

Rock Chute Design Spreadsheets  
Download a zipped working copy of the spreadsheets at:

<http://wisconsin.gov/rdwy/fdm/files/WisDOT-Stormwater-Drainage-WQ-Channel-Spreadsheets.zip>

### Rock Chute Design Data

(Version WI-April-2005, Based on Design of Rock Chutes by Robinson, Rice, Kadavy, ASAE, 1998)  
Revised for WisDOT 9/2010

Project: Sample project County: Brown  
Designer: jgv Checked by: \_\_\_\_\_  
Date: January 13, 2009 Date: \_\_\_\_\_

**Input Geometry:**

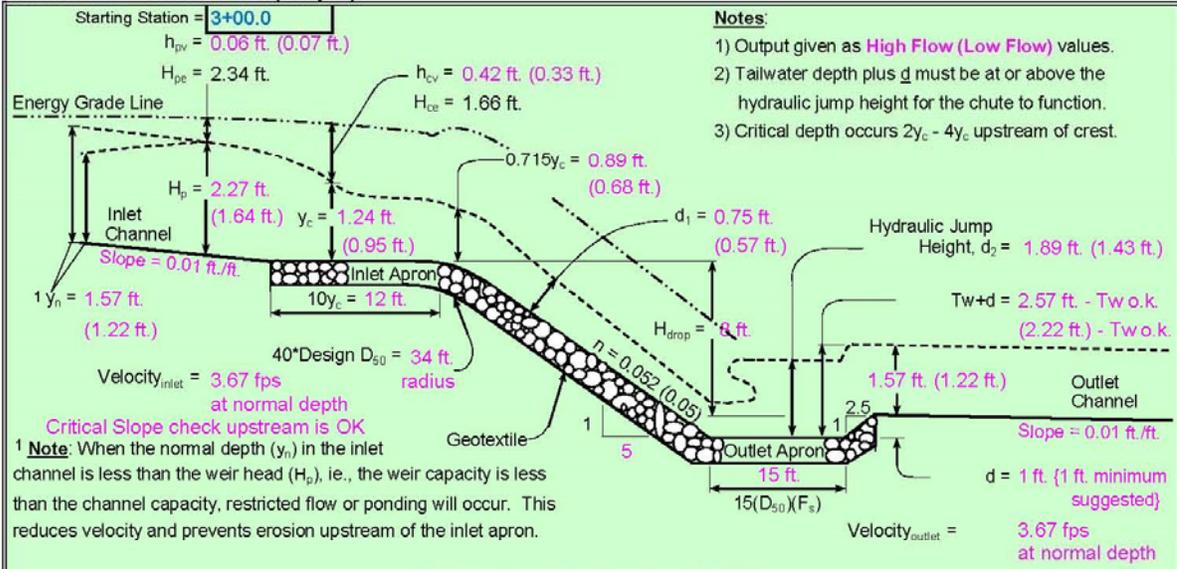
Upstream Channel	Chute	Downstream Channel
Bottom Width = <u>4.0</u> ft.	Bottom Width = <u>4.0</u> ft.	Bottom Width = <u>4.0</u> ft.
Side slopes = <u>3.0</u> (m:1)	Factor of safety = <u>1.20</u> (SF) <b>1.2 Min</b>	Side slopes = <u>3.0</u> (m:1)
Mannings n value = <u>0.040</u>	Side slopes = <u>3.0</u> (z:1) → <b>2.0:1 max.</b>	Mannings n value = <u>0.040</u>
Bed slope = <u>0.0100</u> ft./ft.	Bed slope = <u>0.2000</u> ft./ft. → <b>3.0:1 max.</b>	Bed slope = <u>0.0100</u> ft./ft.
Freeboard = <u>1.0</u> ft. →		Base flow = <u>0.0</u> cfs
Outlet apron depth, d = <u>1.0</u> ft.		

Note: Use procedures 13-30-15 or 13-30-25 for upstream and downstream Mannings n

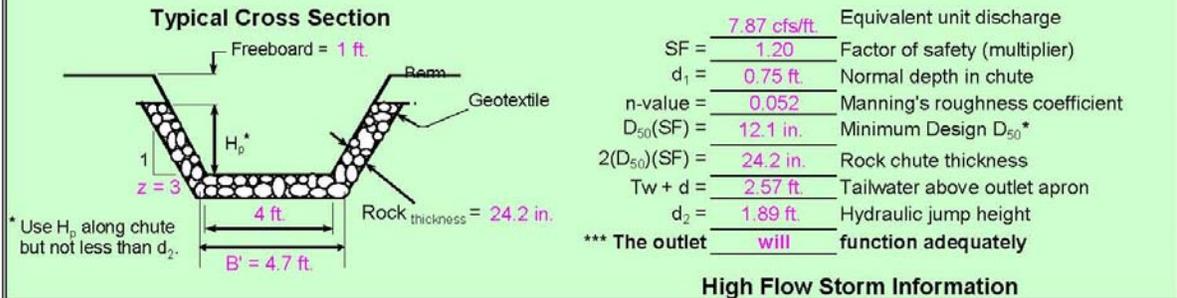
**Flow and Elevation Data:**

Apron elev. --- Inlet = <u>100.0</u> ft. --- Outlet <u>91.0</u> ft. --- ( $H_{drop} = 8$ ft.)	Degree of angularity = <u>1</u>	<b>Note:</b> The total required capacity is routed through the chute (principal spillway) or in combination with an auxiliary spillway.
$Q_{high}$ = Runoff from design storm	1 → 50% angular, 50% rounded	<b>Input tailwater (Tw):</b>
$Q_5$ = Runoff from a 5-year, 24-hour storm	2 → 100% rounded	Tw (ft.) = <u>Program</u>
$Q_{high} = 50.0$ cfs	High flow storm through chute	Tw (ft.) = <u>Program</u>
$Q_{low} = 30.0$ cfs	Low flow storm through chute	

