RFP NO. 322023

**DANE COUNTY DEPARTMENT OF WASTE & RENEWABLES**
1919 ALLIANT ENERGY CENTER WAY
MADISON, WISCONSIN 53713

# REQUEST FOR PROPOSALS NO. 322023
# ENGINEERING DESIGN AND PERMITTING SERVICES FOR THE PROPOSED DANE COUNTY LANDFILL NO. 3
# YAHARA HILLS SITE
# 7101 US HIGHWAY 12 & 18
# MADISON, WISCONSIN

## ISSUED FOR PROPOSALS: SEPTEMBER 8, 2022

Due Date / Time: **THURSDAY, OCTOBER 6, 2022 / 2:00 P.M.** Location: **WASTE& RENEWABLES OFFICE**

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FOR INFORMATION ON THIS REQUEST FOR PROPOSALS, PLEASE CONTACT:

ALLISON RATHSACK, PROJECT MANAGER
TELEPHONE NO.: 608/514-2319
FAX NO.: 608/267-1533
E-MAIL: RATHSACK.ALLISON@COUNTYOFDANE.COM

# Department of Waste & Renewables

608/266-4018

John Welch, P.E.
**Director**

Joseph T. Parisi
**County Executive**

**Deputy Director**
Roxanne Wienkes

1919 Alliant Energy Center Way
Madison, Wisconsin 53713
Fax: 608/267-1533
https://landfill.countyofdane.com/


SEPTEMBER 8, 2022

**INVITATION FOR PROPOSALS**

You are invited to submit a Proposal for RFP No. 322023 to provide professional engineering design and permitting services for the Proposed Dane County Landfill Site No. 3. The Proposals are due on or before **2:00 p.m., Thursday, October 6, 2022**. No performance bond is required for this project.

**SPECIAL INSTRUCTIONS**

Please provide the entire proposal package in these formats: one (1) bound hard copy and an electronic version on a USB flash drive. Follow these instructions when submitting your proposal:

1. Place the signed Proposal Form on top as page 1.
2. Place the signed Fair Labor Practices Certification after the Proposal Form as page 2.
3. Place the Proposal information after Fair Labor Practices Certification.
4. Clearly label your envelope containing your proposal in the lower left-hand corner as follows:
   **Proposal No. 322023**
   **Engineering Design And Permitting Services For The**
   **Proposed Dane County Landfill No. 3**
   **October 6, 2022, 2:00 p.m.**
5. Mail or deliver to:
   Allison Rathsack, Project Manager
   Dane County Department of Waste & Renewables
   1919 Alliant Energy Center Way
   Madison, Wisconsin 53713

Use the drop box just inside our Office if you choose to hand deliver. If any additional information about this Request for Proposals is needed, please call myself at 608/514-2319 or send an email to Rathsack.Allison@countyofdane.com.

Sincerely,

*Allison Rathsack*

Project Manager

Enclosure: Request for Proposals No. 322023 Package

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REQUEST FOR PROPOSAL

**LEGAL NOTICE**

Dane County Dept. of Waste & Renewables, 1919 Alliant Energy Center Way, Madison, WI 53713, will receive sealed Proposals until:

**2:00 P.M., THURSDAY, OCTOBER 6, 2022**

**RFP NO. 322023**

**ENGINEERING DESIGN AND PERMITTING SERVICES FOR THE PROPOSED DANE COUNTY LANDFILL SITE NO. 3**

**YAHARA HILLS SITE**

**7101 US HIGHWAY 12 & 18, MADISON, WI**

Dane County is inviting Proposals for engineering design and permitting services for the proposed Dane County Landfill Site No. 3. Only firms with capabilities, experience & expertise with similar projects should obtain this RFP document & submit Proposals.

RFP document may be obtained after **2:00 p.m., Thursday, September 8, 2022** from bids-pwht.countyofdane.com. Call Allison Rathsack, Project Manager, at 608/514-2319 with any questions.

Informational site tour will be September 20, 2022 at 10 a.m. at the Yahara Hills Site, starting in the Golf Course Club House Parking Lot. Interested firms are strongly encouraged to attend this optional tour.

**PUBLISH: SEPTEMBER 9 & 16, 2022 - WISCONSIN STATE JOURNAL**

**SEPTEMBER 8 & 15, 2022 - THE DAILY REPORTER**

SECTION 00 24 16

SCOPES OF PROPOSALS

## 1. GENERAL INFORMATION

A. Dane County is inviting proposals for professional engineering design and permitting services for the proposed Dane County Landfill Site No. 3, to be located on a portion of the Yahara Hills Golf Course.

B. Background: Dane Country owns parcels to the north of the proposed project site (7102 US Hwy 12 & 18, Madison, WI 53718) where Waste & Renewables (W&R) operates the Dane County Landfill Site No. 2 (Rodefeld Landfill). Rodefeld Landfill has accepted the majority of Dane County's municipal solid waste (MSW) since 1985, annual tonnage reports may be found here. The property also includes a construction & demolition (C&D) recycling facility, household hazardous waste collection facility (Clean Sweep), and a biogas processing facility used to convert landfill biogas to pipeline quality renewable natural gas.

