1.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	1.50	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
30	3.80	174	56.45	76.22	1.64	1.31	2.95
30	3.90	182	58.68	79.22	1.69	1.36	3.05
30	4.00	191	60.94	82.28	1.73	1.41	3.14
30	4.10	200	63.24	85.38	1.78	1.45	3.23
30	4.20	209	65.58	88.54	1.82	1.50	3.32
30	4.30	218	67.96	91.75	1.87	1.54	3.41
30	4.40	228	70.37	95.00	1.91	1.59	3.50
30	4.50	237	72.82	98.31	1.96	1.64	3.59
40	1.50	40	18.43	24.84	0.66	0.20	0.86
40	1.60	45	19.95	26.88	0.72	0.24	0.95
40	1.70	50	21.51	28.98	0.77	0.28	1.05
40	1.80	56	23.12	31.14	0.82	0.31	1.14
40	1.90	61	24.76	33.36	0.88	0.35	1.23
40	2.00	67	26.45	35.63	0.93	0.39	1.32
40	2.10	73	28.18	37.97	0.98	0.43	1.41
40	2.20	79	29.95	40.35	1.03	0.47	1.50
40	2.30	85	31.77	42.80	1.08	0.51	1.59
40	2.40	92	33.62	45.30	1.13	0.55	1.68
40	2.50	99	35.51	47.85	1.18	0.59	1.77
40	2.60	106	37.45	50.46	1.23	0.63	1.86
40	2.70	113	39.42	53.12	1.28	0.67	1.95
40	2.80	120	41.43	55.84	1.33	0.71	2.05
40	2.90	128	43.48	58.61	1.38	0.75	2.14
40	3.00	136	45.58	61.43	1.43	0.80	2.23
40	3.10	144	47.71	64.31	1.48	0.84	2.32
40	3.20	152	49.88	67.24	1.53	0.88	2.41
40	3.30	160	52.09	70.22	1.58	0.92	2.50
40	3.40	169	54.33	73.25	1.62	0.97	2.59
40	3.50	178	56.62	76.34	1.67	1.01	2.68
40	3.60	187	58.94	79.47	1.72	1.05	2.77
40	3.70	196	61.31	82.66	1.77	1.10	2.86
40	3.80	206	63.71	85.90	1.81	1.14	2.95
40	3.90	215	66.15	89.20	1.86	1.18	3.05
40	4.00	225	68.63	92.54	1.91	1.23	3.14
40	4.10	235	71.14	95.94	1.96	1.27	3.23
40	4.20	245	73.70	99.38	2.00	1.32	3.32

Table KS9-18 (continued) Level diversion design (diversions with a land slope of **1.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	1.50	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
50	1.50	49	21.01	28.36	0.77	0.10	0.86
50	1.60	55	22.68	30.62	0.82	0.13	0.95
50	1.70	61	24.41	32.95	0.88	0.17	1.05
50	1.80	67	26.18	35.34	0.94	0.20	1.14
50	1.90	73	27.99	37.79	0.99	0.24	1.23
50	2.00	80	29.85	40.30	1.05	0.27	1.32
50	2.10	87	31.78	42.87	1.10	0.31	1.41
50	2.20	94	33.70	45.50	1.15	0.35	1.50
50	2.30	101	35.70	48.19	1.21	0.38	1.59
50	2.40	109	37.73	50.93	1.26	0.42	1.68
50	2.50	116	39.81	53.74	1.31	0.46	1.77
50	2.60	124	41.93	56.60	1.36	0.50	1.86
50	2.70	132	44.09	59.52	1.42	0.54	1.95
50	2.80	141	46.29	62.49	1.47	0.58	2.05
50	2.90	149	48.53	65.52	1.52	0.62	2.14
50	3.00	158	50.82	68.60	1.57	0.66	2.23
50	3.10	167	53.14	71.74	1.62	0.70	2.32
50	3.20	176	55.51	74.93	1.67	0.74	2.41
50	3.30	186	57.91	78.18	1.72	0.78	2.50
50	3.40	196	60.36	81.48	1.77	0.82	2.59
50	3.50	205	62.84	84.84	1.82	0.86	2.68
50	3.60	215	65.37	88.25	1.87	0.90	2.77
50	3.70	226	67.93	91.71	1.92	0.94	2.86
50	3.80	236	70.54	95.23	1.97	0.99	2.95
50	3.90	247	73.18	98.79	2.02	1.03	3.05
50	4.00	258	75.86	102.42	2.07	1.07	3.14
75	2.00	113	37.91	51.23	1.30	0.02	1.32
75	2.10	122	40.21	54.33	1.36	0.05	1.41
75	2.20	131	42.56	57.49	1.42	0.08	1.50
75	2.30	140	44.95	60.72	1.48	0.11	1.59
75	2.40	150	47.40	64.01	1.53	0.15	1.68
75	2.50	159	49.89	67.38	1.59	0.18	1.77
75	2.60	170	52.43	70.80	1.65	0.22	1.86
75	2.70	180	55.02	74.29	1.70	0.25	1.95
75	2.80	190	57.65	77.84	1.76	0.28	2.05
75	2.90	201	60.33	81.46	1.82	0.32	2.14
75	3.00	212	63.06	85.13	1.87	0.36	2.23
75	3.10	224	65.82	88.87	1.93	0.39	2.32
75	3.20	235	68.64	92.67	1.98	0.43	2.41
75	3.30	247	71.50	96.52	2.04	0.46	2.50
75	3.40	259	74.40	100.44	2.09	0.50	2.59
75	3.50	271	77.34	104.42	2.14	0.54	2.68
75	3.60	284	80.33	108.45	2.20	0.58	2.77
75	3.70	296	83.36	112.54	2.25	0.61	2.86
75	3.80	309	86.44	116.69	2.30	0.65	2.95
75	3.90	322	89.55	120.90	2.36	0.69	3.05
75	4.00	336	92.71	125.16	2.41	0.73	3.14

Table KS9-18 (continued) Level diversion design (diversions with a land slope of **1.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	1.50	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
100	2.70	227	65.43	88.32	1.95	0.00	1.95
100	2.80	240	68.44	92.39	2.01	0.03	0.09
100	2.90	253	71.51	96.53	2.07	0.06	2.14
100	3.00	266	74.62	100.73	2.13	0.10	2.23
100	3.10	279	77.78	105.00	2.19	0.13	2.32
100	3.20	293	81.00	109.34	2.25	0.16	2.41
100	3.30	307	84.26	113.74	2.30	0.20	2.50
100	3.40	321	87.56	118.21	2.36	0.23	2.59
100	3.50	335	90.92	122.74	2.42	0.26	2.68
100	3.60	350	94.32	127.33	2.47	0.30	2.77
100	3.70	365	97.77	131.99	2.53	0.33	2.86
100	3.80	380	101.27	136.71	2.59	0.37	2.95
100	3.90	395	104.81	141.49	2.64	0.40	3.05
100	4.00	411	108.40	146.34	2.70	0.44	3.14

Table KS9-19 Level diversion design (diversions with a land slope of **2.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	2.00	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
10	1.50	15	10.56	14.26	0.24	0.62	0.86
10	1.60	17	11.56	15.60	0.29	0.67	0.95
10	1.70	19	12.59	17.00	0.33	0.72	1.05
10	1.80	22	13.67	18.46	0.37	0.76	1.14
10	1.90	24	14.79	19.96	0.42	0.81	1.23
10	2.00	27	15.94	21.52	0.46	0.86	1.32
10	2.10	30	17.14	23.14	0.50	0.91	1.41
10	2.20	33	18.38	24.81	0.55	0.95	1.50
10	2.30	36	19.65	26.53	0.59	1.00	1.59
10	2.40	39	20.97	28.31	0.63	1.05	1.68
10	2.50	43	22.32	30.13	0.67	1.10	1.77
10	2.60	46	23.72	32.02	0.72	1.15	1.86
10	2.70	50	25.15	33.96	0.76	1.19	1.95
10	2.80	54	26.63	35.95	0.80	1.24	2.05
10	2.90	58	28.14	37.99	0.85	1.29	2.14
10	3.00	62	29.70	40.09	0.89	1.34	2.23
10	3.10	66	31.29	42.24	0.93	1.39	2.32
10	3.20	71	32.92	44.45	0.97	1.44	2.41
10	3.30	76	34.60	46.71	1.02	1.48	2.50
10	3.40	80	36.31	49.02	1.06	1.53	2.59
10	3.50	85	38.07	51.39	1.10	1.58	2.68
10	3.60	90	39.86	53.81	1.14	1.63	2.77
10	3.70	96	41.69	56.28	1.19	1.68	2.86
10	3.80	101	43.56	58.81	1.23	1.73	2.95
10	3.90	107	45.48	61.39	1.27	1.78	3.05
10	4.00	112	47.43	64.03	1.31	1.82	3.14
10	4.10	118	49.42	66.72	1.36	1.87	3.23
10	4.20	124	51.45	69.46	1.40	1.92	3.32
10	4.30	130	53.53	72.26	1.44	1.97	3.41
10	4.40	137	55.64	75.11	1.48	2.02	3.50
10	4.50	143	57.79	78.02	1.52	2.07	3.59
20	1.50	23	14.26	19.32	0.43	0.44	0.86
20	1.60	26	15.50	20.99	0.48	0.48	0.95
20	1.70	30	16.77	22.70	0.52	0.52	1.05
20	1.80	33	18.08	24.48	0.57	0.57	1.14
20	1.90	37	19.44	26.31	0.62	0.61	1.23
20	2.00	40	20.83	28.19	0.66	0.66	1.32
20	2.10	44	22.27	30.13	0.71	0.70	1.41
20	2.20	48	23.74	32.12	0.75	0.75	1.50
20	2.30	52	25.26	34.17	0.80	0.79	1.59
20	2.40	56	26.81	36.28	0.84	0.84	1.68
20	2.50	61	28.41	38.43	0.89	0.88	1.77
20	2.60	65	30.05	40.65	0.94	0.93	1.86
20	2.70	70	31.73	42.91	0.98	0.97	1.95
20	2.80	75	33.44	45.23	1.03	1.02	2.05

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-19 (continued) Level diversion design (diversions with a land slope of **2.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	2.00	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
20	2.90	80	35.20	47.61	1.07	1.07	2.14
20	3.00	85	37.00	50.04	1.11	1.11	2.23
20	3.10	90	38.84	52.52	1.16	1.16	2.32
20	3.20	96	40.72	55.06	1.20	1.21	2.41
20	3.30	101	42.63	57.65	1.25	1.25	2.50
20	3.40	107	44.59	60.30	1.29	1.30	2.59
20	3.50	113	46.59	63.00	1.34	1.35	2.68
20	3.60	119	48.63	65.75	1.38	1.39	2.77
20	3.70	125	50.71	68.56	1.42	1.44	2.86
20	3.80	132	52.83	71.42	1.47	1.49	2.95
20	3.90	138	54.98	74.33	1.51	1.53	3.05
20	4.00	145	57.18	77.30	1.55	1.58	3.14
20	4.10	152	59.42	80.33	1.60	1.63	3.23
20	4.20	159	61.70	83.41	1.64	1.68	3.32
20	4.30	166	64.02	86.54	1.69	1.72	3.41
20	4.40	173	66.37	89.72	1.73	1.77	3.50
20	4.50	181	68.77	92.96	1.77	1.82	3.59
30	1.50	32	17.73	23.95	0.58	0.28	0.86
30	1.60	36	19.18	25.90	0.63	0.32	0.95
30	1.70	40	20.67	27.92	0.68	0.36	1.05
30	1.80	44	22.20	29.99	0.73	0.40	1.14
30	1.90	49	23.78	32.11	0.78	0.44	1.23
30	2.00	53	25.40	34.30	0.83	0.49	1.32
30	2.10	58	27.06	36.54	0.88	0.53	1.41
30	2.20	63	28.76	38.84	0.93	0.57	1.50
30	2.30	68	30.51	41.20	0.98	0.61	1.59
30	2.40	73	32.29	43.61	1.03	0.66	1.68
30	2.50	78	34.12	46.08	1.07	0.70	1.77
30	2.60	84	35.99	48.60	1.12	0.74	1.86
30	2.70	89	37.90	51.18	1.17	0.79	1.95
30	2.80	95	39.85	53.81	1.22	0.83	2.05
30	2.90	101	41.85	56.50	1.26	0.87	2.14
30	3.00	107	43.88	59.25	1.31	0.92	2.23
30	3.10	114	45.95	62.05	1.36	0.96	2.32
30	3.20	120	48.07	64.90	1.40	1.01	2.41
30	3.30	127	50.23	67.81	1.45	1.05	2.50
30	3.40	133	52.42	70.78	1.49	1.10	2.59
30	3.50	140	54.66	73.80	1.54	1.14	2.68
30	3.60	147	56.94	76.87	1.59	1.19	2.77
30	3.70	155	59.25	80.00	1.63	1.23	2.86
30	3.80	162	61.61	83.19	1.68	1.28	2.95
30	3.90	169	64.01	86.42	1.72	1.32	3.05
30	4.00	177	66.45	89.72	1.77	1.37	3.14
30	4.10	185	68.93	93.06	1.81	1.41	3.23

Table KS9-19 (continued) Level diversion design (diversions with a land slope of **2.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	2.00	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
30	4.20	193	71.45	96.47	1.86	1.46	3.32
30	4.30	201	74.01	99.92	1.90	1.51	3.41
30	4.40	210	76.61	103.43	1.95	1.55	3.50
30	4.50	218	79.25	106.99	1.99	1.60	3.59
40	1.50	41	21.13	28.57	0.71	0.14	0.86
40	1.60	46	22.77	30.81	0.77	0.18	0.95
40	1.70	51	24.45	33.10	0.82	0.22	1.05
40	1.80	56	26.19	35.46	0.87	0.26	1.14
40	1.90	61	27.96	37.87	0.93	0.30	1.23
40	2.00	67	29.79	40.34	0.98	0.34	1.32
40	2.10	72	31.65	42.87	1.03	0.38	1.41
40	2.20	78	33.56	45.46	1.08	0.42	1.50
40	2.30	84	35.52	48.11	1.13	0.46	1.59
40	2.40	90	37.52	50.82	1.18	0.50	1.68
40	2.50	96	39.56	53.58	1.23	0.54	1.77
40	2.60	103	41.65	56.40	1.28	0.58	1.86
40	2.70	109	43.78	59.28	1.33	0.62	1.95
40	2.80	116	45.95	62.22	1.38	0.66	2.05
40	2.90	123	48.16	65.21	1.43	0.70	2.14
40	3.00	130	50.42	68.26	1.48	0.75	2.23
40	3.10	137	52.72	71.37	1.53	0.79	2.32
40	3.20	144	55.06	74.53	1.57	0.83	2.41
40	3.30	152	57.44	77.75	1.62	0.87	2.50
40	3.40	159	59.86	81.03	1.67	0.92	2.59
40	3.50	167	62.33	84.36	1.72	0.96	2.68
40	3.60	175	64.83	87.74	1.77	1.00	2.77
40	3.70	183	67.38	91.19	1.81	1.05	2.86
40	3.80	192	69.97	94.68	1.86	1.09	2.95
40	3.90	200	72.60	98.24	1.91	1.14	3.05
40	4.00	209	75.27	101.85	1.95	1.18	3.14
40	4.10	218	77.98	105.51	2.00	1.22	3.23
40	4.20	227	80.73	109.23	2.05	1.27	3.32
50	1.50	49	24.36	32.87	0.84	0.02	0.86
50	1.60	55	26.19	35.35	0.90	0.06	0.95
50	1.70	61	28.07	37.89	0.95	0.09	1.05
50	1.80	67	30.00	40.49	1.01	0.13	1.14
50	1.90	73	31.98	43.16	1.06	0.17	1.23
50	2.00	80	34.00	45.89	1.12	0.20	1.32
50	2.10	86	36.07	48.69	1.17	0.24	1.41
50	2.20	93	38.19	51.55	1.22	0.28	1.50
50	2.30	100	40.35	54.47	1.28	0.32	1.59
50	2.40	107	42.56	57.45	1.33	0.35	1.68
50	2.50	114	44.61	60.49	1.38	0.39	1.77
50	2.60	121	47.11	63.59	1.43	0.43	1.86

