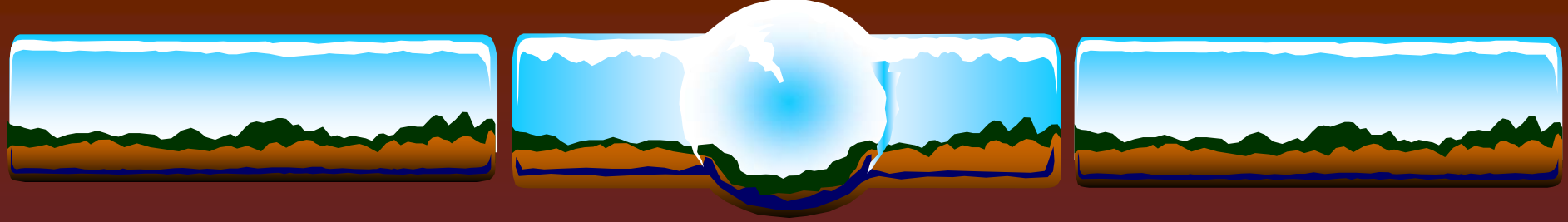
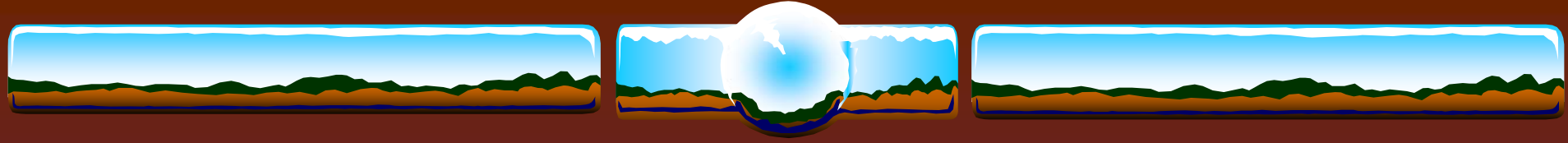


Revisions to the Sedimentation and Erosion Control Planning and Design Manual

Coming Attractions

Sediment Fence

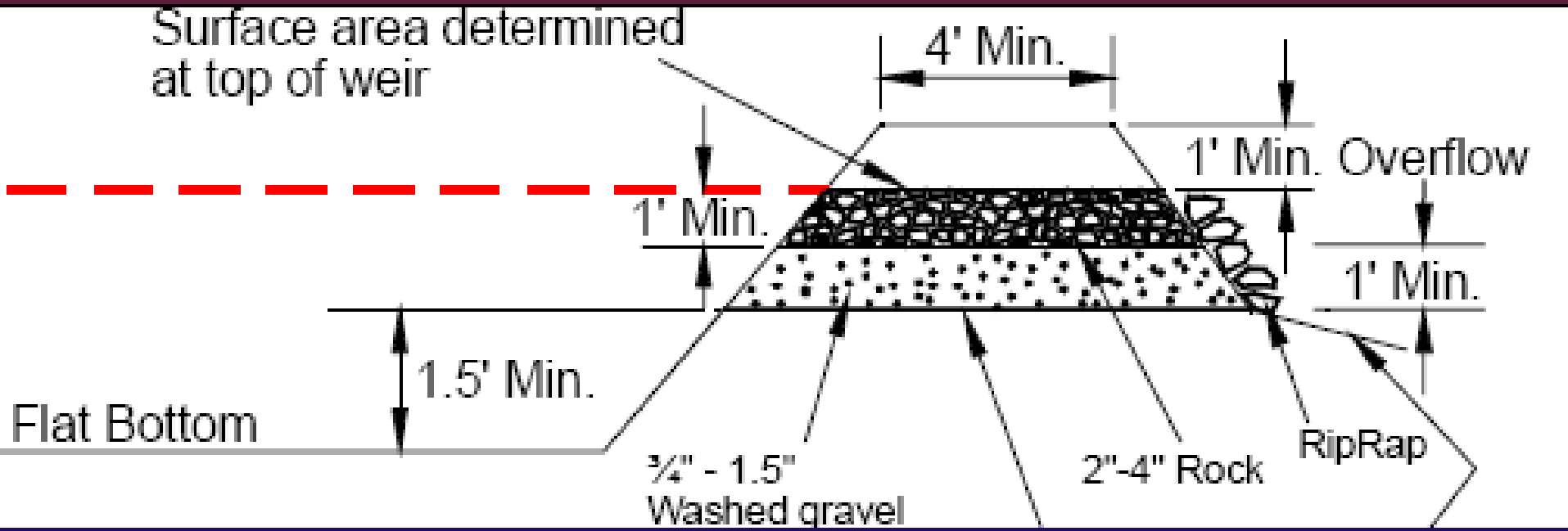
- Steel Posts Only
- 24-Inch Maximum Height
- ASTM D 6461 Standard for Fabric
- Slicing Installation Method



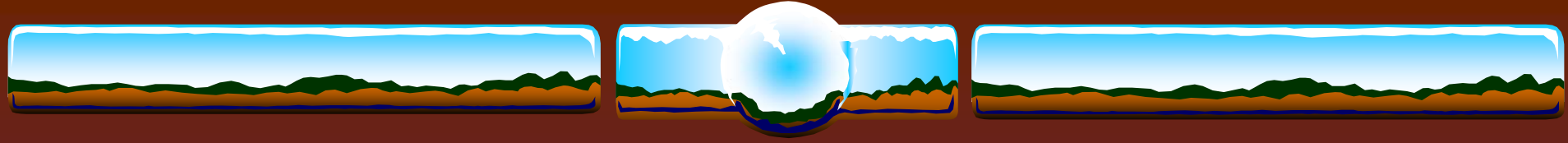
Temporary Sediment Trap

- Sediment Storage Volume of 3600 Cubic Feet per Acre of Disturbed Area
- Surface area of 435 Square Feet per Cubic Foot per Second of Peak 10-Year Flow
- Minimum 1.5 Feet of Depth Excavated Below Grade
- Minimum 2 Feet Stone Height Above Grade
- Porous Baffles Required

