

CITY OF MADISON

Proposed Conditional Use

Location: 4635 Odana Road

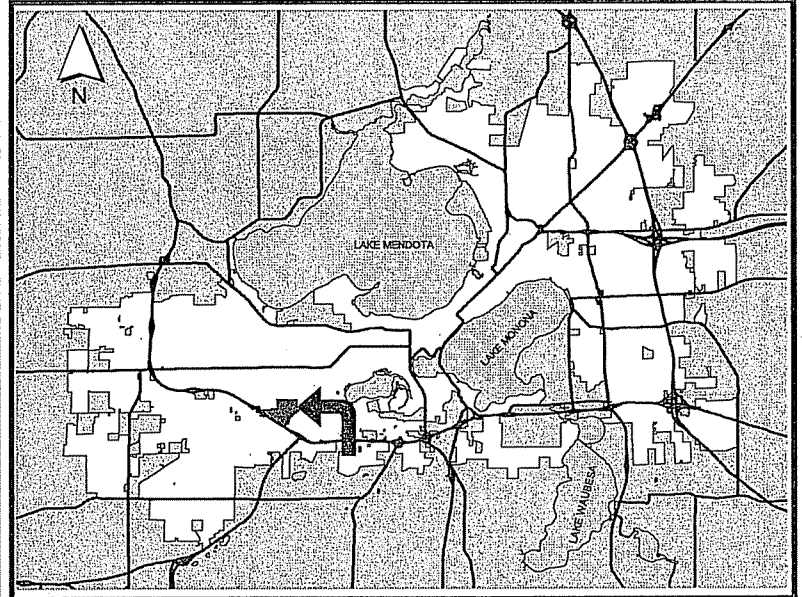
Project Name: Odana Hills Groundwater Recharge Project

Applicant: MG&E Power West Campus LLC/
Don Peterson - MG&E Construction

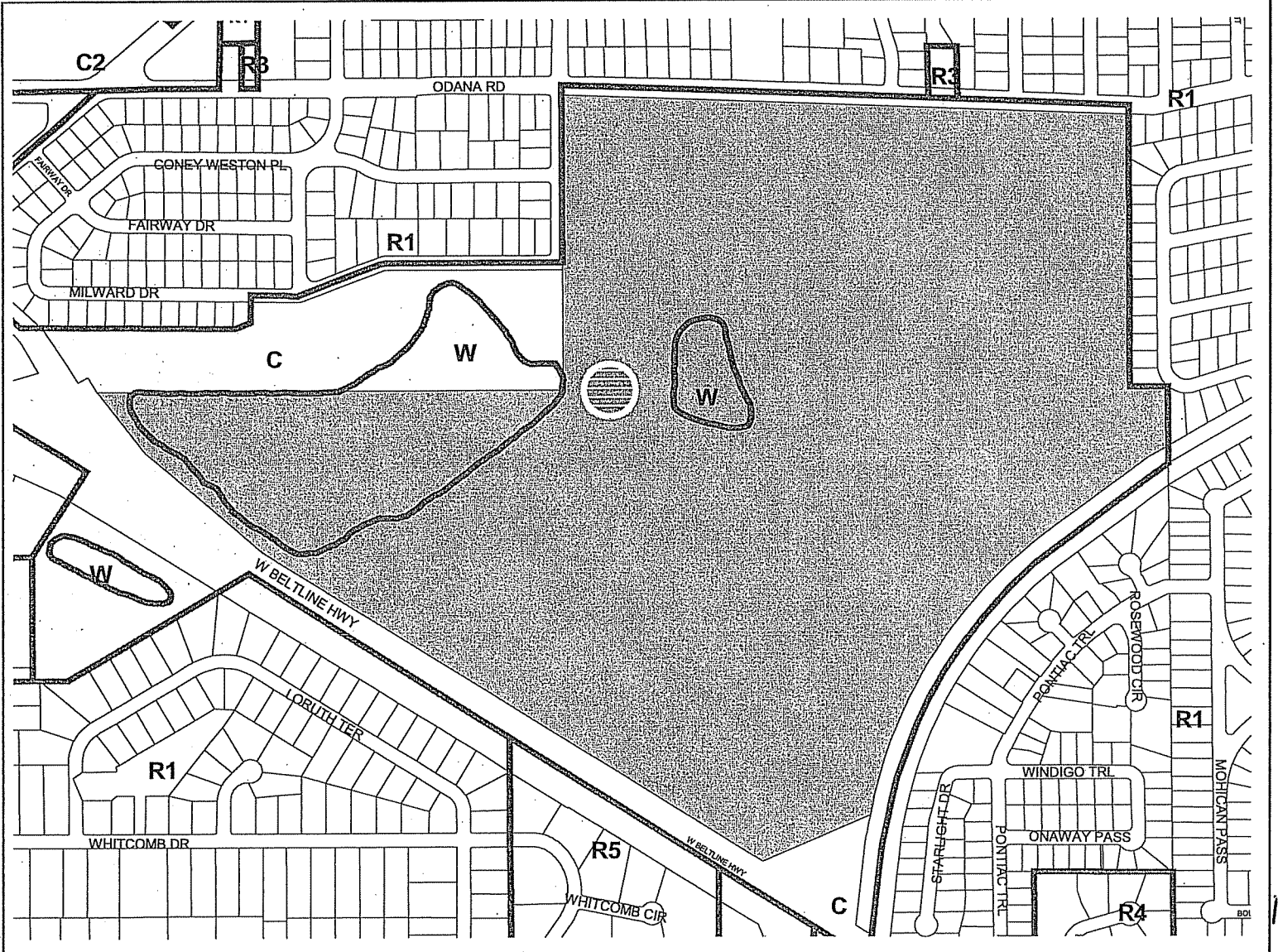
Existing Use: Golf Course

Proposed Use: Groundwater Recharge System/
Public Utility Use

Public Hearing Date:
Plan Commission 10 October 2005



For Questions contact: Tim Parks at 261-9632 or tparks@cityofmadison.com or City Planning at 266-4635

