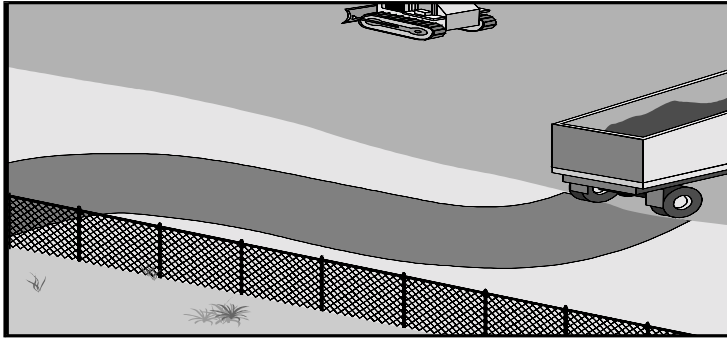


**ACTIVITY:** Construction Road Stabilization

ES – 03



**Targeted Constituents**

● Significant Benefit      ▸ Partial Benefit      ○ Low or Unknown Benefit

|             |                   |                       |                               |
|-------------|-------------------|-----------------------|-------------------------------|
| ● Sediment  | ○ Heavy Metals    | ○ Floatable Materials | ○ Oxygen Demanding Substances |
| ○ Nutrients | ○ Toxic Materials | ○ Oil & Grease        | ○ Bacteria & Viruses          |
|             |                   |                       | ○ Construction Wastes         |

**Description**

Access roads, subdivision roads, parking areas, and other onsite vehicle transportation routes should be stabilized immediately after grading and frequently maintained to prevent and control erosion and dust. This management practice is likely to create a significant reduction in sediment.

**Suitable Applications**

- Temporary construction traffic.
- Phased construction projects with offsite road access.
- Detour roads for local or temporary construction traffic.
- Construction during wet weather.
- Any construction road with a temporary stream crossing must be approved by the Tennessee Department of Environment and Conservation (TDEC) prior to construction. Consult Figures ES-03-1 and ES-03-2 for typical illustrations of temporary stream crossings, using a temporary bridge and culverts respectively.

**Considerations**

Areas which are graded for construction vehicle transport and parking purposes are especially susceptible to erosion and dust. The exposed soil surfaces are continually disturbed, leaving no opportunity for vegetative stabilization. During wet weather, these areas become muddy and generate significant quantities of sediment that pollute storm drainage systems and nearby streams. Dirt roads become unstable during wet weather, rendering them unusable and delaying construction.

Efficient construction road stabilization not only reduces onsite erosion but can significantly speed transit, avoid instances of immobilized machinery, and generally improve site efficiency and working conditions during adverse weather conditions.

Permanent roads and parking areas should be paved as soon as possible after grading. Where feasible, alternative routes may be used for construction traffic in wet conditions. Wet conditions will generally require that the contractor should reduce expected construction goals and adjust accordingly. Temporary gravel roads should be heavily considered on any slopes which are greater than 5 percent.

**Approach**

- Temporary construction roads should follow topographic contours to reduce erosion. Roadway slope should preferably be less than 10 percent and must not exceed 15 percent.
- Compact subgrade surface and provide drainage culverts as necessary. The use of engineered geotextile fabric is recommended to improve subgrade support and strength. Install according to manufacturer’s recommendations for overlap and anchoring. Place initial lift of aggregate carefully on geotextile.
- Gravel roads should be a minimum of 6 inches thick with 2-inch approximate size coarse aggregate base applied immediately after grading or as recommended by design engineer or soils engineer.
- Roadways should be carefully graded to drain transversely. Provide drainage swales on each side of the roadway. Simple gravel berms without a trench can also be used. Installed inlets should be protected to prevent sediment from entering the storm sewer system.
- Temporary stream crossings may only be constructed in accordance with TDEC permits. Temporary stream crossings should be installed for the shortest possible time period so that the possibility of stream flooding is minimized. Generally corrugated metal pipe is used for temporary pipes, due to inexpensive cost and light weight. Minimum culvert size is 18 inches or as needed to pass 5-year storm. However, if there is potential for flooding to buildings or structures, a higher design storm shall be used to minimize the risk.
- Chemical stabilizers or water are usually required on gravel or dirt roads to prevent dust; apply as needed to meet dust control requirements in AM-11, Dust Control. Chemical stabilization may also be used upon compacted native subgrade. These chemical controls should be applied in accordance with the manufacturer’s directions.