Temporary Sediment Trap

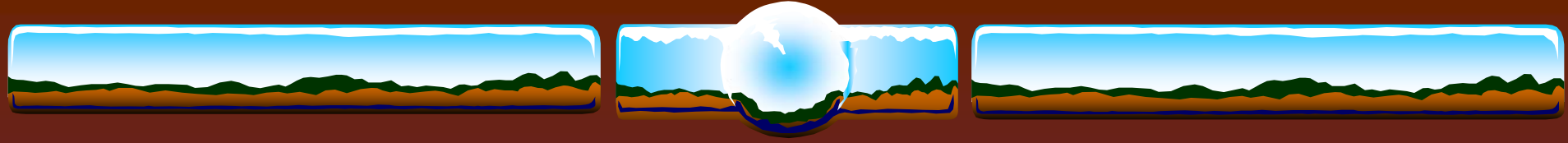


Example of excavation below grade, State of Washington Manual



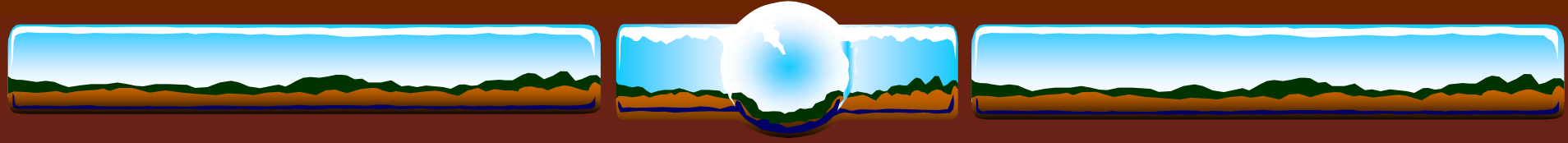
Rock Dam

- Maximum Drainage Area of 10 acres
- Sediment Storage Volume of 3600 Cubic Feet per Acre of Disturbed Area
- Surface area of 435 Square Feet per Cubic Foot per Second of Peak 10-Year Flow
- Minimum 1.5 Feet of Depth Excavated Below Grade
- Minimum 2 Feet Stone Height Above Grade
- Porous Baffles Required



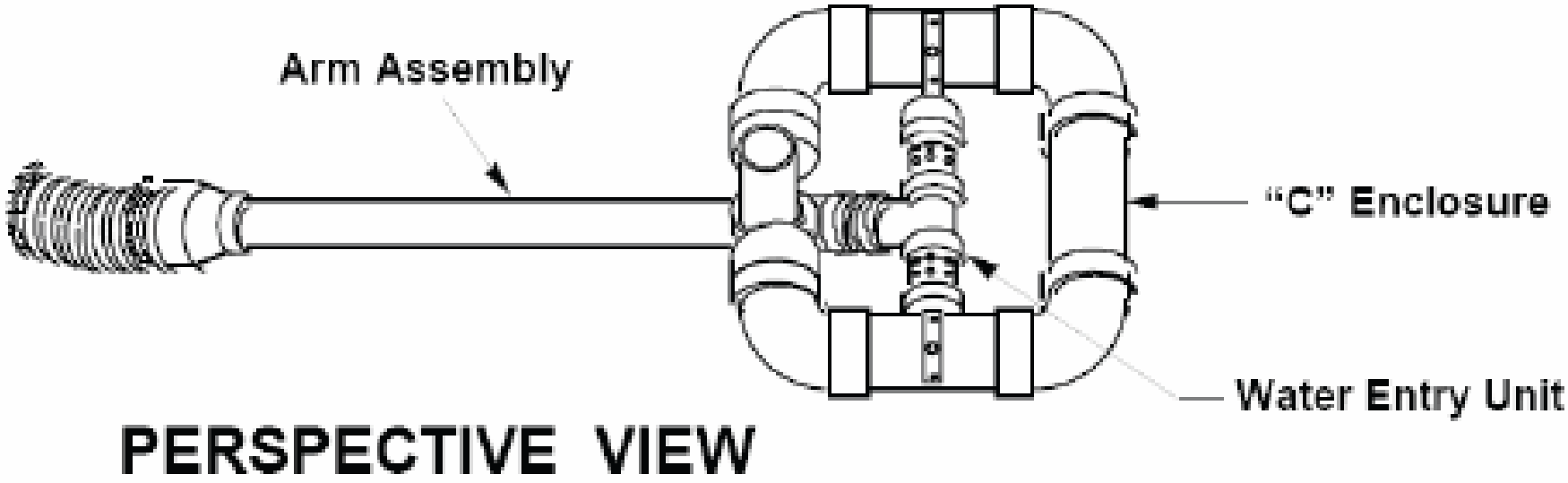
Sediment Basin

- Sediment Storage Volume of 1800 Cubic Feet per Acre of Disturbed Area
- Surface Area of 435 Square Feet per Cubic Foot per Second of Peak 10-Year Flow
- Minimum Riser Height of 2 Feet
- Porous Baffles Required