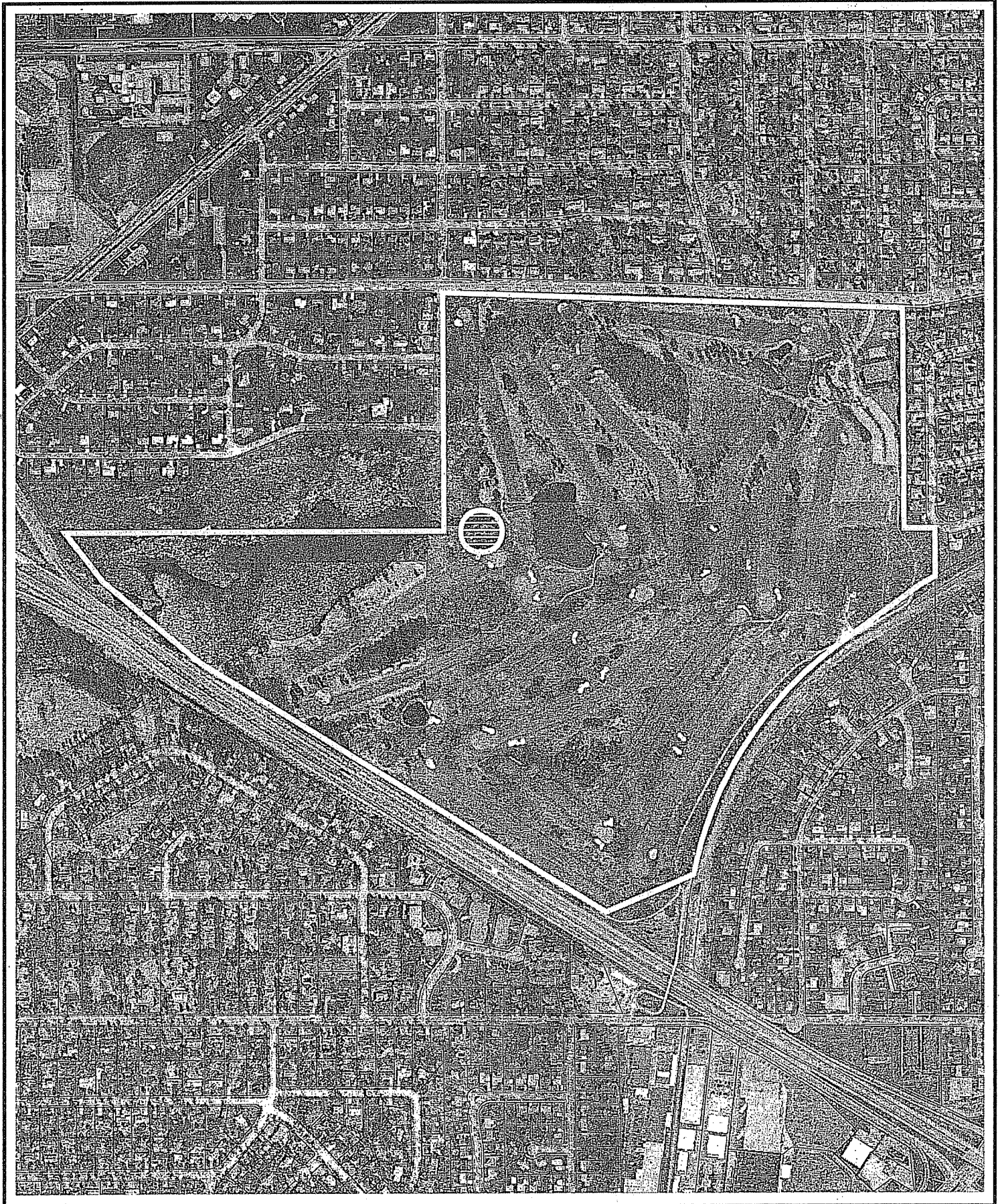


4635 Odana Road

400 0 400 Feet



Date of Aerial Photography - April 2000 & 2003



14

LAND USE APPLICATION

Madison Plan Commission

215 Martin Luther King Jr. Blvd; Room LL-100
 PO Box 2985; Madison, Wisconsin 53701-2985
 Phone: 608.266.4635 | Facsimile: 608.267.8739

- The following information is required for all applications for Plan Commission review.
- Please read all pages of the application completely and fill in all required fields.
- This application form may also be completed online at www.cityofmadison.com/planning/plan.html
- All zoning application packages should be filed directly with the Zoning Administrator's desk.
- All applications will be reviewed against the applicable standards found in the City Ordinances to determine if the project can be approved.

FOR OFFICE USE ONLY:

Amt. Paid \$ 950⁰⁰ Receipt No. 63889
 Date Received 8-24-05
 Received By R. T. Tule
 Parcel No. 0709-293-1101-0
 Aldermanic District 20, Cindy Thomas
 GQ ALC hold
 Zoning District C, W
For Complete Submittal
 Application Letter of Intent
 IDUP N/A Legal Descript.
 Plan Sets Zoning Text N/A
 Alder Notification Waiver _____
 Ngrbrhd. Assn Not. Waiver _____
 Date Sign Issued _____

1. **Project Address:** 4635 Odana Rd., Madison, WI **Project Area in Acres:** 4.821

Project Title (if any): Odana Hills Groundwater Recharge Project

2. **This is an application for:** (check at least one)

Zoning Map Amendment (check only ONE box below for rezoning and fill in the blanks accordingly)

Rezoning from _____ to _____ Rezoning from _____ to PUD/PCD-SIP

Rezoning from _____ to PUD/PCD-GDP Rezoning from PUD/PCD-GDP to PUD/PCD-SIP

Conditional Use **Demolition Permit** **Other Requests** (Specify): _____

3. **Applicant, Agent & Property Owner Information:**

Applicant's Name: Steve Pitts Company: MGE Construct LLC
 Street Address: PO Box 1231 133 S. Blair St. City/State: Madison, WI Zip: 53701-1231
 Telephone: (608) 252-7935 Fax: (608) 252-4734 Email: spitts@mge.com

Project Contact Person: Don Peterson Company: MGE Construct LLC
 Street Address: PO Box 1231 133 S. Blair St. City/State: Madison, WI Zip: 53701-1231
 Telephone: (608) 252-7926 Fax: (608) 252-4734 Email: dpeterson@mge.com

Property Owner (if not applicant): MGE Power West Campus, LLC
 Street Address: PO Box 1231 133 S. Blair St. City/State: Madison, WI Zip: 53701-1231

4. **Project Information:**

Provide a general description of the project and all proposed uses of the site: Install and operate a groundwater recharge system that will collect and filter storm water runoff from the golf course pond, then infiltrate this filtered storm water runoff into the groundwater aquifer beneath the golf course.

Development Schedule: Commencement October 15, 2005 Completion Spring 2006 14

CONTINUE →



5. Required Submittals:

Site Plans submitted as follows below and depicts all lot lines; existing, altered, demolished or proposed buildings; parking areas and driveways; sidewalks; location of any new signs; existing and proposed utility locations; building elevations and floor plans; landscaping, and a development schedule describing pertinent project details:

- **Seven (7) copies** of a full-sized plan set drawn to a scale of one inch equals 20 feet (collated and folded)
- **Seven (7) copies** of the plan set reduced to fit onto 11 inch by 17 inch paper (collated, stapled and folded)
- **One (1) copy** of the plan set reduced to fit onto 8 1/2 inch by 11 inch paper

Letter of Intent: Twelve (12) copies describing this application in detail but not limited to; including: existing conditions and uses of the property; development schedule for the project; names of persons involved (contractor, architect, landscaper, business manager, etc.); types of businesses; number of employees; hours of operation; square footage or acreage of the site; number of dwelling units; sale or rental price range for dwelling units; gross square footage of building(s); number of parking stalls, etc.

Legal Description of Property: Lot(s) of record or metes and bounds description prepared by a land surveyor.

Filing Fee: \$ 950.00 See the fee schedule on the application cover page. Make checks payable to: *City Treasurer.*

IN ADDITION, THE FOLLOWING ITEMS MAY ALSO BE REQUIRED WITH YOUR APPLICATION; SEE BELOW:

For any applications proposing demolition of existing (principal) buildings, photos of the structure(s) to be demolished shall be submitted with your application. Be advised that a *Reuse and Recycling Plan* approved by the City's Recycling Coordinator is required to be approved by the City prior to issuance of wrecking permits.

A project proposing **ten (10) or more dwelling units** may be required to comply with the City's Inclusionary Zoning requirements outlined in Section 28.04 (25) of the Zoning Ordinance. A separate **INCLUSIONARY DWELLING UNIT PLAN** application detailing the project's conformance with these ordinance requirements shall be submitted concurrently with this application form. Note that some IDUP materials will coincide with the above submittal materials.

A *Zoning Text* must accompany **all** Planned Community or Planned Unit Development (PCD/PUD) submittals.

FOR ALL APPLICATIONS: All applicants are required to submit copies of all items submitted in hard copy with their application (including this application form, the letter of intent, complete plan sets and elevations, etc.) as **INDIVIDUAL** Adobe Acrobat PDF files compiled either on a non-returnable CD to be included with their application materials, or in an e-mail sent to pcapplications@cityofmadison.com. The e-mail shall include the name of the project and applicant. Applicants who are unable to provide the materials electronically should contact the Planning Unit at (608) 266-4635 for assistance.

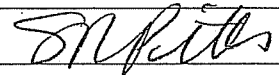
6. Applicant Declarations:

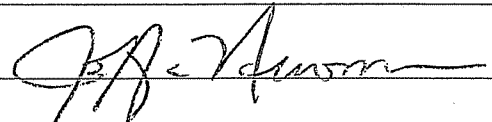
Conformance with adopted City plans: Applications shall be in accordance with all adopted City of Madison plans:
→ *The site is located within the limits of _____ Plan, which recommends: _____ for this property.*

Pre-application Notification: Section 28.12 of the Zoning Ordinance requires that the applicant notify the district alder and any nearby neighborhood or business associations by mail no later than **30** days prior to filing this request:
→ *List below the Alderperson, Neighborhood Association(s), Business Association(s) AND dates you sent the notices:*
Notices sent to Alderperson Cindy Thomas and Midvale Heights Community Association March 7 and May 23, 2005.
Public meetings held on March 17 and June 6, 2005
If the alder has granted a waiver to this requirement, please attach any such correspondence to this form.

