Secondary Treated Effluent Treatment Field

Trench Bottom Surface Area & Length Sizing

This design worksheet was developed by Alberta Municipal Affairs and Alberta Onsite Wastewater Management Association.

The complete system is to comply with Alberta Private Sewage Standard of Practice 2015
This worksheet does NOT consider all of the requirements of the mandatory Standard

**Use only Imperial units of measurement throughout (feet, inches, Imperial gallons, etc...)

Step 1) Determine the expect	ted volume of se	wage per day:				
Note: Use Table 2.2.2.2.A. (expected volume of sewage	per day. Provide allo	wance for	
additional flow factors as de	tailed in Table 2.2.2	2.3. (p.25)			Franciad Book Volume of Sour	
					Expected Peak Volume of Sew per Day	age
					per bay	
Assess the initial sewage st	renoth against the i	requirements of 2.2.2	2.1.(2) (p.21)		lmp.gal/d	F1
Effluent quality must meet the		•	· / · · /	ı		luy
Step 2) Determine the design	'	()() [•			
Step 2) Determine the design	i son emuem no	iding rate.		Sc	oil Effluent Loading Rate	
					m <30 mg/L cBOD₅ column]	
			,	į . .		
		&	&	=	Imp. gal	
Soil Texture		Structure	Grade	If recult i	ft²./day s less than 0.2 lmp. Gal/ft²/day a tre	
JUII TEXIUTE	,	Structure	Glauc		is less than 0.2 lmp. Gai/ft²/day a tre inot be installed. Article 8.2.1.13. (1)	
Note: Effluent loading rate I	MUST be determine	ed from soil texture, s	structure, and grade classific		nperial Table A.1.E.1. (p.129).	, (I)
Note: Ensure infiltration load	ding rate chosen do	es not exceed loadir	ng rates as set out in 8.1.2.2	2. (p. 81).		ļ
Ctan 2) Determine Hydroulie	Limaer Leeding	Detai				
Step 3) Determine Hydraulic Use Table A.1.E.1. (p. 129)	_	Rate:				ļ
USE Table A.T.E.T. (p. 123)			 	i		
					lmp. gal/ lin ft./day	eal F3
				-	π./day	гэ
Soil Texture	& Str	ructure & Grade	& Slope & Infiltration	•		
			Depth			
Note: System Geometry a	nd Linear Loading	Rate Design Article	e 8.1.1.7. (p. 77)			
0						
Step 4) Chamber Width Selec	cted:					
Actual Chamber Width	in inches					
	l i	nches .	12 :	_	feet	F4
		-	IZ inches/foot	_	.001	
Articles 8.3.1.3. & 8.3.1.4.	(p.90)					

Step 5) Calculate optional loading	rate factor for efflue	ent soil lo	pading rate	:			
				Loading F	Rate Facto	Effluent Loading Rate with Factor A	Applied
Chambers - Pressure Distribut	ion Article			v	4.4+		
8.3.1.5. 1)c Page 90		Effluent L	pading Rate	Х	1.1*	=	F5
	<u> </u>		m F2	Loading F	Rate Facto		1
Chambers - Pressure Distribut	ion & Timed			[1
Dosing 8.3.1.5. 1)d Page 90	Article			X	1.2*	=	F5A
0.3.1.0. 1)d 1 ago 00			n F2	Į.		ELR	1
* If result is less then 0.2 gal/ft²/day a treatment field cannot be installed. Article 8.2.1.13. (1) Page 85							
Step 6) Determine minimum soil in	nfiltration required:						
	-						
Expected Peak Volume of Sewa Day	ge per			Loading Rate with ctor Applied		Minimum Soil Infiltration Area R	Required
				Imp.gal/ft²			E6
From E4	lmp.gal/day	÷	E EE	feet	=	ft ²	10
From F1 Step 7) Calculate Treatment Field	Minimum Length red	quired:	From F5	or 5A			
	_	•	Hydrauli	c Linear Loading		Minimum Treatment Field	
Expected Peak Volume of Sewa	ge per			Rate Imp.gal/ft/		System Length Required	1
	lmp.gal/day	÷		day	=	Lineal Feet	F7
From F1 *Note System May be longer	than calculated as t	his actua	ally reduces	From F3 the Hydraulic Lines	ar I oadin	na	
			,			.9	
Step 8) Determine the total Trench	n Bottom length requ	ıired:					
			Actual	Chamber Width		Total Trench Bottom length	
Minimum Soil Infiltration Area Re	equired					Required	
	ft²	÷		feet	=	lineal feet	F8
From F6				F4			
Step 9) Determine the number of I	atoral tronchos roqu	irod:					
Step 3) Determine the number of t	aterar trenches requ	ii cu.					
Total Length of Trench Bo	ottom Required		Length De	termined by Linear		Number of Transhes Possired	
	lineal feet			Loading	_	Number of Trenches Required]
	lineal feet	Ŧ		lineal feet	=		F9
From F8			Article	F7 8.2.1.12. (p.84)		*Round down to whole number of trenches required	
Step 10) Determine the number of	lateral trenches req	uired:		Carrier (pro-sy			
Total Length of Trench Bottom Required Number of Trenches							
						Length of Each Lateral Trench	7
	lineal feet	÷			=	feet	F10
From F8				F9		Equal to or greater than F7	1
*System may be larger than required to accommodate linear loading rates and number of trenches required							
Step 11) Summary:							
				Peak Daily Flow, inc	cluding al	llowance for any additional	
F1			Imp. gal/day	additional flow volui	mes	·	
F2		lı	mp. gal/ft²/day	Soil Effluent Loadin	g Rate.		
F3				Hydraulic Linear Lo	ading Rat	te	
			lmp. gal/ft/day	•	J		
F4			feet	Chamber Width			
ES or ESA				Effluent Loading Ra	ata with Fa	actor Annliad	

FJ ULFJM	Imp. gal/ft²/day	Linuent Loading Nate with actor Applied
F6	ft²	Minimum Soil Infiltration Area Required
F7	feet	Minimum Treatment Field System Length
F8	feet	Total Trench Bottom Length Required
F9		Number of Lateral Trenches
F10	feet	Length of Each Lateral Trench