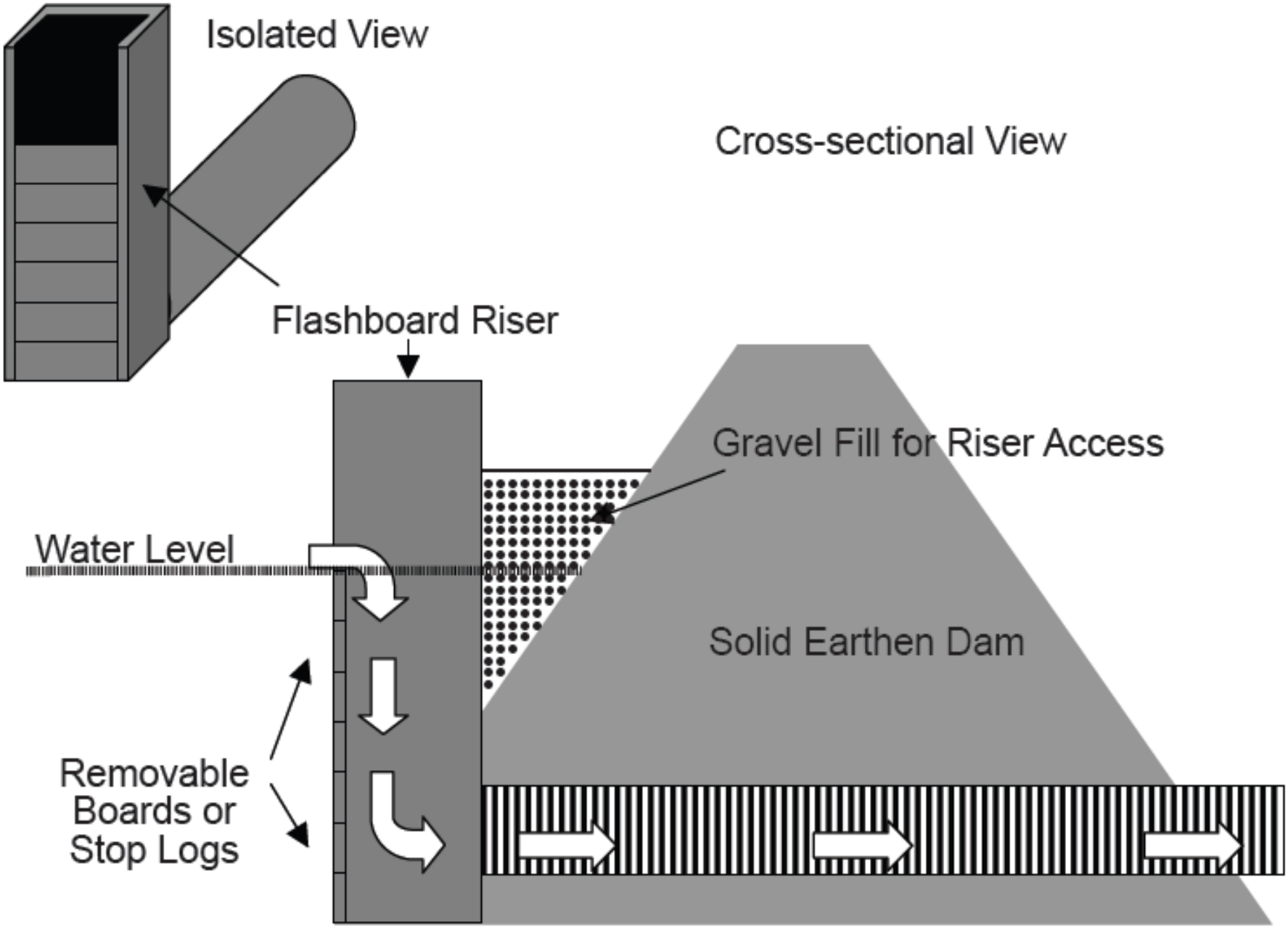
Sediment Basin

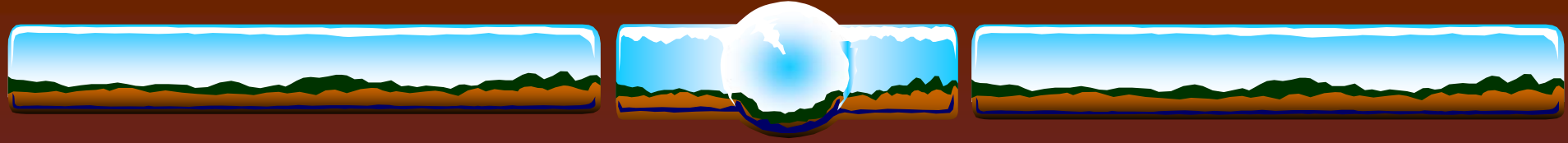
- Primary Spillway Must Pass Peak 2-Year Flow
- Minimum Dewatering Time 24 Hours
- Must Dewater From the Surface
  - Skimmer
  - Flash Board Riser



Example of a Skimming Dewatering Device

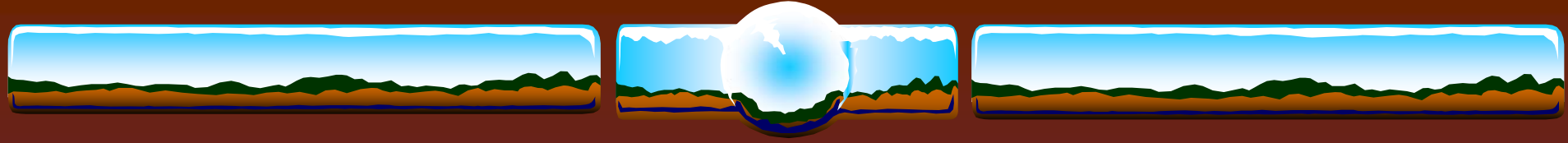
Other designs that dewater from the surface at a controlled rate are acceptable.


Isolated View
Cross-sectional View
Flashboard Riser
Gravel Fill for Riser Access
Water Level
Solid Earthen Dam
Removable
Boards or
Stop Logs