Table KS9-19 (continued) Level diversion design (diversions with a land slope of **2.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	2.00	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
50	2.70	128	49.45	66.75	1.48	0.47	1.95
50	2.80	136	51.83	69.97	1.53	0.51	2.05
50	2.90	144	54.26	73.25	1.59	0.55	2.14
50	3.00	151	56.73	76.59	1.64	0.59	2.23
50	3.10	160	59.25	79.98	1.69	0.63	2.32
50	3.20	168	61.81	83.44	1.74	0.67	2.41
50	3.30	176	64.41	86.95	1.79	0.71	2.50
50	3.40	185	67.05	90.52	1.84	0.76	2.59
50	3.50	194	69.74	94.15	1.88	0.80	2.68
50	3.60	203	72.47	97.83	1.93	0.84	2.77
50	3.70	212	75.24	101.57	1.98	0.88	2.86
50	3.80	221	78.05	105.37	2.03	0.92	2.95
50	3.90	230	80.91	109.22	2.08	0.96	3.05
50	4.00	240	83.81	113.14	2.13	1.01	3.14
75	2.30	140	52.21	70.49	1.59	0.00	1.59
75	2.40	149	54.89	74.10	1.65	0.04	1.68
75	2.50	158	57.62	77.78	1.70	0.07	1.77
75	2.60	168	60.39	81.52	1.76	0.11	1.86
75	2.70	177	63.22	85.33	1.81	0.14	1.95
75	2.80	187	66.09	89.21	1.87	0.18	2.05
75	2.90	197	69.01	93.15	1.92	0.21	2.14
75	3.00	207	71.98	97.15	1.98	0.25	2.23
75	3.10	217	74.99	101.22	2.03	0.29	2.32
75	3.20	227	78.05	105.35	2.09	0.32	2.41
75	3.30	238	81.16	109.55	2.14	0.36	2.50
75	3.40	249	84.31	113.81	2.19	0.40	2.59
75	3.50	259	87.51	118.13	2.25	0.44	2.68
75	3.60	271	90.76	122.51	2.30	0.47	2.77
75	3.70	282	94.05	126.95	2.35	0.51	2.86
75	3.80	293	97.38	131.45	2.40	0.55	2.95
75	3.90	305	100.76	136.02	2.46	0.59	3.05
75	4.00	317	104.19	140.64	2.51	0.63	3.14
100	3.20	287	93.96	126.84	2.40	0.01	2.41
100	3.30	300	97.53	131.66	2.45	0.05	2.50
100	3.40	313	101.15	136.55	2.51	0.08	2.59
100	3.50	326	104.81	141.50	2.57	0.12	2.68
100	3.60	339	108.53	146.52	2.62	0.15	2.77
100	3.70	352	112.30	151.60	2.68	0.19	2.86
100	3.80	366	116.11	156.75	2.73	0.22	2.95
100	3.90	379	119.97	161.96	2.79	0.26	3.05
100	4.00	393	123.88	167.24	2.84	0.29	3.14

Table KS9-20 Level diversion design (diversions with a land slope of **2.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	2.50	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
10	1.50	15	11.51	15.54	0.26	0.61	0.86
10	1.60	17	12.59	16.99	0.30	0.66	0.95
10	1.70	19	13.70	18.50	0.34	0.70	1.05
10	1.80	22	14.87	20.07	0.39	0.75	1.14
10	1.90	24	16.07	21.69	0.43	0.80	1.23
10	2.00	27	17.32	23.38	0.47	0.84	1.32
10	2.10	30	18.61	25.12	0.52	0.89	1.41
10	2.20	33	19.94	26.92	0.56	0.94	1.50
10	2.30	36	21.32	28.78	0.60	0.99	1.59
10	2.40	39	22.74	30.69	0.65	1.04	1.68
10	2.50	43	24.20	32.67	0.69	1.08	1.77
10	2.60	46	25.70	34.70	0.73	1.13	1.86
10	2.70	50	27.25	36.79	0.78	1.18	1.95
10	2.80	54	28.84	38.93	0.82	1.23	2.05
10	2.90	58	30.48	41.14	0.86	1.27	2.14
10	3.00	62	32.15	43.40	0.90	1.32	2.23
10	3.10	66	33.87	45.73	0.95	1.37	2.32
10	3.20	71	35.64	48.10	0.99	1.42	2.41
10	3.30	75	37.44	50.54	1.03	1.47	2.50
10	3.40	80	39.29	53.04	1.08	1.51	2.59
10	3.50	84	41.18	55.59	1.12	1.56	2.68
10	3.60	89	43.12	58.20	1.16	1.61	2.77
10	3.70	94	45.09	60.87	1.20	1.66	2.86
10	3.80	99	47.11	63.60	1.25	1.71	2.95
10	3.90	105	49.18	66.38	1.29	1.76	3.05
10	4.00	110	51.28	69.23	1.33	1.80	3.14
10	4.10	116	53.43	72.13	1.38	1.85	3.23
10	4.20	121	55.62	75.08	1.42	1.90	3.32
10	4.30	127	57.86	78.10	1.46	1.95	3.41
10	4.40	133	60.13	81.18	1.50	2.00	3.50
10	4.50	139	62.46	84.31	1.55	2.04	3.59
20	1.50	23	15.79	21.29	0.45	0.41	0.86
20	1.60	26	17.12	23.08	0.50	0.45	0.95
20	1.70	30	18.49	24.94	0.55	0.50	1.05
20	1.80	33	19.91	26.85	0.60	0.54	1.14
20	1.90	37	21.37	28.83	0.64	0.59	1.23
20	2.00	40	22.88	30.86	0.69	0.63	1.32
20	2.10	44	24.43	32.95	0.73	0.68	1.41
20	2.20	48	26.02	35.10	0.78	0.72	1.50
20	2.30	52	27.66	37.31	0.83	0.77	1.59
20	2.40	56	29.34	39.58	0.87	0.81	1.68
20	2.50	61	31.07	41.91	0.92	0.86	1.77
20	2.60	65	32.83	44.29	0.96	0.90	1.86
20	2.70	70	34.64	46.74	1.01	0.95	1.95
20	2.80	74	36.50	49.24	1.05	0.99	2.05
20	2.90	79	38.40	51.80	1.10	1.04	2.14

Table KS9-20 (continued) Level diversion design (diversions with a land slope of **2.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	2.50	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
20	3.00	84	40.34	54.42	1.14	1.09	2.23
20	3.10	89	42.32	57.10	1.19	1.13	2.32
20	3.20	95	44.35	59.83	1.23	1.18	2.41
20	3.30	100	46.42	62.63	1.28	1.22	2.50
20	3.40	106	48.53	65.48	1.32	1.27	2.59
20	3.50	111	50.69	68.39	1.36	1.32	2.68
20	3.60	117	52.89	71.36	1.41	1.36	2.77
20	3.70	123	55.13	74.39	1.45	1.41	2.86
20	3.80	129	57.42	77.47	1.50	1.46	2.95
20	3.90	135	59.75	80.61	1.54	1.51	3.05
20	4.00	142	62.12	83.81	1.58	1.55	3.14
20	4.10	148	64.53	87.07	1.63	1.60	3.23
20	4.20	155	66.99	90.39	1.67	1.65	3.32
20	4.30	161	69.49	93.77	1.72	1.69	3.41
20	4.40	168	72.04	97.20	1.76	1.74	3.50
20	4.50	175	74.62	100.69	1.80	1.79	3.59
30	1.50	32	19.89	26.84	0.62	0.24	0.86
30	1.60	36	21.46	28.96	0.67	0.28	0.95
30	1.70	40	23.07	31.14	0.72	0.32	1.05
30	1.80	44	24.73	33.38	0.77	0.36	1.14
30	1.90	49	26.44	35.68	0.82	0.41	1.23
30	2.00	53	28.19	38.05	0.87	0.45	1.32
30	2.10	58	29.99	40.48	0.92	0.49	1.41
30	2.20	63	31.83	42.96	0.97	0.53	1.50
30	2.30	68	33.72	45.51	1.02	0.58	1.59
30	2.40	73	35.65	48.12	1.06	0.62	1.68
30	2.50	78	37.63	50.78	1.11	0.66	1.77
30	2.60	84	39.65	53.51	1.16	0.70	1.86
30	2.70	89	41.71	56.30	1.21	0.75	1.95
30	2.80	95	43.82	59.14	1.25	0.79	2.05
30	2.90	101	45.97	62.05	1.30	0.84	2.14
30	3.00	106	48.17	65.01	1.35	0.88	2.23
30	3.10	113	50.41	68.04	1.39	0.92	2.32
30	3.20	119	52.69	71.12	1.44	0.97	2.41
30	3.30	125	55.02	74.26	1.49	1.01	2.50
30	3.40	131	57.39	77.46	1.53	1.06	2.59
30	3.50	138	59.81	80.72	1.58	1.10	2.68
30	3.60	145	62.26	84.04	1.62	1.15	2.77
30	3.70	152	64.77	87.42	1.67	1.19	2.86
30	3.80	159	67.31	90.86	1.72	1.24	2.95
30	3.90	166	69.90	94.35	1.76	1.28	3.05
30	4.00	173	72.53	97.90	1.81	1.33	3.14
30	4.10	180	75.21	101.52	1.85	1.38	3.23
30	4.20	188	77.93	105.19	1.90	1.42	3.32
30	4.30	196	80.69	108.92	1.94	1.47	3.41
30	4.40	203	83.50	112.70	1.99	1.51	3.50
30	4.50	211	86.35	116.55	2.03	1.56	3.59

Table KS9-20 (continued) Level diversion design (diversions with a land slope of **2.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	2.50	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
40	1.50	40	23.96	32.28	0.77	0.09	0.86
40	1.60	45	25.75	34.70	0.83	0.13	0.95
40	1.70	50	27.60	37.18	0.88	0.17	1.05
40	1.80	56	29.49	39.73	0.93	0.21	1.14
40	1.90	61	31.42	42.34	0.98	0.25	1.23
40	2.00	67	33.41	45.02	1.03	0.28	1.32
40	2.10	72	35.44	47.76	1.09	0.32	1.41
40	2.20	78	37.52	50.56	1.14	0.36	1.50
40	2.30	84	39.65	53.43	1.19	0.40	1.59
40	2.40	90	41.82	56.36	1.24	0.45	1.68
40	2.50	96	44.03	59.35	1.29	0.49	1.77
40	2.60	102	46.30	62.40	1.34	0.53	1.86
40	2.70	109	48.60	65.52	1.39	0.57	1.95
40	2.80	115	50.96	68.69	1.43	0.61	2.05
40	2.90	122	53.35	71.93	1.48	0.65	2.14
40	3.00	129	55.80	75.22	1.53	0.70	2.23
40	3.10	136	58.29	78.58	1.58	0.74	2.32
40	3.20	143	60.82	82.00	1.63	0.78	2.41
40	3.30	150	63.40	85.48	1.68	0.82	2.50
40	3.40	157	66.02	89.02	1.72	0.87	2.59
40	3.50	165	68.68	92.61	1.77	0.91	2.68
40	3.60	172	71.39	96.27	1.82	0.95	2.77
40	3.70	180	74.15	99.99	1.87	1.00	2.86
40	3.80	188	76.95	103.77	1.91	1.04	2.95
40	3.90	196	79.79	107.60	1.96	1.09	3.05
40	4.00	204	82.68	111.50	2.01	1.13	3.14
40	4.10	212	85.61	115.45	2.05	1.17	3.23
40	4.20	221	88.58	119.47	2.10	1.22	3.32
50	1.70	61	32.16	43.40	1.02	0.02	1.05
50	1.80	67	34.26	46.24	1.08	0.06	1.14
50	1.90	73	36.41	49.15	1.13	0.10	1.23
50	2.00	80	38.62	52.13	1.18	0.13	1.32
50	2.10	86	40.87	55.17	1.24	0.17	1.41
50	2.20	93	43.17	58.27	1.29	0.21	1.50
50	2.30	100	45.52	61.45	1.34	0.25	1.59
50	2.40	107	47.91	64.68	1.39	0.29	1.68
50	2.50	114	50.36	67.98	1.45	0.33	1.77
50	2.60	121	52.85	71.35	1.50	0.37	1.86
50	2.70	128	55.39	74.78	1.55	0.41	1.95
50	2.80	136	57.97	78.27	1.60	0.45	2.05
50	2.90	143	60.61	81.82	1.65	0.49	2.14
50	3.00	151	63.29	85.44	1.70	0.53	2.23
50	3.10	159	66.01	89.12	1.75	0.57	2.32

Table KS9-20 (continued) Level diversion design (diversions with a land slope of **2.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	2.50	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
50	3.20	167	68.78	92.86	1.80	0.61	2.41
50	3.30	175	71.60	96.66	1.85	0.65	2.50
50	3.40	183	74.46	100.52	1.90	0.69	2.59
50	3.50	192	77.37	104.45	1.95	0.73	2.68
50	3.60	200	80.32	108.43	2.00	0.77	2.77
50	3.70	209	83.32	112.48	2.05	0.82	2.86
50	3.80	218	86.36	116.59	2.10	0.86	2.95
50	3.90	226	89.45	120.76	2.14	0.90	3.05
50	4.00	236	92.58	124.99	2.19	0.94	3.14
75	2.70	177	72.37	97.65	1.92	0.03	1.95
75	2.80	187	75.50	101.88	1.98	0.07	2.05
75	2.90	197	78.68	106.18	2.03	0.11	2.14
75	3.00	207	81.91	110.55	2.08	0.14	2.23
75	3.10	217	85.19	114.98	2.14	0.18	2.32
75	3.20	227	88.52	119.48	2.19	0.22	2.41
75	3.30	238	91.90	124.05	2.24	0.26	2.50
75	3.40	248	95.33	128.68	2.30	0.29	2.59
75	3.50	259	98.81	133.37	2.35	0.33	2.68
75	3.60	269	102.34	138.14	2.40	0.37	2.77
75	3.70	280	105.91	142.96	2.45	0.41	2.86
75	3.80	291	109.53	147.85	2.51	0.45	2.95
75	3.90	303	113.20	152.81	2.56	0.49	3.05
75	4.00	314	116.92	157.83	2.61	0.53	3.14

Table KS9-21 Level diversion design (diversions with a land slope of **3.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	3.00	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
10	1.50	15	12.57	16.96	0.27	0.60	0.86
10	1.60	17	13.73	18.53	0.31	0.64	0.95
10	1.70	19	14.94	20.16	0.36	0.69	1.05
10	1.80	22	16.19	21.85	0.40	0.74	1.14
10	1.90	24	17.49	23.61	0.44	0.78	1.23
10	2.00	27	18.84	25.43	0.49	0.83	1.32
10	2.10	30	20.24	27.31	0.53	0.88	1.41
10	2.20	33	21.68	29.26	0.58	0.92	1.50
10	2.30	36	23.16	31.26	0.62	0.97	1.59
10	2.40	39	24.70	33.33	0.66	1.02	1.68
10	2.50	43	26.28	35.47	0.71	1.07	1.77
10	2.60	46	27.90	37.66	0.75	1.11	1.86
10	2.70	50	29.58	39.92	0.79	1.16	1.95
10	2.80	54	31.29	42.24	0.84	1.21	2.05
10	2.90	58	33.06	44.63	0.88	1.26	2.14
10	3.00	62	34.87	47.07	0.92	1.30	2.23
10	3.10	66	36.73	49.58	0.97	1.35	2.32
10	3.20	71	38.63	52.16	1.01	1.40	2.41
10	3.30	75	40.58	54.79	1.05	1.45	2.50
10	3.40	80	42.58	57.49	1.10	1.50	2.59
10	3.50	84	44.63	60.25	1.14	1.54	2.68
10	3.60	89	46.72	63.07	1.18	1.59	2.77
10	3.70	94	48.85	65.95	1.23	1.64	2.86
10	3.80	99	51.03	68.90	1.27	1.69	2.95
10	3.90	105	53.26	71.91	1.31	1.73	3.05
10	4.00	110	55.54	74.99	1.35	1.78	3.14
10	4.10	116	57.86	78.12	1.40	1.83	3.23
10	4.20	121	60.23	81.32	1.44	1.88	3.32
10	4.30	127	62.64	84.58	1.48	1.93	3.41
10	4.40	133	65.10	87.91	1.53	1.97	3.50
10	4.50	139	67.61	91.29	1.57	2.02	3.59
20	1.50	23	17.45	23.53	0.48	0.38	0.86
20	1.60	26	18.89	25.48	0.53	0.43	0.95
20	1.70	30	20.38	27.48	0.57	0.47	1.05
20	1.80	33	21.92	29.56	0.62	0.52	1.14
20	1.90	37	23.50	31.69	0.67	0.56	1.23
20	2.00	40	25.13	33.89	0.71	0.60	1.32
20	2.10	44	26.81	36.15	0.76	0.65	1.41
20	2.20	48	28.53	38.48	0.81	0.69	1.50
20	2.30	52	30.30	40.87	0.85	0.74	1.59
20	2.40	56	32.12	43.32	0.90	0.78	1.68
20	2.50	61	33.98	45.84	0.94	0.83	1.77
20	2.60	65	35.89	48.42	0.99	0.88	1.86
20	2.70	70	37.85	51.06	1.03	0.92	1.95
20	2.80	74	39.86	53.77	1.08	0.97	2.05

(210-VI-EFH, Amend. KS13, Sept. 2006)

