

STORM WATER MANAGEMENT PLANNING – COMMON ISSUES AND LESSONS LEARNED

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Common Issue #1

Parcel Layout

- ❑ One Size Does NOT Fit All – Be Creative!!!
- ❑ Maximum Allowable Number of Lots Is Not Always the Most Appropriate Number of Lots



- ❑ 1 Site = Many Possibilities!
- ❑ Work with Municipal Staff and Officials



Common Issue #1 Parcel Layout

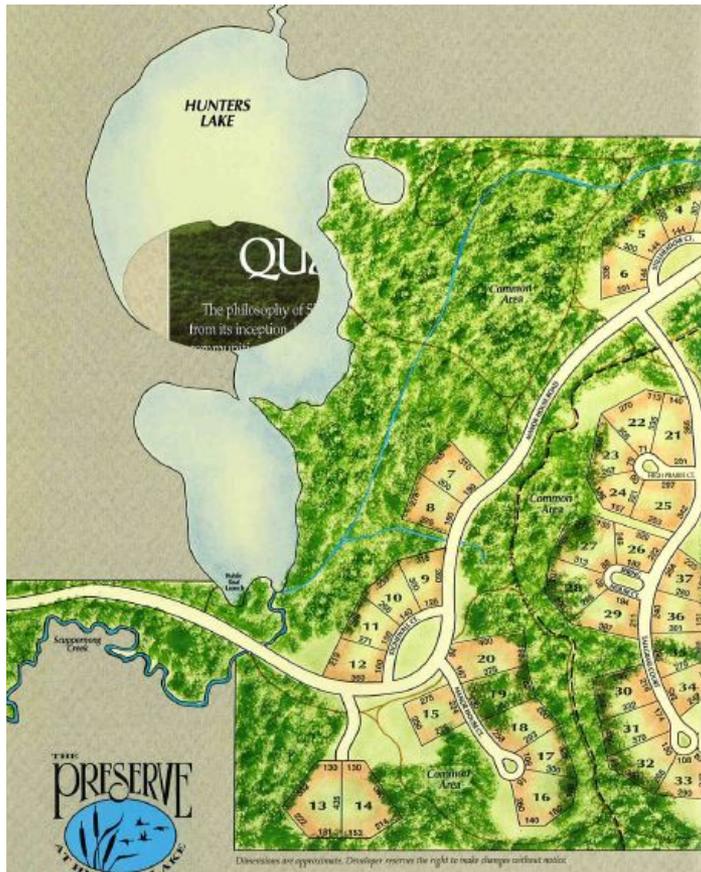
The Preserve at Hunter's Lake – Town of Ottawa, WI (1993)



Common Issue #1

Parcel Layout

The Preserve at Hunter's Lake – Town of Ottawa, WI



Common Issue #2

Site Planning

□ Must Consider Storm Water Needs at Forefront



□ Looks Great.....
There's Just 1 Thing Missing

Common Issue #2

Site Planning

□ Utilize Available Technology and Resources

The screenshot displays a GIS application interface with the following components:

- Top Menu Bar:** Getting Around, Maps & Data Sources, Tasks, Analysis, Buffers.
- Navigation Tools:** Show Layers, Initial Extent, Full Extent, Previous Extent, Next Extent, Pan, Zoom In, Zoom Out, Point Identify, Clear Selection, Clear Highlight, Clear Markup.
- Information & Actions:** Scale: 1: 4,000, Jump to a map bookmark...
- Search Tools:** Search Tax Key, Search Address, Search Plats, Metadata, Help, What's This?
- Map Layers Panel (Left):**
 - Park And Open Space
 - Soils
 - Soils
 - Building Limitations
 - <1 Foot to Watertable
 - <3 Feet to Water Table
 - 1-4 Feet to Bedrock
 - Slopes >12%
 - Dep. to Seas. Hi Water Table
 - Dep. to Seas. Hi Water Table (Hatch)
 - Hydric Classification
 - Hydrologic Soil Group (Native Condition)
 - Percent Slope
 - Stormwater Infiltration Potential
 - Land Capability Class
 - Soils Parent Material - Township
 - Soils Parent Material
 - Surface Textures
- Map View:** Aerial imagery with overlaid property lines and colored overlays (red, yellow, green). A scale bar shows 250ft and 100m. A search bar at the top of the map area contains the text "I want to...".

