

22.10 Pond Requirements

22.10.1 Design Requirements

Some sites may require ponding due to limited downstream capacity. The downstream capacity will be identified in a previously approved drainage plan/report or identified in the drainage submittal. Ponds are of the following types:

22.10.1.1 Detention Ponds

A detention pond has an outfall pipe with an outflow rate less than the inflow rate. All detention ponds must be evacuated in twenty four (24) hours or less, except for the water quality volume. See Section 22.11. The discharge from some ponds be more limited by downstream constraints and take longer to evacuate. In these cases, approval of an evacuation time greater than 24 hours is required by the City Engineer. Ponds that take more than six (6) hours to drain will be designed for a design storm equal to or exceeding the evacuation time.

Within a detention pond you can have a water quality pond. The water quality volume is excluded from the evacuation criteria as this volume is to infiltrate.

There are numerous software packages that can be used to calculate the pond volume. The input and output parameters and definitions are to be included with the drainage submittal.

The pond volume can also be calculated manually by discretizing the inflow hydrograph then subtracting the outflow hydrograph.

The minimum outfall size shall be 4 inches in diameter, width or depth. An outlet less than 4 inches in diameter, width or depth may be utilized if accompanied by a maintenance schedule on the City approved drainage submittal.

22.10.1.2 Retention Ponds

1. A retention pond retains stormwater for the specified design storm.
2. For sites that do not have an outfall, the pond volume will be based on a 100 year 10-day storm.
3. For sites with limited downstream capacity, the pond is to be sized based on the downstream constraints.
4. To match historic flow rates the pond is to be sized for the 100 year 24-hour storm.

22.10.1.3 Surge Ponds

A surge pond functions by ponding the flow in excess of the storm drain capacity. Therefore, lower flows by-pass the pond in the storm drain. Since stormwater quality cannot be addressed in a surge pond, its use is limited to a multi-use facility (e.g. park). Stormwater quality is to be addressed upstream or downstream of the pond prior to discharge to the Rio Grande river.

22.10.1.4 Water Quality Ponds

Water quality ponds are addressed in Section 22.11.

22.10.2 Infiltration Rate Credit

If infiltration rate credit is to be used, it must be supported by a Double-ring Infiltrometer test per ASTM D3385 at the proposed pond bottom. The test results are to be certified by a licensed engineer. In lieu of the double-ring Infiltrometer test, the infiltration rate shall not exceed the rates specified in Table A-7 per the soil type as described in Table A-4 of section 22.1.

22.10.3 Ponds in parking areas

All ponds in parking lots that affect parking areas must be detention ponds and the depth is not to exceed 8" in any portion of the parking space or parking stall.

22.10.4 Fencing around ponds

Fencing or similar barricade that will prevent entry is required for private and public ponds where the water depth is 18 inches or greater unless side slopes are 3:1 (H:V) or flatter and the pond drains in 96 hours or less. Fence or barricade minimum height is to be 42 inches.

22.10.5 Rock Porosity for Pond Volume

For underground storage systems the pore spaces between the aggregate is available to store water. The allowed volume in the aggregate pore space is 30%. The aggregate is to be natural or uncrushed and be protected from silt and sediment.

There is no pore space volume allowed for surface installations.

22.10.6 Privately maintained Ponds with a Public Drainage Easement

Privately maintained ponds which will detain or retain public water must have a Public Drainage Easement and an Agreement and Covenant and be built to City of Albuquerque standards presented later in this section. Ponds exclusively constructed to meet the requirements of Section 22.11 are excluded.

22.10.7 City Maintained Ponds

1. Access: Access shall be required for all city maintained ponds. Access shall be opposite the outlet if possible with a minimum width of 12 feet. Maximum access slope shall be 10:1 (6:1 if hard surfaced with soil cement or concrete treated base). Standard design tube or pipe gates shall be installed to restrict vehicle access. Gates shall be set back 50 feet from arterial or collector streets so equipment does not have to park in the street.
2. Spillways: Emergency spillways shall always be provided, be erosion resistant, and discharge to a public right-of-way, public drainage easement and/or historic flow path.
3. Outlets:

- a. Outlet structures shall be gravity flow, whenever feasible, and be located in a corner or accessible edge of the pond. Outlets shall be opposite of the pond access point if possible. Outlet pipe shall be a minimum of 12 inches in diameter with a slope such that when flowing at 1/4 full, velocity is 3 fps or greater.
- b. The outlet should be surrounded by a stabilized grade pad appropriately sized for maintenance.
- c. The invert of the pond outlet shall be above the required water quality volume as demonstrated in the drainage report. The pond outlet shall also provide a means to remove floatables and debris.

4. Pond Bottoms:

- a. Pond bottoms shall be designed to convey nuisance flows from the inlet to a storm water pollution prevention feature (such as a pervious bottom area for infiltration) prior to discharging to the outlet.
- b. Ease of maintenance shall be a consideration in all dams/detention basins.-

5. Side Slope and Bottom Treatments:

- a. Vegetation will be accepted if seeded per the City of Albuquerque Standard Specifications for Public Works Construction.
- b. Aggregate or riprap may be used as an erosion control mulch for 3:1 and steeper slopes.
- c. A geotechnical investigation and report may be required at the discretion of the City Engineer.

6. Minimum Pond Size:

In order for a pond to be publicly maintained, it must be a minimum of two (2) acre-feet.

7. Fencing:

- a. Ponds 18 inches or greater in depth will require fencing unless side slopes are 3:1 or flatter and the pond drains in 96 hours or less.
- b. If fencing is required, the minimum height is 42 inches. All fencing shall conform with the City of Albuquerque Standard Specifications for Public Works Construction.
- c. Fencing as required above and as deemed appropriate based upon the circumstances (size, configuration, nature of flows entering, location, etc.) by the City Engineer.

22.10.8 Temporary Public Ponds

1. Interim or temporary facilities shall be protected by a Public Drainage Easement and have an Agreement and Covenant for maintenance. These public drainage easements may cover

a tract of land larger than that needed for the final permanent facility in lieu of financial guarantees. An agreement and covenant by the developer will be required due to the temporary nature of the facility.

2. Retention pond volume will be based on a 100 year 10-day storm with no percolation credit given for volume reduction.

3. An emergency spillway must be provided that will safely convey the 100 year design flow entering the pond.