Table KS9-21 (continued) Level diversion design (diversions with a land slope of **3.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	3.00	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
20	2.90	79	41.91	56.54	1.12	1.01	2.14
20	3.00	84	44.01	59.37	1.17	1.06	2.23
20	3.10	89	46.15	62.26	1.21	1.10	2.32
20	3.20	95	48.34	65.22	1.26	1.15	2.41
20	3.30	100	50.58	68.24	1.30	1.20	2.50
20	3.40	106	52.87	71.32	1.35	1.24	2.59
20	3.50	111	55.20	74.47	1.39	1.29	2.68
20	3.60	117	57.58	77.68	1.44	1.34	2.77
20	3.70	123	60.00	80.95	1.48	1.38	2.86
20	3.80	129	62.47	84.28	1.53	1.43	2.95
20	3.90	135	64.99	87.68	1.57	1.48	3.05
20	4.00	141	67.55	91.14	1.61	1.52	3.14
20	4.10	148	70.16	94.66	1.66	1.57	3.23
20	4.20	154	72.82	98.25	1.70	1.62	3.32
20	4.30	161	75.52	101.90	1.75	1.66	3.41
20	4.40	168	78.27	105.61	1.79	1.71	3.50
20	4.50	175	81.07	109.38	1.83	1.76	3.59
30	1.50	32	22.27	30.11	0.66	0.20	0.86
30	1.60	36	23.97	32.41	0.71	0.24	0.95
30	1.70	40	25.73	34.77	0.76	0.29	1.05
30	1.80	44	27.53	37.20	0.81	0.33	1.14
30	1.90	49	29.37	39.70	0.86	0.37	1.23
30	2.00	53	31.27	42.27	0.91	0.41	1.32
30	2.10	58	33.22	44.89	0.96	0.45	1.41
30	2.20	63	35.21	47.59	1.01	0.49	1.50
30	2.30	68	37.25	50.35	1.05	0.54	1.59
30	2.40	73	39.34	53.17	1.10	0.58	1.68
30	2.50	78	41.48	56.06	1.15	0.62	1.77
30	2.60	84	43.67	59.01	1.20	0.67	1.86
30	2.70	89	45.90	62.03	1.24	0.71	1.95
30	2.80	95	48.18	65.11	1.29	0.75	2.05
30	2.90	101	50.51	68.25	1.34	0.80	2.14
30	3.00	106	52.88	71.46	1.38	0.84	2.23
30	3.10	112	55.31	74.74	1.43	0.89	2.32
30	3.20	119	57.78	78.07	1.48	0.93	2.41
30	3.30	125	60.29	81.47	1.52	0.98	2.50
30	3.40	131	62.86	84.94	1.57	1.02	2.59
30	3.50	138	65.47	88.47	1.62	1.07	2.68
30	3.60	145	68.12	92.06	1.66	1.11	2.77
30	3.70	151	70.83	95.71	1.71	1.16	2.86
30	3.80	158	73.58	99.43	1.75	1.20	2.95
30	3.90	165	76.38	103.21	1.80	1.25	3.05
30	4.00	173	79.22	107.05	1.85	1.29	3.14
30	4.10	180	82.11	110.96	1.89	1.34	3.23

Table KS9-21 (continued) Level diversion design (diversions with a land slope of **3.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	3.00	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
30	4.20	188	85.05	114.93	1.94	1.38	3.32
30	4.30	195	88.04	118.97	1.98	1.43	3.41
30	4.40	203	91.07	123.06	2.03	1.47	3.50
30	4.50	211	94.15	127.22	2.07	1.52	3.59
40	1.50	40	27.21	36.64	0.83	0.04	0.86
40	1.60	45	29.16	39.27	0.88	0.07	0.95
40	1.70	50	31.17	41.98	0.93	0.11	1.05
40	1.80	56	33.22	44.75	0.99	0.15	1.14
40	1.90	61	35.33	47.59	1.04	0.19	1.23
40	2.00	67	37.49	50.50	1.09	0.23	1.32
40	2.10	72	39.69	53.47	1.14	0.27	1.41
40	2.20	78	41.95	56.52	1.19	0.31	1.50
40	2.30	84	44.26	59.63	1.24	0.35	1.59
40	2.40	90	46.61	62.81	1.29	0.39	1.68
40	2.50	96	49.01	66.05	1.34	0.43	1.77
40	2.60	102	51.47	69.36	1.39	0.48	1.86
40	2.70	109	53.97	72.73	1.44	0.52	1.95
40	2.80	115	56.52	76.18	1.49	0.56	2.05
40	2.90	122	59.12	79.68	1.54	0.60	2.14
40	3.00	129	61.76	83.25	1.58	0.64	2.23
40	3.10	136	64.46	86.89	1.63	0.69	2.32
40	3.20	143	67.20	90.59	1.68	0.73	2.41
40	3.30	150	69.99	94.36	1.73	0.77	2.50
40	3.40	157	72.83	98.19	1.78	0.82	2.59
40	3.50	165	75.72	102.08	1.82	0.86	2.68
40	3.60	172	78.65	106.04	1.87	0.90	2.77
40	3.70	180	81.63	110.07	1.92	0.95	2.86
40	3.80	188	84.66	114.15	1.97	0.99	2.95
40	3.90	196	87.74	118.31	2.01	1.03	3.05
40	4.00	204	90.86	122.52	2.06	1.08	3.14
40	4.10	212	94.03	126.80	2.11	1.12	3.23
40	4.20	221	97.25	131.14	2.15	1.17	3.32

Table KS9-21 (continued) Level diversion design (diversions with a land slope of **3.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	3.00	%
Cut Slope =	10	:1
Fill Slope =	6	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
50	1.50						0.86
50	1.60						0.95
50	1.70						1.05
50	1.80						1.14
50	1.90	73	41.38	55.82	1.20	0.03	1.23
50	2.00	80	43.78	59.06	1.25	0.06	1.32
50	2.10	86	46.23	62.37	1.31	0.10	1.41
50	2.20	93	48.73	65.75	1.36	0.14	1.50
50	2.30	100	51.29	69.20	1.41	0.18	1.59
50	2.40	107	53.89	72.72	1.46	0.22	1.68
50	2.50	114	56.55	76.31	1.51	0.26	1.77
50	2.60	121	59.26	79.96	1.56	0.30	1.86
50	2.70	128	62.02	83.69	1.62	0.34	1.95
50	2.80	136	64.82	87.48	1.67	0.38	2.05
50	2.90	143	67.68	91.33	1.72	0.42	2.14
50	3.00	151	70.59	95.26	1.77	0.46	2.23
50	3.10	159	73.54	99.25	1.82	0.50	2.32
50	3.20	167	76.55	103.30	1.87	0.54	2.41
50	3.30	175	79.60	107.43	1.92	0.58	2.50
50	3.40	183	82.70	111.61	1.96	0.63	2.59
50	3.50	192	85.85	115.87	2.01	0.67	2.68
50	3.60	200	89.05	120.19	2.06	0.71	2.77
50	3.70	209	92.30	124.57	2.11	0.75	2.86
50	3.80	218	95.60	129.03	2.16	0.79	2.95
50	3.90	226	98.94	133.54	2.21	0.84	3.05
50	4.00	236	102.34	138.12	2.26	0.88	3.14
75	2.90	197	89.51	120.70	2.14	0.00	2.14
75	3.00	207	93.03	125.46	2.19	0.04	2.23
75	3.10	217	96.61	130.29	2.24	0.08	2.32
75	3.20	227	100.24	135.19	2.29	0.11	2.41
75	3.30	237	103.92	140.16	2.35	0.15	2.50
75	3.40	248	107.65	145.20	2.40	0.19	2.59
75	3.50	259	111.44	150.31	2.45	0.23	2.68
75	3.60	269	115.27	155.49	2.50	0.27	2.77
75	3.70	280	119.16	160.73	2.56	0.31	2.86
75	3.80	291	123.10	166.05	2.61	0.35	2.95
75	3.90	303	127.08	171.43	2.66	0.39	3.05
75	4.00	314	131.12	176.88	2.71	0.43	3.14

Table KS9-22 Level diversion design (diversions with a land slope of **0.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	0.50	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
10	1.50	16	9.25	12.49	0.17	0.69	0.86
10	1.60	19	10.19	13.75	0.21	0.74	0.95
10	1.70	22	11.16	15.06	0.26	0.79	1.05
10	1.80	26	12.17	16.43	0.30	0.84	1.14
10	1.90	30	13.23	17.85	0.34	0.89	1.23
10	2.00	34	14.32	19.33	0.38	0.94	1.32
10	2.10	39	15.45	20.86	0.42	0.99	1.41
10	2.20	44	16.62	22.44	0.46	1.04	1.50
10	2.30	50	17.84	24.08	0.50	1.10	1.59
10	2.40	56	19.09	25.77	0.54	1.15	1.68
10	2.50	62	20.38	27.51	0.57	1.20	1.77
10	2.60	69	21.71	29.31	0.61	1.25	1.86
10	2.70	76	23.08	31.16	0.65	1.30	1.95
10	2.80	83	24.49	33.07	0.69	1.35	2.05
10	2.90	91	25.94	35.02	0.73	1.40	2.14
10	3.00	99	27.43	37.04	0.77	1.45	2.23
10	3.10	108	28.96	39.10	0.81	1.51	2.32
10	3.20	117	30.53	41.22	0.85	1.56	2.41
10	3.30	126	32.14	43.39	0.89	1.61	2.50
10	3.40	136	33.79	45.62	0.93	1.66	2.59
10	3.50	146	35.48	47.90	0.97	1.71	2.68
10	3.60	156	37.21	50.23	1.01	1.76	2.77
10	3.70	167	38.98	52.62	1.05	1.82	2.86
10	3.80	178	40.79	55.06	1.09	1.87	2.95
10	3.90	190	42.63	57.56	1.13	1.92	3.05
10	4.00	201	44.52	60.11	1.17	1.97	3.14
10	4.10	214	46.45	62.71	1.20	2.02	3.23
10	4.20	226	48.42	65.36	1.24	2.07	3.32
10	4.30	239	50.42	68.07	1.28	2.13	3.41
10	4.40	253	52.47	70.83	1.32	2.18	3.50
10	4.50	266	54.55	73.65	1.36	2.23	3.59
20	1.50	26	11.94	16.17	0.31	0.55	0.86
20	1.60	31	13.08	17.71	0.36	0.60	0.95
20	1.70	36	14.26	19.30	0.40	0.65	1.05
20	1.80	41	15.48	20.95	0.44	0.69	1.14
20	1.90	47	16.74	22.66	0.49	0.74	1.23
20	2.00	54	18.05	24.42	0.53	0.79	1.32
20	2.10	60	19.39	26.23	0.57	0.84	1.41
20	2.20	68	20.77	28.10	0.62	0.88	1.50
20	2.30	75	22.20	30.03	0.66	0.93	1.59

Table KS9-22 (continued) Level diversion design (diversions with a land slope of **0.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	0.50	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
20	2.40	83	23.66	32.01	0.70	0.98	1.68
20	2.50	91	25.17	34.04	0.74	1.03	1.77
20	2.60	100	26.72	36.13	0.79	1.08	1.86
20	2.70	109	28.30	38.27	0.83	1.13	1.95
20	2.80	119	29.93	40.47	0.87	1.18	2.05
20	2.90	129	31.59	42.72	0.91	1.23	2.14
20	3.00	139	33.30	45.02	0.95	1.28	2.23
20	3.10	150	35.05	47.38	0.99	1.32	2.32
20	3.20	161	36.83	49.79	1.03	1.37	2.41
20	3.30	172	38.66	52.26	1.08	1.42	2.50
20	3.40	184	40.52	54.78	1.12	1.47	2.59
20	3.50	197	42.43	57.35	1.16	1.52	2.68
20	3.60	209	44.38	59.98	1.20	1.57	2.77
20	3.70	222	46.36	62.66	1.24	1.62	2.86
20	3.80	236	48.39	65.40	1.28	1.67	2.95
20	3.90	249	50.45	68.19	1.32	1.73	3.05
20	4.00	263	52.56	71.03	1.36	1.78	3.14
20	4.10	278	54.70	73.93	1.40	1.83	3.23
20	4.20	293	56.89	76.88	1.44	1.88	3.32
20	4.30	308	59.11	79.88	1.48	1.93	3.41
20	4.40	324	61.38	82.94	1.52	1.98	3.50
20	4.50	340	63.68	86.05	1.56	2.03	3.59
30	1.50	37	14.16	19.12	0.41	0.45	0.86
30	1.60	43	15.49	20.91	0.46	0.49	0.95
30	1.70	50	16.86	22.75	0.51	0.53	1.05
30	1.80	57	18.27	24.66	0.56	0.58	1.14
30	1.90	65	19.72	26.63	0.60	0.62	1.23
30	2.00	73	21.22	28.65	0.65	0.67	1.32
30	2.10	81	22.76	30.73	0.70	0.71	1.41
30	2.20	90	24.35	32.87	0.74	0.76	1.50
30	2.30	100	25.97	35.06	0.79	0.80	1.59
30	2.40	110	27.64	37.31	0.83	0.85	1.68
30	2.50	120	29.35	39.62	0.88	0.89	1.77
30	2.60	131	31.10	41.98	0.92	0.94	1.86
30	2.70	142	32.89	44.40	0.97	0.99	1.95
30	2.80	153	34.72	46.87	1.01	1.03	2.05
30	2.90	165	36.59	49.40	1.06	1.08	2.14
30	3.00	178	38.50	51.98	1.10	1.13	2.23
30	3.10	190	40.46	54.62	1.14	1.18	2.32
30	3.20	203	42.45	57.31	1.19	1.22	2.41
30	3.30	217	44.49	60.06	1.23	1.27	2.50
30	3.40	231	46.57	62.86	1.27	1.32	2.59

Table KS9-22 (continued) Level diversion design (diversions with a land slope of **0.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	0.50	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
30	3.50	245	48.68	65.72	1.31	1.37	2.68
30	3.60	260	50.84	68.63	1.36	1.42	2.77
30	3.70	275	53.04	71.60	1.40	1.46	2.86
30	3.80	291	55.28	74.62	1.44	1.51	2.95
30	3.90	307	57.55	77.70	1.48	1.56	3.05
30	4.00	323	59.87	80.83	1.53	1.61	3.14
30	4.10	340	62.23	84.01	1.57	1.66	3.23
30	4.20	357	64.63	87.25	1.61	1.71	3.32
30	4.30	374	67.07	90.54	1.65	1.76	3.41
30	4.40	392	69.55	93.89	1.69	1.81	3.50
30	4.50	410	72.07	97.29	1.73	1.86	3.59
40	1.50	47	16.11	21.77	0.49	0.37	0.86
40	1.60	55	17.60	23.79	0.55	0.41	0.95
40	1.70	63	19.12	25.88	0.60	0.45	1.05
40	1.80	72	20.70	28.02	0.65	0.49	1.14
40	1.90	81	22.33	30.23	0.70	0.53	1.23
40	2.00	91	24.00	32.50	0.75	0.57	1.32
40	2.10	101	25.71	34.82	0.79	0.61	1.41
40	2.20	111	27.48	37.21	0.84	0.65	1.50
40	2.30	123	29.28	39.66	0.89	0.70	1.59
40	2.40	134	31.13	42.16	0.94	0.74	1.68
40	2.50	146	33.02	44.72	0.99	0.78	1.77
40	2.60	159	34.96	47.34	1.03	0.83	1.86
40	2.70	172	36.94	50.02	1.08	0.87	1.95
40	2.80	185	38.96	52.75	1.13	0.92	2.05
40	2.90	199	41.03	55.55	1.17	0.96	2.14
40	3.00	213	43.14	58.40	1.22	1.01	2.23
40	3.10	228	45.29	61.30	1.26	1.05	2.32
40	3.20	243	47.48	64.26	1.31	1.10	2.41
40	3.30	258	49.71	67.28	1.35	1.14	2.50
40	3.40	274	51.99	70.36	1.40	1.19	2.59
40	3.50	291	54.31	73.49	1.44	1.24	2.68
40	3.60	307	56.66	76.67	1.49	1.28	2.77
40	3.70	325	59.06	79.91	1.53	1.33	2.86
40	3.80	342	61.50	83.21	1.58	1.38	2.95
40	3.90	360	63.99	86.56	1.62	1.42	3.05
40	4.00	378	66.51	89.97	1.66	1.47	3.14
40	4.10	397	69.07	93.44	1.71	1.52	3.23
40	4.20	416	71.68	96.95	1.75	1.56	3.32

Table KS9-22 (continued) Level diversion design (diversions with a land slope of **0.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	0.50	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
50	1.50	57	17.71	23.91	0.56	0.30	0.86
50	1.60	66	19.35	26.12	0.62	0.34	0.95
50	1.70	75	21.04	28.40	0.67	0.37	1.05
50	1.80	85	22.78	30.75	0.73	0.41	1.14
50	1.90	96	24.57	33.16	0.78	0.45	1.23
50	2.00	107	26.40	35.64	0.83	0.49	1.32
50	2.10	119	28.29	38.19	0.88	0.53	1.41
50	2.20	131	30.22	40.80	0.93	0.57	1.50
50	2.30	144	32.20	43.47	0.98	0.61	1.59
50	2.40	157	34.23	46.21	1.03	0.65	1.68
50	2.50	171	36.30	49.00	1.08	0.69	1.77
50	2.60	185	38.41	51.86	1.13	0.73	1.86
50	2.70	200	40.58	54.78	1.18	0.77	1.95
50	2.80	215	42.78	57.75	1.23	0.82	2.05
50	2.90	231	45.03	60.79	1.28	0.86	2.14
50	3.00	247	47.32	63.89	1.33	0.90	2.23
50	3.10	263	49.66	67.04	1.37	0.94	2.32
50	3.20	280	52.04	70.26	1.42	0.99	2.41
50	3.30	298	54.47	73.53	1.47	1.03	2.50
50	3.40	316	56.93	76.86	1.52	1.08	2.59
50	3.50	334	59.44	80.25	1.56	1.12	2.68
50	3.60	353	62.00	83.69	1.61	1.16	2.77
50	3.70	372	64.59	87.20	1.65	1.21	2.86
50	3.80	391	67.23	90.76	1.70	1.25	2.95
50	3.90	411	69.90	94.37	1.75	1.30	3.05
50	4.00	432	72.63	98.04	1.79	1.35	3.14
75	1.50	79	21.25	28.69	0.70	0.17	0.86
75	1.60	91	23.20	31.32	0.76	0.20	0.95
75	1.70	104	25.20	34.02	0.82	0.23	1.05
75	1.80	117	27.27	36.81	0.88	0.26	1.14
75	1.90	131	29.39	39.68	0.93	0.29	1.23
75	2.00	145	31.58	42.63	0.99	0.33	1.32
75	2.10	160	33.82	45.65	1.05	0.36	1.41
75	2.20	176	36.11	48.75	1.11	0.39	1.50
75	2.30	192	38.46	51.92	1.16	0.43	1.59
75	2.40	209	40.86	55.16	1.22	0.47	1.68
75	2.50	226	43.31	58.47	1.27	0.50	1.77
75	2.60	245	45.82	61.85	1.33	0.54	1.86
75	2.70	263	48.37	65.30	1.38	0.58	1.95

