

Water and Sediment Control Basin (WASCoB) Design Information Sheet (Single WASCoB System)

Note: Use this Design Information Sheet if only **one** WASCoB is to be constructed and drained through a single subsurface tile outlet.

WASCoB Identification

1. Watershed area	_____ ha	_____ ac
2. Watershed slope	_____ %	
3. Runoff curve number from Tables 2.2 – 2.4		
4. Peak flow from watershed for 10-year storm from Table 4.25-M to 4.31-M (4.25-l to 4.31-l)	_____ m ³ /s	_____ ft ³ /s
5. Peak flow from watershed for 25-year storm from Table 4.25-M to 4.31-M (4.25-l to 4.31-l)	_____ m ³ /s	_____ ft ³ /s
6. Obtain the storm duration for a 10-year storm from Table 4.25-M to 4.31-M (4.25-l to 4.31-l)	_____ hrs	
7. Obtain the storm volume expected for a 10-year storm from Table 4.25-M to 4.31-M (4.25-l to 4.31-l)	_____ m ³	_____ ft ³
8. Determine slope of ponding area upstream from storage berm from field measurements	_____ %	
9. Determine slope of side of ponding area upstream from storage berm from field measurements. If side slopes are different use the average of the two slopes.	_____ %	
10. Determine soil loss expected above ponding area from Table 4.32-M (4.32-l)	_____ tonnes/ ha/yr	_____ tons/ac /yr
11. Storage required for eroded soil for 15-year life expectancy Line (10) x Line (1) x 15 = _____ x _____ x 15 = _____ tonnes x 0.68 m ³ /tonne = _____ m ³ (_____ x _____ x 15 = _____ tons x 21.7 ft ³ /ton = _____ ft ³)	_____ m ³	_____ ft ³
12. Total pond storage Line (7) + Line (11) = _____ + _____ = _____ m ³ (_____ ft ³)	_____ m ³	_____ ft ³
13. Determine volume factor Line (12) x Line (8) x Line (9) = _____ x _____ x _____ = _____ m ³ (_____ ft ³)	_____ m ³	_____ ft ³
14. Obtain pond depth (design berm height) from Table 4.33-M (4.33-l)	_____ m	_____ ft
15. Determine pond length $\frac{\text{Line (14)}}{\text{Line (8)}} \times 100 = \text{_____} \times 100 = \text{_____ m (_____ ft)}$	_____ m	_____ ft
16. Determine maximum pond width $\frac{\text{Line (14)}}{\text{Line (9)}} \times 200 = \text{_____} \times 200 = \text{_____ m (_____ ft)}$ If pond side slopes vary by more than 50%, the calculated pond width will be different than the actual field pond width. For accuracy, separate the sides and calculate individually.	_____ m	_____ ft
17. Obtain maximum flooding time from Table 4.34	_____ hrs	
18. Determine outlet capacity $\frac{\text{Line 7}}{\text{Line (17) - Line (6)}} \times 0.000277 = \text{_____} \times 0.000277$ = _____ m ³ /s (_____ ft ³ /s)	_____ m ³ /s	_____ ft ³ /s

19. Determine the riser pipe and horizontal pipe sizes. Complete the following:		
– horizontal pipe slope	_____ %	
– horizontal pipe diameter (Table 4.18-M (4.18-I) or Figure 4.31 or OMAFRA Publication 29, <i>Drainage Guide for Ontario</i>)	_____ mm	_____ in
– riser pipe diameter (Tables 4.19-M to 4.22-M (4.19-I to 4.22-I))	_____ mm	_____ in
– orifice diameter (if required) (Tables 4.21-M to 4.22-M (4.21-I to 4.22-I))	_____ mm	_____ in
20. Check emergency overflow spillway type to be used	<input type="checkbox"/> Grass lined <input type="checkbox"/> Rock lined	
21. Determine emergency overflow spillway capacity from Line (5)	_____ m ³ /s	_____ ft ³ /s
22. Determine emergency overflow spillway notch dimensions from Table 4.35-M (4.35-I) to meet capacity requirements from Line (21)		
– notch width (L)	_____ m	_____ ft
– notch depth (D)	_____ m	_____ ft
23. Actual berm height (Note: Freeboard is 10% of Line (14) to maximum of 0.15 m (6 in.)) Line (14) + freeboard + notch depth (D) (Line (22)) = _____ + _____ + _____ = _____ m (_____ ft)	_____ m	_____ ft
24. Actual berm length $\frac{\text{Line 23}}{\text{Line (9)}} \times 200 = \text{_____} \times 200 = \text{_____ m (_____ ft)}$	_____ m	_____ ft
25. Berm side slope (minimum 2:1, maximum 8:1)	_____ :1	
26. Top width of berm (Note: Default width of 1.2 m (4 ft))	1.2 m	4 ft
27. Bottom width of berm Line (26) + (2 x Line (23) x Line (25)) = _____ + (2 x _____ x _____) = _____ m (_____ ft)	_____ m	_____ ft
28. Earth volume for berm from Table 4.36-M to 4.38-M (4.36-I to 4.38-I)	_____ m ³	_____ yd ³