Pre-application Meeting with staff: Prior to preparation of this application, the applicant is required to discuss the proposed development and review process with Zoning Counter and Planning Unit staff; note staff persons and date.
Planner Brad Murphy Date 8/4/05 | Zoning Staff Kathy Voeck Date 8/4/05

The signer attests that this form has been completed accurately and all required materials have been submitted:

Printed Name Stephen R. Pitts Date 8/24/05
Signature  Relation to Property Owner Agent

Authorizing Signature of Property Owner  Date 8/24/05 14



your community energy company

August 24, 2005

Zoning Administrator
Madison Plan Commission
215 Martin Luther King Jr. Boulevard, Room LL-100
Post Office Box 2985
Madison, Wisconsin 53701-2985

Subject: Letter of Intent - Odana Hills Groundwater Recharge Project

Dear Sir or Madam:

This letter details MGE's and the UW's plan to build a groundwater recharge project at the Odana Hills Golf Course.

Background

The new West Campus Cogeneration Facility (WCCF) is jointly owned by MGE and the UW-Madison. It provides heating and cooling to the UW-Madison campus as well as 150 megawatts of electricity for the Madison area.

The WCCF draws water from Lake Mendota, which is a part of the Yahara River watershed. The facility's water withdrawal from Lake Mendota is not expected to produce a significant impact on Dane County's lakes and rivers except during times of extreme low flows, which may occur every three to four years on average.

The Wisconsin Department of Natural Resources (WDNR) permit for surface water withdrawal for the WCCF requires augmentation of flow in the Yahara River during times of extremely low flow to mitigate impacts of baseflow reduction. The water source for flow augmentation is a well located near the river. The state permit also requires groundwater recharge of 80.4 million gallons per year to compensate for the anticipated volume of groundwater to be pumped from the well to the river.

After careful consideration of over 20 sites, the Odana Hills Golf Course emerged as the site with the best potential for a successful recharge system.

Proposed Recharge System

The proposed recharge system will pump stormwater from the existing large pond on the western side of the golf course to an infiltration field between Fairways 6, 7, and 8 (Figure 1). The proposed system includes the following elements:

14

- A wet well with a submerged inlet located in approximately 4.5 feet of water.
- A 1,200-square-foot pump and filter house.
- An approximately 1,700-foot-long, 10-inch PVC underground distribution line from the pump and filter house to the infiltration trench network.
- An approximately 9,000-lineal-foot trench network covering approximately two acres.
- Restoration of the golf course surface at the end of construction.

Design professionals involved include:

- Engineer - Montgomery Associates Resource Solutions LLC
- Architect - Mayo Corp.
- Landscape architect - Ken Saiki Design

MGE Construct will be the general contractor for all construction activities.

Public Participation

MGE has held several public meetings to solicit input and answer questions of neighbors and other interested persons about the project. MGE is cooperating closely with City staff and the WDNR on the final project details.

Design Implementation

We anticipate completing the WDNR permitting process in September 2005. Construction of the proposed recharge system is planned to begin in the fall of 2005 in coordination with golf course activities, with system operation beginning in the spring of 2006 in accordance with the requirements of the water use permit issued by the WDNR for the WCCF.

MGE and the UW-Madison will enter into an easement with the City so the facilities can be constructed at the Odana Hills Golf Course.

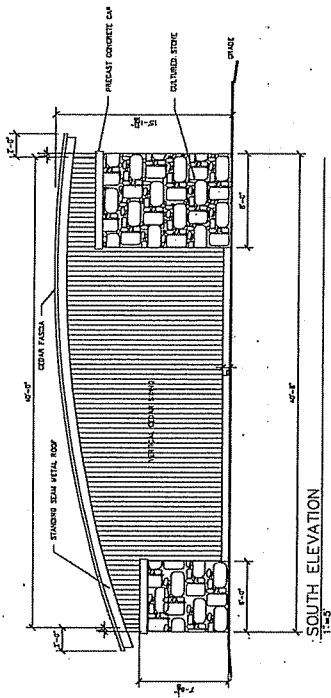
Sincerely,



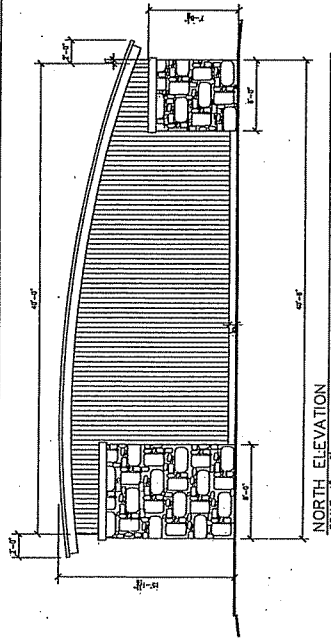
Donald D. Peterson
Executive Director - Energy Products and
Services

kmd/Enclosures

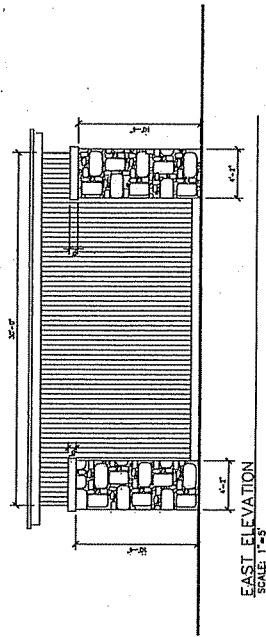
cc: Mike Allen
Steve Pitts
Bob Stoffs



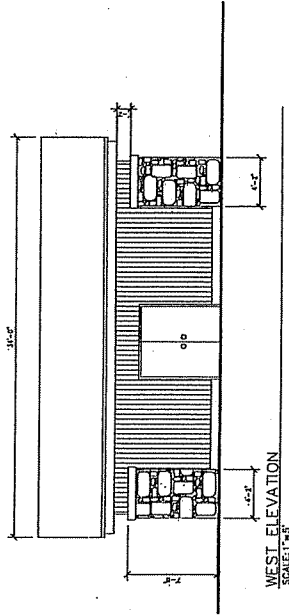
SOUTH ELEVATION
SCALE: 1"=5'



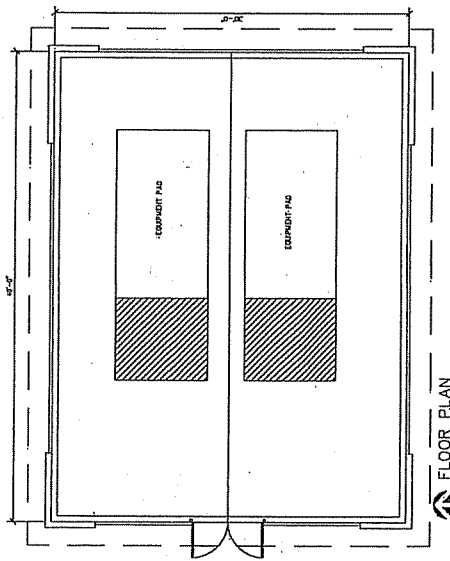
NORTH ELEVATION
SCALE: 1"=5'



EAST ELEVATION
SCALE: 1"=5'



WEST ELEVATION
SCALE: 1"=5'



FLOOR PLAN
SCALE: 1"=5'

DATE PLOTTED: 06/23/05 10:58 AM

Building Design By:



ENGINEERS SURVEYORS
ARCHITECTS PLANNERS
800 Great Canyon Drive
Madison, Wisconsin 53718
608.333.0020
had@hadsurveyors.com

