



Moose Lake, Waukesha County



Townline Lake-Three Lakes Chain, Oneida County

# Evaluation of DNR Funded Public Boat Access Site Development Projects – Water Quality Impact Focus

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December 2015



# Case Study – DNR Boat Access Sites

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## SUMMARY OF BOAT ACCESS SITE CASE STUDIES

The team reviewed three existing DNR boat access sites – Lake Chetac (Constructed in 2011), Lac Vieux Desert (Constructed in 2011), and Eagle Springs Lake – to evaluate impervious areas from each site draining to the lake. In each site evaluated, the impervious surface areas were compared against the total size of the parcel where the project was located as well as with the total impervious area of each site. The intent of the case studies was two-fold:

- Show examples of medium and large DNR boat access sites and the related impervious areas for each.
- Provide examples of both low and highly developed areas.

As a general rule, the DNR constructs very few small public access facilities (less than 5 car/trailer stalls). These small facilities generally do not justify the large costs associated with the development of a boat access site. For this reason, no examples of small access facilities are included with this case study. Medium and large public boat access facilities are much more common and examples of both follow. For the purposes of this case study, medium size access sites are defined as those accommodating approximately 10-15 car/trailer parking stalls; while large sites are defined as those accommodating more than 15 car/trailer parking stalls. In general, most of the larger access sites in Wisconsin have approximately 20 car/trailer stalls.

Based on the review of the three sample public access sites, the following conclusions can be drawn:

- Due to the inherent fact that all boat access sites slope downward towards the lake/river, there will always be some impervious surface area at any boat access facility which will drain directly to the lake/river.
- Chetac Lake and Lac Vieux Desert represent good examples where storm water detention and infiltration basins and other BMPs were employed to reduce runoff from impervious surfaces prior to runoff entering the lake. Both sites had less than 15% impervious area of the parcel draining directly to the lake and would meet the impervious standards outlined in ch. NR 115-Wisconsin's Shoreland Protection Program.
- The percent impervious area draining directly to the lake is highly dependent on the size of the parcel the public access site is developed on. In general, it is easier to comply with the 15% maximum impervious area drainage requirement (ch. NR 115) on larger site parcels. Tracts of land in less populated Northern parts of the state would likely comply with ch. NR 115 maximum impervious requirements more often than smaller parcels of land in more highly developed parts of the state.
- Parcels of land in highly developed areas may present challenges in meeting the maximum impervious standards found in NR 115, as they may be developed on parcels the size of a single residential lot with limited space for storm water control measures.
- Parcels of land with unique topographic features may similarly present challenges in meeting the maximum impervious standards found in NR 115.

## LAKE CHETAC – SAWYER COUNTY, WISCONSIN

Lake Chetac is a 1920 acre lake located in Northern Wisconsin. Lake Chetac is characterized as a medium size boat launch facility with (11) car/trailer stalls plus one ADA car/trailer stall. The site is located in a rural, low development setting. A number of storm water best management practices were utilized at this site.



Several storm water collection and detention basins were constructed to collect and infiltrate runoff from impervious surfaces prior to the runoff entering the lake. In addition, a vegetated buffer strip was planted between the parking lot and the lakeshore.