Common Issue #2

Site Planning

□ Follow County Checklists / Guidance

Waukesha County LEADING THE WAY

Waukesha County Land & Water Conservation

WC HOME PLU LWC

Search

Updated: 7/18/2013 09:53:43 AM

Index of Storm Water Documents

LAND CONSERVATION DIVISION (STORM WATER)

Index of Forms and Related Links:
If you have never been to this site before, we recommend you start by clicking [here](#). This will walk you through the storm water program. If you know what you're looking for, the index below should make finding it simple.

**** For a quick overview of our storm water and erosion control program and its requirements, please click [here](#) for our handy reference guide. ****

Attention: All documents are in PDF format; if you wish to obtain a document in Word format, please call 262-896-8300.

Application Forms:

- Storm Water Permit Application ([fillable PDF](#))
- Small Site/Utility Installation Form* ([fillable PDF](#)) (* sites < one acre of total land disturbance and no storm water plan)
- General Requirements Agreement ([Form](#))
- Permit Extension/Amendment Request Form ([fillable PDF](#))
- Plan Implementation Sign-off ([Form](#))

Checklists:

- #1 Site Plan [Map Requirements](#)
- #2 Erosion Control [Plan Requirements](#)
- #3 Storm Water Mgmt [Plan Requirements](#)
- #4 Certification of [Compliance](#)

Design Guidance/Summaries:

Ordinance:

- [Ordinance](#)- Waukesha County Storm Water Management & Erosion Control
- Summary of Ordinance & Permit [Flowchart](#)
- Storm Water BMP [Maintenance Ordinance](#)
- County Ordinance Jurisdiction [Map](#)
- Intergovernmental Agreement [Sample](#)

Ordinance Admin. Standards:

- [Basement Wetness & Flooding Prevention Standards](#)
- [Form A - Seasonal High Groundwater Determination Report](#)
- [Internally Drained Procedures](#)
- [First Half-Inch Infiltration Standard](#)
- [Late Season Stabilization Standard](#)

Soils:

LWC Programs

- Storm Water & Urban Runoff
- Water Conservation & Education
- Agricultural Conservation
- Nonmetallic Mining

Stormwater Info

- Index of Storm Water Documents
- Checklists
- County MS4 Permit Information
- Erosion Control Tools
- Financial Guarantee
- Maintenance Agreement
- Permit Application
- Rain Gardens & Barrels
- Staff Contacts
- Storm Water Tools
- Storm Water Workshops
- Technical Standards
- Water Resources Map

Common Issue #2

Site Planning

- Consider Process Refinements If Not Covered By County Ordinance.
- Should You Require:
 - Site Walkthrough and/or Preliminary Meeting?
 - Preliminary Review Letter?
 - Construction Verification?
 - Digital Submittals?
- Be Clear and Concise
 - Only Request What You Need!
 - Use Checklists

Checklist #1 Site Plan Map Requirements	
<small>The following existing and proposed site features must be provided for all permit applications. Items listed below must be shown on the site and within 20 feet in each direction of the site boundaries. The county storm water ordinance requires a Preliminary Review Letter from the Land Resources Division (LRD) for projects that: a) Disturb a total land surface area of 1 acre or more; b) Involve the construction of a new public or private road of any length; c) Ultimately result in the addition of 0.5 acres or greater of impervious surfaces; or d) Other projects that may have significant negative impacts on adjacent properties or water resources due to soil erosion or storm water runoff.</small>	
<small>All items on this list are required for the Preliminary Review Letter. Additional items must be shown on erosion control plans (see checklist #2) and storm water management plans (see checklist #3). A site plan map and supporting data of the conditions at a scale of 1 inch equals no more than 100 feet (unless otherwise noted) shall delineate or display the following applicable items:</small>	

Notes: In addition to a paper copy, provide site map items in a digital format georeferenced to the State Plane Coordinate System, Wisconsin South Zone, NAD 27, NADVD-29.