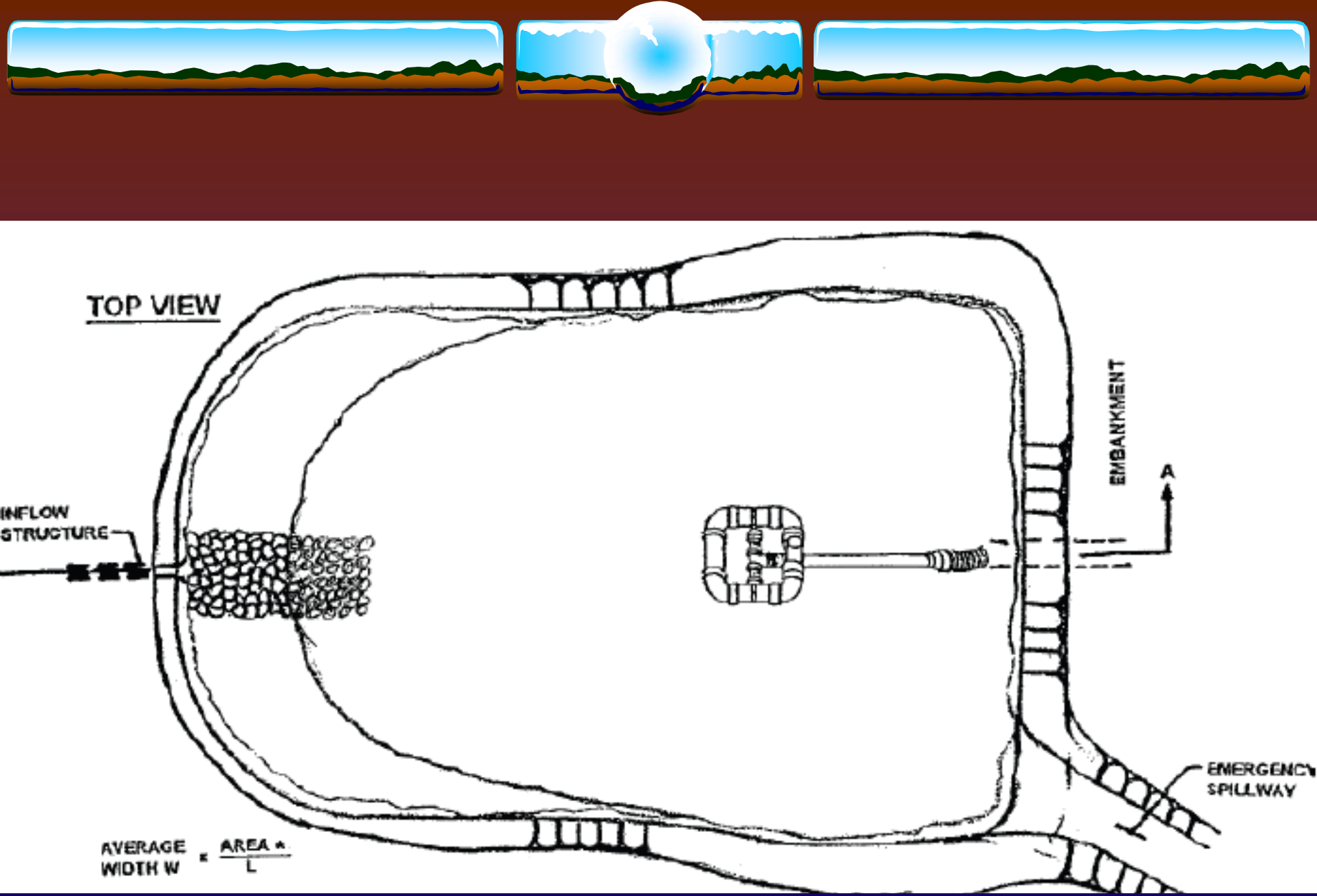
Flash Board Riser

Flashboard risers are a good option for stilling basins for pump discharges, or when sandy soil conditions will allow dewatering of the basin through infiltration. They should not be selected when the basin will have to be cleaned frequently, or when located in clay soils.

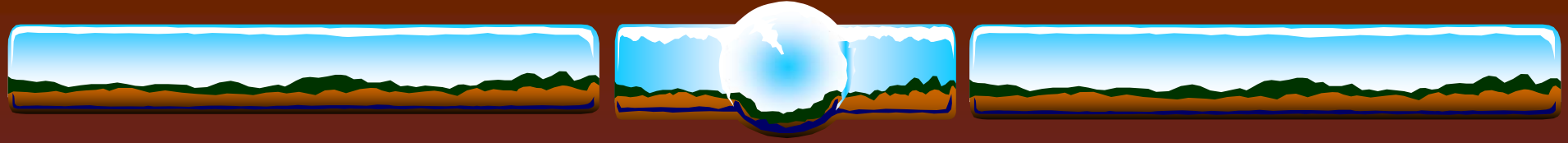


Skimmer Sediment Basin

- Maximum Drainage Area of 10 Acres
- Sediment Storage Volume of 1800 Cubic Feet per Disturbed Acre
- Surface Area of 325 Square Feet per Cubic Foot per Second of Peak 10-Year Flow
- Trapezoidal Spillway in Natural Ground Lined with Impermeable Geotextile or Laminate
- Dewatered with Floating Skimmer

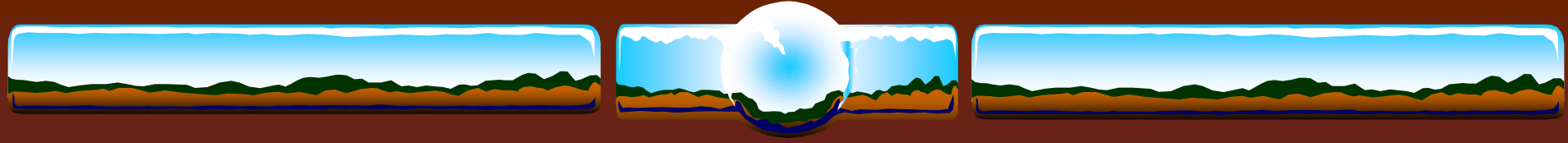

TOP VIEW
INFLOW
STRUCTURE
EMBANKMENT
A
EMERGENCY
SPILLWAY
AVERAGE
WIDTH W
=
AREA A
L

Porous Baffles



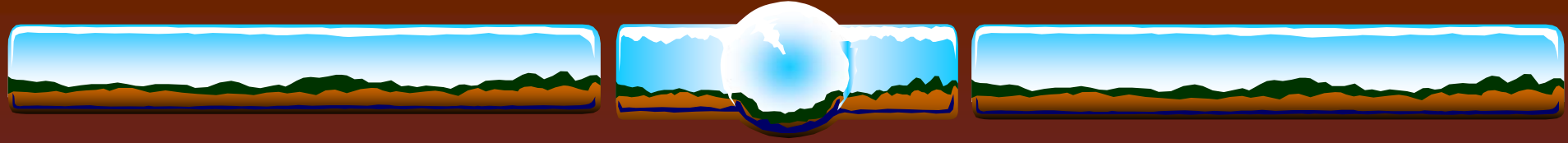
Porous Baffles

- Developed by N. C. State University
- Reduce Turbulence
- Increase Trapping Efficiency
- Use in All Basins
  - Temporary Sediment Traps
  - Rock Dams
  - Sediment Basins
  - Skimmer Sediment Basins



