

ECM 1.6.2(E)

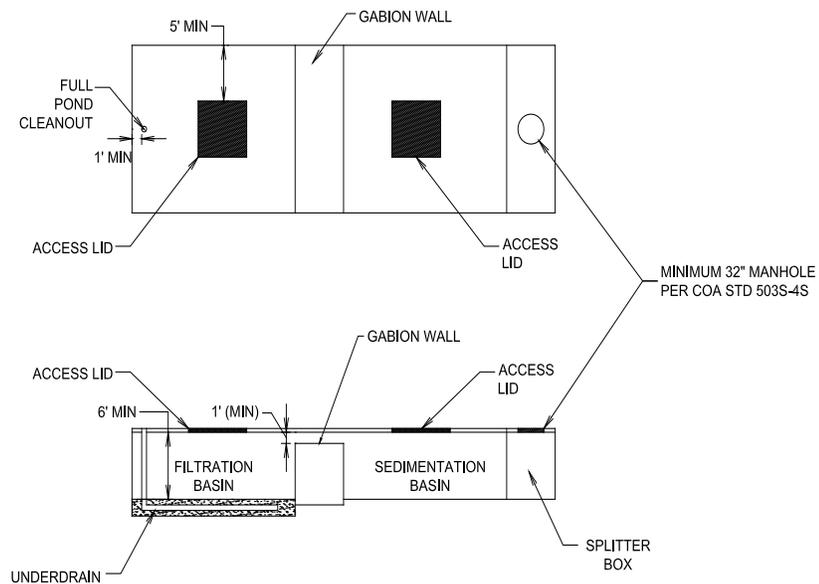
E. Subsurface Ponds. Based upon field observations, subsurface ponds can be difficult to inspect and maintain due to accessibility and constructability restraints. This section describes the minimum design and submittal requirements for subsurface ponds.

1. The Engineer of Record shall prepare and submit a Subsurface Pond Maintenance (SPM) plan for the proposed development to be reviewed as part of the Site Development Permit. This document shall be signed and sealed by a Licensed Professional Engineer.

2. An SPM plan must contain the following minimum components:

- **Access.** Adequate access including at least one temporary staging area for each subsurface pond must be provided for inspection and maintenance purposes. See Figure 1.6.2.E for minimum design standards for access points and sizing.

FIGURE 1.6.2E



NOTES:

1. ACCESS LID SHALL BE 4'X6' DOUBLE LEAF PER SPL WW-614 (H2O LOADING REQUIRED) WITH SLAM LOCK. LID SHALL BE CENTRALLY LOCATED WITHIN THE BASIN AND AT LEAST 5' FROM ONE WALL.
2. ACCESS REQUIREMENTS ALSO APPLY TO SUBSURFACE DETENTION FACILITIES. A MINIMUM OF ONE 4'X6' ACCESS LID IS REQUIRED.

- **Inspections.** Underground water quality facilities must be inspected at least once every six months and at least once annually during, or immediately following, a significant rainfall event to evaluate facility operation. During each inspection, erosion areas inside and downstream of the underground water quality facility must be identified and repaired immediately. With each inspection, any damage to the structural elements of the system (pipes, concrete drainage structures, retaining walls, etc.) must be identified and repaired immediately. Cracks, voids and undermining should be patched/filled to prevent additional structural damage. At least once annually, a pond drawdown report for each subsurface pond shall be completed in conjunction with a rainfall event equal to or greater than the design capture depth of the subsurface facility or a test of the pond after being filled by a secondary water source. The drawdown report shall indicate the date and time the pond(s) were observed full and the date and time the ponds were observed to be empty verifying that the sedimentation and filtration chambers both drawdown in the time frames as required by the ECM. At least one inspection shall be done annually by a 3rd party inspector and an annual 3rd party inspection report shall be submitted to Watershed Protection Department (WPD) for review. WPD shall be notified at least seven days prior to the annual 3rd party inspection to allow for the opportunity for observation. The annual 3rd party inspection report shall be sealed by a Texas Professional Engineer, shall include photographs of the sedimentation and filtration chambers, and the drawdown verification report.
- **Sediment Removal.** Remove sediment from the inlet structure and sedimentation chamber when sediment buildup reaches a depth of 6 inches or when the proper functioning of inlet and outlet structures is impaired. Sediment should be cleared from the inlet structure at least every year and from the sedimentation basin at least every 5 years.
- **Media Replacement.** Maintenance of the filter media is necessary when the drawdown time exceeds 96 hours provided all other components of the pond are functioning correctly. When this occurs, the upper layer of sand should be removed and replaced with new material meeting the original specifications. If dewatering of the system is necessary due to lack of functionality, ensure dewatering is properly conducted.
- **Debris and Litter Removal.** Debris and litter should be removed regularly. Particular attention should be paid to floating debris that can eventually clog the control device or riser.
- **Filter Underdrain.** Clean underdrain piping network to remove any sediment buildup as needed to maintain design drawdown time.