- 1. Development title, graphic scale and north arrow.
- 2. Property location description by public land survey system (1/4 section, section, township, range, county).
- 3. Location map (smaller scale) showing the site location within a public land survey section or subdivision, oriented the same as per 4 below.
- 4. Ownership boundaries, bearings, lengths and other survey references that will accurately identify the site location, in accordance with s. 236 Wisconsin Statutes and county mapping standards for all land divisions.
- 5. Lot numbers and dimensions, including setbacks for all land divisions.
- 6. Name and complete contact information for the applicant, landowner, developer and project engineer or planner.
- 7. Surveyor's certificate, signed, dated and sealed for all land divisions.
- 8. Sheet numbers and revision dates on every page.
- 9. Existing site topography at a contour interval not to exceed 2 feet, including spot elevations for physical features such as culvert (invert elevations), retaining walls, road and ditch centerlines and topographic high and low points.
- 10. Location and name, if applicable, of all lakes, streams, channels, ditches, and other water bodies or areas of channelized flow on or adjacent to the site.
- 11. Location and name, if applicable, of all wetlands and identification of source of delimitation. For final land divisions, these boundaries shall be field verified.
- 12. Boundaries of shoreland zones and the ordinary high water mark (OHWM) for any navigable water body as defined by the Waushara County Shoreland and Floodland Protection ordinance. For final land divisions, the OHWM boundaries shall be field verified.
- 13. Boundaries and elevation of the 100-year floodplains, flood fringes and floodways, as defined by the Waushara County Shoreland and Floodland Protection ordinance. For final land divisions, these boundaries and elevations shall be field verified.
- 14. Boundaries and soil symbol for each soil mapping unit and the identification of all hydric soils as defined by the USDA-Natural Resources Conservation Service.

Common Issue #3

Unrealistic Schedules

- Every Project's Schedule is Perfect In March
- Play the Devil's Advocate:
 - Consider the Worst Case Scenario
 - Be Proactive To Avoid Worst Case
 - Determine Winter Stabilization Plan Ahead of Time
 - Develop a phasing plan?



Common Issue #3

Unrealistic Schedules

- Develop Realistic / Appropriate Project Phasing



- Westside Industrial Park
Watertown, WI

Common Issue #4

Format of Submittals

- ❑ Most Submittals Delivered Via Hard Copy
- ❑ Most Communities Are Moving to Digital Records
- ❑ Request a Digital Copy of Submittal/Plans/Model



Common Issue #4

Format of Submittals

- City of Oconomowoc GIS – Online Erosion Control Inspections (Need For Digital Data)

The screenshot displays the 'Storm GIS Viewer' interface. At the top, there is a search bar with the text 'Search for map features...'. Below the search bar is a menu bar with options: 'Getting Around', 'Maps & Data Sources', 'Tasks', 'Analysis', and 'DPW Tools'. The 'Tasks' menu is expanded, showing options like 'Point Identify', 'Freehand Identify', 'Line Identify', 'Polygon Identify', and 'Rectangle Identify' (which is highlighted in orange). Other options include 'Display for...', 'Buffered Identify', and 'Map Scale: 1: 5,636'. There are also buttons for 'Jump to a map bookmark...', 'By Taxkey', 'By Owner', 'By Address', 'Parcel Buffer', 'Help', and 'What's This?'. The main map area shows a residential street grid with several yellow markers indicating inspection points. A results panel on the left shows 'Results (4)' and lists the following information:

- City of Oconomowoc**
Project: MapleTerrace
Contractor: D & L Grading
[Erosion Control Reports](#)
- OCOC0557050**
Owner: Ronald Reiter Diane Reiter
Property Address: 612 Glenview Ave
Owner Address: 612 Glenview Ave
Oconomowoc, WI 53066
[Click to View Assessment Data](#)
- OCOC0557051**
Owner: Joyce Chapman G W. Chapman
Property Address: 604 Glenview Ave
Owner Address: 604 Glenview Ave
Oconomowoc, WI 53066
[Click to View Assessment Data](#)

At the bottom of the interface, there is a 'Map Layers' section and a 'Results (4)' button. A scale bar indicates 500ft and 200m. The map shows streets such as HUBBARD CT, WISCONSIN, CRESTNUT, MAPLE, GLENVIEW, LA BELLE, and CONDO.