**Maintenance**

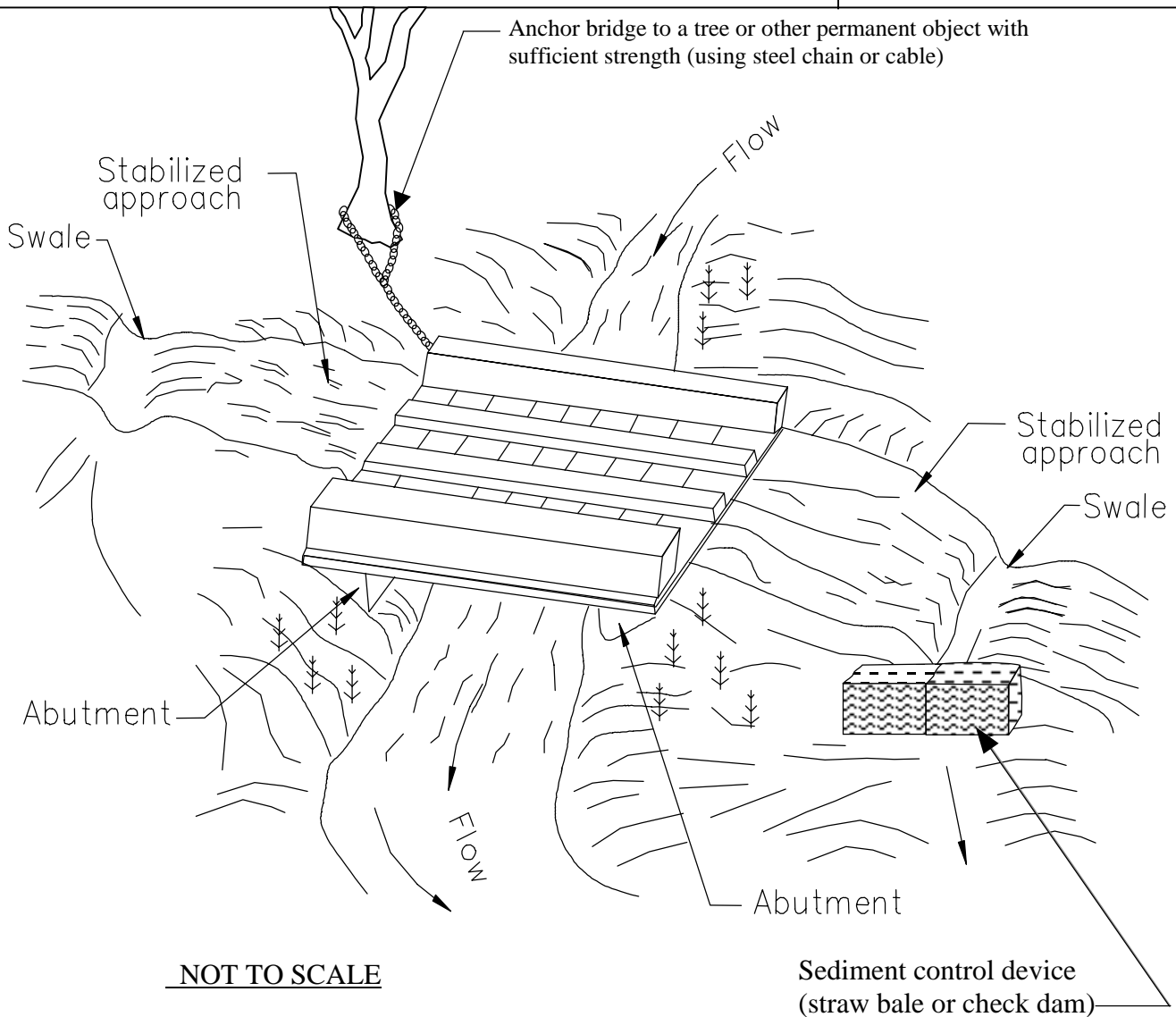
- Maintain gravel roads so that mud and dirt are not tracked offsite from the project. Periodically apply additional aggregate on gravel roads. Use shovels to remove excess dirt from gravel roads. Do not wash gravel roads with water, which allows the sediment and mud to enter the stormwater system, natural creeks or streams.
- Active dirt construction roads are commonly watered three or more times per day during the hot and dry weather.
- Inspect weekly and after each rain event. Look particularly for rill and gully erosion. Repair any eroded areas immediately.

**Limitations**

- The roadway must be removed or paved when construction is complete.
- Certain chemical stabilization methods may cause stormwater pollution and are not generally allowed (see AM-11, Dust Control).
- Management of construction traffic is subject to air quality control measures. Contact TDEC Air Pollution Division or the City of Knoxville Engineering Department for additional guidance.
- Gravel construction roads are moderately expensive, but cost is usually balanced by reductions in construction delays, travel times, street sweeping, etc.