**Profile and Cross Section (Output):**



**Profile Along Centerline of Chute**

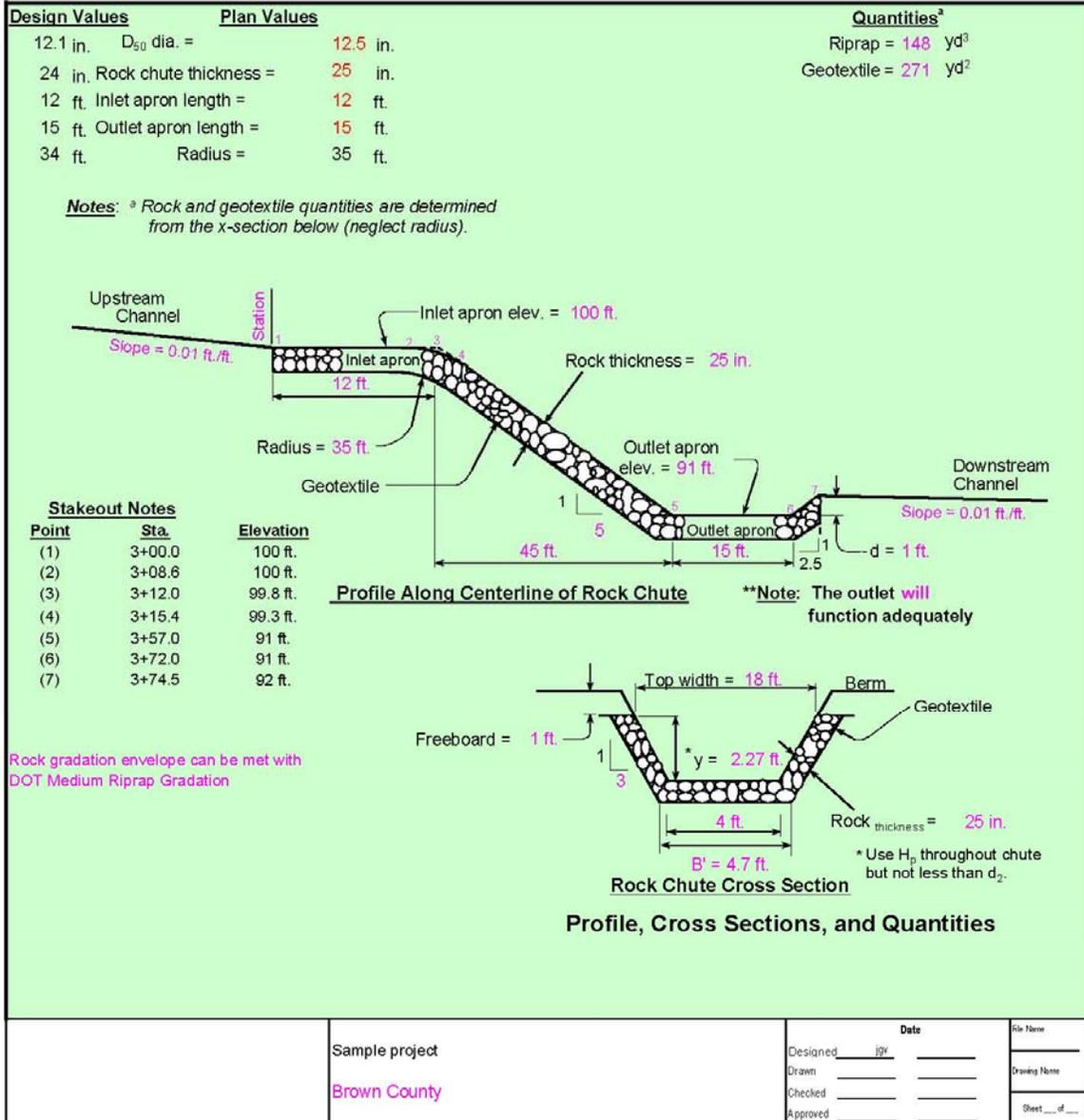


### Rock Chute Design - Plan Sheet

(Version WI-April-2005, Based on Design of Rock Chutes by Robinson, Rice, Kadavy, ASAE, 1998)  
Revised for WisDOT 9/2010

Project: Sample project  
Designer: jgy  
Date: 1/13/2009

County: Brown  
Checked by: \_\_\_\_\_  
Date: \_\_\_\_\_



### Rock Chute Design Construction Detail

(Version WI-April-2005, Based on Design of Rock Chutes by Robinson, Rice, Kadavy, ASAE, 1998)  
Revised for WisDOT 9/2010

Project: Sample project  
Designer: jgv  
Date: 1/13/2009

County: Brown  
Checked by: \_\_\_\_\_  
Date: \_\_\_\_\_