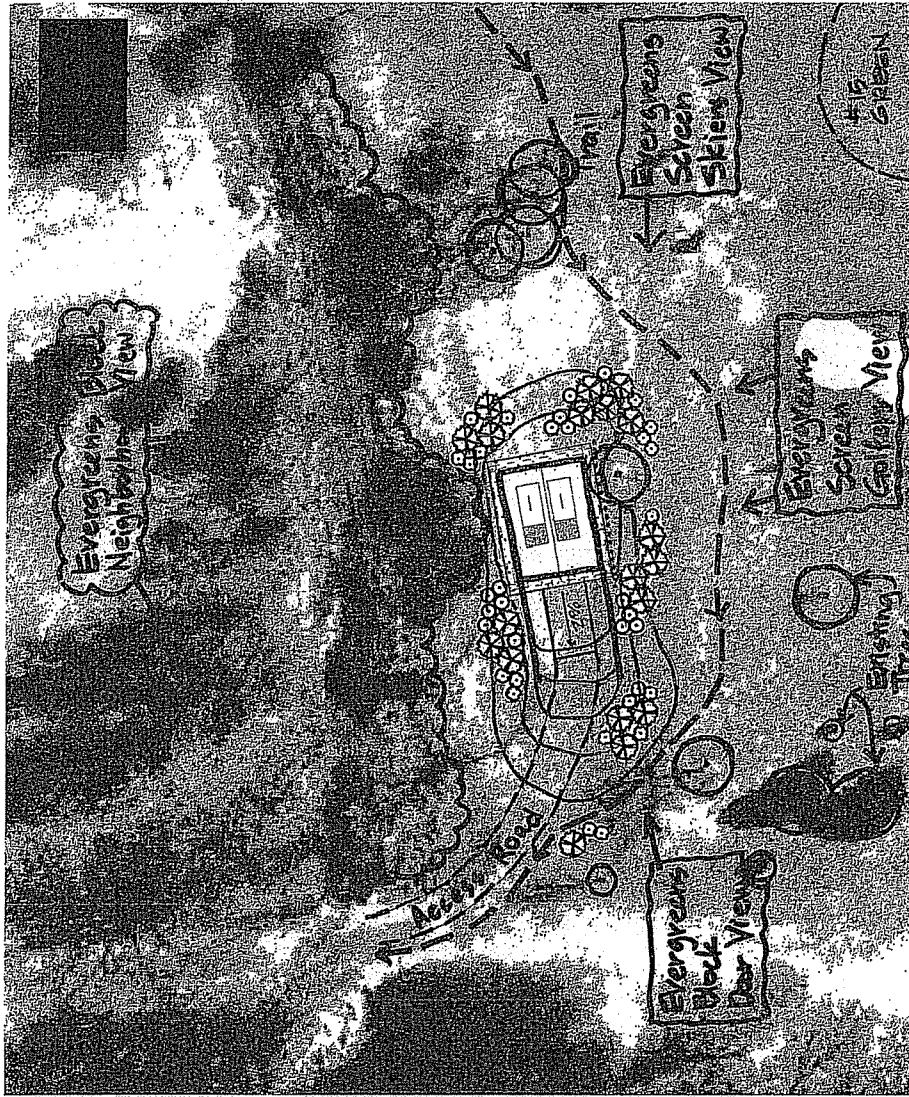
DRAWING TITLE
Pumphouse Plan and Elevation View

PROJECT
Odana Hills Recharge System
CUP Application

SCALE: 1" = 5' Drawing No.: 1205-12 06-23-05 4/15

PROFESSIONAL
NICE Contract

REGISTERED
Professional Association
3400 Walnut Creekway, Suite 113
Madison, WI 53718
Tel: 608.233.5371
Fax: 608.233.5371



THIS DRAWING IS UNLESS OTHERWISE NOTED TO SCALE

DRAWING TITLE	
Pumphouse Conceptual Landscape Plan	
PROJECT	
Odana Hills Recharge System CUP Application	
SCALE: 1" = 20'	Drawing No.: 1205-13
DATE: 08-23-05	SHEET: 5/5
PROFESSOR	
NICEI Concrete	
DESIGNER:	
KENSANK LANDSCAPE ARCHITECTS 101 N. PATTERSON ARLINGTON, VA 22204 Tel: 703.831.3100 www.kensank.com	

Landscape Design By:



West Campus Cogeneration Facility -

Water Use

The West Campus Cogeneration Facility provides reliable heating and cooling for the UW-Madison campus and 150 megawatts of electricity for MGE customers. The facility began producing power for the community in late spring 2005.

The natural gas-fired plant is one of the cleanest in the Midwest. MGE worked with community members to take steps beyond current environmental regulations. Through innovative mitigation measures, MGE will offset air emissions and water use from the power facility.

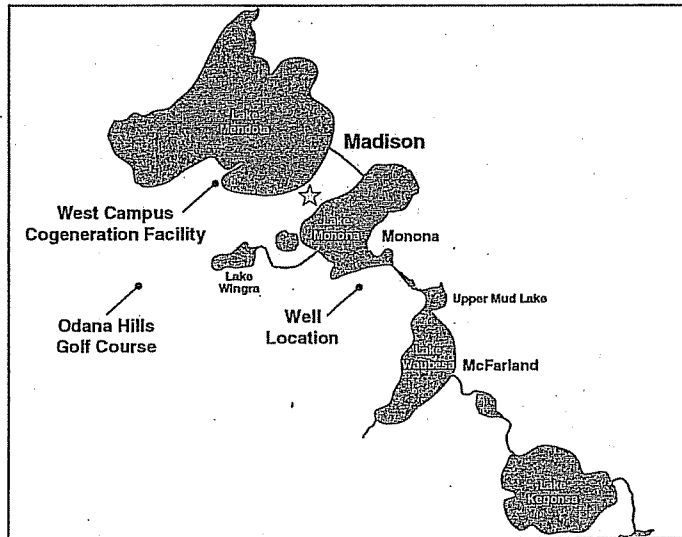
Minimizing water use

The cogeneration facility was designed to minimize water use. Where possible, water is reused in the facility. Water is used for the cooling towers, steam production and general use.

MGE is committed to mitigation measures to offset water use impacts from the facility. MGE worked with government, water resource experts and concerned citizens on water supplies. From this careful review, MGE is implementing a water source plan that will use the least amount of water overall.

The facility uses about one million gallons of water a day on average. On hot summer days, when air-conditioning demand is high, the facility uses about two million gallons a day.

Most of the water is withdrawn from Lake Mendota through the existing UW-Madison intake structure and used in the cooling towers. Most of this water is returned to the environment through evaporation from



Mitigation would help replenish the watershed system:

During times of drought or low water flows, groundwater will be pumped for short periods from a well into the Yahara River near Upper Mud Lake. This measure will help replenish the Yahara River in southern Dane County. A water recharge project at Odana Hills will replace the groundwater pumped into the river.

the cooling towers. City of Madison municipal well water is used for all general purposes.

Innovative steps to offset impacts

The facility's water withdrawal from Lake Mendota is not expected to produce a significant impact on Dane County's lakes and rivers except during times of extreme low flows, which occur every three to four years on average. The Yahara River, south of Lake Waubesa, is an area of concern during these periods.

A group of area water resource experts studied potential watershed management issues concerning the cogeneration facility.

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After reviewing several options, the group endorsed this two-step process to offset the facility's water use:

1. Pumping water from a well into the Yahara River during low flow or drought periods.
2. Implementing a groundwater recharge project.

• **Pumping groundwater for short periods during periods of low water flows to supplement the Yahara River.** The groundwater will be pumped from a well and discharged into the Yahara River near Upper Mud Lake. The amount of water pumped into the river will offset the water used by the power facility.

This pumping will supplement flows in the Yahara River, especially south of Lake Waubesa. Low water flows can have detrimental effects on river habitats, wastewater treatment plants and hydroelectric facilities downstream.

• **Collect and infiltrate stormwater runoff to recharge the groundwater system.** This would replenish the water that would be taken from the aquifer when pumping groundwater from the well.

After evaluating about 20 potential sites, the Odana Hills Golf Course is the site with the best potential. The golf course has ample space to construct a recharge system, and the Odana Pond collects abundant stormwater runoff from nearby developed areas.

MGE also funded a project that allowed Dane County to develop a watershed hydrologic model to better understand and manage the entire watershed.

Water use comparisons

How does the West Campus Cogeneration Facility's water use (average one million gallons a day, peak two million gallons a day) compare to other water uses and flows?

- About 83 million gallons of water flow on average through the Tenney Lock and Dam from Lake Mendota to the Yahara River on a continuous basis every day.
- On an average July day, about 54.9 million gallons of water evaporate from Lake Mendota.
- On average, the Madison Water Utility pumps about 33 million gallons a day from groundwater wells.
- If the facility used two million gallons daily for 30 consecutive days, which is highly unlikely, Lake Mendota's levels would drop less than a quarter of an inch. Lake water levels are largely controlled by the Tenney Lock and Dam.

For more information:

- Visit www.mge.com
- Direct any questions to Bob Stoffs, an MGE community services manager, at rstoffs@mge.com or (608) 252-7906.

Groundwater Recharge Project - Odana Hills Golf Course

Background

The new West Campus Cogeneration Facility is jointly owned by MGE and UW-Madison. It began operation in spring 2005 and will provide heating and cooling for the UW campus and electricity for the growing Madison area.

The cogen facility withdraws water from Lake Mendota for operation. Although the water withdrawal will have negligible effects on lake levels, the reduced flow could impact the lower Yahara River during very dry periods.

