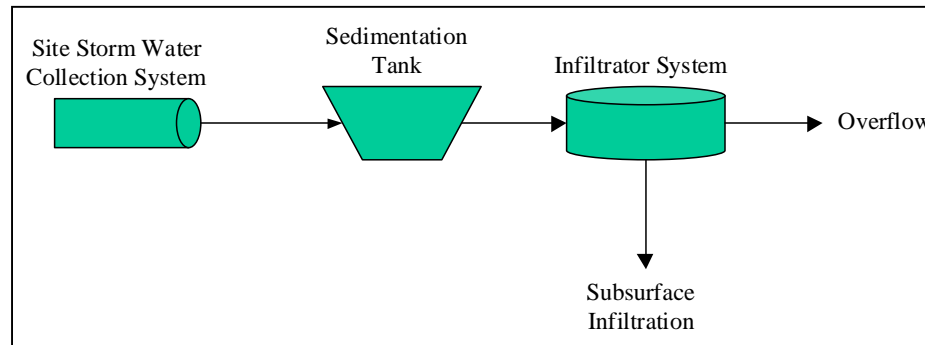


Broadous Elementary School

MAINTENANCE & INSPECTION COSTS

Description of Maintenance & Inspection Tasks

There are several maintenance and inspection tasks which have been identified for this project. The following assumptions and recommendation were made in an effort to calculate the costs associated with the construction of this project. Below is a schematic of the project process and a description of the maintenance and inspection tasks.



MAINTENANCE COST ESTIMATE

Sedimentation Tank

There are two chambers in the sedimentation tank that need periodic cleaning. One of the chambers is the sedimentation chamber, the other is an oil and grit chamber located next to each other inside the sedimentation tank. The sedimentation chamber must be cleaned when the buildup of sediment reaches within six inches of the water service level in the sedimentation chamber. This is expected to occur once every year and will require a Vacutruck to vacuum out and remove the collected sediment. It is assumed that this maintenance will be contracted out and will include the removal and disposal of the sediment. It is assumed that the contents for the sediment from the sediment chamber will be classified as non-hazardous material and that the total quantity of waste should not exceed 750 gallon of liquid/solid waste.

The oil and grit chamber must also be cleaned periodically. When the thickness of the oil layer in this chamber reaches a thickness of three inches that it will require removal from the chamber. It is estimated that this will occur every two years. It is assumed that the contents from the oil/grit chamber of the sedimentation tank be removed every two years. It is assumed that this waste will be classified as hazardous waste and its quantity will not exceed 60 gallons.

Before removal of the sediment and/or oils from the sedimentation tank, its contents must be classified. A licensed disposal company must be contracted to test and classify the contents of the sedimentation tank. After this procedure is completed, the sediment from the sediment chamber of the must be removed. Access to the sediment chamber requires that only the manhole cover over the chamber be removed. Collection and disposal of this material must be conducted by a licensed waste disposal company.

The costs have been determined from quotes from waste disposal companies. Access to the grit/oil chamber is through a separate manway lid. Entry into the sedimentation tank either to the sedimentation chamber or to the oil/grit chamber is not required.

**Broadous Elementary School
MAINTENANCE & INSPECTION COSTS**

Labor Requirements:

Contracted out

Collection System

To ensure that the collection system is working properly it is recommended that the stormwater collection system be cleaned three times every year. The cleaning of the collection system requires the removal of all obstructions from all catch basins on site that collect and directs runoff to the Infiltrators system, the sedimentation tank and the curb inlet/outlet. The cleaning of the catch basins will require the removal of the grating above the catch basins and the extraction of all solid waste in the catch basin. The curb inlet/outlet must also be cleaned of all obstacles so flow through the catch basin is not blocked. This tasks is estimated to take 2 workman ½ day to complete.

Labor Requirements:

24 hours/year

INSPECTION COST ESTIMATE

Inspection of the Sedimentation Tank

The procedures recommended by the manufacture must be followed. For both systems, it is recommended that a log be maintained to determine the buildup of sediments throughout the life of the system. A log from the sedimentation tank manufacturer is available. It is estimated that this task will require four hours of one maintenance worker to complete. This inspection task should take place three times every year.

Labor Requirements:

12 hours/year

**Broadous Elementary School
MAINTENANCE & INSPECTION COSTS**

Cost Estimate Summary

The annual maintenance & inspection cost was calculated using the Equivalent Uniform Annual Cost (EUAC). These costs are listed in Table 2. The annual interest rate used to calculate the EUAC is 7%. The life span of the system is estimated as 20 years.

Table 2
Cost Estimates

Activity	Costs (\$) EUAC
Annual Maintenance	3,420
Annual Inspection	360
Subtotal	3,780
Contingency 20%	756
TOTAL COSTS	4,536

**Broadous Elementary School
MAINTENANCE & INSPECTION COSTS**

Table 3
Yearly Maintenance & Inspection Activity Schedule*

	January	February	March	April	May	June	July	August	September	October	November	December
MAINTENANCE										Sediment Removal from Sed. Tank		
	Clean Collection System			Clean Collection System						Clean Collection System		
INSPECTION	Inspect Sediment Buildup in Infiltrators & Sed. Tank			Inspect Sediment Buildup in Infiltrators & Sed. Tank						Inspect Sediment Buildup in Infiltrators & Sed. Tank		

*Does not include removal of oil/grit from the sedimentation tank which is assumed to occur every 2 years