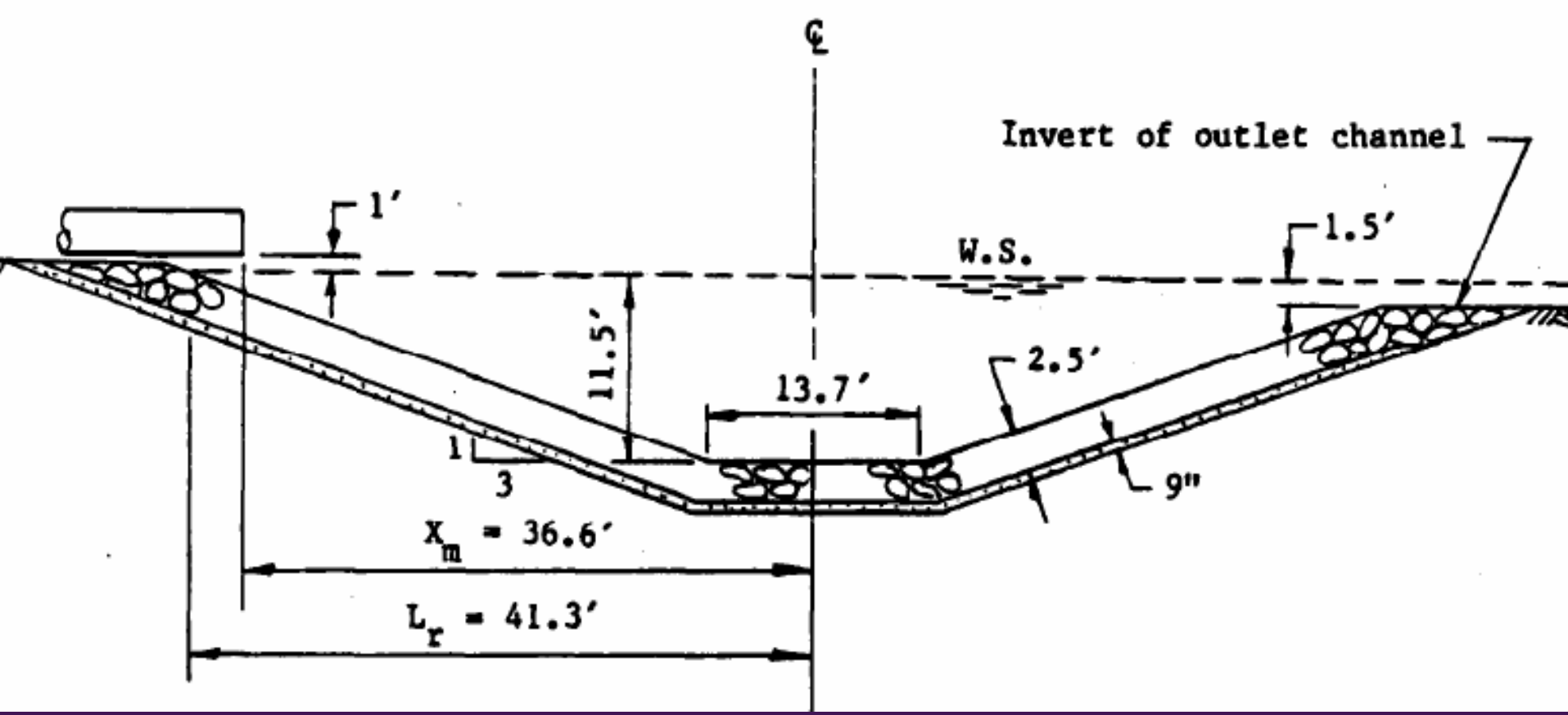
Flocculants

- Treat the water so that clays and fine silts will settle.
- Polyacrylamide must be applied at rate approved by DWQ Aquatic Toxicology Unit.
- Included in Design Manual to provide guidance for safe and effective use.



Outlet Stabilization

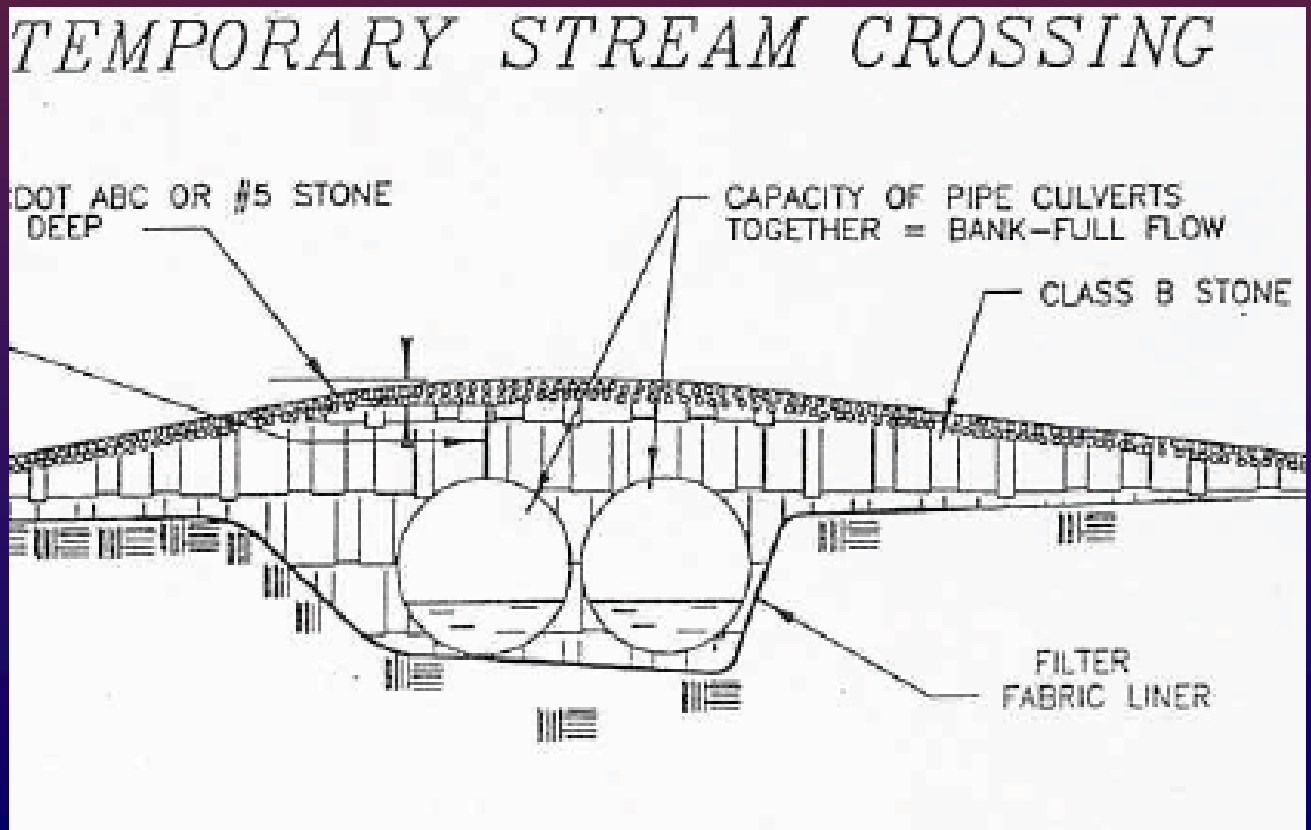
- Plunge Pool for Cantilevered Outlet
  - NRCS Design Note 6
- Plunge Pool for Submerged Outlet
  - Based on USDA Research