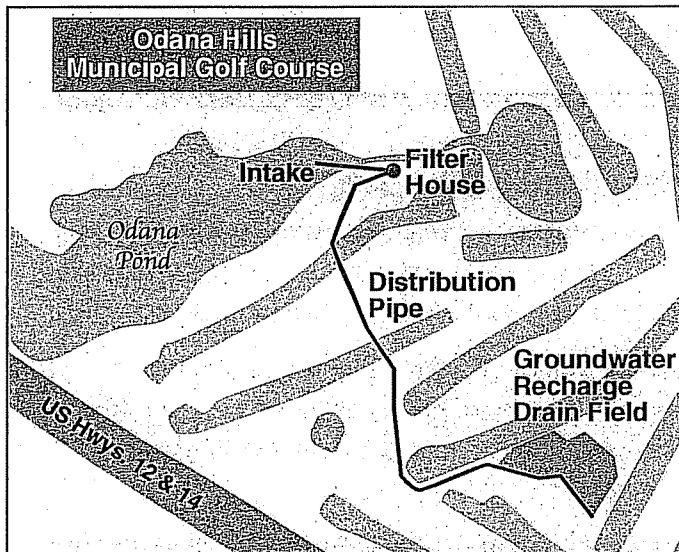
A group of City, County, UW-Madison and Wisconsin Department of Natural Resources water experts recommended the following steps to mitigate these impacts:

1. Pump groundwater from a well directly into the Yahara River to compensate for cogeneration operation during low water periods.
2. Collect and infiltrate stormwater runoff to recharge the groundwater aquifer.

Project details

Approximately 20 potential recharge sites were evaluated for feasibility, and the Odana Hills Golf Course emerged as the best site. The golf course has ample space to construct a recharge system and already has a large pond that collects abundant stormwater runoff from the surrounding developed areas.

In this project, the pond water will be filtered and pumped to higher ground to be infiltrated into the soil in a specially engineered underground drain field located in a rough area between fairways.



The amount of water withdrawn will be significantly less than what typically flows into the pond from the upstream watershed. Pond levels are expected to be somewhat lower, though that will vary depending on weather conditions. The pond should have more stormwater retention capacity during rainfalls.

A qualified wetlands and biological specialist performed an ecological study of the pond in May through July, 2005, including an inventory of aquatic vegetation, wildlife and cultural resources. The study concluded that the project was not expected to have an adverse impact on the Odana Pond.

Project benefits

The recharge project is expected to:

- Help replenish the groundwater aquifer that supplies Lake Wingra and area springs. This will help re-establish the more natural system that existed before the area was developed.

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- Reduce excess sediments and nutrients that currently flow out of the Odana Pond through storm sewers and into Lake Wingra, which will help improve water quality.
- Slightly lower the water level of the Odana Pond.
- Demonstrate the benefits of stormwater infiltration.

Odana Pond protection

The recharge project has been carefully designed to minimize any impact on the Odana Pond. The following protective steps will be incorporated into the project:

- The infiltration system pump will automatically shut off if the pond level drops below a set point in order to minimize impacts to the pond's aquatic organisms.
- A new water control structure will help maintain the level of the smaller pond to the east of the Odana Pond and the waterway that connects the two ponds.

This project is a cooperative effort among business, government, water resource experts and the public to address water supply and quality issues and to develop techniques to minimize our impact on valuable water resources in the future. It has received the support of the Friends of Lake Wingra, an environmental group dedicated to promoting a healthy lake.

Public participation and project schedule

MGE has held several public meetings to solicit input and answer questions of neighbors and other interested persons about the project. MGE is cooperating closely with the City of Madison and the DNR on the final project details. Installation of the groundwater recharge system is planned to begin fall 2005.

Contact Bob Stoffs at rstoffs@mge.com or (608) 252-7906 for further information.

August 3, 2005

Mr. Larry Nelson, PE
City of Madison Engineer
210 Martin Luther King Jr. Blvd.
Room 115
Madison, WI 53703

Re: Proposed Odana Hills Golf Course recharge project
Summary of effects on Lake Wingra

Dear Larry:

As requested, this letter provides a summary of the effects that the groundwater recharge project proposed to be installed at the Odana Hills golf course will have on Lake Wingra. As you know, this groundwater recharge project is proposed for installation by MG&E and the State of Wisconsin, and has been designed to meet the requirements of the water withdrawal permit for the West Campus Cogeneration Facility, located on the UW campus. The permit requires that at ultimate cogeneration facility capacity, approximately 80 million gallons per year of stormwater are to be infiltrated into the ground to provide recharge to the groundwater system, to compensate for the occasional pumping of groundwater for low-flow augmentation of the Yahara River. The groundwater recharge project will pump water from the large pond at the western end of the Odana Hills golf course and infiltrate it via an underground seepage bed system. The background and details of the proposed project are contained in the design report that we have submitted to you, and which is available on the MG&E web site.

The Odana Hills golf course pond is part of the drainage system that discharges runoff to Lake Wingra. Diversion of stormwater from the Odana Hills pond to recharge the groundwater system will have several beneficial effects on the Lake Wingra watershed and on Lake Wingra itself. These effects include a reduction in overall stormwater volume discharge to the lake, creation of a modest amount of additional flood storage volume in the Odana Hills pond, and a projected increase in the flow of the natural springs that discharge into Lake Wingra. These issues are discussed in more detail below.

The diversion of 80 million gallons per year from the Odana Hills pond will significantly reduce the volume of stormwater runoff that will discharge from the upstream watershed to Lake Wingra. Our analyses indicate that the annual runoff volume passing through the Odana Hills averages approximately 250 million gallons per year, meaning that operation of the recharge facility will divert approximately one third of the runoff volume that would enter Lake Wingra via the stormwater outfall at Manitou Way. This reduction in stormwater runoff volume will reduce the stormwater pollutant loading to Lake Wingra.



Additionally, pumping water from the Odana pond will slightly lower its water level (approximately 6-inch lower median stage), creating additional storage capacity to retain runoff from upstream. This will reduce downstream discharge, especially for smaller events, and will reduce the erosive potential of stormwater flowing from the Manitou Way outfall to Lake Wingra.

Finally, the runoff that is diverted from the rapidly-responding surface water drainage system will slowly flow to Lake Wingra in the local groundwater flow system. Our groundwater modeling analysis indicates that a substantial portion of the 80 million gallons per year of recharge water will discharge to Lake Wingra from natural springs in the southwestern portion of the lake. A 1979 water budget study by the U.S. Geological Survey estimated that the total groundwater inflow to Lake Wingra was approximately 540 million gallons per year. Thus, the recharge system will provide a substantial increase in groundwater flow to the lake and will help reverse the trends of increasing stormwater flow and decreasing groundwater flow due to urbanization of the watershed.

Although the groundwater recharge system is designed to meet the criteria of the West campus cogeneration facility permit requirements, we believe this project will provide significant hydrologic and water quality benefits to Lake Wingra.

Please contact us with any further questions on these issues.

Sincerely,

Montgomery Associates: Resource Solutions, LLC

Robert J. Montgomery, PE
Principal

Cc: Don Peterson, MG&E



P.O. Box 128
Cottage Grove, Wisconsin 53527
Phone: (608) 839-1998
Fax: (608) 839-1995
www.nrc-inc.net

August 16, 2005

Mr. Steve Gaffield
Montgomery Associates: Resource Solutions, LLC
2820 Walton Commons West, Suite 135
Madison, WI 53718

RE: *Odana Hills Golf Course Pumphouse Site: Wetland Determination and Delineation, City of Madison, Dane County, Wisconsin*

Dear Mr. Gaffield:

Natural Resources Consulting (NRC) conducted a wetland determination and delineation at the proposed pumphouse site (the "Project Area") on August 16, 2005. The Project Area is located within the Odana Hills Golf Course in the NW ¼ of Section 32, Township 7 North, Range 9 East in the City of Madison, Dane County, Wisconsin (Figure 1). One wetland was identified within the Project Area. The wetland is associated with a pond and drainageway (Figure 4).

The objective of the wetland determination and delineation was to provide an estimate of the extent and spatial arrangement of wetlands within the Project Area. Most wetlands are considered waters of the U.S. and are therefore subject to regulation under the Clean Water Act (CWA). Specifically, these "non-isolated" wetlands are regulated under Section 404 of the CWA and the jurisdictional regulatory authority lies with the United States Army Corps of Engineers (USACE). Additionally, the Wisconsin Department of Natural Resources (WDNR) has regulatory authority over wetlands, navigable waters, and adjacent lands under Chapter 30 Wisconsin State Statutes, Act 6, and NR 103 Wisconsin Administrative Code.

