

SEDIMENT BASIN & SEDIMENT TRAP (SB) & (ST)

1. DESCRIPTION:

Sediment basins (SB) and sediment traps (ST) are temporary retention ponds excavated below ground level to avoid the need for an embankment. Sediment basins overflow through a pipe, while sediment traps use a surface spillway. They are typically installed in a drainage channel or at a concentrated discharge point. The size of the trap—length, width, and depth—depends on the area that drains into it. Sediment traps are usually smaller ponds located in the upper parts of watersheds, whereas sediment basins are larger and found in the lower parts, where permanent storm drains can carry overflow through a controlled pond outlet structure.

2. PURPOSE:

Temporary sediment traps and sediment basins are used either to prevent onsite erosion by retaining stormwater upstream of land-disturbing activities or to capture sediment and other pollutants downstream of land-disturbing activities.

When on the upslope side of a site, a temporary sediment trap or basin helps prevent surface runoff from entering a disturbed construction area. This improves working conditions by reducing stormwater runoff across the disturbed zone, which decreases erosion on the site.

A temporary sediment trap or basin can also be placed on the downslope side of a site to retain on-site sediment-laden runoff, preventing soil loss.

3. CONDITION WHERE PRACTICE APPLIES:

- A. Concentrated flows – Stormwater Silt Fence (SWSF) and Compost Mulch Sock (CFS) effectively control sheet flows, but a sediment basin or trap is necessary where flows are concentrated.
- B. At “Discharge Points” where concentrated stormwater enters or exits areas of land-disturbing activity.
- C. At the downstream end of a sloping perimeter control, such as a diversion channel (DC) that collects and concentrates stormwater.
- D. At multiple locations within the project site where sediment control is needed.
- E. Around or upslope from storm drain inlet protection measures.
- F. Upstream from sites on a watercourse with a 100-year peak flow rate of 50 cfs or more to comply with city ordinance § 14-5-2-12(b)(3), which requires safe passage of the 10-year flow from May 1 through October 31.

4. Limitations:

Do not use embankments in areas where dam failure could cause loss of life, property damage, or disrupt public roads and utilities.

5. DESIGN SPECIFICATIONS:

Part 2.2.12 of the EPA’s Construction General Permit (CGP) says “If you install a sediment basin or similar impoundment:

- A. *Situate the basin or impoundment outside of any receiving water and any natural buffers established under Part 2.2.1;*
- B. *Design the basin or impoundment to avoid collecting water from wetlands;*
- C. *Design the basin or impoundment to provide storage for either:*
 - a. *The calculated volume of runoff from a 2-year, 24-hour storm;* or
 - b. *3,600 cubic feet per acre drained.*
- D. *Utilize outlet structures that withdraw water from the surface of the sediment basin or similar impoundment, unless infeasible;*
- E. *Use erosion controls and velocity dissipation devices to prevent erosion at inlets and outlets; and*
- F. *Remove accumulated sediment to maintain at least one-half of the design capacity and conduct all other appropriate maintenance to ensure the basin or impoundment remains in effective operating condition.”*

Calculations of the required retention volume for sediment basins and traps must be included on the Erosion and Sediment Control (ESC) Plan and comply with CGP 2.2.12.C above. Typically, the minimum volume needed is the 2-year, 24-hour runoff volume from the entire watershed draining to the pond, including both on-site and off-site areas. Watershed basin boundaries must also be shown on a map within the ESC Plan.

Pond outlet structures—risers for sediment basins and spillways for sediment traps—must be designed to handle the 100-year peak flow rate. Both the retention volume and the 100-year flow rate should be based on the most severe watershed shape and ground cover conditions expected during construction. One foot of freeboard is required between the elevation of the required volume and the overflow elevation. If an embankment is used, an additional foot of freeboard is required between the 100-year elevation and the minimum top-of-dam elevation. ESC plans may include multiple phases, each with different watershed conditions and pond designs. A temporary sediment trap or basin can be converted into a post-construction SWQ pond after construction and stabilization are complete, but in some cases, a single pond design may satisfy both temporary construction and post-construction requirements.

Where the 100-year peak flow rate is 50 cfs or more, the minimum required retention volume must be increased to the 10-year 24-hour volume to comply with Ordinance § 14-5-2-12(B)(3), which requires the safe passage of stormwater runoff from the 10-year storm from May 1 to October 31.

Embankments must be avoided at most sites in Albuquerque to ensure downstream safety, so the required volume of sediment basins and traps must be constructed below the lowest adjacent grade. Where embankments are used, the minimum top width shall be equal to the height of the dam

measured at the downstream toe of the dam and not less than four feet.

6. Erosion and Sediment Control (ESC) Plan requirements:

The design of temporary sediment basins and traps must be included on an ESC Plan submitted to the Stormwater Quality (SWQ) Section of the Planning Department of the City of Albuquerque for approval per City Ordinance § 14-5-2-12(G)(4). The design of Post-Construction SWQ Ponds must be shown on a Grading and Drainage (G&D) Plan submitted separately to the Hydrology Section of the same department for approval. The precipitation depth used for temporary construction SWQ ponds is much larger than the depth used to size post-construction SWQ ponds. Sometimes, a single pond design may satisfy both temporary construction and post-construction requirements if the design engineer considers both during the initial design. The G&D Plan must be approved before the ESC Plan. While the temporary construction SWQ calculations will not be reviewed by Hydrology, the G&D and ESC Plans can be submitted and reviewed simultaneously.

ESC Plans that include a temporary sediment basin or trap must be designed in accordance with good engineering practices by a New Mexico Professional Engineer qualified in erosion control. Include applicable design calculations and construction specifications on the ESC Plan per CGP 2.1.2 and 9.6.1.c.iii. as follows.

Include a watershed basin map if off-site areas drain into the site or if the site has multiple discharge points. Include a separate map for each phase if watershed boundaries change during construction.

Include the drainage area, ground cover, time of concentration, peak flow rate, and 24-hour runoff volume in a hydrology summary table for each design storm for each pond unless the required volume of “3,600 cubic feet per acre drained” is assumed.

Include plan view and section view details of each pond with construction specifications for side slopes, spot elevations, and either dimensions or coordinates for each pond. Include overflow structure details with specifications for riser and spillway dimensions and materials. Include profile views through each pond labeling:

- A. the pond bottom elevation, area, and volume.
- B. the sediment cleanout elevation, area, and volume
- C. the elevation and area of the required volume
- D. the overflow elevation, area, and volume
- E. the 100-year elevation, area, and volume
- F. the dam top elevation, area, and volume (if applicable)

Include design volume calculations using the conic method and 100-year hydraulic calculations for each outlet on the ESC Plan with the details.

REVISIONS	CITY OF ALBUQUERQUE
Draft 11/20/2025	CONSTRUCTION STORMWATER QUALITY SEDIMENT BASIN & TRAP (SB) & (ST)
	SHEET 1 OF 1