Plunge Pool Example

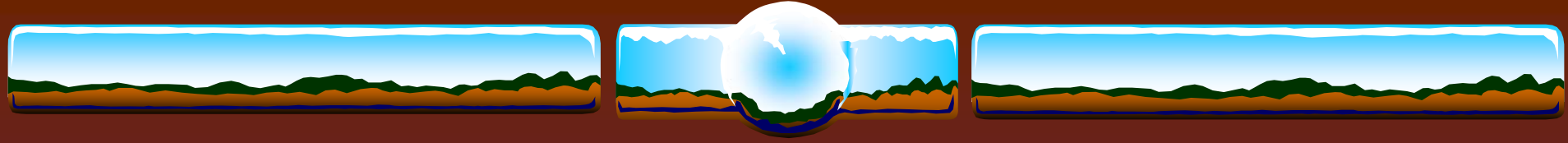
Temporary Stream Crossing

- Emphasize Use of Temporary Culvert



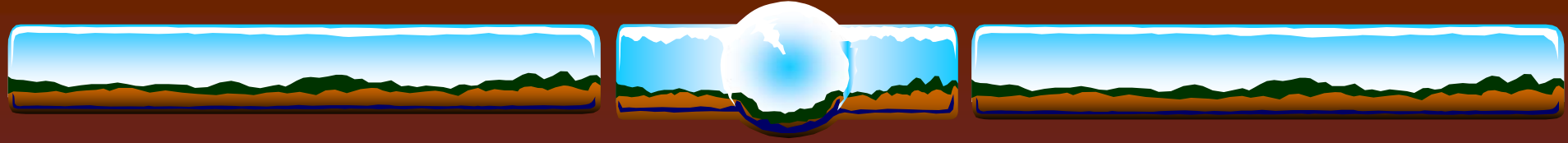
Hardware Cloth and Gravel Inlet Protection

- Replaces Fabric Inlet Protection
- Based on NC DOT Standard for Rock Inlet Sediment Trap Type ‘C’
- #57 Washed Stone with a Height of 16 inches and 2:1 Outside Slope
- Top of Stone Must Be 12 Inches Lower Than Ground Elevation Downslope of Inlet



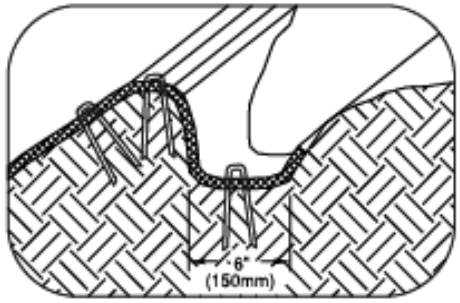
Rock Pipe Inlet Protection

- Based on NC DOT Standard for Rock Pipe Inlet Sediment Trap Type ‘A’
- Maximum Pipe Diameter of 36 Inches
- May Be Used with Excavated Storage Area to Form Temporary Sediment Trap
- Do NOT Use in Intermittent or Perennial Streams

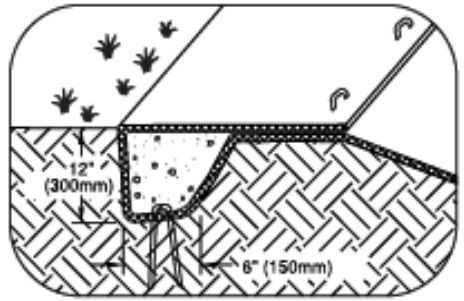


Rolled Erosion Control Products

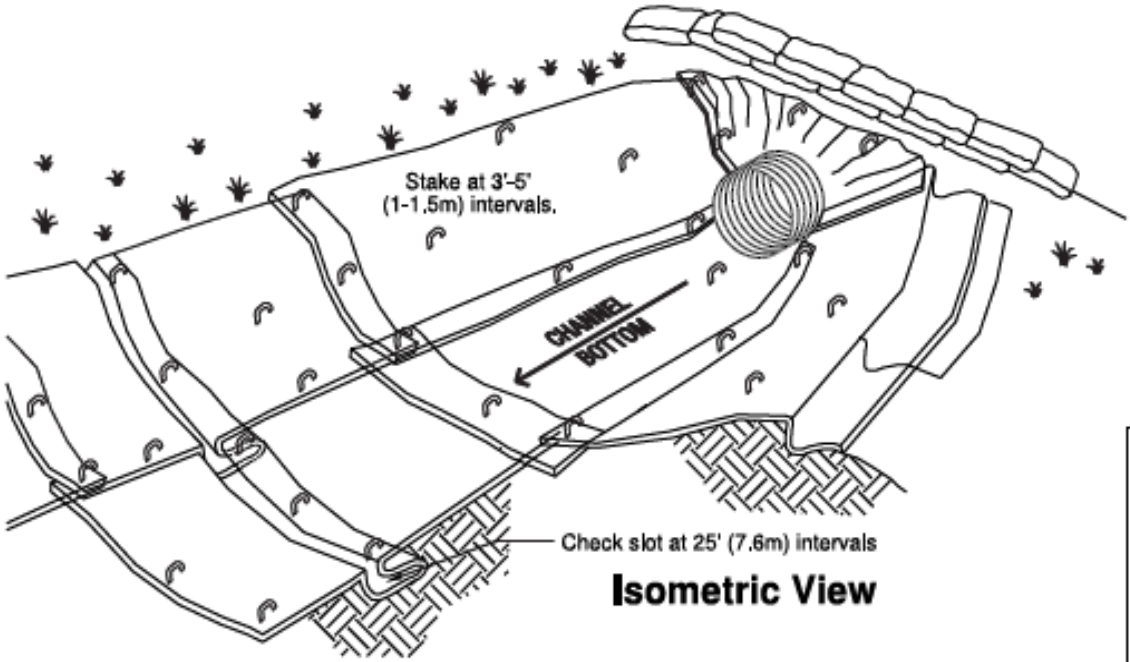
- Current Industry Terminology
- Selection of Slope Protection Based on P Factor in RUSLE
- Selection of Temporary Channel Lining Based on Permissible Shear Stress
- Illustrations from State of Washington Department of Ecology



