RCC Dam Foundation Preparation and Cleaning
A Photographic Tour of Hard Rock Bottoms

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Overview

- Mass Excavation
  - Machines
  - Blasting
- Fine Grading and Rough Cleaning
- Final Cleaning
- Treatment
  - Geologic Features Requiring Special Attention
  - Shaping and Dental Concrete
  - Backfill Concrete
MASS EXCAVATION - MACHINES
WORK AS A TEAM

Rocky Pen Run Dam, VA
FINE GRADING AND ROUGH CLEANING
THE RIGHT TOOL FOR THE RIGHT JOB

Deep Creek Dam, NC
EXCAVATING SHEAR ZONE
Rocky Pen Run Dam, VA
ROUGH CLEANING - WATER FLUSH

Salem Lake Dam, NC
FINAL CLEANING
FINAL CLEANING
FINAL CLEANING
Rocky Pen Run Dam, VA
AIR/WATER JETTING

Rocky Pen Run Dam, VA
FLUSHING WITH WATER HOSE
Salem Lake Dam, NC
PUMPING OUT THE MUCK
Rocky Pen Run Dam, VA
DIFFICULT ACCESS LOCATIONS
Hickory Log Creek Dam, GA
VACUUM TRUCK
Deep Creek Dam, NC
SUCTION PUMP
Rocky Pen Run Dam, VA
GEOLOGIC FEATURES REQUIRING SPECIAL ATTENTION

<table>
<thead>
<tr>
<th>CASE</th>
<th>WIDTH OF FEATURE (B)</th>
<th>DEPTH OF TREATMENT (D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>LESS THAN 2 INCHES</td>
<td>4 INCHES. FILL WITH GROUT.</td>
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<tr>
<td>2</td>
<td>2 INCHES TO 1 FOOT</td>
<td>2 TIMES THE WIDTH, OR TO A DEPTH WHERE THE MATERIAL MEETS THE ACCEPTANCE CRITERIA AS FOLLOWS: SHALLOW INDENTATIONS (1 TO 3 MM) BY FIRM BLOWS WITH POINT OF GEOLOGIC PICK AND PEELS WITH DIFFICULTY WITH POCKET KNIFE OR AS IDENTIFIED BY THE ENGINEER. FILL WITH BACKFILL CONCRETE.</td>
</tr>
<tr>
<td>3</td>
<td>GREATER THAN 1 FOOT</td>
<td>AS DIRECTED BY THE ENGINEER.</td>
</tr>
</tbody>
</table>

REMOVE UNSUITABLE MATERIAL. PLACE GROUT OR BACKFILL CONCRETE ACCORDING TO TABLE 1 ON THIS SHEET.

CLEANED APPROVED ROCK SURFACE

MATERIAL MEETING ACCEPTANCE CRITERIA
OPEN FRACTURE
Hickory Log Creek Dam, GA
HIGHLY WEATHERED SEAM
Salem Lake Dam, NC
HIGHLY WEATHERED SEAMS
Camara Dam, Brazil

Photo by: unknown
Available from Geoengineer.org website
http://www.geoengineer.org
FAILURE DUE TO POOR FOUNDATION PREP

Camara Dam, Brazil
SHAPING AND DENTAL CONCRETE

- Shape to eliminate air pockets
- Cleaned approved rock surface
- Fill depression with backfill concrete
- Excavate rock slope to no steeper than 1H:1V

- Abutment rock slope (irregular surface)
- Finish face of backfill concrete to conform to adjacent slope (forming may be required) and to no steeper than 1H:1V

- Remove rock protrusions on the abutments as directed by engineer

- Work grout or backfill concrete into cracks with method that achieves full crack penetration over area to receive treatment.
DENTAL CONCRETE IN SHEAR ZONE
Rocky Pen Run Dam
DRAW THE LINE

Hickory Log Creek Dam, GA
PUMPING BACKFILL
CONCRETE
Deep Creek Dam, NC
BACKFILL CONCRETE PLACEMENT
Rocky Pen Run Dam, VA
BACKFILL CONCRETE
Rocky Pen Run Dam, VA
DOCUMENT THE FOUNDATION
CONCRETE BACKFILL MAP
Rocky Pen Run Dam, VA
GROUT CAP WITH BACKFILL AND DENTAL CONCRETE

Rocky Pen Run Dam, VA
THANKS TO THE GUYS