Table KS9-22 (continued) Level diversion design (diversions with a land slope of **0.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	0.50	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
75	2.80	282	50.98	68.82	1.43	0.61	2.05
75	2.90	302	53.63	72.41	1.49	0.65	2.14
75	3.00	322	56.34	76.06	1.54	0.69	2.23
7	3.10	343	59.09	79.78	1.59	0.73	2.32
75	3.20	364	61.89	83.56	1.64	0.77	2.41
75	3.30	386	64.74	87.40	1.69	0.81	2.50
75	3.40	408	67.64	91.32	1.74	0.85	2.59
75	3.50	431	70.58	95.29	1.80	0.89	2.68
75	3.60	454	73.57	99.33	1.85	0.93	2.77
75	3.70	477	76.61	103.43	1.90	0.97	2.86
75	3.80	502	79.69	107.59	1.95	1.01	2.95
75	3.90	526	82.82	111.81	2.00	1.05	3.05
75	4.00	551	85.99	116.09	2.05	1.09	3.14
100	1.50	100	24.29	32.79	0.80	0.06	0.86
100	1.60	114	26.48	35.75	0.87	0.09	0.95
100	1.70	129	28.75	38.81	0.93	0.11	1.05
100	1.80	145	31.08	41.96	1.00	0.14	1.14
100	1.90	161	33.48	45.20	1.06	0.17	1.23
100	2.00	179	35.95	48.53	1.12	0.20	1.32
100	2.10	197	38.48	51.94	1.18	0.23	1.41
100	2.20	215	41.07	55.44	1.24	0.26	1.50
100	2.30	235	43.72	59.02	1.30	0.29	1.59
100	2.40	255	46.44	62.69	1.36	0.32	1.68
100	2.50	275	49.21	66.43	1.42	0.36	1.77
100	2.60	297	52.04	70.25	1.48	0.39	1.86
100	2.70	319	54.93	74.15	1.53	0.42	1.95
100	2.80	341	57.87	78.13	1.59	0.45	2.05
100	2.90	364	60.88	82.18	1.65	0.49	2.14
100	3.00	388	63.93	86.31	1.70	0.52	2.23
100	3.10	413	67.04	90.51	1.76	0.56	2.32
100	3.20	438	70.21	94.78	1.82	0.59	2.41
100	3.30	463	73.42	99.12	1.87	0.63	2.50
100	3.40	489	76.69	103.54	1.93	0.67	2.59
100	3.50	516	80.02	108.02	1.98	0.70	2.68
100	3.60	543	83.39	112.57	2.03	0.74	2.77
100	3.70	570	86.81	117.20	2.09	0.78	2.86
100	3.80	599	90.29	121.89	2.14	0.81	2.95
100	3.90	627	93.81	126.64	2.19	0.85	3.05
100	4.00	657	97.38	131.47	2.25	0.89	3.14

Table KS9-22 (continued) Level diversion design (diversions with a land slope of **0.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	0.50	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
125	1.90	190	37.15	50.15	1.16	0.07	1.23
125	2.00	210	39.86	53.81	1.23	0.09	1.32
125	2.10	231	42.63	57.56	1.29	0.12	1.41
125	2.20	252	45.48	61.40	1.35	0.15	1.50
125	2.30	274	48.40	65.33	1.42	0.17	1.59
125	2.40	297	51.38	69.36	1.48	0.20	1.68
125	2.50	320	54.43	73.47	1.54	0.23	1.77
125	2.60	344	57.54	77.68	1.60	0.26	1.86
125	2.70	369	60.71	81.96	1.66	0.29	1.95
125	2.80	395	63.95	86.34	1.72	0.32	2.05
125	2.90	421	67.25	90.79	1.78	0.35	2.14
125	3.00	448	70.61	95.33	1.84	0.39	2.23
125	3.10	476	74.04	99.95	1.90	0.42	2.32
125	3.20	504	77.52	104.65	1.96	0.45	2.41
125	3.30	533	81.05	109.42	2.02	0.48	2.50
125	3.40	562	84.65	114.28	2.08	0.52	2.59
125	3.50	592	88.30	119.21	2.13	0.55	2.68
125	3.60	623	92.01	124.22	2.19	0.58	2.77
125	3.70	654	95.78	129.30	2.25	0.62	2.86
125	3.80	686	99.60	134.46	2.30	0.65	2.95
125	3.90	718	103.47	139.69	2.36	0.69	3.05
125	4.00	751	107.40	144.99	2.41	0.72	3.14
150	2.10	263	46.49	62.74	1.39	0.02	1.41
150	2.20	287	49.56	66.89	1.45	0.05	1.50
150	2.30	311	52.71	71.14	1.52	0.07	1.59
150	2.40	336	55.92	75.49	1.58	0.10	1.68
150	2.50	362	59.13	80.15	1.65	0.13	1.77
150	2.60	389	62.48	84.71	1.71	0.15	1.86

Table KS9-23 Level diversion design (diversions with a land slope of **0.75%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	0.75	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
10	1.50	15	9.72	13.12	0.18	0.69	0.86
10	1.60	18	10.69	14.43	0.22	0.74	0.95
10	1.70	21	11.71	15.81	0.26	0.79	1.05
10	1.80	24	12.77	17.23	0.30	0.84	1.14
10	1.90	27	13.87	18.72	0.34	0.89	1.23
10	2.00	30	15.01	20.26	0.38	0.94	1.32
10	2.10	34	16.19	21.86	0.42	0.99	1.41
10	2.20	38	17.41	23.51	0.46	1.04	1.50
10	2.30	43	18.68	25.22	0.50	1.09	1.59
10	2.40	47	19.99	26.98	0.54	1.14	1.68
10	2.50	52	21.33	28.80	0.58	1.19	1.77
10	2.60	58	22.72	30.68	0.62	1.25	1.86
10	2.70	63	24.16	32.61	0.66	1.30	1.95
10	2.80	69	25.63	34.60	0.70	1.35	2.05
10	2.90	75	27.14	36.64	0.74	1.40	2.14
10	3.00	81	28.70	38.74	0.78	1.45	2.23
10	3.10	88	30.30	40.90	0.82	1.50	2.32
10	3.20	95	31.94	43.11	0.86	1.55	2.41
10	3.30	102	33.62	45.38	0.89	1.61	2.50
10	3.40	109	35.34	47.71	0.93	1.66	2.59
10	3.50	117	37.10	50.09	0.97	1.71	2.68
10	3.60	125	38.91	52.52	1.01	1.76	2.77
10	3.70	133	40.75	55.01	1.05	1.81	2.86
10	3.80	142	42.64	57.56	1.09	1.86	2.95
10	3.90	150	44.57	60.17	1.13	1.91	3.05
10	4.00	160	46.54	62.83	1.17	1.97	3.14
10	4.10	169	48.55	65.54	1.21	2.02	3.23
10	4.20	178	50.60	68.31	1.25	2.07	3.32
10	4.30	188	52.70	71.14	1.29	2.12	3.41
10	4.40	198	54.84	74.03	1.33	2.17	3.50
10	4.50	209	57.01	76.97	1.37	2.23	3.59
20	1.50	24	12.65	17.12	0.32	0.54	0.86
20	1.60	28	13.84	18.73	0.36	0.59	0.95
20	1.70	32	15.07	20.40	0.41	0.64	1.05
20	1.80	37	16.35	22.12	0.45	0.68	1.14
20	1.90	41	17.67	23.90	0.50	0.73	1.23
20	2.00	46	19.03	25.74	0.54	0.78	1.32
20	2.10	52	20.44	27.64	0.58	0.83	1.41
20	2.20	57	21.88	29.59	0.62	0.87	1.50
20	2.30	63	23.37	31.60	0.67	0.92	1.59
20	2.40	69	24.90	33.67	0.71	0.97	1.68

Table KS9-23 (continued) Level diversion design (diversions with a land slope of **0.75%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	0.75	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
20	2.50	76	26.47	35.79	0.75	1.02	1.77
20	2.60	82	28.09	37.97	0.79	1.07	1.86
20	2.70	89	29.74	40.21	0.83	1.12	1.95
20	2.80	97	31.44	42.50	0.88	1.17	2.05
20	2.90	104	33.18	44.85	0.92	1.22	2.14
20	3.00	112	34.96	47.26	0.96	1.27	2.23
20	3.10	121	36.79	49.72	1.00	1.32	2.32
20	3.20	129	38.65	52.24	1.04	1.37	2.41
20	3.30	138	40.56	54.82	1.08	1.42	2.50
20	3.40	147	42.51	57.45	1.12	1.47	2.59
20	3.50	156	44.50	60.14	1.16	1.52	2.68
20	3.60	166	46.53	62.88	1.21	1.57	2.77
20	3.70	175	48.60	65.68	1.25	1.62	2.86
20	3.80	186	50.72	68.54	1.29	1.67	2.95
20	3.90	196	52.87	71.45	1.33	1.72	3.05
20	4.00	207	55.07	74.42	1.37	1.77	3.14
20	4.10	218	57.31	77.44	1.41	1.82	3.23
20	4.20	229	59.59	80.52	1.45	1.87	3.32
20	4.30	240	61.92	83.66	1.49	1.92	3.41
20	4.40	252	64.28	86.85	1.53	1.97	3.50
20	4.50	264	66.69	90.10	1.57	2.02	3.59
30	1.50	34	15.16	20.44	0.43	0.43	0.86
30	1.60	39	16.55	22.31	0.48	0.48	0.95
30	1.70	44	17.99	24.25	0.53	0.52	1.05
30	1.80	50	19.46	26.25	0.57	0.56	1.14
30	1.90	56	20.99	28.30	0.62	0.61	1.23
30	2.00	62	22.55	30.42	0.67	0.65	1.32
30	2.10	68	24.17	32.60	0.71	0.70	1.41
30	2.20	75	25.82	34.83	0.76	0.74	1.50
30	2.30	83	27.52	37.13	0.80	0.79	1.59
30	2.40	90	29.26	39.48	0.85	0.83	1.68
30	2.50	98	31.05	41.89	0.89	0.88	1.77
30	2.60	106	32.88	44.36	0.94	0.93	1.86
30	2.70	115	34.75	46.89	0.98	0.97	1.95
30	2.80	124	36.66	49.47	1.02	1.02	2.05
30	2.90	133	38.62	52.11	1.07	1.07	2.14
30	3.00	142	40.62	54.81	1.11	1.12	2.23
30	3.10	152	42.66	57.57	1.16	1.16	2.32
30	3.20	162	44.74	60.38	1.20	1.21	2.41
30	3.30	172	46.87	63.25	1.24	1.26	2.50
30	3.40	183	49.04	66.18	1.28	1.31	2.59

Table KS9-23 (continued) Level diversion design (diversions with a land slope of **0.75%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	0.75	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
30	3.50	194	51.25	69.17	1.33	1.35	2.68
30	3.60	205	53.50	72.21	1.37	1.40	2.77
30	3.70	216	55.80	75.31	1.41	1.45	2.86
30	3.80	228	58.13	78.46	1.45	1.50	2.95
30	3.90	240	60.51	81.67	1.50	1.55	3.05
30	4.00	252	62.94	84.94	1.54	1.60	3.14
30	4.10	265	65.40	88.27	1.58	1.65	3.23
30	4.20	278	67.90	91.65	1.62	1.70	3.32
30	4.30	291	70.45	95.09	1.66	1.75	3.41
30	4.40	304	73.04	98.58	1.71	1.79	3.50
30	4.50	318	75.67	102.13	1.75	1.84	3.59
40	1.50	43	17.40	23.50	0.52	0.34	0.86
40	1.60	49	18.96	25.62	0.57	0.38	0.95
40	1.70	55	20.57	27.81	0.62	0.42	1.05
40	1.80	62	22.23	30.06	0.67	0.46	1.14
40	1.90	69	23.94	32.37	0.72	0.50	1.23
40	2.00	77	25.69	34.75	0.77	0.55	1.32
40	2.10	85	27.49	37.18	0.82	0.59	1.41
40	2.20	93	29.34	39.68	0.87	0.63	1.50
40	2.30	101	31.23	42.24	0.91	0.67	1.59
40	2.40	110	33.17	44.87	0.96	0.72	1.68
40	2.50	120	35.15	47.55	1.01	0.76	1.77
40	2.60	129	37.18	50.29	1.06	0.81	1.86
40	2.70	139	39.25	53.09	1.10	0.85	1.95
40	2.80	149	41.37	55.95	1.15	0.90	2.05
40	2.90	160	43.53	58.88	1.19	0.94	2.14
40	3.00	171	45.73	61.86	1.24	0.99	2.23
40	3.10	182	47.98	64.89	1.28	1.03	2.32
40	3.20	193	50.27	67.99	1.33	1.08	2.41
40	3.30	205	52.61	71.15	1.37	1.12	2.50
40	3.40	217	54.99	74.36	1.42	1.17	2.59
40	3.50	229	57.41	77.63	1.46	1.22	2.68
40	3.60	242	59.87	80.96	1.51	1.26	2.77
40	3.70	255	62.38	84.35	1.55	1.31	2.86
40	3.80	268	64.93	87.80	1.60	1.36	2.95
40	3.90	281	67.53	91.30	1.64	1.40	3.05
40	4.00	295	70.16	94.86	1.68	1.45	3.14
40	4.10	309	72.84	98.48	1.73	1.50	3.23
40	4.20	324	75.56	102.16	1.77	1.55	3.32

Table KS9-23 (continued) Level diversion design (diversions with a land slope of **0.75%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	0.75	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
50	1.50	51	19.35	26.18	0.60	0.27	0.86
50	1.60	58	21.08	28.48	0.65	0.30	0.95
50	1.70	66	22.86	30.88	0.70	0.34	1.05
50	1.80	74	24.69	33.35	0.76	0.38	1.14
50	1.90	82	26.57	35.89	0.81	0.42	1.23
50	2.00	91	28.50	38.50	0.86	0.46	1.32
50	2.10	100	30.48	41.17	0.91	0.50	1.41
50	2.20	109	32.50	43.91	0.96	0.54	1.50
50	2.30	119	34.58	46.71	1.01	0.58	1.59
50	2.40	129	36.70	49.58	1.06	0.62	1.68
50	2.50	140	38.88	52.51	1.11	0.66	1.77
50	2.60	151	41.09	55.50	1.16	0.70	1.86
50	2.70	162	43.36	58.56	1.21	0.75	1.95
50	2.80	173	45.67	61.68	1.26	0.79	2.05
50	2.90	185	48.03	64.86	1.31	0.83	2.14
50	3.00	197	50.43	68.10	1.35	0.87	2.23
50	3.10	210	52.87	71.40	1.40	0.92	2.32
50	3.20	223	55.37	74.77	1.45	0.96	2.41
50	3.30	236	57.90	78.19	1.49	1.01	2.50
50	3.40	249	60.48	81.67	1.54	1.05	2.59
50	3.50	263	63.11	85.22	1.59	1.09	2.68
50	3.60	277	65.78	88.82	1.63	1.14	2.77
50	3.70	292	68.49	92.48	1.68	1.18	2.86
50	3.80	306	71.25	96.20	1.72	1.23	2.95
50	3.90	321	74.05	99.99	1.77	1.28	3.05
50	4.00	337	76.89	103.83	1.82	1.32	3.14
75	1.50	73	23.89	32.06	0.76	0.11	0.86
75	1.60	82	25.95	34.89	0.82	0.14	0.95
75	1.70	92	28.07	37.79	0.87	0.17	1.05
75	1.80	102	30.26	40.78	0.93	0.20	1.14
75	1.90	113	32.50	43.83	0.99	0.24	1.23
75	2.00	124	34.81	46.96	1.05	0.27	1.32
75	2.10	136	37.17	50.17	1.10	0.31	1.41
75	2.20	148	39.59	53.45	1.16	0.34	1.50
75	2.30	161	42.06	56.80	1.21	0.38	1.59
75	2.40	174	44.59	60.22	1.27	0.41	1.68
75	2.50	187	47.18	63.72	1.32	0.45	1.77
75	2.60	201	49.81	67.28	1.37	0.49	1.86
75	2.70	215	52.50	70.92	1.43	0.53	1.95
75	2.80	230	55.24	74.62	1.48	0.56	2.05
75	2.90	245	58.03	78.39	1.53	0.60	2.14