**Lake Chetac – Launch Lane**



**Lake Chetac – Shoreline Vegetated Buffer Strip ( - - - - - )**



**Lake Chetac – Storm Water Detention Basin ( - - - - - )**



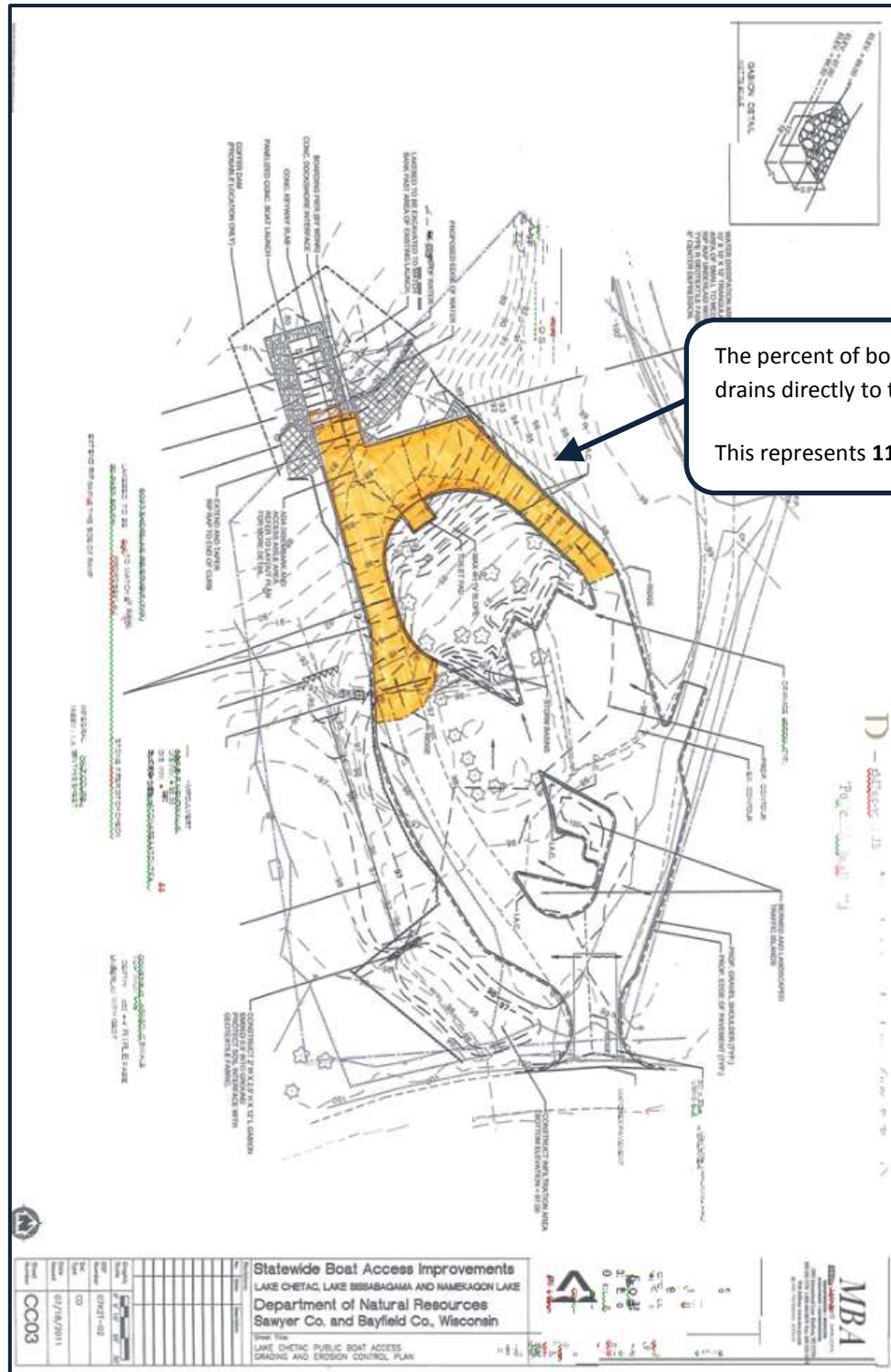
**Lake Chetac – Storm Water Detention Basin ( - - - - - )**



The impervious area of the site draining directly to the lake represents 41% of the total impervious area of the site.

The total impervious area of the site draining directly to the lake represents **11% of the total parcel area**. This site would meet the maximum impervious limits outlined in NR 115 Shoreland standards (15% maximum impervious standard).

**Lake Chetac – Site Plan and Example of Impervious Surface Measurement**



## LAC VIEUX DESERT – VILAS COUNTY, WISCONSIN

Lac Vieux Desert is a 2853 acre lake located in Northern Wisconsin. Lac Vieux Desert boat launch facility is considered a large facility with (24) car/trailer stalls plus (2) ADA car/trailer stalls and (1) car only stall. The site is located in a rural low development setting.

Two small storm water collection and detention basins were constructed to intercept runoff from the majority of the parking lot surfaces prior to it discharging into the lake.

