

# 1. Mixing System

To introduce site-specific polymers, Floc Logs, to turbid waters in such a manner to facilitate mixing and reaction between the polymer and the suspended particles.

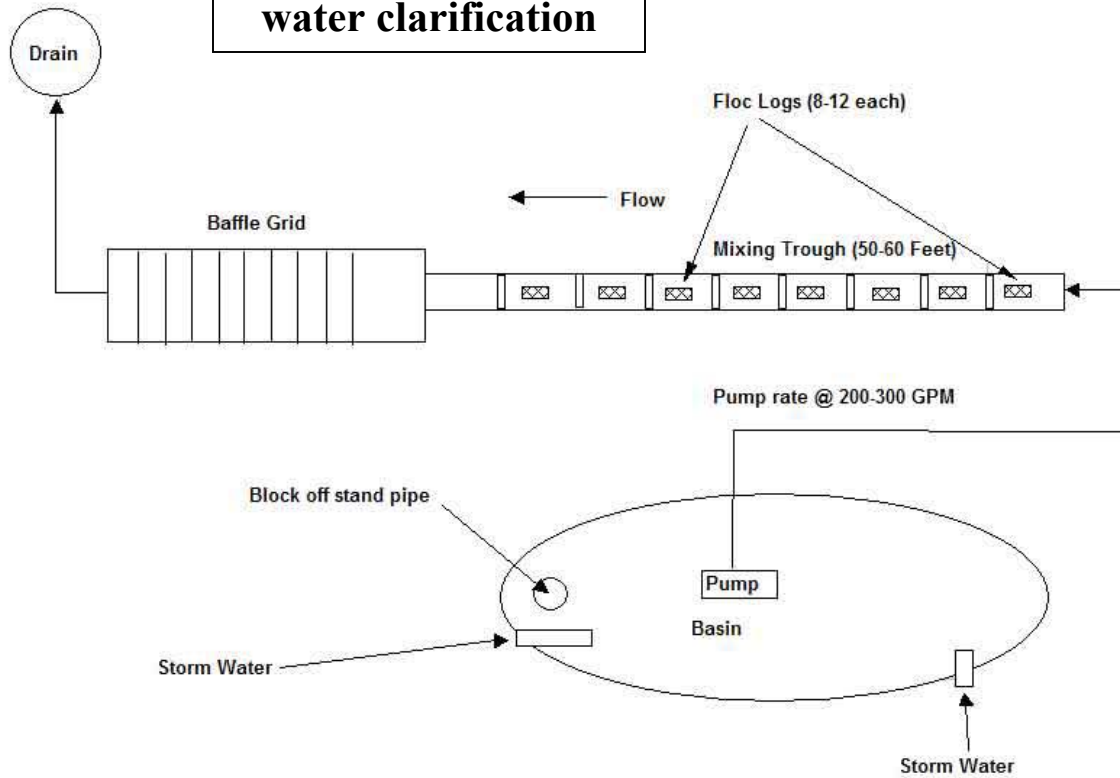
## a. Standard/ Box System

A rectangular area is excavated and lined with plastic. Solid panels are placed inside to create a raceway that snakes back and forth, allowing the velocity and turbulence to build up. Floc Logs are secured along the raceway, allowing the water to mix with the polymer and begin reacting with the suspended sediment.

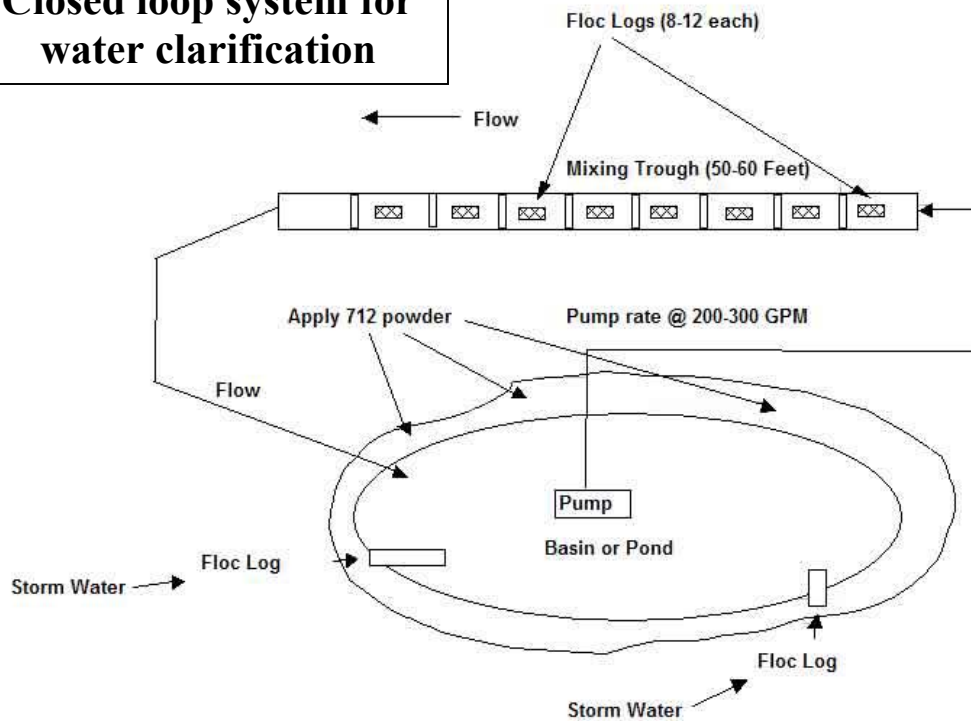
- i. Can be used with either an open or closed loop water treatment system, but must have moving water to work.
- ii. Turbid water (not mud) is introduced into the mixing chamber, which consists of a raceway that snakes back and forth, directing the water downward.
- iii. Floc Logs are secured along the raceway, allowing the water to flow over and around them. Logs should be placed 10-15 feet apart, in a series, when possible. The number of logs is determined by the flow rate of the water and the length of the mixing chamber is determined by the reaction time required for the polymer. Longer mixing times will have the best reduction of turbidity.