Common Issue #5 -- Don't Forget Road Reconstruction

- Storm Water Planning Not Limited to Development Sites
- Municipal Storm Water Permits (MS4) and TMDLs = Creative Compliance Measures
- Take Advantage of Opportunities!
 - Road Reconstructions
 - Redevelopment
 - Municipal / Public Works Sites

Common Issue #5 -- Don't Forget Road Reconstruction

City of Watertown – Welsh Road Roadside Wetland



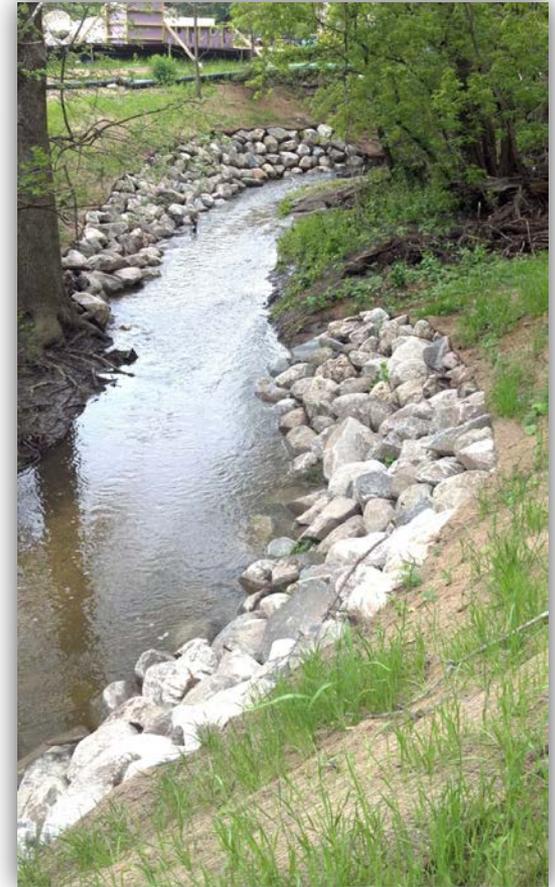
Common Issue #5 -- Don't Forget Road Reconstruction

City of Greenfield – Wildcat Creek Restoration



Common Issue #5 -- Don't Forget Road Reconstruction

City of Greenfield – Wildcat Creek Restoration

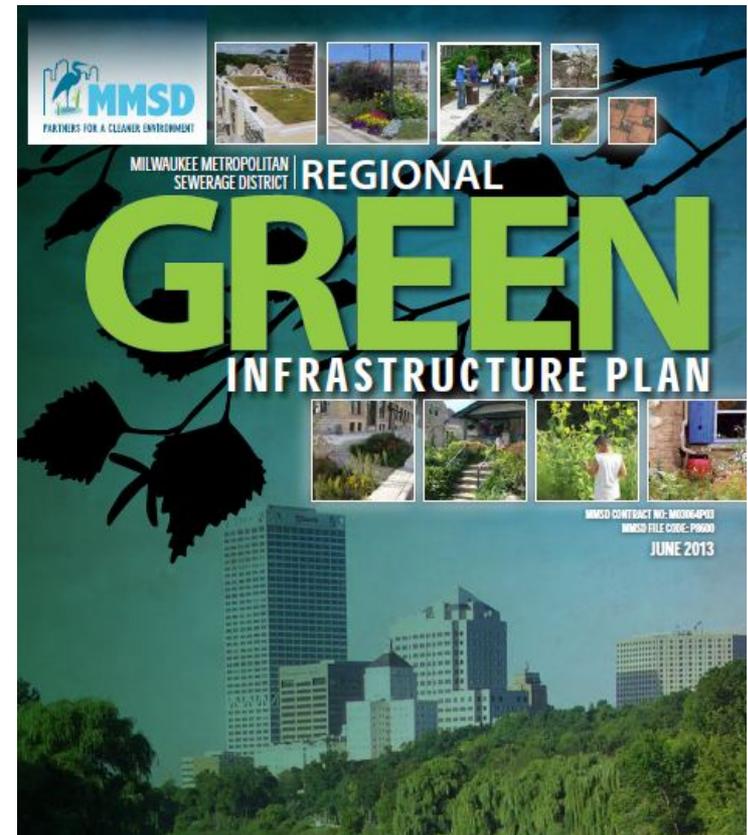


Common Issue #5 -- Don't Forget Road Reconstruction

Southeastern Wisconsin Projects



Green Street Median
Grange Avenue, Milwaukee



Common Issue #5 -- Don't Forget Road Reconstruction

City of Portland, Oregon Green Streets



Common Issue #5 -- Don't Forget Road Reconstruction

Seattle's Broadview Area Green Grid



QUESTIONS?

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