



SUSTAINABLE



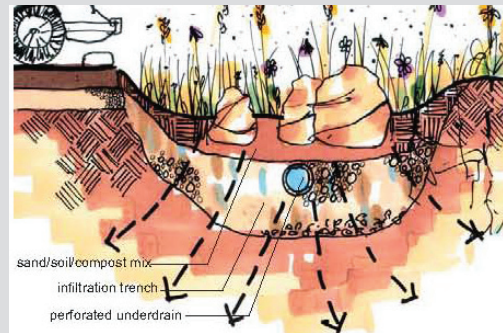
Pervious Concrete



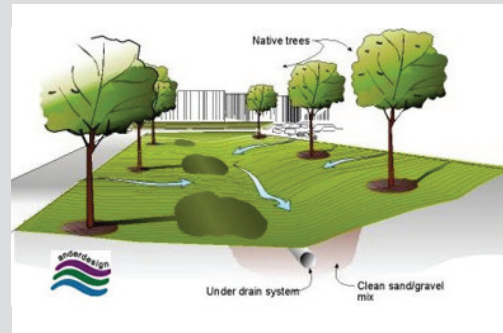
Sustainable civil engineering concepts include storm water management strategies that are implemented to reduce water runoff, remove pollutants from runoff, and increase groundwater recharge on the site. Due to site constraints, a limited amount may be used on this project. Two strategies identified to instigate storm water management are bioswales and the use of pervious pavement surfaces. Another sustainable strategy to consider is a 'green' wall that could perhaps be introduced as a visual screen element

Green Wall

Green walls are also known as vertical gardens or vertical landscaping. Green walls offer several benefits such as serving as a visual screen, a windbreak, absorbing carbon dioxide, and generating oxygen. They also improve the well-being of users of the space by providing greenery. Green walls can provide an interesting design element when incorporated in to a design in an appropriate manner.

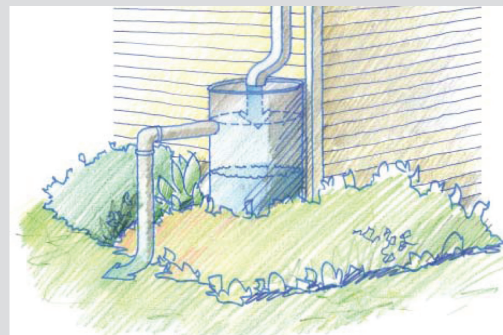


Bioswale

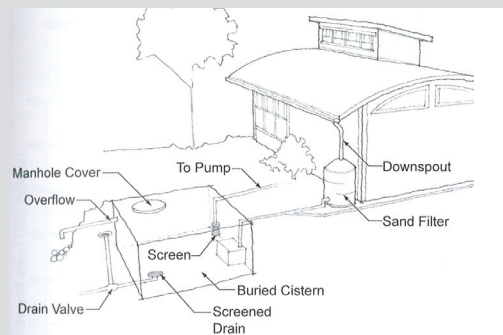


Bioswales

The use of bioswales may be quite limited by site constraints. Bioswales are hearty vegetated 10' wide open channels which are designed to cleanse and direct storm water runoff. The storm water is filtered on site by the vegetation planted in the swales via phytoremediation. The water is then returned to the local ecosystem after treatment. This is preferable over traditional practices which allow storm water to converge into storm sewers untreated and unmanaged. Three types of bioswales commonly used are dry swales, wet swales, and grass channels.



Water Saving Uses



Pervious Surfaces

Pervious surfaces, also known as permeable surfaces, are pavement surfaces that allow water to penetrate the material. Pervious surfaces help reduce storm water runoff and lower the amount of pollutants exiting the site by increasing infiltration areas to include paved areas. Two types commonly used in parking lot design are porous asphalt pavement and porous Portland cement concrete. Other types of pervious surfaces include plastic grid systems, porous block paving systems, vegetation, and various granular materials such as gravel and bark.

Pervious pavement for the portions of the lower level of the structure is a possibility, but certain maintenance issues need to be addressed. Grit removal is one concern for these applications as the pavement will require cleaning as infiltration capacity decreases over time. A vactor-truck, used for maintenance, may require vertical clearances that are not practical to accommodate. If left unmaintained, a heavy sediment load would reduce the life of the pervious pavement. An option would be to consider a limited area of pervious pavement that could be accessed for cleaning from outside the structure.



Green Wall