## Open loop system for water clarification



## Closed loop system for water clarification



## b. Ditch System

For use on temporary or changing sites, where the excavation of a large rectangular area is not feasible, also used for dewatering operations. A ditch is built up, either by digging out the bed or building up the walls, and can be lined with plastic to prevent erosion if needed. The ditch is lined with jute or similar matting. Checks are placed along the ditch, forcing the water to snake around them. Floc Logs are secured along the raceway, allowing the water to mix with the polymer and begin reacting with the suspended sediment.

- i. Open ditch system is an alternative to a pipe or closed drain systems, especially before permanent pipe structures have been installed.
- ii. Cover the exposed soil with jute matting and apply Silt Stop powder to prevent erosion. With highly erosive soils protection with geotextile or plastic sheeting may be necessary.
- iii. Build checks in the ditch and secure the Floc Logs on the downstream side of each check. Make sure that the logs are not resting in mud, drive rebar “feet” into the logs to raise them slightly if needed.
- iv. Logs should be placed 10-15 feet apart, in a series. The number of logs is determined by the flow rate of the water and the length of the mixing chamber is determined by the reaction time required for the polymer.
- v. Used in conjunction with a settling pond upstream and usually with a sediment collection system (baffle grids, rip-rap, settling pond, filter, dispersion field, ect.) downstream.



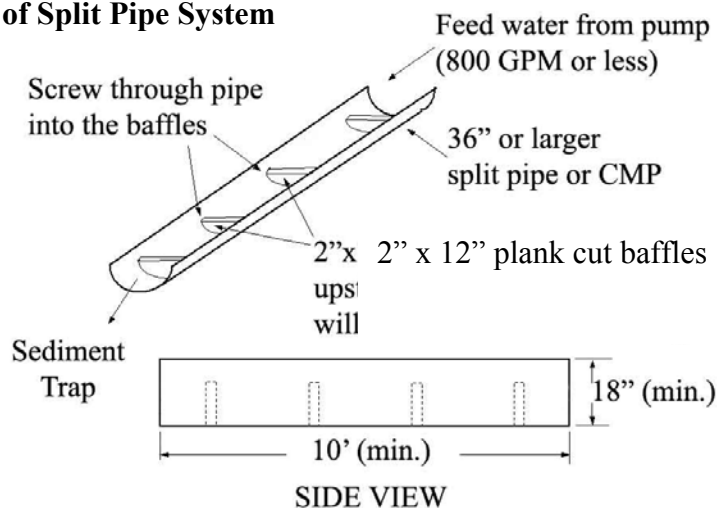
### c. Flume or Split Pipe System

This system is for use on sites with extremely limited space or difficult terrain not conducive to excavation. A flume or split pipe is installed, with a series of checks built into it. Below each check, a Floc Log is placed, allowing the water to mix with the polymer and begin reacting with the suspended sediment.

- i. Flume or Split Pipe systems are similar to an open ditch system, but are used where a ditch system cannot be installed.
- ii. It is constructed using PVC pipe, Corrugated Metal Pipe, or similar pipe sawn in half or some similar plastic piping.
- iii. Within the pipe, construct checks that are secured into the pipe. These can be made using plywood, plastic, metal, cinder blocks, sand bags, ect.
- iv. Downstream of each of these checks, place a Floc Log; just as you would in a ditch system.
- v. The number of Floc Logs is determined by the flow rate of the water and the length of the flume is determined by the reaction time required for the polymer.
- vi. Sediment is collected before final discharge, using a sediment collection system (baffle grids, rip-rap, settling pond, filter, ect.) downstream of the mixing pipe, or by lining the pipe with jute matting to collect flocculated sediment as it forms.



#### Example of Split Pipe System



#### d. Pipe System

This system is for use on sites with extremely limited space or when pumping water under pressure. A pipe system is built which allows the introduction of Floc Log polymer to the turbid water within. Apparatus may need to be added into the pipe system to create turbulence and facilitate mixing with the polymer to react with the suspended sediment.

- i. Pipe systems are similar to a flume system, but are used where closed pipes are more practical, either due to site constraints or when the water to be treated is under pressure.
- ii. The number of Floc Logs needed is determined by the flow rate of the water, and length of the pipe is determined by the reaction time required for the polymer.
- iii. Sediment is collected before final discharge, using a sediment collection system (settling pond, filter, ect.).