### **Lac Vieux Desert – Storm Water Detention Basin in Background ( - - - - )**

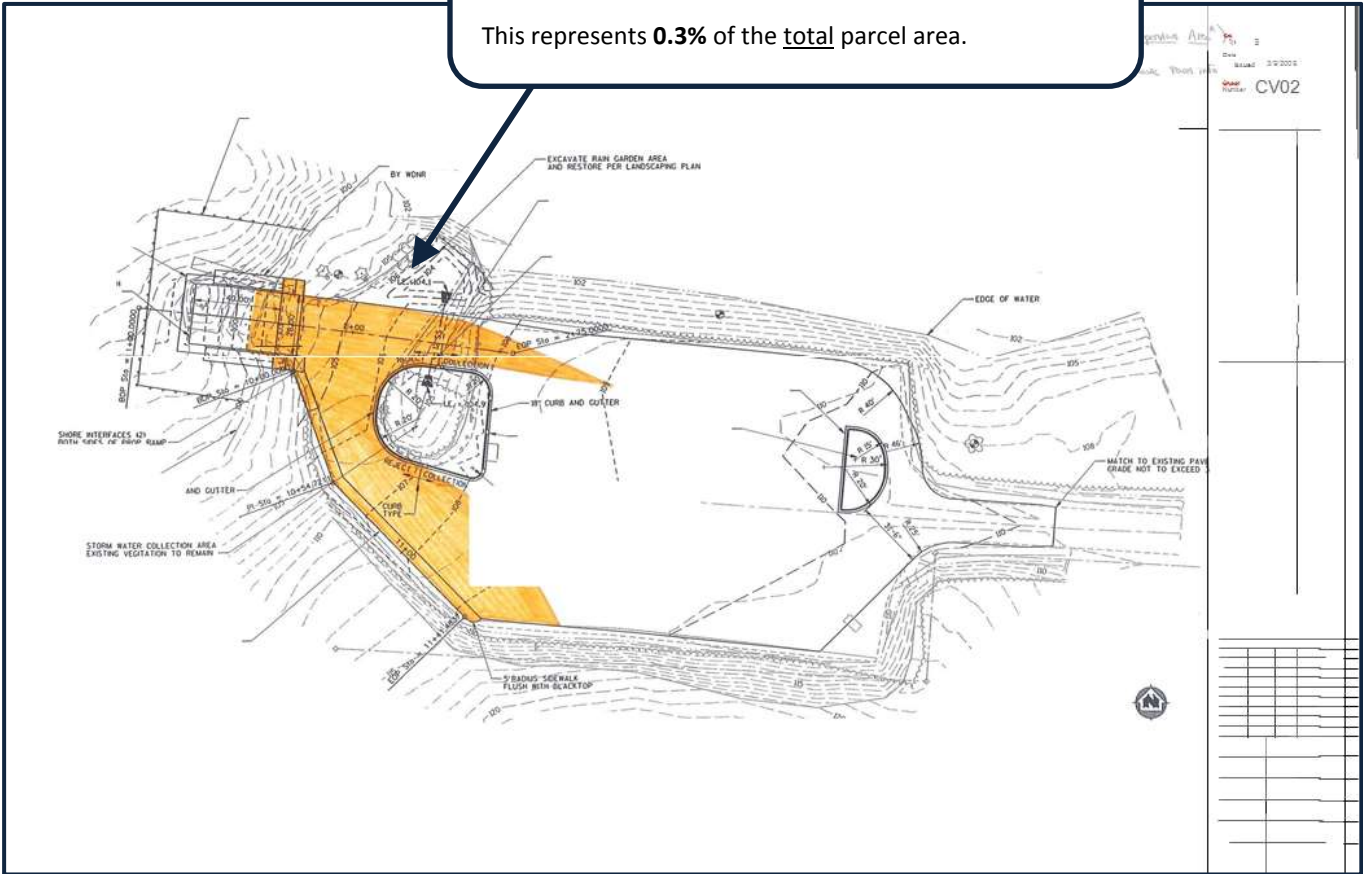


The impervious area of the site draining directly to the lake represents approximately 37% of the total impervious area of the site.

The total impervious area of the site draining directly to the lake represents **0.3% of the total parcel** (the DNR parcel is approximately 66 acres in size). This site would meet the maximum impervious limits outlined in NR 115 Shoreland standards (15% maximum impervious standard).