- **Responsibility.** The responsibility of the inspection and maintenance of all subsurface ponds shall be the responsibility of the operator of the facilities.

The requirements discussed above should be considered minimum requirements for a SPM plan. In developing a SPM plan, the engineer should consider the plan to be site-specific, and therefore add any additional requirements to ensure the pond has adequate access and can be inspected. During the course of inspections and field observations, adjustments to the SPM may be required. The plan may be amended with the submission of additional or amended parts of the plan and approval by the Director of WPD or Planning and Development Review Department (PDRD).

3. For commercial and multi-family developments, a restrictive covenant and site plan notes will establish the requirements for the implementation and on-going maintenance of the SPM plan. The restrictive covenant must be in a form approved by the City Law Department.

ECM 1.6.3(C) Major Maintenance Requirements

1. Sedimentation and Filtration (See Section 1.6.5).

a. Silt should be removed when the accumulation exceeds six (6) inches in sediment basins without sediment traps. In basins with sediment traps, removal of silt shall occur when the accumulation exceeds four (4) inches in the basins, and the sediment traps shall be cleaned when full. Following silt removal the design depth of the filtration media must be verified (see 1.6.3.B.11).

b. Accumulated paper, trash and debris should be removed every six (6) months or more often as necessary to maintain proper operation.

c. Vegetation within the basin shall not exceed eighteen (18) inches in height at any time, except as called for in the design. The minimum vegetation height shall be three (3) inches. Vegetation that is mowed or cut shall be removed from the basin.

d. The basin shall be inspected annually and repairs shall be made if necessary.

e. Corrective maintenance is required any time a sedimentation basin does not drain the equivalent of the Water Quality Volume within sixty (60) hours (i.e., no standing water is allowed).

f. Corrective maintenance is required any time the sediment trap in a sedimentation basin does not drain completely within ninety-six (96) hours (i.e., no standing water is allowed).

g. To limit erosion, no unvegetated area shall exceed 10 square feet.

h. Structural integrity of basins shall be maintained at all times.

i. For subsurface pond maintenance plan requirements for sedimentation/filtration basins, please refer to ECM 1.6.2(E).

2. Detention Basins.

a. Accumulated paper, trash and debris should be removed every six (6) months or as necessary.

b. Vegetation within the basin shall not exceed eighteen (18) inches in height at any time.

c. Corrective maintenance is required any time draw-down does not occur within twenty-four (24) hours.

d. The basin should be inspected annually and repairs should be made if necessary.

e. In detention basins, silt shall be removed and the basin restored to original lines and grades when standing water conditions occur or the basin storage volume is reduced by more than 10%.

f. to limit erosion, no unvegetated area shall exceed 10 square feet.

g. structural integrity of basins shall be maintained at all times.

h. For subsurface pond maintenance plan requirements for detention basins, please refer to ECM 1.6.2(E).

4. Retention-Irrigation Systems (Section 1.6.7.A).

a. Sediment must be removed from the retention basin, splitter box and wet wells, when accumulations exceed six (6) inches in depth.

b. To the greatest extent practicable, irrigation areas are to remain in their natural state. However, vegetation must be maintained in the irrigation area such that it does not impede the spray of water from the irrigation heads. Tree and shrub trimmings and other large debris must be removed from the irrigation area in order to harvest and remove nutrients from the system. See requirements in 1.6.7.D.3.(g) and (h) regarding requirements for soil and vegetation in irrigation areas.

c. The pumps and irrigation system must be inspected or tested a minimum of six (6) times per year to show all components are operating as intended. In particular, sprinkler heads must be checked to determine if any are broken, clogged, or not spraying properly. All inspection and testing reports must be kept on site and accessible to the City of Austin.

d. For subsurface pond maintenance plan requirements for retention/irrigation systems, please refer to ECM 1.6.2(E).

7. Rainwater Harvesting (Section 1.6.7.D).

Maintenance.

Proper monitoring and maintenance is important for any system to work appropriately and efficiently. Each configuration will perform differently. After the system has stabilized, inspection and maintenance might be needed several times a year and/or after heavy rainfall events. A pretreatment filter system (i.e., leaf guards, strainers, roof washers, etc.) will be required prior to the cistern. An approved Integrated Pest Management Plan (IPM) with a recorded restrictive covenant will be required for all drainage areas to the control and irrigation areas. For subsurface pond maintenance plan requirements for rainwater harvesting, please refer to ECM 1.6.2(E).

DCM 8.5.0 DETENTION BASIN MAINTENANCE AND EQUIPMENT ACCESS REQUIREMENTS

Refer to Section 1.6.3.C of the Environmental Criteria Manual and Section 1.6.2(E).