



## Maintenance Strategy – Site Drainage

This category covers a broad range of a buildings site drainage systems and sub systems. The information contained in this document are general recommendations and guidelines designed to bring attention to the importance and benefits of preventive maintenance strategies supporting quality educational environments. It is important for facility managers and maintenance staff to be aware of the specific systems asset types and maintenance required to effectively maintain the systems functionality and reliability through preventive maintenance requirements. Qualified in-house maintenance combined with certified vendor staff may be necessary to manage systems safely and effectively. Consult manufacturer recommendations on building site drainage system maintenance requirements.

**Definition:** A system of landscape and plumbing systems designed to direct the flow of excess water (rain, snow) from the site away from the site/building. Some common components may include: culverts, catch basins, manholes, storm drains, underground structures, natural drainage features, level spreaders, splash blocks, down-spouts, drain swales, ditches, retention and detention basins. All are designed to maintain the conveyance of storm water, and urban run-off; protect property from flooding during storm events and control erosion.

There is one constant in business: change comes in multiple dimensions. Your facilities maintenance needs are no exception. Components and sub systems of site drainage elements need routine review and maintenance to ensure they are working properly for proper operations and doing what they are designed to do. As systems undergo the process of constant use, conditions begin to wear and breakdown due to exposure and environmental conditions such as water, snow, drain run-off, sand, and other environmental elements, things can get unbalanced. Drain systems can get clogged with debris, both small and large, splash blocks get moved around and need to be realigned to work properly. Soil displacement or depressions in landscaping are signs of system breakdown. School drainage systems have natural wear and tear over time, concrete and asphalt deteriorates and can create hazardous conditions affecting driveways, sidewalks, pedestrians, students and staff. The overall goals of implementing these requirements are to enhance, beautify, provide aesthetic curb appeal with the rest of the campus, all while providing a system that will protect the environment from water run-off during inclement weather conditions. Maintaining site drainage systems and proper working conditions through proactive maintenance efforts will reduce risks and hazards.

**MAINTENANCE AND REPAIR.** Drain systems require routine cleaning and maintenance. From general cleaning and proper water flow to minor adjustments in drain covers and adjustment in splash blocks, these systems need this attention because high use and stresses producing minor defects are constantly at work. These stresses may be caused by wear and tear, heavy traffic loads causing pot-holes, damaged concrete, pests, erosion, clogged site drains, ponding, live vegetation growing in drains, visible debris or mud around drains and many other factors. Review site

drainage locations and identify signs of displaced soil and stone resulting from ineffective site drainage. Look to see if the erosion is affecting any adjacent structures or hardscape such as foundations, sidewalks or retaining walls. Trip hazards should be addressed and structural damage needs further review. If not mitigated in a timely manner, repair costs can turn into unnecessary capital costs.

Regardless of the cause, the result is the same -- without routine scheduled cleaning and maintenance the drainage systems ultimately deteriorates before it is time and may cause other systems to deteriorate as well. Preventive maintenance means the early detection and repair of minor defects in systems, before major reactive action is necessary; it is a proper way to care for site drainage elements protecting the larger assets. Site Drainage systems should be routinely reviewed for proper operations to include cleaning to remove routine trash and debris affecting proper operation, curb appeal, conducting minor repairs to systems and proper upkeep of landscaping supporting a safe and functional asset providing for a safe environment. Other factors to consider as to why it is extremely important for your school to maintain site drainage:

- **Proper maintenance can protect your investment.** When sand, gravel, oil, and other debris stay on the surface for too long, it will affect the life expectancy of the systems and attached sub-systems.
- **Proper Drainage** - For the maintenance of parking lots, moisture and drainage have three implications. First, a properly functioning drainage system can eliminate a number of future maintenance problems. Second, surface repair of a pavement defect caused by poor drainage will merely be a temporary solution, since it treats only the symptom, not the cause. Third, the most important repairs are those that will stop water from getting beneath the pavement surface. These repairs can prevent even larger maintenance expenditures in the future.

**Inspection and Evaluation** - The key to successful maintenance is careful planning and programming of the work to be done. The first step in planning is a periodic evaluation of all schools site drainage systems and components. These systems should be thoroughly inspected as maintenance is conducted ensuring effective surface condition, and proper drainage. The inspection should be done routinely as a part of the groundskeeping plan. This enables the teams to take action on small defects and implement proactive methods towards preventing larger problems.

**Maintenance Recommendations:** Site Drainage Systems should be in good physical condition with evidence that components are routinely cleaned and maintained. Methods to divert accumulated water/snow and other debris from buildings and walkways should work as designed. Routinely review for potential ponding or active erosion points (building envelope); Downspouts, drainage swales, splash blocks & grates should be intact & installed properly, operating effectively & debris free. Safety, risk hazards or physical property damage should be mitigated to prevent additional damage or risks.