**References**

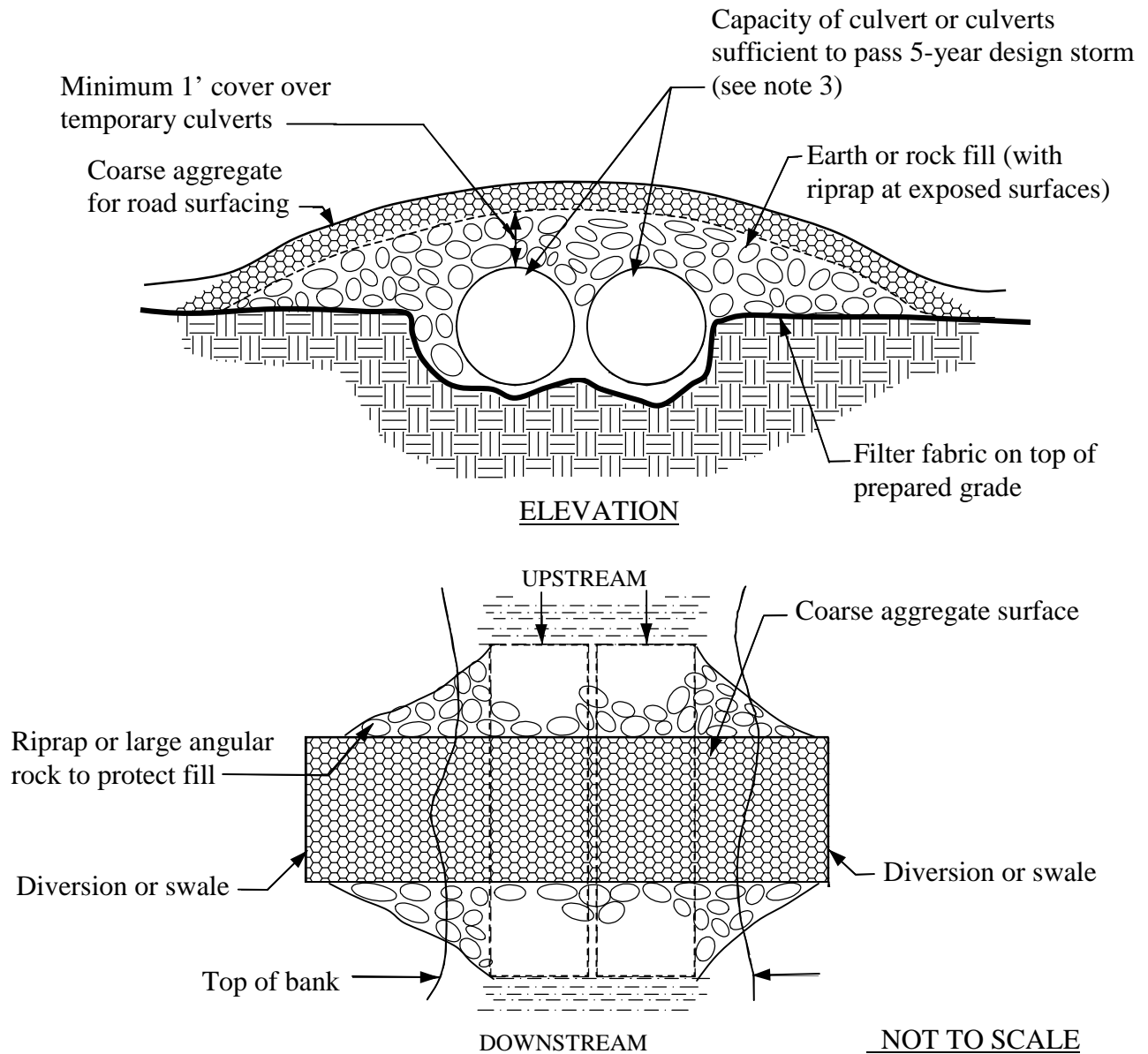
8, 30, 31, 32, 33, 34, 35, 43, 114, 141, 144 (see BMP Manual Chapter for list)



**NOTES:**

1. Temporary bridge structure must be designed and inspected by a licensed structural engineer in order to protect the safety of all workers. Temporary bridge structure must be capable of passing the 5-year storm at a minimum. A larger design storm must be used if there is potential for flooding buildings, structures, or adjacent property owners.
2. All temporary stream crossings must be approved and permitted by TDEC prior to beginning construction.
3. Securely anchor temporary bridge to an existing structure or tree.

**Figure ES-03-1  
Temporary Stream Crossing - Bridge**



**NOTES:**

1. Temporary culvert structure must be designed and inspected by a licensed engineer in order to protect the safety of all workers.
2. All temporary stream crossings must be approved and permitted by TDEC prior to beginning construction.
3. At a minimum, use a 5-year design storm for culvert capacity. Use a larger design storm if there is potential for flooding to buildings, structures or adjacent property.

**Figure ES-03-2  
Temporary Stream Crossing - Culverts**