Wetland determinations were made using the criteria and methods outlined in the USACE Manual (USACE 1987), subsequent guidance documents (USACE 1991, 1992), Guidelines for Submitting Wetland Delineations in Wisconsin to the St. Paul District Corps of Engineers (USACE 1996), and the Basic Guide to Wisconsin's Wetlands and their Boundaries (Wisconsin Department of Administration Coastal Management Program 1995).

Wetlands are regulated using the three criteria of assessment approach defined in the 1987 USACE Wetland Delineation Manual. According to procedures described in this Manual, areas that under normal circumstances reflect a predominance of hydrophytic (water loving) vegetation, hydric soils, and wetland hydrology (e.g., inundated or saturated soils) are considered wetlands.

The initial steps in the wetland determination and delineation process included a review of the following documents:

1. U.S. Geological Survey Topographic Map (Figure 1);
2. Natural Resources Conservation Service (NRCS), formerly the Soil Conservation Service (SCS), excerpts from *Soil Survey of Dane County, Wisconsin* (Figure 2);
3. NRCS list of hydric soils for Dane County; and
4. The Wisconsin Wetland Inventory (WWI) map (Figure 3) for the area.

During the site visit on August 16, 2005 one wetland was identified and delineated within the Project Area. The uppermost wetland boundary was flagged using consecutively numbered surveyors flagging. The wetland boundaries and sample points were located with a Global Positioning System (GPS) unit. The GPS unit is a Trimble Geo XT Explorer and has a horizontal accuracy of +/- 3 feet.

USACE data sheets were completed for 2 sample points along one transect and are included in Attachment A. The wetland boundaries and sample point locations are shown on Figure 4.

Wetlands

Wetland 1 consists of an emergent and shrub-carr wetland fringe along a large pond and drainageway. The dominant vegetation observed at sample point P-1 includes reed canary grass (*Phalaris arundinacea*, FACW+) and narrow-leaf cattail (*Typha angustifolia*, OBL). Other vegetation observed within the wetland and along the wetland boundary includes river bulrush (*Bolboschoenus fluviatilis*, OBL), American elderberry (*Sambucus canadensis*, FACW), and Pennsylvania knotweed (*Polygonum pennsylvanicum*, FACW+). The wetland transitions to a community dominated by Kentucky bluegrass (*Poa pratensis*, FAC-), Canada thistle (*Cirsium arvense*, FACU), and honeysuckle (*Lonicera x bella*, FACU-).

The soils within the wetland area are mapped as Sable silty clay loam (SaA). The Sable series consists of poorly drained soils and are on the NRCS list of hydric soils. Field observation of soils at P-1 indicated the presence of hydric soils. The soils met hydric criteria as redoximorphic (redox) features were observed at the surface and a depleted matrix was observed within the upper 12 inches.

Wetland 1 appears to have a seasonally saturated hydroperiod fed by local surface water, shallow groundwater, and occasional floodwaters from the adjacent drainageway and pond. Secondary indicators included a positive FAC-neutral test and local soil survey data.

Uplands

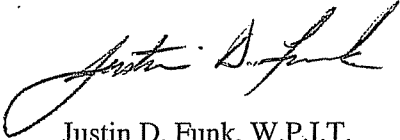
The uplands within the Project Area consist of mostly golf course grounds consisting of mowed lawn. The uplands immediately adjacent to the wetland consist of shrub and meadow vegetation. The dominant vegetation observed at the sample point completed in the upland area (P-2) consists of Kentucky bluegrass (FAC-). Other species observed along the upland fringe between the mowed lawn and the wetland include Canada thistle (FACU), honeysuckle (FACU-), Canada goldenrod (*Solidago canadensis*, FACU), common buckthorn (*Rhamnus cathartica*, FACU), and reed canary grass (FACW+).

The soils at P-2 were somewhat disturbed with mixed material throughout the soil profile to 24 inches. This area had likely been graded during the creation and landscaping of the golf course. No hydrology indicators were observed within the uplands.

Land use is restricted in close proximity to wetlands through setbacks by the WDNR under NR 151. Wetlands have designated setbacks of between 10 and 75 feet depending on the quality, as determined by the WDNR Water Management Specialist. Dane County also requires setbacks from shoreland wetlands through their Shoreland Zoning ordinance. Wetlands located within 300 feet of navigable surface waters are considered shoreland wetlands and require setbacks of 75 feet.

If you have any questions, or require any additional information, please call me at (608) 839-1998.

Sincerely,
Natural Resources Consulting, Inc.



Justin D. Funk, W.P.I.T.
Associate Principal Scientist

Attachments: Figures 1-4
 USACE Data Sheets

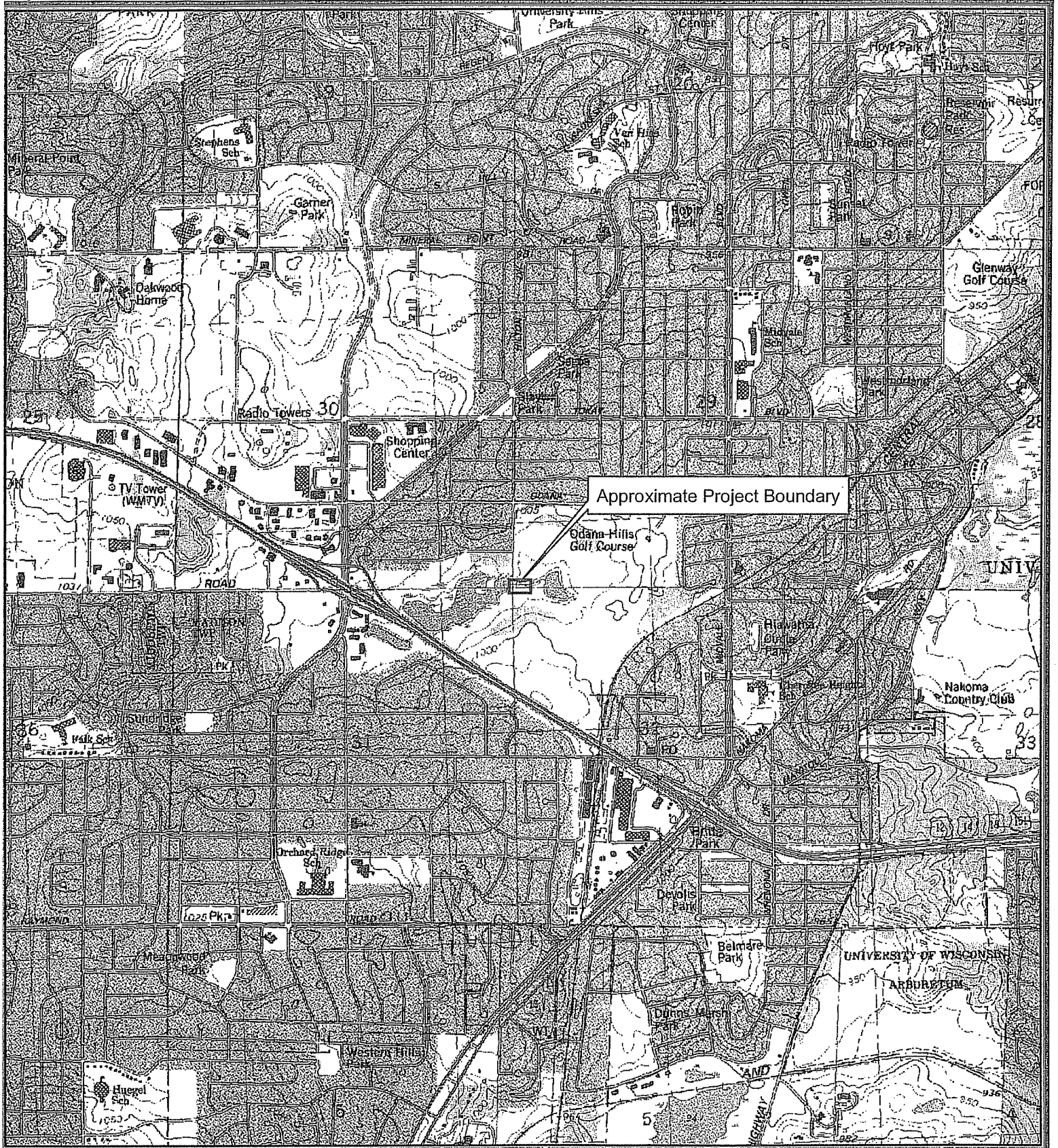
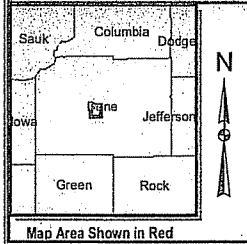


FIGURE 1. PROJECT LOCATION AND TOPOGRAPHY
Odana Ponds




Location
 SWQ of Section 29, T7N, R9E
 City of Madison, Dane County, WI

Project Information
 NRC Project Number #: 05-170
 Modified August 18, 2005

0 1,000 2,000 Feet

Legend

 Approximate Project Boundary

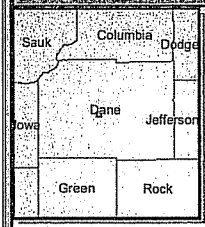
NRC
 Natural Resources Consulting, Inc.

