

Stormwater Management

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Rainfall (stormwater) within ALDOT construction work zones must be carefully managed by our engineers so that sediments, soils, and pollutants from construction materials will not wash into the surrounding environment and negatively impact the delicate ecosystems that live there. A construction work zone is designed with stormwater drainage in mind. This means that crews will use best management practices (BMPs) to collect, reduce, or eliminate muddy stormwater from leaving the right-of-way.

Fun Fact: Mobile, Alabama is regarded as one of, if not the rainiest city in the nation as it receives over 65 inches of rain per year.

Silt fence is a commonly used BMP due to its cost effectiveness and mobility. The porous fabric of the fence allows stormwater to pool behind it. This allows it to be absorbed into the ground or heavier construction soils to settle out, preventing sediment from washing out of the work zone. When placed at the bottom of a slope within the work zone, hay/straw bales, wattles, and sandbags serve as BMPs in ways much like the silt fence in that they prevent sediment runoff while pooling and absorbing stormwater. These BMPs are low-cost and easily replaceable after a significant rain event. They are best suited in smaller work zones with less room for larger and more intricate BMPs.



Figure 1 Silt Fence



Figure 2 Wattles



Figure 3 Sandbags



Figure 4 Basin with stormwater

Basins and detention ponds both serve to temporarily retain stormwater in one place, allowing any sediments or pollutants to settle to the bottom. After the settling process, the clean water remaining in a basin is absorbed into the ground while the remaining water in a detention pond is released back into the environment via a river or creek. These ponding BMPs are used in larger construction sites where there is enough space for them and where they can better manage greater amounts of stormwater.

In work zones near environmentally sensitive areas such as ponds, lakes, or drinking water, an Active Treatment System (ATS) may be used to manage stormwater. An ATS system will collect water from work zone basins, filter it by removing the sediments, and then release it back into the drainage ways on the right-of-way.

Placing vegetative BMPs such as sod, grass, and trees helps stabilize bare soil in order to prevent washout or erosion. These BMPs are usually placed where they would naturally occur in the environment such as on either side of a roadway after it has been widened. Crews place vegetative BMPs over bare ground in order to minimize its exposure to weather and contain its sediments.

Rip-rap (rock) is commonly placed on shorelines, against shoreline structures, or in places where there is large, concentrated stormwater run-off in order to prevent erosion. Rip-rap is more durable than vegetative BMPs and can withstand stronger forces of erosion.

Vegetative and rock BMPs also provide an aesthetic appeal as they restore the natural appearance of the environment when work zone operations are completed.



Figure 5 ATS System



Figure 7 Sod placement at roadway widening project



Figure 6 Rip-rap at dedicated stormwater run-off location

It's ALDOT's goal to minimize impacts to the environment as much as possible when constructing a roadway project. In general, there are dozens of BMPs that can be used, however all BMPs function best when they either (1) are slowing down stormwater runoff so that sediments can be deposited or (2) they are breaking the contact/forming a barrier between loose soils and running water. You can visit alconservationdistricts.gov to learn more about stormwater management BMPs.