Table KS9-23 (continued) Level diversion design (diversions with a land slope of **0.75%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	0.75	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
75	3.00	260	60.88	82.23	1.59	0.64	2.23
75	3.10	276	63.77	86.14	1.64	0.68	2.32
75	3.20	292	66.71	90.11	1.69	0.72	2.41
75	3.30	308	69.70	94.15	1.74	0.76	2.50
75	3.40	325	72.74	98.26	1.79	0.80	2.59
75	3.50	342	75.83	102.43	1.84	0.84	2.68
75	3.60	359	78.97	106.66	1.89	0.88	2.77
75	3.70	377	82.15	110.96	1.94	0.92	2.86
75	3.80	395	85.38	115.32	1.99	0.96	2.95
75	3.90	414	88.66	119.75	2.04	1.01	3.05
75	4.00	432	91.99	124.24	2.09	1.05	3.14
100	1.60	105	30.28	40.98	0.95	0.00	0.95
100	1.70	117	32.70	44.27	1.01	0.03	1.05
100	1.80	129	35.19	47.65	1.07	0.06	1.14
100	1.90	142	37.75	51.11	1.14	0.09	1.23
100	2.00	156	40.38	54.66	1.20	0.12	1.32
100	2.10	170	43.07	58.29	1.26	0.15	1.41
100	2.20	184	45.83	62.01	1.32	0.18	1.50
100	2.30	199	48.65	65.81	1.37	0.22	1.59
100	2.40	215	51.53	69.69	1.43	0.25	1.68
100	2.50	231	54.47	73.66	1.49	0.28	1.77
100	2.60	247	57.47	77.70	1.55	0.32	1.86
100	2.70	264	60.53	81.82	1.61	0.35	1.95
100	2.80	281	63.64	86.02	1.66	0.38	2.05
100	2.90	299	66.82	90.30	1.72	0.42	2.14
100	3.00	317	70.05	94.65	1.77	0.45	2.23
100	3.10	335	73.33	99.08	1.83	0.49	2.32
100	3.20	354	76.67	103.58	1.88	0.53	2.41
100	3.30	374	80.06	108.16	1.94	0.56	2.50
100	3.40	393	83.51	112.80	1.99	0.60	2.59
100	3.50	413	87.01	117.52	2.05	0.64	2.68
100	3.60	434	90.56	122.31	2.10	0.67	2.77
100	3.70	455	94.17	127.17	2.15	0.71	2.86
100	3.80	476	97.83	132.10	2.21	0.75	2.95
100	3.90	498	101.53	137.10	2.26	0.79	3.05
100	4.00	520	105.29	142.17	2.31	0.83	3.14

Table KS9-23 (continued) Level diversion design (diversions with a land slope of **0.75%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	0.75	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
125	1.90						1.23
125	2.00						1.32
125	2.10	203	48.61	65.80	1.39	0.02	1.41
125	2.20	219	51.66	69.90	1.45	0.05	1.50
125	2.30	237	54.78	74.09	1.52	0.07	1.59
125	2.40	254	57.97	78.37	1.58	0.10	1.68
125	2.50	272	61.23	82.75	1.64	0.13	1.77
125	2.60	291	64.55	87.21	1.70	0.16	1.86
125	2.70	310	67.94	91.77	1.76	0.20	1.95
125	2.80	330	71.38	96.41	1.82	0.23	2.05
125	2.90	350	74.89	101.13	1.88	0.26	2.14
125	3.00	371	78.47	105.94	1.94	0.29	2.23
125	3.10	392	82.10	110.84	1.99	0.32	2.32
125	3.20	413	85.79	115.81	2.05	0.36	2.41
125	3.30	435	89.54	120.86	2.11	0.39	2.50
125	3.40	458	93.35	126.00	2.17	0.42	2.59
125	3.50	480	97.22	131.21	2.22	0.46	2.68
125	3.60	504	101.14	136.50	2.28	0.49	2.77
125	3.70	527	105.12	141.87	2.34	0.53	2.86
125	3.80	551	109.16	147.32	2.39	0.56	2.95
125	3.90	576	113.25	152.84	2.45	0.60	3.05
125	4.00	601	117.40	158.43	2.50	0.63	3.14

Table KS9-24 Level diversion design (diversions with a land slope of **1.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	1.00	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
10	1.50	15	10.20	13.77	0.18	0.68	0.86
10	1.60	18	11.22	15.15	0.22	0.73	0.95
10	1.70	20	12.28	16.58	0.26	0.78	1.05
10	1.80	23	13.39	18.07	0.30	0.83	1.14
10	1.90	26	14.54	19.62	0.34	0.88	1.23
10	2.00	29	15.73	21.23	0.38	0.94	1.32
10	2.10	33	16.96	22.90	0.42	0.99	1.41
10	2.20	36	18.24	24.63	0.46	1.04	1.50
10	2.30	40	19.56	26.41	0.50	1.09	1.59
10	2.40	44	20.93	28.25	0.54	1.14	1.68
10	2.50	48	22.34	30.15	0.58	1.19	1.77
10	2.60	53	23.79	32.11	0.62	1.24	1.86
10	2.70	58	25.28	34.13	0.66	1.29	1.95
10	2.80	63	26.82	36.21	0.70	1.34	2.05
10	2.90	68	28.40	38.34	0.74	1.40	2.14
10	3.00	73	30.03	40.54	0.78	1.45	2.23
10	3.10	79	31.70	42.79	0.82	1.50	2.32
10	3.20	85	33.41	45.10	0.86	1.55	2.41
10	3.30	91	35.16	47.47	0.90	1.60	2.50
10	3.40	97	36.96	49.89	0.94	1.65	2.59
10	3.50	104	38.80	52.38	0.98	1.70	2.68
10	3.60	111	40.69	54.92	1.02	1.76	2.77
10	3.70	118	42.61	57.52	1.06	1.81	2.86
10	3.80	125	44.58	60.19	1.10	1.86	2.95
10	3.90	132	46.60	62.90	1.13	1.91	3.05
10	4.00	140	48.66	65.68	1.17	1.96	3.14
10	4.10	148	50.76	68.52	1.21	2.01	3.23
10	4.20	156	52.90	71.41	1.25	2.07	3.32
10	4.30	165	55.09	74.37	1.29	2.12	3.41
10	4.40	173	57.32	77.38	1.33	2.17	3.50
10	4.50	182	59.59	80.45	1.37	2.22	3.59
20	1.50	24	13.41	18.07	0.33	0.53	0.86
20	1.60	27	14.66	19.75	0.38	0.58	0.95
20	1.70	31	15.95	21.49	0.42	0.63	1.05
20	1.80	35	17.28	23.29	0.46	0.67	1.14
20	1.90	39	18.66	25.15	0.51	0.72	1.23
20	2.00	43	20.08	27.07	0.55	0.77	1.32
20	2.10	48	21.55	29.05	0.59	0.82	1.41
20	2.20	53	23.06	31.09	0.63	0.87	1.50
20	2.30	58	24.62	33.19	0.68	0.91	1.59
20	2.40	63	26.22	35.35	0.72	0.96	1.68

Table KS9-24 (continued) Level diversion design (diversions with a land slope of **1.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	1.00	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
20	2.50	69	27.86	37.57	0.76	1.01	1.77
20	2.60	75	29.55	39.85	0.80	1.06	1.86
20	2.70	81	31.28	42.18	0.84	1.11	1.95
20	2.80	87	33.05	44.57	0.89	1.16	2.05
20	2.90	93	34.87	47.03	0.93	1.21	2.14
20	3.00	100	36.73	49.54	0.97	1.26	2.23
20	3.10	107	38.64	52.11	1.01	1.31	2.32
20	3.20	114	40.58	54.74	1.05	1.36	2.41
20	3.30	122	42.58	57.43	1.09	1.41	2.50
20	3.40	129	44.61	60.18	1.13	1.46	2.59
20	3.50	137	46.69	62.98	1.17	1.51	2.68
20	3.60	145	48.81	65.85	1.21	1.56	2.77
20	3.70	154	50.98	68.77	1.26	1.61	2.86
20	3.80	162	53.19	71.75	1.30	1.66	2.95
20	3.90	171	55.44	74.79	1.34	1.71	3.05
20	4.00	180	57.74	77.89	1.38	1.76	3.14
20	4.10	189	60.08	81.05	1.42	1.81	3.23
20	4.20	199	62.46	84.26	1.46	1.86	3.32
20	4.30	209	64.88	87.54	1.50	1.91	3.41
20	4.40	219	67.35	90.87	1.54	1.96	3.50
20	4.50	229	69.87	94.26	1.58	2.01	3.59
30	1.50	33	16.21	21.85	0.45	0.42	0.86
30	1.60	37	17.66	23.81	0.50	0.46	0.95
30	1.70	42	19.16	25.84	0.54	0.50	1.05
30	1.80	47	20.71	27.93	0.59	0.55	1.14
30	1.90	52	22.30	30.08	0.64	0.59	1.23
30	2.00	57	23.94	32.30	0.68	0.64	1.32
30	2.10	63	25.63	34.57	0.73	0.68	1.41
30	2.20	69	27.36	36.91	0.77	0.73	1.50
30	2.30	75	29.14	39.31	0.82	0.77	1.59
30	2.40	82	30.96	41.77	0.86	0.82	1.68
30	2.50	89	32.82	44.29	0.91	0.87	1.77
30	2.60	96	34.74	46.87	0.95	0.91	1.86
30	2.70	103	36.69	49.51	0.99	0.96	1.95
30	2.80	110	38.69	52.21	1.04	1.01	2.05
30	2.90	118	40.74	54.97	1.08	1.05	2.14
30	3.00	126	42.83	57.79	1.13	1.10	2.23
30	3.10	134	44.96	60.67	1.17	1.15	2.32
30	3.20	143	47.14	63.61	1.21	1.20	2.41
30	3.30	152	49.36	66.61	1.25	1.25	2.50
30	3.40	160	51.63	69.67	1.30	1.29	2.59

Table KS9-24 (continued) Level diversion design (diversions with a land slope of **1.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	1.00	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
30	3.50	170	53.93	72.79	1.34	1.34	2.68
30	3.60	179	56.29	75.97	1.38	1.39	2.77
30	3.70	189	58.69	79.20	1.42	1.44	2.86
30	3.80	199	61.13	82.50	1.47	1.49	2.95
30	3.90	209	63.61	85.86	1.51	1.54	3.05
30	4.00	219	66.14	89.27	1.55	1.59	3.14
30	4.10	230	68.72	92.74	1.59	1.64	3.23
30	4.20	240	71.33	96.28	1.63	1.68	3.32
30	4.30	251	73.99	99.87	1.68	1.73	3.41
30	4.40	263	76.70	103.52	1.72	1.78	3.50
30	4.50	274	79.44	107.23	1.76	1.83	3.59
40	1.50	41	18.70	25.20	0.55	0.32	0.86
40	1.60	47	20.35	27.41	0.60	0.36	0.95
40	1.70	52	22.05	29.69	0.65	0.40	1.05
40	1.80	58	23.80	32.04	0.70	0.44	1.14
40	1.90	64	25.60	34.46	0.75	0.48	1.23
40	2.00	71	27.45	36.94	0.80	0.52	1.32
40	2.10	78	29.34	39.49	0.84	0.57	1.41
40	2.20	85	31.28	42.10	0.89	0.61	1.50
40	2.30	92	33.27	44.78	0.94	0.65	1.59
40	2.40	100	35.30	47.52	0.99	0.70	1.68
40	2.50	108	37.38	50.33	1.03	0.74	1.77
40	2.60	116	39.50	53.19	1.08	0.79	1.86
40	2.70	124	41.68	56.12	1.13	0.83	1.95
40	2.80	133	43.89	59.12	1.17	0.88	2.05
40	2.90	142	46.16	62.17	1.22	0.92	2.14
40	3.00	151	48.47	65.28	1.26	0.97	2.23
40	3.10	161	50.82	68.46	1.31	1.01	2.32
40	3.20	170	53.22	71.70	1.35	1.06	2.41
40	3.30	180	55.66	75.00	1.40	1.10	2.50
40	3.40	190	58.15	78.35	1.44	1.15	2.59
40	3.50	201	60.69	81.77	1.49	1.20	2.68
40	3.60	212	63.26	85.25	1.53	1.24	2.77
40	3.70	222	65.89	88.79	1.57	1.29	2.86
40	3.80	234	68.55	92.39	1.62	1.34	2.95
40	3.90	245	71.27	96.05	1.66	1.39	3.05
40	4.00	257	74.02	99.77	1.70	1.43	3.14
40	4.10	268	76.82	103.55	1.75	1.48	3.23
40	4.20	281	79.67	107.39	1.79	1.53	3.32

Table KS9-24 (continued) Level diversion design (diversions with a land slope of **1.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	1.00	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
50	1.50	50	21.10	28.49	0.63	0.23	0.86
50	1.60	56	22.92	30.95	0.68	0.27	0.95
50	1.70	63	24.79	33.47	0.74	0.31	1.05
50	1.80	70	26.71	36.07	0.79	0.35	1.14
50	1.90	77	28.69	38.74	0.84	0.39	1.23
50	2.00	84	30.71	41.48	0.89	0.43	1.32
50	2.10	92	32.79	44.28	0.94	0.47	1.41
50	2.20	100	34.92	47.16	0.99	0.51	1.50
50	2.30	109	37.10	50.10	1.04	0.55	1.59
50	2.40	117	39.33	53.10	1.09	0.59	1.68
50	2.50	126	41.60	56.18	1.14	0.63	1.77
50	2.60	136	43.93	59.32	1.19	0.67	1.86
50	2.70	145	46.30	62.52	1.24	0.72	1.95
50	2.80	155	48.72	65.78	1.28	0.76	2.05
50	2.90	165	51.19	69.12	1.33	0.80	2.14
50	3.00	175	53.70	72.51	1.38	0.85	2.23
50	3.10	186	56.26	75.97	1.43	0.89	2.32
50	3.20	197	58.87	79.49	1.47	0.94	2.41
50	3.30	208	61.52	83.07	1.52	0.98	2.50
50	3.40	219	64.23	86.72	1.57	1.02	2.59
50	3.50	231	66.97	90.43	1.61	1.07	2.68
50	3.60	243	69.76	94.19	1.66	1.11	2.77
50	3.70	255	72.60	98.03	1.70	1.16	2.86
50	3.80	267	75.49	101.92	1.75	1.21	2.95
50	3.90	280	78.41	105.87	1.79	1.25	3.05
50	4.00	293	81.39	109.89	1.84	1.30	3.14
75	1.50	72	26.64	35.78	0.81	0.05	0.86
75	1.60	80	28.83	38.78	0.87	0.08	0.95
75	1.70	89	31.09	41.85	0.93	0.12	1.05
75	1.80	98	33.41	45.00	0.99	0.15	1.14
75	1.90	107	35.79	48.23	1.04	0.18	1.23
75	2.00	117	38.22	51.54	1.10	0.22	1.32
75	2.10	127	40.72	54.92	1.15	0.25	1.41
75	2.20	137	43.27	58.38	1.21	0.29	1.50
75	2.30	148	45.89	61.91	1.26	0.33	1.59
75	2.40	159	48.55	65.52	1.32	0.36	1.68
75	2.50	171	51.27	69.20	1.37	0.40	1.77
75	2.60	182	54.05	72.96	1.42	0.44	1.86
75	2.70	194	56.88	76.78	1.48	0.48	1.95
75	2.80	207	59.76	80.68	1.53	0.52	2.05

Table KS9-24 (continued) Level diversion design (diversions with a land slope of **1.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	1.00	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
75	2.90	220	62.70	84.64	1.58	0.56	2.14
75	3.00	232	65.68	88.68	1.63	0.60	2.23
75	3.10	246	68.72	92.78	1.68	0.64	2.32
75	3.20	259	71.81	96.96	1.73	0.68	2.41
75	3.30	273	74.95	101.20	1.78	0.72	2.50
75	3.40	287	78.14	105.51	1.83	0.76	2.59
75	3.50	302	81.38	109.88	1.88	0.80	2.68
75	3.60	316	84.67	114.33	1.93	0.84	2.77
75	3.70	331	88.01	118.84	1.98	0.88	2.86
75	3.80	347	91.40	123.41	2.03	0.92	2.95
75	3.90	362	94.83	128.05	2.08	0.96	3.05
75	4.00	378	98.32	132.76	2.13	1.01	3.14
100	1.90	137	42.36	57.25	1.21	0.01	1.23
100	2.00	149	45.16	61.03	1.27	0.05	1.32
100	2.10	161	48.02	64.90	1.33	0.08	1.41
100	2.20	173	50.95	68.86	1.39	0.11	1.50
100	2.30	186	53.94	72.89	1.45	0.14	1.59
100	2.40	199	56.99	77.01	1.51	0.18	1.68
100	2.50	213	60.10	81.22	1.56	0.21	1.77
100	2.60	227	63.28	85.50	1.62	0.24	1.86
100	2.70	242	66.51	89.86	1.68	0.28	1.95
100	2.80	256	69.81	94.30	1.73	0.31	2.05
100	2.90	271	73.16	98.82	1.79	0.35	2.14
100	3.00	287	76.56	103.42	1.84	0.39	2.23
100	3.10	302	80.03	108.10	1.90	0.42	2.32
100	3.20	318	83.55	112.84	1.95	0.46	2.41
100	3.30	335	87.12	117.67	2.00	0.50	2.50
100	3.40	351	90.75	122.56	2.06	0.53	2.59
100	3.50	368	94.44	127.54	2.11	0.57	2.68
100	3.60	385	98.18	132.58	2.16	0.61	2.77
100	3.70	403	101.97	137.69	2.22	0.65	2.86
100	3.80	421	105.81	142.88	2.27	0.69	2.95
100	3.90	439	109.71	148.14	2.32	0.72	3.05
100	4.00	458	113.66	153.47	2.37	0.76	3.14