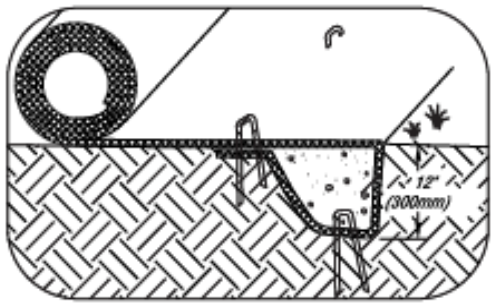
Longitudinal Anchor Trench



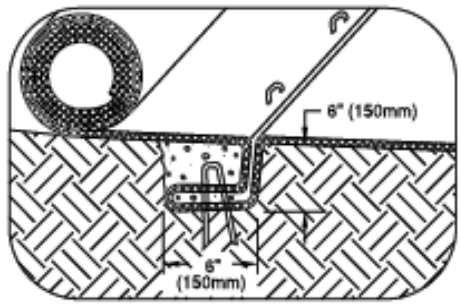
Terminal Slope and Channel Anchor Trench



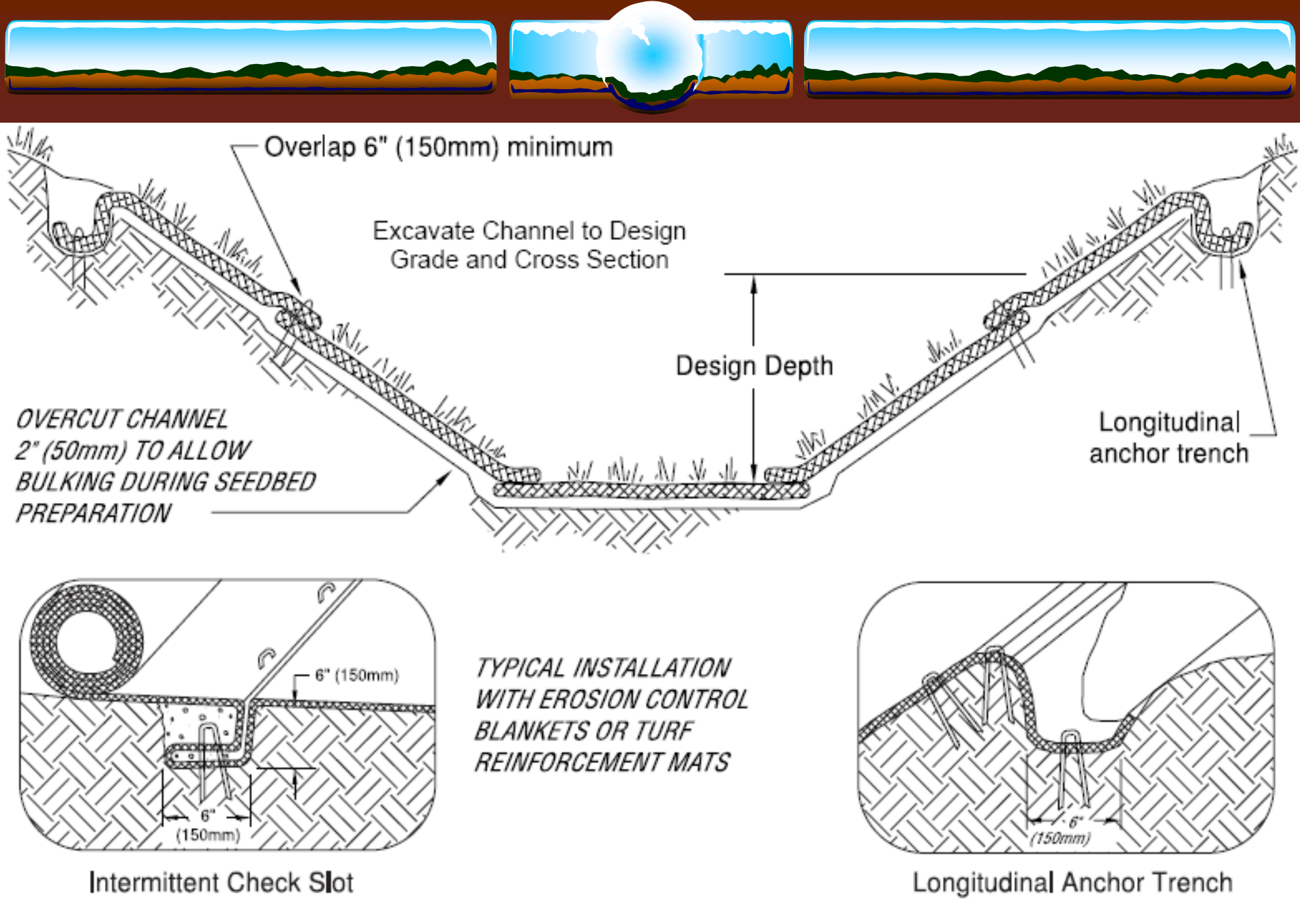
Isometric View



Initial Channel Anchor Trench

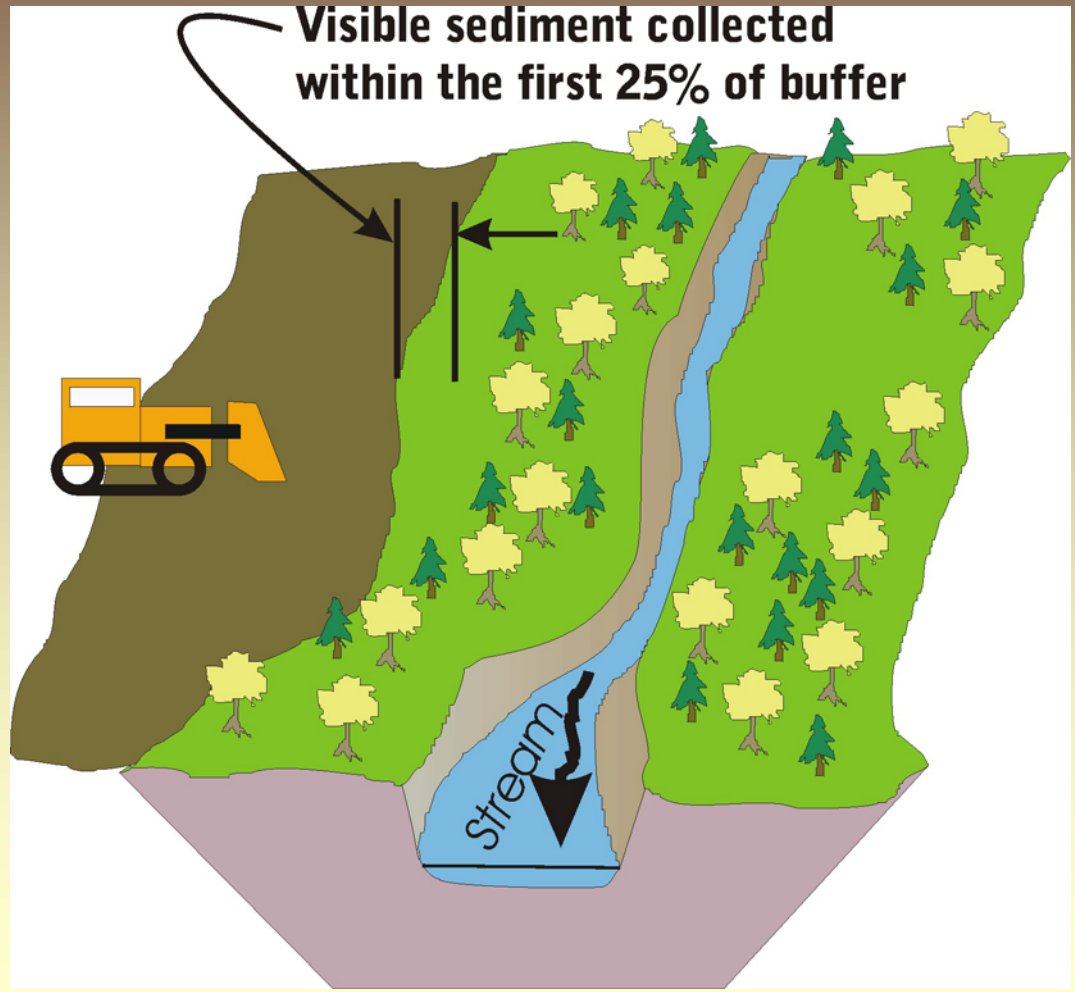


Intermittent Check Slot


Overlap 6" (150mm) minimum
Excavate Channel to Design Grade and Cross Section
Design Depth
OVERCUT CHANNEL 2" (50mm) TO ALLOW BULKING DURING SEEDBED PREPARATION
Longitudinal anchor trench
6" (150mm)
6" (150mm)
TYPICAL INSTALLATION WITH EROSION CONTROL BLANKETS OR TURF REINFORCEMENT MATS
6" (150mm)
Intermittent Check Slot
Longitudinal Anchor Trench

BUFFER ZONE

- Must be of sufficient width to confine visible siltation within the twenty-five percent (25%) of the buffer zone nearest the land disturbing activity



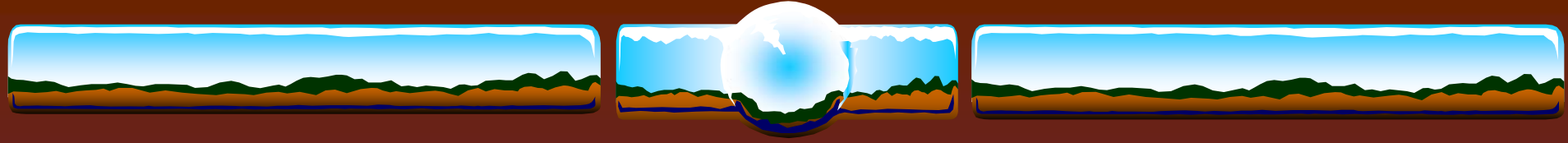
Buffer Zones

- Guidelines for Undisturbed Buffers

Slope (%)	Width of Zone of Undisturbed Vegetation
0-1	15 feet
1-3	20 feet