119 South Main Street, Suite D
 P.O. Box 128
 Cottage Grove, WI 53527-0128
 phone: 608-839-1998
 fax: 608-839-1995

www.nrc-inc.net



FIGURE 2 NRCS SOIL SURVEY DATA
Odana Ponds



Location
 SWQ of Section 29, T7N, R9E
 City of Madison, Dane County, WI

Project Information
 NRC Project Number #: 05-170
 Modified August 18, 2005

0 200 400 Feet

Legend

Approximate Project Boundary	NRCS Soil Survey Data
Section Line	Hydric Soils
	Poss. Hydric Inclusions
	Non-Hydric Soils

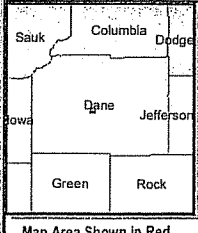
NRC
 National Resources Consulting, Inc.

119 South Main Street, Suite D
 P.O. Box 128
 Cottage Grove, WI 53527-0128
 phone: 608-839-1998
 fax: 608-839-1995

www.nrc-inc.com



FIGURE 3. WI WETLAND INVENTORY
Odana Ponds



Location
 SWQ of Section 29, T7N, R9E
 City of Madison, Dane County, WI

Project Information
 NRC Project Number #: 05-170
 Modified August 18, 2005

0 200 400 Feet

Legend

- Approximate Project Boundary
- WI Wetland Inventory
- 24K Hydro Layer
- Section Line

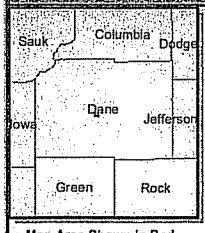
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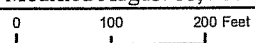


FIGURE 4. WETLAND BOUNDARY
Odana Ponds



Location
 SWQ of Section 29, T7N, R9E
 City of Madison, Dane County, WI

Project Information
 NRC Project Number #: 05-170
 Modified August 18, 2005



Legend

- ⊙ Sample Point
- Wetland Boundary
- Approximate Project Boundary
- 24K Hydro Layer

NRC
 National Resources Consulting, Inc.

119 South Main Street, Suite D
 P.O. Box 128
 Cottage Grove, WI 53527-0128
 phone: 608-839-1998
 fax: 608-839-1995

www.nrc-inc.net

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

SOILS

Map Unit Name: _____

(Series and Phase): (SAA) Sable SICL Drainage Class PD

Taxonomy (Subgroup) Typic Haplaquolls Field Observations
 Confirm Mapped Type? Yes No *

Profile Description

Depth (inches)	Horizon	Matrix Color Munsell Moist	Concentration Color	Concentration Abundance/Contrast	Texture, Concretions, Structure, etc.
<u>0-8</u>	<u>1</u>	<u>10YR 3/2</u>			<u>SIL</u>
<u>8-16</u>	<u>2</u>	<u>2.5Y 5/2</u>	<u>10YR 4/6</u>	<u>C/D</u>	<u>SICL</u>
<u>16-22</u>	<u>3</u>	<u>10YR 3/1</u>			<u>SICL</u>
<u>22-24</u>	<u>4</u>	<u>2.5Y 5/2</u>	<u>10YR 4/6</u>	<u>C/D</u>	<u>SICL</u>

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soil
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other

Remarks: * mixed horizons - likely from pond/ditch excavation and grading

WETLAND DETERMINATION

Hydrophytic Vegetation Present	(Circle) Yes <input type="radio"/> No <input checked="" type="radio"/>	Is This Sampling Point in a Wetland	(Circle) Yes <input type="radio"/> No <input checked="" type="radio"/>
Wetland Hydrology Present	Yes <input type="radio"/> No <input checked="" type="radio"/>		Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soils Present	Yes <input type="radio"/> No <input checked="" type="radio"/> NA		

Remarks: Soils not considered due to historical disturbance

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Project/Site: <u>Odana Ponds Punphouse Site</u>	Date: <u>August 16, 2005</u>
Applicant/Owner: <u>MARS, Inc.</u>	County: <u>Dane</u>
Investigator: <u>J. Funk</u>	State: <u>WI</u>
Do normal circumstances exist on this site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: <u>UPL</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input checked="" type="radio"/> No	Transect ID: <u>T-1</u>
Is the site a potential problem area? Yes <input checked="" type="radio"/> No	Plot ID: <u>P-2</u>

VEGETATION

Plant Species	Stratum	% Cover	Indicator	Plant Species	Stratum	% Cover	Indicator
1. <u>Poa pratensis</u>	<u>H</u>	<u>85 *</u>	<u>FAC-</u>	10. _____	_____	_____	_____
2. <u>Cirsium arvense</u>	<u>H</u>	<u>10</u>	<u>FACW</u>	11. _____	_____	_____	_____
3. <u>Phalaris arundinacea</u>	<u>H</u>	<u>10</u>	<u>FACW+</u>	12. _____	_____	_____	_____
4. _____	_____	_____	_____	13. _____	_____	_____	_____
5. _____	_____	_____	_____	14. _____	_____	_____	_____
6. _____	_____	_____	_____	15. _____	_____	_____	_____
7. _____	_____	_____	_____	16. _____	_____	_____	_____
8. _____	_____	_____	_____	17. <u>* dominant</u>	_____	_____	_____
9. _____	_____	_____	_____	18. _____	_____	_____	_____

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). 0%

Remarks: sample area adjacent to mowed golf course path

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p><input checked="" type="checkbox"/> Aerial Photographs</p> <p>____ Other</p> <p>____ No Recorded Data Available</p>	<p>Wetland Hydrology Indicators</p> <p>Primary Indicators</p> <p>____ Inundated</p> <p>____ Saturated in Upper 12 inches</p> <p>____ Water Marks</p> <p>____ Drift Lines</p> <p>____ Sediment Deposits</p> <p>____ Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required)</p> <p>____ Oxidized Root Channels</p> <p>____ Water-Stained Leaves</p> <p>____ Local Soil Survey Data</p> <p>____ FAC-Neutral Test</p> <p>____ Other (explain in remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: <u> </u> (in)</p> <p>Depth to Free Water in Pit: <u> </u> (in)</p> <p>Depth to Saturated Soil: <u> </u> (in)</p>	<p>Remarks: <u>none</u></p>

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

SOILS

Map Unit Name:

(Series and Phase): (SaA) Sable SICL

Drainage Class PD

Taxonomy (Subgroup) Typic Haplaquolls

Field Observations
 Confirm Mapped Type? Yes No

Profile Description

Depth (inches)	Horizon	Matrix Color Munsell Moist	Concentration Color	Concentration Abundance/Contrast	Texture, Concretions, Structure, etc.
0-18	1	10YR 3/1	10YR 3/4 concentrations m/d 10YR 5/1 depletions	F/D	SICL

Hydric Soil Indicators:

- | | |
|---|--|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Concretions |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soil |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Aquic Moisture Regime | <input checked="" type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Other |

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present	(Circle) <input checked="" type="radio"/> Yes <input type="radio"/> No	Is This Sampling Point in a Wetland	(Circle) <input checked="" type="radio"/> Yes <input type="radio"/> No
Wetland Hydrology Present	<input checked="" type="radio"/> Yes <input type="radio"/> No		
Hydric Soils Present	<input checked="" type="radio"/> Yes <input type="radio"/> No		

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Project/Site: <u>Odana Ponds Punphouse Site</u>	Date: <u>August 16, 2005</u>
Applicant/Owner: <u>MARS, Inc.</u>	County: <u>Dane</u>
Investigator: <u>J. Funk</u>	State: <u>WI</u>
Do normal circumstances exist on this site? Yes <input checked="" type="radio"/> No <input type="radio"/>	Community ID: <u>WET</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/>	Transect ID: <u>T-1</u>
Is the site a potential problem area? Yes <input type="radio"/> No <input checked="" type="radio"/>	Plot ID: <u>P-1</u>

