

ENERGY DISSIPATOR CHECKLIST		
Project No. _____ Designer _____ Date _____ Reviewer _____ Date _____		

SCOUR EQUATIONS
$\frac{d_s}{R_c}, \frac{W_s}{R_c}, \frac{L_s}{R_c} = C_s C_h \left[\frac{a}{s^{1/3}} \right] \left[\frac{Q}{g^{.5} R_c^{2.5}} \right]^b \left[\frac{t}{316} \right]^q$ $d_s, W_s, L_s = [C_s C_h \alpha / \sigma^{1/3}] [DI]^\beta [t/316]^\theta R_c$ $d_s, W_s, L_s = [F_1] [F_2] [F_3] R_c$

STEP 7A - EQUATION INPUT DATA	
FACTOR	Value
Q = Discharge, m ³ /s	
A _c = Culvert area, m ²	
P _c = Perimeter, m	
R _c = A _c / P _c	
DI = Discharge Intensity	
t = time of concentration	

STEP 6 - DATA SUMMARY		
Parameters	Culvert	Channel
Station		
Control		
Type		
Height, D		
Width, B		
Length, L		
Material		
Manning's n		
Side Slope		
Dis charge, Q		
Depth, d		
Velocity, V		
Fr = V/(gd) ^{0.5}		
Flow Area, A		
Slope		

STEP 7B - SCOUR COMPUTATION			
Factor	Depth	Width	Length
α	2.27	6.94	17.10
β	0.39	0.53	0.47
θ	0.06	0.08	0.10
F ₁			
F ₂			
F ₃			
[F ₁][F ₂][F ₃]R _c			
Allowable			
If calculated scour > Allowable and: 1. Fr > 3, design a SAF basin 2. Fr < 3, design a riprap basin 3. Fr < 3, design a USBR Type VI			

Figure 34-5A