Table KS9-24 (continued) Level diversion design (diversions with a land slope of **1.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	1.00	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
125	2.40	239	65.08	87.93	1.67	0.01	1.68
125	2.50	255	68.55	92.60	1.73	0.04	1.77
125	2.60	271	72.08	97.36	1.79	0.07	1.86
125	2.70	288	75.68	102.20	1.85	0.10	1.95
125	2.80	304	79.34	107.14	1.91	0.13	2.05
125	2.90	322	83.06	112.16	1.97	0.17	2.14
125	3.00	339	86.85	117.26	2.03	0.20	2.23
125	3.10	357	90.70	122.45	2.08	0.23	2.32
125	3.20	375	94.61	127.72	2.14	0.27	2.41
125	3.30	394	98.58	133.07	2.20	0.30	2.50
125	3.40	413	102.61	138.50	2.25	0.34	2.59
125	3.50	432	106.69	144.02	2.31	0.37	2.68
125	3.60	452	110.84	149.61	2.37	0.41	2.77
125	3.70	472	115.04	155.28	2.42	0.44	2.86
125	3.80	492	119.30	161.02	2.48	0.48	2.95
125	3.90	513	123.61	166.85	2.53	0.51	3.05
125	4.00	534	127.99	172.75	2.59	0.55	3.14

Table KS9-25 Level diversion design (diversions with a land slope of **1.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	1.50	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
10	1.50	15	11.26	15.19	0.19	0.68	0.86
10	1.60	18	12.37	16.69	0.23	0.73	0.95
10	1.70	20	13.53	18.26	0.27	0.78	1.05
10	1.80	23	14.73	19.89	0.31	0.83	1.14
10	1.90	26	15.99	21.58	0.35	0.88	1.23
10	2.00	29	17.29	23.33	0.39	0.93	1.32
10	2.10	32	18.63	25.15	0.43	0.98	1.41
10	2.20	35	20.03	27.04	0.47	1.03	1.50
10	2.30	39	21.47	28.98	0.51	1.08	1.59
10	2.40	42	22.96	31.00	0.55	1.13	1.68
10	2.50	46	24.50	33.07	0.59	1.18	1.77
10	2.60	50	26.08	35.21	0.63	1.23	1.86
10	2.70	54	27.71	37.41	0.67	1.29	1.95
10	2.80	58	29.39	39.68	0.71	1.34	2.05
10	2.90	63	31.12	42.01	0.75	1.39	2.14
10	3.00	68	32.89	44.40	0.79	1.44	2.23
10	3.10	72	34.71	46.86	0.83	1.49	2.32
10	3.20	77	36.58	49.38	0.87	1.54	2.41
10	3.30	83	38.50	51.96	0.91	1.59	2.50
10	3.40	88	40.46	54.61	0.95	1.64	2.59
10	3.50	94	42.47	57.33	0.99	1.70	2.68
10	3.60	99	44.52	60.10	1.03	1.75	2.77
10	3.70	105	46.63	62.94	1.07	1.80	2.86
10	3.80	111	48.78	65.85	1.10	1.85	2.95
10	3.90	118	50.98	68.81	1.14	1.90	3.05
10	4.00	124	53.22	71.84	1.18	1.95	3.14
10	4.10	131	55.52	74.94	1.22	2.00	3.23
10	4.20	138	57.86	78.10	1.26	2.06	3.32
10	4.30	145	60.24	81.32	1.30	2.11	3.41
10	4.40	152	62.68	84.61	1.34	2.16	3.50
10	4.50	159	65.16	87.96	1.38	2.21	3.59
20	1.50	24	15.02	20.24	0.35	0.52	0.86
20	1.60	27	16.39	22.08	0.39	0.56	0.95
20	1.70	31	17.80	23.98	0.44	0.61	1.05
20	1.80	34	19.26	25.95	0.48	0.66	1.14
20	1.90	38	20.76	27.99	0.52	0.70	1.23
20	2.00	42	22.32	30.09	0.57	0.75	1.32
20	2.10	46	23.92	32.25	0.61	0.80	1.41
20	2.20	50	25.57	34.48	0.65	0.85	1.50
20	2.30	55	27.27	36.77	0.69	0.90	1.59
20	2.40	59	29.02	39.13	0.73	0.95	1.68

Table KS9-25 (continued) Level diversion design (diversions with a land slope of **1.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	1.50	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
20	2.50	64	30.81	41.55	0.78	1.00	1.77
20	2.60	69	32.65	44.03	0.82	1.05	1.86
20	2.70	74	34.54	46.58	0.86	1.09	1.95
20	2.80	80	36.48	49.20	0.90	1.14	2.05
20	2.90	85	38.46	51.88	0.94	1.19	2.14
20	3.00	91	40.50	54.62	0.98	1.24	2.23
20	3.10	97	42.58	57.42	1.03	1.29	2.32
20	3.20	103	44.70	60.29	1.07	1.34	2.41
20	3.30	109	46.88	63.23	1.11	1.39	2.50
20	3.40	115	49.10	66.23	1.15	1.44	2.59
20	3.50	122	51.37	69.29	1.19	1.49	2.68
20	3.60	129	53.68	72.42	1.23	1.54	2.77
20	3.70	136	56.05	75.61	1.27	1.59	2.86
20	3.80	143	58.46	78.86	1.31	1.64	2.95
20	3.90	150	60.92	82.18	1.35	1.69	3.05
20	4.00	158	63.43	85.56	1.39	1.74	3.14
20	4.10	166	65.98	89.01	1.43	1.79	3.23
20	4.20	174	68.58	92.52	1.47	1.85	3.32
20	4.30	182	71.23	96.09	1.51	1.90	3.41
20	4.40	190	73.92	99.73	1.55	1.95	3.50
20	4.50	198	76.67	103.43	1.59	2.00	3.59
30	1.50	33	18.47	24.90	0.48	0.38	0.86
30	1.60	37	20.07	27.05	0.53	0.43	0.95
30	1.70	41	21.72	29.27	0.57	0.47	1.05
30	1.80	46	23.41	31.56	0.62	0.52	1.14
30	1.90	50	25.16	33.92	0.66	0.56	1.23
30	2.00	55	26.95	36.35	0.71	0.61	1.32
30	2.10	60	28.80	38.84	0.76	0.65	1.41
30	2.20	65	30.69	41.40	0.80	0.70	1.50
30	2.30	71	32.64	44.02	0.85	0.75	1.59
30	2.40	76	34.63	46.71	0.89	0.79	1.68
30	2.50	82	36.67	49.47	0.93	0.84	1.77
30	2.60	88	38.76	52.29	0.98	0.89	1.86
30	2.70	94	40.90	55.17	1.02	0.93	1.95
30	2.80	100	43.08	58.13	1.06	0.98	2.05
30	2.90	107	45.32	61.14	1.11	1.03	2.14
30	3.00	114	47.60	64.23	1.15	1.08	2.23
30	3.10	121	49.93	67.37	1.19	1.12	2.32
30	3.20	128	52.31	70.59	1.24	1.17	2.41
30	3.30	135	54.74	73.86	1.28	1.22	2.50
30	3.40	142	57.21	77.20	1.32	1.27	2.59
30	3.50	150	59.74	80.61	1.36	1.32	2.68

Table KS9-25 (continued) Level diversion design (diversions with a land slope of **1.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	1.50	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
30	3.60	158	62.31	84.08	1.41	1.37	2.77
30	3.70	166	64.93	87.62	1.45	1.42	2.86
30	3.80	174	67.59	91.21	1.49	1.46	2.95
30	3.90	183	70.31	94.88	1.53	1.51	3.05
30	4.00	191	73.07	98.61	1.57	1.56	3.14
30	4.10	200	75.88	102.40	1.62	1.61	3.23
30	4.20	209	78.74	106.26	1.66	1.66	3.32
30	4.30	218	81.64	110.18	1.70	1.71	3.41
30	4.40	227	84.59	114.16	1.74	1.76	3.50
30	4.50	237	87.59	118.21	1.78	1.81	3.59
40	1.50	41	21.72	29.22	0.59	0.27	0.86
40	1.60	46	23.54	31.66	0.64	0.31	0.95
40	1.70	52	25.41	34.18	0.69	0.35	1.05
40	1.80	57	27.33	36.77	0.74	0.40	1.14
40	1.90	63	29.30	39.43	0.79	0.44	1.23
40	2.00	68	31.33	42.16	0.84	0.48	1.32
40	2.10	74	33.40	44.96	0.89	0.53	1.41
40	2.20	80	35.53	47.82	0.93	0.57	1.50
40	2.30	86	37.71	50.76	0.98	0.61	1.59
40	2.40	93	39.94	53.77	1.03	0.66	1.68
40	2.50	100	42.22	56.84	1.07	0.70	1.77
40	2.60	107	44.55	59.98	1.12	0.75	1.86
40	2.70	114	46.92	63.19	1.16	0.79	1.95
40	2.80	121	49.35	66.47	1.21	0.84	2.05
40	2.90	128	51.83	69.81	1.25	0.88	2.14
40	3.00	136	54.35	73.22	1.30	0.93	2.23
40	3.10	144	56.93	76.69	1.34	0.98	2.32
40	3.20	152	59.55	80.23	1.39	1.02	2.41
40	3.30	160	62.23	83.84	1.43	1.07	2.50
40	3.40	169	64.95	87.51	1.48	1.11	2.59
40	3.50	178	67.72	91.25	1.52	1.16	2.68
40	3.60	186	70.54	95.06	1.57	1.21	2.77
40	3.70	195	73.40	98.93	1.61	1.26	2.86
40	3.80	205	76.32	102.86	1.65	1.30	2.95
40	3.90	214	79.28	106.86	1.70	1.35	3.05
40	4.00	224	82.30	110.93	1.74	1.40	3.14
40	4.10	234	85.36	115.06	1.78	1.45	3.23
40	4.20	244	88.46	119.25	1.83	1.49	3.32

Table KS9-25 (continued) Level diversion design (diversions with a land slope of **1.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	1.50	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
50	1.50	50	24.91	33.62	0.69	0.17	0.86
50	1.60	56	26.92	36.34	0.75	0.21	0.95
50	1.70	62	28.99	39.14	0.80	0.25	1.05
50	1.80	68	31.12	42.01	0.85	0.29	1.14
50	1.90	75	33.30	44.96	0.90	0.33	1.23
50	2.00	82	35.53	47.98	0.95	0.37	1.32
50	2.10	88	37.82	51.07	1.00	0.41	1.41
50	2.20	95	40.17	54.23	1.05	0.45	1.50
50	2.30	102	42.56	57.47	1.10	0.49	1.59
50	2.40	110	45.01	60.77	1.15	0.54	1.68
50	2.50	117	47.51	64.15	1.19	0.58	1.77
50	2.60	125	50.06	67.60	1.24	0.62	1.86
50	2.70	133	52.67	71.11	1.29	0.66	1.95
50	2.80	141	55.32	74.70	1.34	0.71	2.05
50	2.90	150	58.03	78.35	1.38	0.75	2.14
50	3.00	158	60.79	82.07	1.43	0.80	2.23
50	3.10	167	63.59	85.86	1.48	0.84	2.32
50	3.20	176	66.45	89.72	1.52	0.89	2.41
50	3.30	186	69.36	93.65	1.57	0.93	2.50
50	3.40	195	72.32	97.64	1.62	0.98	2.59
50	3.50	205	75.32	101.70	1.66	1.02	2.68
50	3.60	214	78.38	105.83	1.71	1.07	2.77
50	3.70	225	81.49	110.02	1.75	1.11	2.86
50	3.80	235	84.64	114.28	1.80	1.16	2.95
50	3.90	245	87.85	118.61	1.84	1.20	3.05
50	4.00	256	91.10	123.00	1.89	1.25	3.14
75	1.70	88	37.76	50.76	1.03	0.01	1.05
75	1.80	97	40.35	54.29	1.09	0.05	1.14
75	1.90	106	43.01	57.90	1.14	0.08	1.23
75	2.00	115	45.73	61.59	1.20	0.12	1.32
75	2.10	124	48.51	65.36	1.25	0.16	1.41
75	2.20	133	51.34	69.21	1.31	0.19	1.50
75	2.30	142	54.24	73.14	1.36	0.23	1.59
75	2.40	152	57.20	77.14	1.41	0.27	1.68
75	2.50	161	60.21	81.22	1.46	0.31	1.77
75	2.60	171	63.29	85.38	1.52	0.35	1.86
75	2.70	181	66.41	89.61	1.57	0.39	1.95
75	2.80	192	69.60	93.92	1.62	0.43	2.05
75	2.90	202	72.84	98.30	1.67	0.47	2.14
75	3.00	213	76.13	102.75	1.72	0.51	2.23

Table KS9-25 (continued) Level diversion design (diversions with a land slope of **1.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	1.50	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
75	3.10	224	79.48	107.28	1.77	0.55	2.32
75	3.20	236	82.89	111.88	1.82	0.59	2.41
75	3.30	247	86.35	116.56	1.87	0.63	2.50
75	3.40	259	89.86	121.30	1.92	0.67	2.59
75	3.50	271	93.42	126.12	1.97	0.71	2.68
75	3.60	283	97.04	131.01	2.02	0.75	2.77
75	3.70	295	100.71	135.97	2.07	0.80	2.86
75	3.80	308	104.43	140.99	2.11	0.84	2.95
75	3.90	321	108.21	146.09	2.16	0.88	3.05
75	4.00	334	112.04	151.26	2.21	0.93	3.14
100	2.30	182	65.57	88.61	1.59	0.00	1.59
100	2.40	194	68.99	93.23	1.64	0.04	1.68
100	2.50	206	72.47	97.93	1.70	0.07	1.77
100	2.60	218	76.02	102.71	1.75	0.11	1.86
100	2.70	230	79.63	107.58	1.81	0.14	1.95
100	2.80	242	83.29	112.53	1.86	0.18	2.05
100	2.90	255	87.02	117.56	1.92	0.22	2.14
100	3.00	268	90.81	122.67	1.97	0.26	2.23
100	3.10	281	94.66	127.86	2.03	0.29	2.32
100	3.20	294	98.56	133.13	2.08	0.33	2.41
100	3.30	308	102.53	138.48	2.13	0.37	2.50
100	3.40	322	106.55	143.91	2.18	0.41	2.59
100	3.50	336	110.63	149.41	2.24	0.45	2.68
100	3.60	350	114.77	154.99	2.29	0.49	2.77
100	3.70	365	118.96	160.65	2.34	0.52	2.86
100	3.80	380	123.21	166.38	2.39	0.56	2.95
100	3.90	395	127.51	172.18	2.44	0.60	3.05
100	4.00	410	131.87	178.07	2.49	0.64	3.14
125	3.00	323	105.32	142.19	2.20	0.03	2.23
125	3.10	338	109.62	147.99	2.26	0.06	2.32
125	3.20	354	113.99	153.88	2.31	0.10	2.41
125	3.30	369	118.43	159.86	2.37	0.13	2.50
125	3.40	385	122.92	165.92	2.42	0.17	2.59
125	3.50	401	127.48	172.07	2.48	0.20	2.68
125	3.60	418	132.09	178.29	2.53	0.24	2.77
125	3.70	434	136.77	184.60	2.59	0.28	2.86
125	3.80	451	141.50	190.99	2.64	0.32	2.95
125	3.90	468	146.30	197.46	2.69	0.35	3.05
125	4.00	485	151.15	204.01	2.75	0.39	3.14

