Caltrans

Construction Storm Water Pollution Prevention Bulletin

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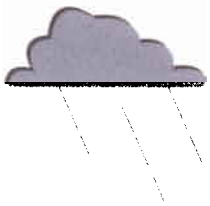
The Storm Water Pollution Prevention Bulletin is prepared by the Storm Water Compliance Review Task Force to aid all projects and operations in maintaining compliance with the National Pollutant Discharge Elimination System (NPDES) permit requirements.



Essentials of Sediment Traps and Basins

Sediment traps and basins (CD 41, CD 42) are among the most effective sediment control Best Management Practices (BMPs). This bulletin will focus on sediment controls using traps and basins and will provide some suggested solutions to sediment problems.

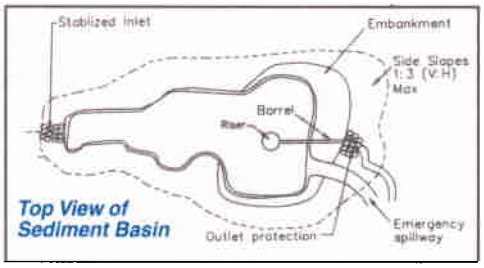
Sediment Basin

Properly used, sediment traps and basins are effective for projects that conduct significant soil disturbing activities during the wet season. Once implemented, these BMPs usually function well with only minor maintenance required after larger storms.

Sediment traps and basins function by detaining water for a significant time allowing sediment to settle. The water is either drained off slowly or allowed to evaporate and infiltrate the soil.

Design Concerns

Sediment basin and trap design should follow the guidelines provided in the Storm Water Quality Handbooks. Sediment trap and basin effectiveness is reduced if runoff is allowed to "short circuit" through the basin. A short circuit occurs when the flow is allowed to take a straight path through a basin and is not detained long enough to allow sediment to settle. The best way to avoid basin short circuits is to construct a rectangular basin with the inlet and outlet on opposites ends. A minimum length to width ratio of 3:1 is preferred. If space constraints do not allow sufficient distance between the inlet and outlet, the installation of plywood or earthen baffles perpendicular to the flow will prevent "short circuiting" by diverting the flow to the sides of the basin.



Construction Concerns

Correct BMP installation involves the same quality control found in all construction procedures. While it is tempting to take short cuts to save time and expense, this often results in a failed BMP. The following are a few items to remember when constructing your sediment basin or trap:

- Construct an emergency overflow spillway.
- Use an anti-seep collar in the outlet pipes.
- Stabilize the inlet and outlet per CD 33.
- When placing rip-rap protection, consider using filter fabric.
- Use baffles to increase flow travel time.
- Construct a perforated riser per CD 41.
- To control the outlet low flow rate, place filter fabric around the outlet riser perforations.

Safety

With all BMPs that work by ponding, the ponded water must be prevented from entering adjacent properties or the traveled way where it could cause property damage or traffic accidents. Ponds must be situated so that damage is minimized if a basin wall fails. Fencing may also be necessary in areas accessible to the public.

Maintenance

During construction, it may be necessary to drain a sediment trap if multiple or large storm events are expected or if the basin becomes full during a large storm event. If your sediment trap is located in a sump (with no outlet), it may be necessary to pump the water out on those occasions. You should first check the condition of the ponded water. If the water in the trap has cleared leaving the sediment at the bottom, the trap can be drained using a pump. After the pump inlet tube is wrapped in filter fabric and placed below the water surface but above the sediment, the water can then be discharged into a drainage system. Be careful not to pump out sediment unless you're planning on treating it. If the water appears discolored, try using a portable sediment tank or filter box (see CD 7 - Dewatering) to drain the trap.

Regardless of BMP design and construction, maintenance is a critical issue. When a BMP is installed properly, the failure rate and subsequent maintenance will be substantially reduced. When implemented properly, the maintenance of most sediment traps and basins will only involve the removal of deposited silt to a stabilized location after a storm event and the possible replacement of some filter fabric on the perforated pipe riser.

Additional information is available in the Caltrans Storm Water Quality Handbooks. Questions or comments may be directed to:

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