3-5	25 feet
>5	25 feet + (% of slope - 5)

Appendices

- Estimating Runoff
  - Time of Concentration for Rational Method Based on Kinematic Wave Theory
  - Excerpts from NRCS TR-55 for Graphical Peak Discharge Method
- Plunge Pool Outlet Design
  - USDA Design Note 6
  - Submerged Pipe Spillway Outlets

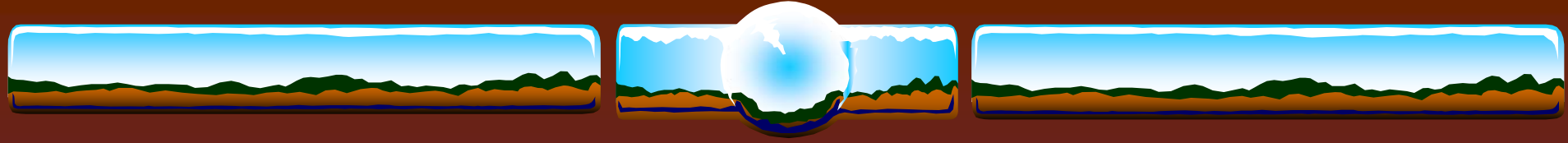


Appendices

- Sediment Basin Design
  - Principal Spillway Must Pass 2-Year Peak Runoff
  - Minimum Dewatering Time of 24 Hours
  - Equations for Weir, Orifice and Pipe Flow Provided

Standard Language Changes

- “Do not install measure in an intermittent or perennial stream.”
- “Inspect measure at least weekly and after each significant (1/2 inch or greater) rainfall event.”



We'll Do It Next Year

- Seeding Specifications
  - Riparian
  - Native Species
- Natural Channel Design
- Expanded Buffer Zone Section
- Socks, Wattles, and Berms, Oh My!

T. Gray Hauser, Jr., PE

State Sedimentation Specialist

Land Quality Section

gray.hauser@ncmail.net