Table KS9-26 Level diversion design (diversions with a land slope of **2.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	2.00	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
10	1.50	15	12.42	16.77	0.20	0.67	0.86
10	1.60	18	13.64	18.41	0.24	0.72	0.95
10	1.70	20	14.91	20.12	0.28	0.77	1.05
10	1.80	23	16.22	21.90	0.32	0.82	1.14
10	1.90	26	17.59	23.75	0.36	0.87	1.23
10	2.00	29	19.02	25.67	0.40	0.92	1.32
10	2.10	32	20.49	27.66	0.44	0.97	1.41
10	2.20	35	22.01	29.72	0.48	1.02	1.50
10	2.30	39	23.59	31.85	0.52	1.07	1.59
10	2.40	42	25.22	34.05	0.56	1.12	1.68
10	2.50	46	26.90	36.31	0.60	1.18	1.77
10	2.60	50	28.63	38.65	0.64	1.23	1.86
10	2.70	54	30.41	41.06	0.68	1.28	1.95
10	2.80	58	32.25	43.54	0.72	1.33	2.05
10	2.90	62	34.13	46.08	0.76	1.38	2.14
10	3.00	67	36.07	48.70	0.80	1.43	2.23
10	3.10	72	38.06	51.38	0.84	1.48	2.32
10	3.20	76	40.10	54.14	0.88	1.53	2.41
10	3.30	81	42.20	56.97	0.92	1.58	2.50
10	3.40	86	44.34	59.86	0.96	1.64	2.59
10	3.50	92	46.54	62.83	1.00	1.69	2.68
10	3.60	97	48.79	65.86	1.03	1.74	2.77
10	3.70	102	51.08	68.97	1.07	1.79	2.86
10	3.80	108	53.44	72.14	1.11	1.84	2.95
10	3.90	114	55.84	75.38	1.15	1.89	3.05
10	4.00	120	58.29	78.70	1.19	1.94	3.14
10	4.10	126	60.80	82.08	1.23	1.99	3.23
10	4.20	132	63.36	85.53	1.27	2.05	3.32
10	4.30	139	65.97	89.06	1.31	2.10	3.41
10	4.40	146	68.63	92.65	1.35	2.15	3.50
10	4.50	152	71.34	96.31	1.39	2.20	3.59
20	1.50	24	16.81	22.67	0.37	0.50	0.86
20	1.60	27	18.30	24.69	0.41	0.55	0.95
20	1.70	31	19.85	26.77	0.45	0.59	1.05
20	1.80	34	21.44	28.92	0.50	0.64	1.14
20	1.90	38	23.09	31.15	0.54	0.69	1.23
20	2.00	42	24.79	33.45	0.58	0.74	1.32
20	2.10	46	26.55	35.81	0.62	0.79	1.41
20	2.20	50	28.35	38.25	0.67	0.83	1.50
20	2.30	55	30.21	40.76	0.71	0.88	1.59
20	2.40	59	32.12	43.34	0.75	0.93	1.68

Table KS9-26 (continued) Level diversion design (diversions with a land slope of **2.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	2.00	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
20	2.50	64	34.08	45.98	0.79	0.98	1.77
20	2.60	69	36.09	48.70	0.83	1.03	1.86
20	2.70	73	38.16	51.49	0.88	1.08	1.95
20	2.80	79	40.28	54.35	0.92	1.13	2.05
20	2.90	84	42.45	57.28	0.96	1.18	2.14
20	3.00	89	44.67	60.28	1.00	1.23	2.23
20	3.10	95	46.94	63.34	1.04	1.28	2.32
20	3.20	100	49.27	66.48	1.08	1.33	2.41
20	3.30	106	51.64	69.69	1.12	1.38	2.50
20	3.40	112	54.07	72.97	1.16	1.43	2.59
20	3.50	118	56.55	76.32	1.20	1.48	2.68
20	3.60	125	59.09	79.74	1.25	1.53	2.77
20	3.70	131	61.67	83.22	1.29	1.58	2.86
20	3.80	138	64.31	86.78	1.33	1.63	2.95
20	3.90	145	66.99	90.41	1.37	1.68	3.05
20	4.00	152	69.73	94.11	1.41	1.73	3.14
20	4.10	159	72.52	97.87	1.45	1.78	3.23
20	4.20	166	75.37	101.71	1.49	1.83	3.32
20	4.30	173	78.26	105.62	1.53	1.88	3.41
20	4.40	181	81.21	109.60	1.57	1.93	3.50
20	4.50	189	84.20	113.64	1.61	1.98	3.59
30	1.50	33	20.99	28.35	0.51	0.36	0.86
30	1.60	37	22.74	30.72	0.55	0.40	0.95
30	1.70	41	24.55	33.15	0.60	0.44	1.05
30	1.80	46	26.41	35.66	0.65	0.49	1.14
30	1.90	50	28.32	38.25	0.69	0.53	1.23
30	2.00	55	30.29	40.90	0.74	0.58	1.32
30	2.10	60	32.31	43.63	0.78	0.63	1.41
30	2.20	65	34.39	46.43	0.83	0.67	1.50
30	2.30	71	36.52	49.31	0.87	0.72	1.59
30	2.40	76	38.70	52.25	0.92	0.77	1.68
30	2.50	81	40.93	55.27	0.96	0.81	1.77
30	2.60	87	43.22	58.36	1.00	0.86	1.86
30	2.70	93	45.56	61.52	1.05	0.91	1.95
30	2.80	99	47.95	64.75	1.09	0.96	2.05
30	2.90	105	50.40	68.05	1.13	1.00	2.14
30	3.00	111	52.90	71.42	1.18	1.05	2.23
30	3.10	118	55.45	74.86	1.22	1.10	2.32
30	3.20	125	58.05	78.38	1.26	1.15	2.41
30	3.30	131	60.71	81.96	1.30	1.20	2.50
30	3.40	138	63.41	85.62	1.35	1.24	2.59
30	3.50	145	66.17	89.34	1.39	1.29	2.68

Table KS9-26 (continued) Level diversion design (diversions with a land slope of **2.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	2.00	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
30	3.60	152	68.98	93.14	1.43	1.34	2.77
30	3.70	160	71.85	97.01	1.47	1.39	2.86
30	3.80	167	74.76	100.94	1.51	1.44	2.95
30	3.90	175	77.73	104.95	1.56	1.49	3.05
30	4.00	183	80.75	109.03	1.60	1.54	3.14
30	4.10	191	83.82	113.17	1.64	1.59	3.23
30	4.20	199	86.95	117.39	1.68	1.64	3.32
30	4.30	208	90.12	121.68	1.72	1.69	3.41
30	4.40	216	93.35	126.04	1.76	1.74	3.50
30	4.50	225	96.63	130.47	1.81	1.78	3.59
40	1.50	41	25.05	33.89	0.64	0.23	0.86
40	1.60	46	27.05	36.58	0.69	0.27	0.95
40	1.70	52	29.11	39.34	0.73	0.31	1.05
40	1.80	57	31.22	42.19	0.78	0.36	1.14
40	1.90	63	33.39	45.11	0.83	0.40	1.23
40	2.00	68	35.61	48.10	0.88	0.44	1.32
40	2.10	74	37.89	51.18	0.92	0.49	1.41
40	2.20	80	40.23	54.32	0.97	0.53	1.50
40	2.30	86	42.62	57.54	1.02	0.57	1.59
40	2.40	93	45.06	60.84	1.06	0.62	1.68
40	2.50	99	47.56	64.21	1.11	0.66	1.77
40	2.60	106	50.12	67.65	1.16	0.71	1.86
40	2.70	112	52.72	71.17	1.20	0.76	1.95
40	2.80	119	55.38	74.75	1.25	0.80	2.05
40	2.90	126	58.10	78.41	1.29	0.85	2.14
40	3.00	134	60.86	82.15	1.33	0.89	2.23
40	3.10	141	63.68	85.95	1.38	0.94	2.32
40	3.20	149	66.56	89.83	1.42	0.99	2.41
40	3.30	156	69.48	93.78	1.47	1.03	2.50
40	3.40	164	72.46	97.80	1.51	1.08	2.59
40	3.50	172	75.50	101.89	1.56	1.13	2.68
40	3.60	180	78.58	106.06	1.60	1.17	2.77
40	3.70	188	81.72	110.29	1.64	1.22	2.86
40	3.80	197	84.91	114.60	1.69	1.27	2.95
40	3.90	206	88.15	118.97	1.73	1.32	3.05
40	4.00	214	91.45	123.42	1.77	1.37	3.14
40	4.10	223	94.80	127.94	1.82	1.41	3.23
40	4.20	233	98.20	132.53	1.86	1.46	3.32

Table KS9-26 (continued) Level diversion design (diversions with a land slope of **2.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	2.00	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
50	1.50	50	29.20	39.41	0.75	0.11	0.86
50	1.60	56	31.43	42.42	0.80	0.15	0.95
50	1.70	62	33.71	45.51	0.86	0.19	1.05
50	1.80	68	36.06	48.68	0.91	0.23	1.14
50	1.90	75	38.47	51.93	0.96	0.27	1.23
50	2.00	82	40.93	55.25	1.00	0.31	1.32
50	2.10	88	43.45	58.66	1.05	0.36	1.41
50	2.20	95	46.03	62.14	1.10	0.40	1.50
50	2.30	102	48.67	65.70	1.15	0.44	1.59
50	2.40	110	51.36	69.34	1.20	0.48	1.68
50	2.50	117	54.11	73.05	1.25	0.53	1.77
50	2.60	124	56.92	76.83	1.29	0.57	1.86
50	2.70	132	59.78	80.70	1.34	0.61	1.95
50	2.80	140	62.69	84.63	1.39	0.66	2.05
50	2.90	148	65.66	88.64	1.43	0.70	2.14
50	3.00	156	68.69	92.73	1.48	0.75	2.23
50	3.10	164	71.77	96.89	1.53	0.79	2.32
50	3.20	173	74.90	101.12	1.57	0.84	2.41
50	3.30	181	78.09	105.42	1.62	0.88	2.50
50	3.40	190	81.34	109.80	1.66	0.93	2.59
50	3.50	199	84.63	114.25	1.71	0.97	2.68
50	3.60	208	87.98	118.77	1.75	1.02	2.77
50	3.70	217	91.39	123.37	1.80	1.07	2.86
50	3.80	226	94.84	128.04	1.84	1.11	2.95
50	3.90	236	98.35	132.77	1.89	1.16	3.05
50	4.00	246	101.92	137.59	1.93	1.21	3.14
75	2.00	114	54.16	73.11	1.29	0.03	1.32
75	2.10	124	57.25	77.28	1.35	0.06	1.41
75	2.20	133	60.40	81.54	1.40	0.10	1.50
75	2.30	142	63.62	85.88	1.45	0.14	1.59
75	2.40	152	66.90	90.30	1.50	0.18	1.68
75	2.50	161	70.24	94.81	1.55	0.22	1.77
75	2.60	171	73.64	99.40	1.60	0.26	1.86
75	2.70	181	77.10	104.07	1.65	0.30	1.95
75	2.80	191	80.62	108.82	1.71	0.34	2.05
75	2.90	201	84.20	113.65	1.76	0.38	2.14
75	3.00	212	87.83	118.56	1.80	0.42	2.23
75	3.10	222	91.53	123.55	1.85	0.46	2.32
75	3.20	233	95.28	128.62	1.90	0.51	2.41
75	3.30	244	99.09	133.76	1.95	0.55	2.50

Table KS9-26 (continued) Level diversion design (diversions with a land slope of **2.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	2.00	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
75	3.40	255	102.96	138.98	2.00	0.59	2.59
75	3.50	266	106.89	144.28	2.05	0.63	2.68
75	3.60	277	110.87	149.66	2.10	0.67	2.77
75	3.70	289	114.91	155.11	2.15	0.72	2.86
75	3.80	300	119.00	160.64	2.19	0.76	2.95
75	3.90	312	123.15	166.24	2.24	0.80	3.05
75	4.00	324	127.36	171.92	2.29	0.85	3.14
100	2.70	230	94.50	127.56	1.94	0.02	1.95
100	2.80	242	98.57	133.07	1.99	0.06	2.05
100	2.90	255	102.71	138.66	2.04	0.09	2.14
100	3.00	267	106.92	144.34	2.10	0.13	2.23
100	3.10	280	111.18	150.10	2.15	0.17	2.32
100	3.20	293	115.51	155.94	2.20	0.21	2.41
100	3.30	306	119.90	161.87	2.25	0.25	2.50
100	3.40	320	124.35	167.88	2.30	0.29	2.59
100	3.50	333	128.87	173.97	2.35	0.33	2.68
100	3.60	346	133.44	180.14	2.40	0.37	2.77
100	3.70	360	138.07	186.40	2.46	0.41	2.86
100	3.80	374	142.76	192.73	2.51	0.45	2.95
100	3.90	388	147.51	199.14	2.56	0.49	3.05
100	4.00	402	152.32	205.64	2.61	0.53	3.14

Table KS9-27 Level diversion design (diversions with a land slope of **2.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	2.50	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
10	1.50	15	13.73	18.54	0.20	0.66	0.86
10	1.60	18	15.06	20.33	0.24	0.71	0.95
10	1.70	20	16.45	22.20	0.28	0.76	1.05
10	1.80	23	17.89	24.15	0.32	0.81	1.14
10	1.90	26	19.39	26.18	0.36	0.86	1.23
10	2.00	29	20.95	28.28	0.41	0.91	1.32
10	2.10	32	22.56	30.46	0.45	0.96	1.41
10	2.20	35	24.23	32.71	0.49	1.01	1.50
10	2.30	39	25.96	35.04	0.53	1.07	1.59
10	2.40	42	27.74	37.45	0.57	1.12	1.68
10	2.50	46	29.58	39.93	0.61	1.17	1.77
10	2.60	50	31.48	42.49	0.65	1.22	1.86
10	2.70	54	33.43	45.13	0.69	1.27	1.95
10	2.80	58	35.44	47.84	0.73	1.32	2.05
10	2.90	62	37.51	50.63	0.77	1.37	2.14
10	3.00	67	39.63	53.50	0.81	1.42	2.23
10	3.10	72	41.81	56.44	0.85	1.47	2.32
10	3.20	76	44.05	59.45	0.89	1.52	2.41
10	3.30	81	46.34	62.55	0.93	1.57	2.50
10	3.40	86	48.69	65.72	0.97	1.63	2.59
10	3.50	92	51.09	68.96	1.01	1.68	2.68
10	3.60	97	53.55	72.29	1.05	1.73	2.77
10	3.70	102	56.07	75.69	1.08	1.78	2.86
10	3.80	108	58.65	79.16	1.12	1.83	2.95
10	3.90	114	61.28	82.71	1.16	1.88	3.05
10	4.00	120	63.97	86.34	1.20	1.93	3.14
10	4.10	126	66.71	90.05	1.24	1.98	3.23
10	4.20	132	69.51	93.83	1.28	2.03	3.32
10	4.30	139	72.37	97.68	1.32	2.09	3.41
10	4.40	145	75.28	101.62	1.36	2.14	3.50
10	4.50	152	78.25	105.63	1.40	2.19	3.59
20	1.50	24	18.82	25.38	0.38	0.48	0.86
20	1.60	27	20.46	27.59	0.43	0.53	0.95
20	1.70	31	22.15	29.87	0.47	0.58	1.05
20	1.80	34	23.90	32.23	0.51	0.62	1.14
20	1.90	38	25.70	34.67	0.56	0.67	1.23
20	2.00	42	27.57	37.19	0.60	0.72	1.32
20	2.10	46	29.49	39.78	0.64	0.77	1.41
20	2.20	50	31.47	42.45	0.68	0.82	1.50
20	2.30	55	33.50	45.20	0.72	0.87	1.59

Table KS9-27 (continued) Level diversion design (diversions with a land slope of **2.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	2.50	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
20	2.40	59	35.60	48.03	0.77	0.92	1.68
20	2.50	64	37.75	50.93	0.81	0.96	1.77
20	2.60	69	39.95	53.90	0.85	1.01	1.86
20	2.70	73	42.21	56.96	0.89	1.06	1.95
20	2.80	79	44.53	60.09	0.93	1.11	2.05
20	2.90	84	46.91	63.30	0.97	1.16	2.14
20	3.00	89	49.34	66.58	1.02	1.21	2.23
20	3.10	95	51.83	69.94	1.06	1.26	2.32
20	3.20	100	54.38	73.38	1.10	1.31	2.41
20	3.30	106	56.98	76.89	1.14	1.36	2.50
20	3.40	112	59.64	80.49	1.18	1.41	2.59
20	3.50	118	62.36	84.15	1.22	1.46	2.68
20	3.60	125	65.14	87.90	1.26	1.51	2.77
20	3.70	131	67.97	91.72	1.30	1.56	2.86
20	3.80	138	70.85	95.61	1.34	1.61	2.95
20	3.90	144	73.80	99.59	1.38	1.66	3.05
20	4.00	151	76.80	103.63	1.42	1.71	3.14
20	4.10	158	79.85	107.76	1.47	1.76	3.23
20	4.20	165	82.97	111.96	1.51	1.81	3.32
20	4.30	173	86.14	116.24	1.55	1.86	3.41
20	4.40	180	89.36	120.60	1.59	1.91	3.50
20	4.50	188	92.65	125.03	1.63	1.96	3.59
30	1.50	33	23.84	32.15	0.54	0.33	0.86
30	1.60	37	25.77	34.75	0.58	0.37	0.95
30	1.70	41	27.75	37.42	0.63	0.42	1.05
30	1.80	46	29.80	40.18	0.68	0.46	1.14
30	1.90	50	31.90	43.02	0.72	0.51	1.23
30	2.00	55	34.06	45.94	0.77	0.55	1.32
30	2.10	60	36.28	48.93	0.81	0.60	1.41
30	2.20	65	38.55	52.01	0.85	0.65	1.50
30	2.30	71	40.89	55.16	0.90	0.69	1.59
30	2.40	76	43.28	58.39	0.94	0.74	1.68
30	2.50	81	45.73	61.70	0.99	0.79	1.77
30	2.60	87	48.24	65.08	1.03	0.83	1.86
30	2.70	93	50.81	68.55	1.07	0.88	1.95
30	2.80	99	53.43	72.09	1.12	0.93	2.05
30	2.90	105	56.11	75.71	1.16	0.98	2.14
30	3.00	111	58.85	79.40	1.20	1.03	2.23
30	3.10	118	61.64	83.18	1.24	1.07	2.32
30	3.20	125	64.50	87.03	1.29	1.12	2.41
30	3.30	131	67.41	90.96	1.33	1.17	2.50
30	3.40	138	70.37	94.96	1.37	1.22	2.59

