

Sustainable Stormwater Management at UW-Green Bay: Regulations and Background

By A. A. Forsberg, J.A. McCuskey and C.S. Waltman

Introduction

Sustainable stormwater management practices are being implemented throughout the United States and the world with the sole purposes of bettering water quality and decreasing the amount of generated stormwater runoff flowing into streams, rivers, lakes, oceans, etc. Presently, urban generated stormwater adversely affects receiving ecological communities and, if pollutant concentration is severe, may decimate aquatic habitat (EPA 2000).

Stormwater runoff generated from the UW-Green Bay campus presently flows directly to the bay of Green Bay, Mahon Creek, located in the Cofrin Memorial Arboretum or the Shorewood Golf Course pond (Figures 1 and 2).

Federal and state regulations specify that stormwater meet water quality standards with respect to pollutants prior to flowing into the waters of the state. Important regulations are EPA Phase II, NR 151 and NR 216, described below.

Various types of best management practices (BMPs) are available to help UW-Green Bay meet federal and state stormwater runoff requirements. Most of the BMPs cost less to construct than traditional stormwater conveyance systems, can be aesthetically pleasing and are not detrimental to sensitive ecosystems.

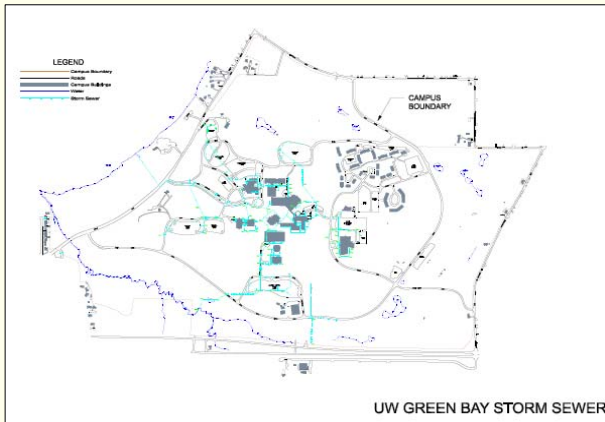


Figure 1. Map of UW-Green Bay campus with existing storm sewer system outlined in pale blue. From OMNI Assoc., UW-Green Bay Draft Stormwater Management Plan.

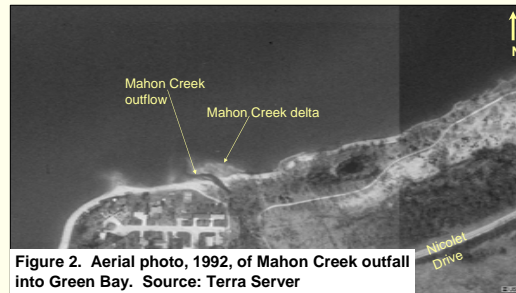


Figure 2. Aerial photo, 1992, of Mahon Creek outfall into Green Bay. Source: Terra Server

Background

Urbanization of previously agricultural and natural areas over the recent past has increased the amount of impervious surfaces on which precipitation falls, generating stormwater runoff. Stormwater runoff is defined as any water that runs off an impervious surface or does not infiltrate into the ground during a precipitation or snow melt event.

Stormwater runoff carries any and all pollutants present on the impervious surface to the receiving water, adversely affecting aquatic communities (Figure 3).

As UW-Green Bay grows it's student body, buildings, roads, sidewalks, etc. will be built to accommodate the increased number of students (Figure 4). This growth will increase the amount of impervious surfaces present on the campus.



Figure 3. Future look at the UW-Green Bay campus. Proposed campus expansion in red. Proposed detention/retention stormwater ponds in pale blue. From the UW-Green Bay Draft Master Plan.

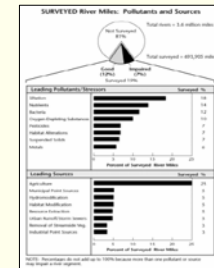


Figure 4. Percentage of pollutants and pollutant source found in 693,905 river miles. Note urban runoff is 6th leading source and sediment is greatest pollutant.

Regulations

Because the University maintains a storm sewer system separate from the city of Green Bay, it will be required, under EPA Phase II rules, to obtain a Wisconsin Pollutant Discharge Elimination System (WPDES) permit. The WPDES permit mandates the University's allowable sediment discharges into the bay of Green Bay. Along with Phase II, two state regulations NR 151 and NR 216, are pertinent to stormwater runoff.

Phase II

- Basis for NR151 and NR216
 - delineates stormwater discharge permits

NR151

- Erosion control and TSS reduction
 - 20% reduction by 2008
 - 40% reduction by 2012
 - reduce by 80% for all new construction sites

NR216

- Municipal stormwater discharge permits
- Construction site water discharge permits

References

USEPA, 2000. Storm Water Phase II Compliance Assistance Guide. Office of Water, EPA 833-R-00-002.

Terra Server: <http://terraserver.microsoft.com/usgsentry.aspx?> [Retrieved 30-Nov-2005].