### Lac Vieux Desert – Site Plan and Example of Impervious Surface Measurement

The percent of boat access site's impervious surface that drains directly to the lake is **37%** (yellow shaded area).  
This represents **0.3%** of the total parcel area.



### EAGLE SPRINGS LAKE – WAUKESHA COUNTY, WISCONSIN

Eagle Springs Lake is a 311 acre lake located in southeastern Wisconsin. The boat access facility is medium size with (13) car/trailer stalls plus (1) ADA car/trailer stall. The site is highly developed and is located in an urban setting. Private residences and commercial business are located on all sides of the property.

The limited availability of space due to the small size of the property made providing any storm water best management practices difficult at this site. This site is typical of many boat launch facilities found in southeastern Wisconsin and other highly developed areas of the state where a single (formerly residential) lot is purchased on a lake for the purpose of constructing a public access facility.



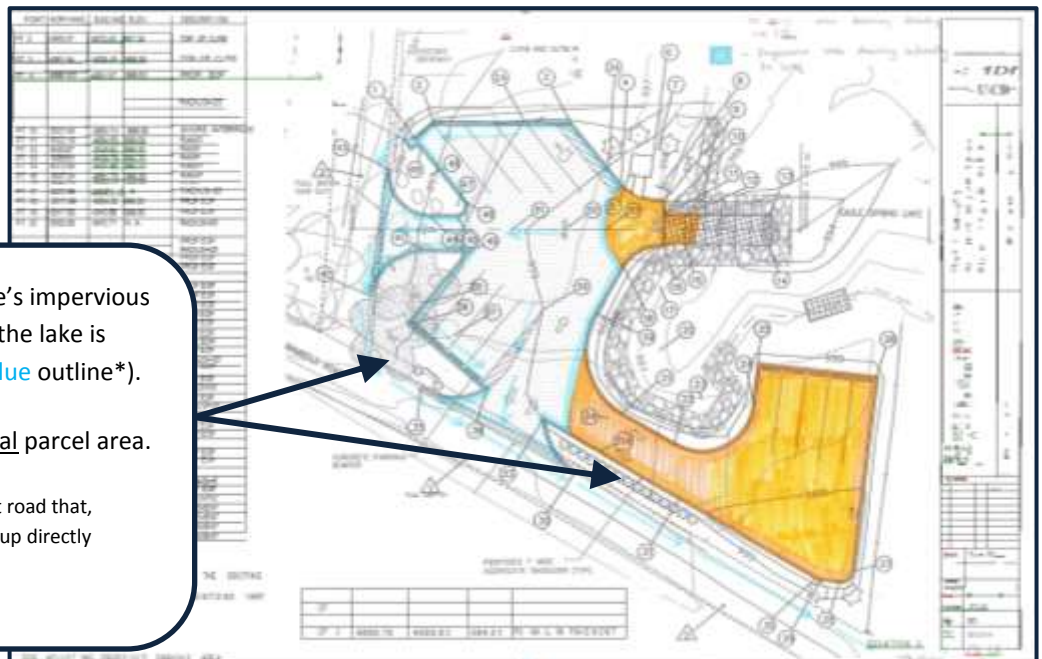
## Eagle Springs Lake Boat Launch



100% of the impervious surface area of the launch site drains directly to the lake.

The impervious surface area of the site that drains directly to the lake represents approximately 41% of the total land area of the DNR's parcel (Note: if only above water areas of the parcel are used to compute the % impervious area of the site, it would exceed 41% at this site.) This site is located along a Highly Developed Shoreline as defined in NR 115. While it would exceed the impervious limits outlined in the new ch. NR 115 Shoreland Standards (40% impervious runoff standard), it would not exceed the maximum impervious surface standard of 60%. This site could still meet the code requirements if it were to be expanded up to 60% impervious with mitigation such as storm water management and/or shoreline restoration.

## Eagle Springs Lake – Site Plan and Example of Impervious Surface Measurement



The percent of boat access site's impervious surface that drains directly to the lake is **100%** (yellow shaded area + blue outline\*).

This represents **41%** of the total parcel area.

\* Blue outline = runoff via an adjacent road that, despite taking a different route, ends up directly flowing into the lake.