Table KS9-27 (continued) Level diversion design (diversions with a land slope of **2.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	2.50	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
30	3.50	145	73.40	99.04	1.41	1.27	2.68
30	3.60	152	76.48	103.20	1.46	1.32	2.77
30	3.70	160	79.62	107.44	1.50	1.37	2.86
30	3.80	167	82.81	111.75	1.54	1.42	2.95
30	3.90	175	86.06	116.14	1.58	1.46	3.05
30	4.00	183	89.37	120.61	1.62	1.51	3.14
30	4.10	191	92.74	125.15	1.66	1.56	3.23
30	4.20	199	96.16	129.77	1.71	1.61	3.32
30	4.30	207	99.64	134.47	1.75	1.66	3.41
30	4.40	215	103.18	139.24	1.79	1.71	3.50
30	4.50	224	106.77	144.09	1.83	1.76	3.59
40	1.50	41	28.84	38.99	0.68	0.19	0.86
40	1.60	46	31.05	41.96	0.73	0.23	0.95
40	1.70	52	33.31	45.01	0.78	0.27	1.05
40	1.80	57	35.64	48.14	0.82	0.31	1.14
40	1.90	63	38.03	51.35	0.87	0.36	1.23
40	2.00	68	40.47	54.65	0.92	0.40	1.32
40	2.10	74	42.98	58.03	0.96	0.45	1.41
40	2.20	80	45.55	61.49	1.01	0.49	1.50
40	2.30	86	48.17	65.03	1.06	0.54	1.59
40	2.40	93	50.86	68.65	1.10	0.58	1.68
40	2.50	99	53.60	72.35	1.15	0.63	1.77
40	2.60	106	56.40	76.13	1.19	0.67	1.86
40	2.70	112	59.26	79.99	1.24	0.72	1.95
40	2.80	119	62.18	83.93	1.28	0.76	2.05
40	2.90	126	65.16	87.94	1.33	0.81	2.14
40	3.00	134	68.20	92.04	1.37	0.86	2.23
40	3.10	141	71.29	96.21	1.42	0.90	2.32
40	3.20	148	74.44	100.47	1.46	0.95	2.41
40	3.30	156	77.65	104.80	1.50	1.00	2.50
40	3.40	164	80.92	109.21	1.55	1.05	2.59
40	3.50	172	84.25	113.69	1.59	1.09	2.68
40	3.60	180	87.63	118.26	1.63	1.14	2.77
40	3.70	188	91.07	122.90	1.68	1.19	2.86
40	3.80	197	94.57	127.62	1.72	1.24	2.95
40	3.90	205	98.12	132.42	1.76	1.28	3.05
40	4.00	214	101.74	137.30	1.81	1.33	3.14
40	4.10	223	105.41	142.25	1.85	1.38	3.23
40	4.20	232	109.13	147.28	1.89	1.43	3.32

Table KS9-27 (continued) Level diversion design (diversions with a land slope of **2.50%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	2.50	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
50	2.00	82	47.01	63.47	1.06	0.26	1.32
50	2.10	88	49.79	67.23	1.11	0.30	1.41
50	2.20	95	52.63	71.06	1.15	0.35	1.50
50	2.30	102	55.53	74.98	1.20	0.39	1.59
50	2.40	110	58.50	78.99	1.25	0.43	1.68
50	2.50	117	61.52	83.07	1.30	0.48	1.77
50	2.60	124	64.61	87.24	1.34	0.52	1.86
50	2.70	132	67.75	91.48	1.39	0.57	1.95
50	2.80	140	70.96	95.81	1.44	0.61	2.05
50	2.90	148	74.22	100.22	1.48	0.65	2.14
50	3.00	156	77.55	104.70	1.53	0.70	2.23
50	3.10	164	80.93	109.27	1.57	0.75	2.32
50	3.20	173	84.37	113.92	1.62	0.79	2.41
50	3.30	181	87.87	118.64	1.66	0.84	2.50
50	3.40	190	91.43	123.45	1.71	0.88	2.59
50	3.50	199	95.05	128.34	1.75	0.93	2.68
50	3.60	208	98.73	133.30	1.80	0.97	2.77
50	3.70	217	102.46	138.34	1.84	1.02	2.86
50	3.80	226	106.26	143.46	1.89	1.07	2.95
50	3.90	236	110.11	148.66	1.93	1.11	3.05
50	4.00	245	114.02	153.94	1.98	1.16	3.14
75	2.20	133	70.72	95.43	1.49	0.01	1.50
75	2.30	142	74.28	100.25	1.54	0.05	1.59
75	2.40	152	77.91	105.15	1.59	0.09	1.68
75	2.50	161	81.60	110.15	1.64	0.13	1.77
75	2.60	171	85.36	115.22	1.69	0.18	1.86
75	2.70	181	89.18	120.39	1.74	0.22	1.95
75	2.80	191	93.07	125.64	1.79	0.26	2.05
75	2.90	201	97.02	130.98	1.84	0.30	2.14
75	3.00	212	101.03	136.40	1.89	0.34	2.23
75	3.10	222	105.11	141.90	1.93	0.38	2.32
75	3.20	233	109.24	147.49	1.98	0.43	2.41
75	3.30	244	113.44	153.16	2.03	0.47	2.50
75	3.40	255	117.70	158.92	2.08	0.51	2.59
75	3.50	266	122.03	164.75	2.13	0.55	2.68
75	3.60	277	126.41	170.67	2.17	0.60	2.77
75	3.70	289	130.85	176.67	2.22	0.64	2.86
75	3.80	300	135.36	182.76	2.27	0.69	2.95
75	3.90	312	139.93	188.92	2.32	0.73	3.05
75	4.00	324	144.55	195.17	2.36	0.77	3.14

Table KS9-28 Level diversion design (diversions with a land slope of **3.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	3.00	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
10	1.50	15	15.20	20.52	0.21	0.65	0.86
10	1.60	18	16.66	22.49	0.25	0.70	0.95
10	1.70	20	18.18	24.55	0.29	0.75	1.05
10	1.80	23	19.77	26.69	0.33	0.80	1.14
10	1.90	26	21.41	28.91	0.37	0.85	1.23
10	2.00	29	23.12	31.22	0.41	0.90	1.32
10	2.10	32	24.90	33.61	0.45	0.96	1.41
10	2.20	35	26.73	36.08	0.49	1.01	1.50
10	2.30	39	28.62	38.64	0.53	1.06	1.59
10	2.40	42	30.58	41.28	0.57	1.11	1.68
10	2.50	46	32.60	44.01	0.62	1.16	1.77
10	2.60	50	34.68	46.82	0.66	1.21	1.86
10	2.70	54	36.83	49.71	0.70	1.26	1.95
10	2.80	58	39.03	52.69	0.74	1.31	2.05
10	2.90	62	41.30	55.75	0.78	1.36	2.14
10	3.00	67	43.63	58.90	0.82	1.41	2.23
10	3.10	72	46.02	62.13	0.86	1.46	2.32
10	3.20	76	48.47	65.44	0.90	1.51	2.41
10	3.30	81	50.99	68.83	0.94	1.56	2.50
10	3.40	86	53.57	72.32	0.98	1.61	2.59
10	3.50	92	56.21	75.88	1.02	1.67	2.68
10	3.60	97	58.91	79.53	1.06	1.72	2.77
10	3.70	102	61.67	83.26	1.10	1.77	2.86
10	3.80	108	64.50	87.07	1.14	1.82	2.95
10	3.90	114	67.39	90.97	1.18	1.87	3.05
10	4.00	120	70.34	94.96	1.22	1.92	3.14
10	4.10	126	73.35	99.02	1.26	1.97	3.23
10	4.20	132	76.42	103.17	1.30	2.02	3.32
10	4.30	139	79.56	107.41	1.34	2.07	3.41
10	4.40	145	82.76	111.72	1.38	2.12	3.50
10	4.50	152	86.02	116.13	1.42	2.18	3.59
20	1.50	24	21.07	28.49	0.40	0.46	0.86
20	1.60	27	22.87	30.91	0.44	0.51	0.95
20	1.70	31	24.72	33.43	0.49	0.56	1.05
20	1.80	34	26.65	36.02	0.53	0.61	1.14
20	1.90	38	28.63	38.70	0.57	0.66	1.23
20	2.00	42	30.68	41.47	0.61	0.70	1.32
20	2.10	46	32.79	44.32	0.66	0.75	1.41
20	2.20	50	34.96	47.26	0.70	0.80	1.50
20	2.30	55	37.20	50.28	0.74	0.85	1.59
20	2.40	59	39.49	53.38	0.78	0.90	1.68

Table KS9-28 (continued) Level diversion design (diversions with a land slope of **3.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	3.00	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
20	2.50	64	41.85	56.57	0.82	0.95	1.77
20	2.60	69	44.28	59.84	0.87	1.00	1.86
20	2.70	74	46.76	63.20	0.91	1.05	1.95
20	2.80	79	49.31	66.64	0.95	1.10	2.05
20	2.90	84	51.92	70.16	0.99	1.15	2.14
20	3.00	89	54.59	73.77	1.03	1.20	2.23
20	3.10	95	57.32	77.46	1.07	1.25	2.32
20	3.20	100	60.12	81.24	1.11	1.29	2.41
20	3.30	106	62.98	85.10	1.15	1.34	2.50
20	3.40	112	65.90	89.05	1.20	1.39	2.59
20	3.50	118	68.88	93.07	1.24	1.44	2.68
20	3.60	125	71.93	97.19	1.28	1.49	2.77
20	3.70	131	75.04	101.38	1.32	1.54	2.86
20	3.80	138	78.21	105.66	1.36	1.59	2.95
20	3.90	144	81.44	110.03	1.40	1.64	3.05
20	4.00	151	84.73	114.47	1.44	1.69	3.14
20	4.10	158	88.09	119.01	1.48	1.74	3.23
20	4.20	166	91.51	123.62	1.52	1.79	3.32
20	4.30	173	94.99	128.32	1.56	1.85	3.41
20	4.40	180	98.53	133.11	1.60	1.90	3.50
20	4.50	188	102.14	137.97	1.64	1.95	3.59
30	1.50	33	27.04	36.51	0.57	0.30	0.86
30	1.60	37	29.15	39.37	0.61	0.34	0.95
30	1.70	41	31.34	42.31	0.66	0.39	1.05
30	1.80	46	33.59	45.35	0.70	0.43	1.14
30	1.90	50	35.90	48.47	0.75	0.48	1.23
30	2.00	55	38.27	51.68	0.79	0.53	1.32
30	2.10	60	40.71	54.97	0.84	0.57	1.41
30	2.20	65	43.22	58.35	0.88	0.62	1.50
30	2.30	70	45.78	61.82	0.92	0.67	1.59
30	2.40	76	48.41	65.37	0.97	0.71	1.68
30	2.50	81	51.11	69.00	1.01	0.76	1.77
30	2.60	87	53.86	72.72	1.05	0.81	1.86
30	2.70	93	56.68	76.53	1.10	0.86	1.95
30	2.80	99	59.56	80.42	1.14	0.90	2.05
30	2.90	105	62.51	84.40	1.18	0.95	2.14
30	3.00	111	65.52	88.46	1.23	1.00	2.23
30	3.10	118	68.59	92.60	1.27	1.05	2.32
30	3.20	124	71.72	96.83	1.31	1.10	2.41
30	3.30	131	74.92	101.15	1.35	1.15	2.50
30	3.40	138	78.17	105.54	1.40	1.19	2.59
30	3.50	145	81.50	110.03	1.44	1.24	2.68

Table KS9-28 (continued) Level diversion design (diversions with a land slope of **3.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	3.00	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
30	3.60	152	84.88	114.59	1.48	1.29	2.77
30	3.70	160	88.32	119.25	1.52	1.34	2.86
30	3.80	167	91.83	123.98	1.56	1.39	2.95
30	3.90	175	95.40	128.80	1.61	1.44	3.05
30	4.00	183	99.04	133.71	1.65	1.49	3.14
30	4.10	191	102.73	138.70	1.69	1.54	3.23
30	4.20	199	106.49	143.77	1.73	1.59	3.32
30	4.30	207	110.31	148.93	1.77	1.64	3.41
30	4.40	215	114.19	154.17	1.81	1.69	3.50
30	4.50	224	118.14	159.49	1.86	1.74	3.59
40	1.50	41	33.23	44.81	0.72	0.14	0.86
40	1.60	47	35.66	48.09	0.77	0.19	0.95
40	1.70	52	38.16	51.47	0.81	0.23	1.05
40	1.80	57	40.72	54.93	0.86	0.27	1.14
40	1.90	63	43.35	58.48	0.91	0.32	1.23
40	2.00	69	46.04	62.12	0.96	0.36	1.32
40	2.10	74	48.80	65.85	1.00	0.41	1.41
40	2.20	80	51.63	69.66	1.05	0.45	1.50
40	2.30	87	54.52	73.57	1.09	0.50	1.59
40	2.40	93	57.47	77.56	1.14	0.54	1.68
40	2.50	99	60.49	81.64	1.18	0.59	1.77
40	2.60	106	63.57	85.80	1.23	0.63	1.86
40	2.70	113	66.72	90.05	1.27	0.68	1.95
40	2.80	120	69.93	94.38	1.32	0.73	2.05
40	2.90	127	73.20	98.81	1.36	0.77	2.14
40	3.00	134	76.54	103.31	1.41	0.82	2.23
40	3.10	141	79.94	107.91	1.45	0.87	2.32
40	3.20	149	83.41	112.59	1.49	0.91	2.41
40	3.30	156	86.94	117.35	1.54	0.96	2.50
40	3.40	164	90.53	122.20	1.58	1.01	2.59
40	3.50	172	94.18	127.14	1.62	1.06	2.68
40	3.60	180	97.90	132.16	1.67	1.10	2.77
40	3.70	189	101.68	137.26	1.71	1.15	2.86
40	3.80	197	105.53	142.45	1.75	1.20	2.95
40	3.90	206	109.44	147.72	1.80	1.25	3.05
40	4.00	214	113.41	153.08	1.84	1.30	3.14
40	4.10	223	117.44	158.53	1.88	1.34	3.23
40	4.20	232	121.53	164.06	1.92	1.39	3.32

Table KS9-28 (continued) Level diversion design (diversions with a land slope of **3.00%**, cut slope of **10:1**, fill slope of **6:1**, and a cut/fill ratio of 1.35:1)

Land Slope =	3.00	%
Cut Slope =	10	:1
Fill Slope =	8	:1
Top Width =	4	feet
Cut/Fill Ratio =	1.35	:1

Bottom Width (feet)	Construction Height (feet)	Area Storage (cu ft/ft)	Area Fill (cu ft/ft)	Area Cut (cu ft/ft)	Block Height (feet)	Cut Depth (feet)	Water Depth (feet)
50	2.00	82	53.89	72.75	1.11	0.21	1.32
50	2.10	88	56.96	76.89	1.16	0.25	1.41
50	2.20	95	60.10	81.12	1.20	0.30	1.50
50	2.30	102	63.30	85.45	1.25	0.34	1.59
50	2.40	110	66.57	89.86	1.30	0.38	1.68
50	2.50	117	69.90	94.36	1.35	0.43	1.77
50	2.60	124	73.30	98.95	1.39	0.47	1.86
50	2.70	132	76.78	103.63	1.44	0.52	1.95
50	2.80	140	80.29	108.39	1.48	0.56	2.05
50	2.90	148	83.89	113.25	1.53	0.61	2.14
50	3.00	156	87.55	118.19	1.57	0.65	2.23
50	3.10	164	91.27	123.21	1.62	0.70	2.32
50	3.20	173	95.06	128.33	1.66	0.74	2.41
50	3.30	181	98.91	133.53	1.71	0.79	2.50
50	3.40	190	102.83	138.81	1.75	0.84	2.59
50	3.50	199	106.81	144.19	1.80	0.88	2.68
50	3.60	208	110.85	149.64	1.84	0.93	2.77
50	3.70	217	114.96	155.19	1.89	0.98	2.86
50	3.80	226	119.13	160.82	1.93	1.02	2.95
50	3.90	236	123.36	166.54	1.98	1.07	3.05
50	4.00	245	127.66	172.34	2.02	1.12	3.14
75	2.40	152	90.40	122.00	1.67	0.01	1.68
75	2.50	161	94.49	127.52	1.72	0.05	1.77
75	2.60	171	98.65	133.14	1.77	0.09	1.86
75	2.70	181	102.88	138.85	1.82	0.14	1.95
75	2.80	191	107.18	144.66	1.87	0.18	2.05
75	2.90	201	111.54	150.55	1.92	0.22	2.14
75	3.00	212	115.98	156.54	1.96	0.26	2.23
75	3.10	222	120.48	162.62	2.01	0.31	2.32
75	3.20	233	125.05	168.79	2.06	0.35	2.41
75	3.30	244	129.68	175.05	2.11	0.39	2.50
75	3.40	255	134.39	181.40	2.16	0.44	2.59
75	3.50	266	139.15	187.84	2.20	0.48	2.68
75	3.60	277	143.99	194.36	2.25	0.52	2.77
75	3.70	289	148.89	200.98	2.30	0.57	2.86
75	3.80	300	153.86	207.69	2.34	0.61	2.95
75	3.90	312	158.89	214.48	2.39	0.66	3.05
75	4.00	324	163.99	221.36	2.44	0.70	3.14