VEGETATION

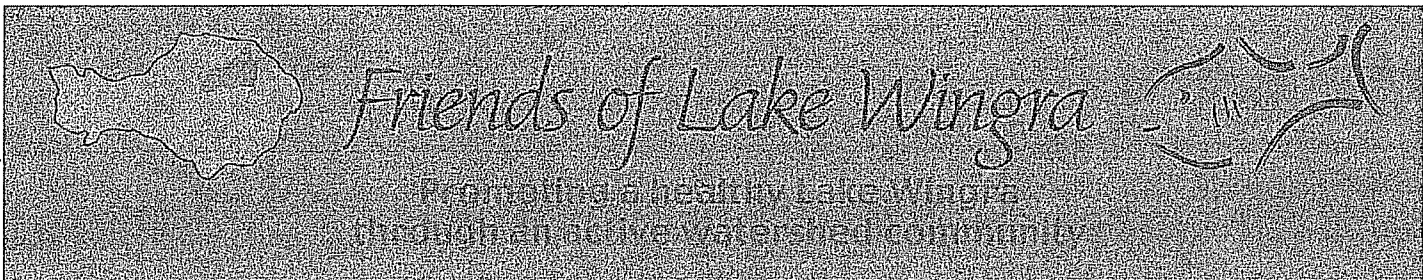
Plant Species	Stratum	% Cover	Indicator	Plant Species	Stratum	% Cover	Indicator
1. <u>Phalaris arundinacea</u>	<u>H</u>	<u>50 *</u>	<u>FACW+</u>	10. _____	_____	_____	_____
2. <u>Typha angustifolia</u>	<u>H</u>	<u>25 *</u>	<u>OBL</u>	11. _____	_____	_____	_____
3. <u>Bolboschoenus fluviatilis</u>	<u>H</u>	<u>20</u>	<u>OBL</u>	12. _____	_____	_____	_____
4. <u>Scirpus cyperinus</u>	<u>H</u>	<u>5</u>	<u>OBL</u>	13. _____	_____	_____	_____
5. <u>Cirsium arvense</u>	<u>H</u>	<u>5</u>	<u>FACU</u>	14. _____	_____	_____	_____
6. _____	_____	_____	_____	15. _____	_____	_____	_____
7. _____	_____	_____	_____	16. <u>HERB: 105/53/21</u>	_____	_____	_____
8. _____	_____	_____	_____	17. <u>* dominant</u>	_____	_____	_____
9. _____	_____	_____	_____	18. _____	_____	_____	_____

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). 2/2 = 100%

Remarks:

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>_____ Stream, Lake, or Tide Gauge</p> <p><input checked="" type="checkbox"/> Aerial Photographs</p> <p>_____ Other</p> <p>_____ No Recorded Data Available</p>	<p>Wetland Hydrology Indicators</p> <p>Primary Indicators</p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 inches</p> <p>_____ Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required)</p> <p>_____ Oxidized Root Channels</p> <p>_____ Water-Stained Leaves</p> <p><input checked="" type="checkbox"/> Local Soil Survey Data</p> <p><input checked="" type="checkbox"/> FAC-Neutral Test</p> <p>_____ Other (explain in remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: _____ (in)</p> <p>Depth to Free Water in Pit: _____ (in)</p> <p>Depth to Saturated Soil: _____ (in)</p>	<p>Remarks: <u>moist soil; sample area adjacent to pond</u></p>



BOARD OF DIRECTORS

Cheryl Bauer-Armstrong
Chair

August 9, 2005

Jim Lorman,
Vice-Chair

Mayor Cieslewicz;
Madison Common Council;
City Parks Department;
City Engineering;
Commission on the Environment;
Parks Commission;
Plan Commission;

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The Friends of Lake Wingra wish to express their support for the groundwater recharge project at Odana Golf Course that is being proposed by Madison Gas & Electric and the State of Wisconsin.

The Friends of Lake Wingra (FOLW) have closely followed the development of this project since it was first proposed. The FOLW Wingra Watershed Management Plan calls for decreasing runoff to Lake Wingra by infiltrating storm water throughout the watershed (To see the full plan: www.lakewingra.org). The Odana Golf Course groundwater recharge project will help achieve this goal by infiltrating about 80 million gallons of the approximately 420 million gallons of storm water runoff entering Lake Wingra each year.

We have been encouraged by MG&E's willingness to work closely with watershed stakeholders to develop a project that provides for a positive environmental impact, with minimum disruption to the surrounding neighborhood and parkland. We also appreciate MG&E's commitment to support ongoing education of watershed residents and businesses about issues related to storm water management.

The Friends of Lake Wingra believe that it is very important to continue to help the community understand storm water and groundwater dynamics in the watershed. This project is only one of many steps needed to protect and improve the water quality of Lake Wingra.

We call on the City of Madison to build upon the benefits of the Odana Golf Course project, by taking action to:

Support outreach education about Wingra Watershed issues, including the placement of a rain garden and information kiosk at Odana Golf Course;

Improve habitat around Odana Ponds, including restoration of riparian borders, and removal of invasive species (e.g. common carp);

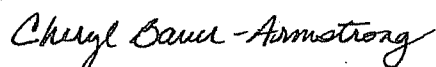
Moderate peak flows of runoff draining from the Odana Ponds, to reduce the resulting erosion and habitat degradation in the West Wingra Marsh;

Eliminate the soil erosion on City property in the Wingra watershed that is contributing to sediment and nutrients to Lake Wingra (e.g. at Westmorland Park, Glenway Golf Course/S.W. Bikepath, Forest Hill Cemetery);

Promote the adoption of innovative storm water runoff reduction measures throughout the watershed, including: residential rain gardens, biofiltration and porous pavement for commercial sites, street-side infiltration, and storm water detention and infiltration on public property.

We urge the City of Madison to support the leadership of MG&E in improving watershed conditions, by approving the proposed Odana Golf Course ground water recharge project. The Friends of Lake Wingra are eager to partner with the City and other Wingra Watershed stakeholders in transforming our watershed into a model of sustainable storm water management.

Sincerely,



Cheryl Bauer-Armstrong, Chair



Friends of
the Arboretum

UNIVERSITY OF WISCONSIN-MADISON

September 19, 2005

Mayor Cieslewicz
Madison City Council
City Parks Department
City Engineering
Commission on the Environment
Parks Commission
Plan Commission

The Friends of the Arboretum (FOA) support the groundwater recharge project at Odana Golf Course as currently planned for and proposed by Madison Gas & Electric (MG&E) and the State of Wisconsin.

If the project operates according to the models run by Montgomery Associates, it would divert 80 million gallons of stormwater runoff into Lake Wingra and the West Wingra Marsh. Additionally, the recharge system could provide a substantial increase in groundwater flow to Lake Wingra, through natural springs around the west end of Lake Wingra. Both of these impacts would be beneficial to the viability of Lake Wingra and the Arboretum.

We intend to work with MG&E to establish a process to keep the Arboretum staff informed of the project's progress in meeting the modeled outcomes of reduced stormwater runoff and increased groundwater flow for Lake Wingra. We will ask that MG&E monitor the springs flow around the west end of Lake Wingra and submit regular reports to the Arboretum Director which detail the project outcomes which affect the Arboretum.

FOA has over 3,000 members, nearly one-quarter of whom live in the Odana neighborhoods. We understand that the adjoining neighborhood associations have expressed concern about the impact of this project on local wildlife and we encourage the City of Madison to be part of the solution in addressing their concerns.

We also support the Friends of Lake Wingra call to action for the City of Madison, notably in supporting outreach education about the Wingra Watershed with a rain garden and information kiosk at Odana Golf Course and promoting the adoption of innovative stormwater runoff reduction measures throughout the watershed.

The FOA appreciates MG&E's efforts to work with the various interests of the Lake Wingra watershed in designing this project. MG&E has been a supporter of the Arboretum and has been a strong community partner for the work of FOA.

Thank you for your consideration of our interests.

Sincerely,

Susan Stratton
President, Friends of the Arboretum

Cc: Bob Stoffs, MG&E
Kevin McSweeney, UW-Madison Arboretum
John Wiley, UW-Madison
Ken Johnson, DNR

14