If the current Eastern Vertical Expansion is approved, Rodefeld Landfill is anticipated to be at capacity by approximately 2030. In order to address the need for a local, environmentally responsible way of managing waste within the community beyond 2030, Dane County is looking to permit a proposed landfill on a portion of the Yahara Hills Site.

In 2019, the City formed the Task Force on Municipal Golf to address the golf enterprise's financial challenges and offer recommendations on how to make golf more financially and environmentally sustainable. The Task Force's report included a recommendation to reduce the number of holes from 36 to 18 at the Yahara Hills Site.

C. Land Sale: Dane County is in the process of purchasing two parcels of the Yahara Hills Golf Course, consisting of approximately 230 acres, from the City of Madison, with closing anticipated in December 2022. Of the 230 acres, approximately 30 acres will house a Sustainable Business Park to divert waste and create local circular economies (Figure 1) and the remaining acres may incorporate some or all of the following uses:

- Landfill and landfill operation, maintenance, and monitoring infrastructure.
- Areas for shared infrastructure with the Sustainable Business Park.
- Greenspace or open space for habitat restoration, recreation, and the continued use of the golf course.
- Areas dedicated for stormwater management systems, landfill screening, and buffers to recreation.
- Dedicated southern access road (per Yahara Hills Neighborhood Development Plan).
- Areas for large-scale yard waste and/or food waste compost operations. Note, the ownership and operations model of a compost facility has yet to be determined. Planning and permitting for compost areas will begin in the fall of 2023.
- Areas for outdoor storage and transfer of diverted materials.
- Areas for renewable energy generation.
- Areas for access roads, storage facilities, landfill gas facilities, leachate management facilities, and other landfill support infrastructure.
- Temporary soil stockpiles.

Both parcels at the Yahara Hills Site are zoned as Parks and Recreation (PR) and Dane County is in the process of rezoning and subdividing the Sustainable Business Park from the remaining lands and rezoning both properties to Industrial – General (IG). Rezoning and

subdivision efforts are anticipated to be completed prior to closing. **Please note, with the zoning designation of IG, additional conditional use permits may be necessary to ensure the aforementioned uses are permissible.**

As part of the property purchase, Dane County and the City of Madison have mutually agreed to maintain recreation on the property in the process of being purchased and at the City's remaining parcels to the west with 36 holes of golf until the end of 2024 golf season, 27 holes until the end of the 2025 golf season, and 18 holes until at least 2042. Agreements and golf leases may be found here.

D. Completed Work: Dane County has submitted an Initial Site Inspection Request to the Wisconsin Department of Natural Resources (WDNR) on March 17, 2022 (Attachment A), received an Initial Site Inspection Response on May 11, 2022 (Attachment B), and submitted an Initial Site Report on September 1, 2022 (Attachment C). A timeline for landfill permitting has been developed to ensure a seamless transition of operations between the existing Rodefeld Landfill and the proposed Dane County Landfill Site No. 3 (Attachment D).

Additionally, Dane County completed preliminary subsurface exploration work in February 2022, for the purposes of gaining a general understanding of the subsurface conditions. Boring logs and well documentation for this preliminary exploration work may be found in Attachment E.

E. To be considered for this project, the Consultant must meet or exceed the following criteria:

1. Have at least one registered professional engineer & one registered professional geologist as lead responsible members of the firm or project team.

2. Have been in business for a period of not less than five (5) years.

3. Must have been responsible for the design and permitting of at least three (3) projects similar in scope and size of the proposed Dane County Landfill Site No. 3.

4. Consideration may be given to joint ventures consisting of two or more firms organized for the purpose of furnishing professional services as a single entity, providing the assignment of and provisions for continuity of the various responsibilities within the joint venture are approved by the County, and further providing that either of the individual firms constituting the joint venture meets the eligibility requirements listed above.

## 2. SCOPE OF WORK

A. Project deliverables and specific tasks are detailed in the *Draft Dane County Contract*.

B. General Requirements

1. The work requirements are grouped into seven phases, to be completed sequentially:

i. Phase 1: Subsurface Exploration Oversight.
ii. Phase 2: Environmental Monitoring.
iii. Phase 3: Local Approval and Negotiation Process.
iv. Phase 4: Soil Borrow Source Permitting Work.
v. Phase 5: Feasibility Report (FR) and Plan Set per NR 512.
vi. Phase 6: Plan of Operation Report (POO) and Plan Set per NR 514 and Air Permitting per NR 400.

vii. Phase 7: Construction Plan Set and Specifications for the First Phase of the Landfill.

All work shall be completed and submitted to regulatory agencies on behalf of Dane County Waste & Renewables.

2. Wisconsin Department of Natural Resources (WDNR) Completeness

    i. If WDNR determines any Phase of the Work is incomplete, Proposer is solely responsible for preparing necessary documentation to satisfy WDNR completeness requirements. Dane County will not reimburse for Work required to address incompleteness.

3. WDNR Requested Additional Information

    i. Proposer shall address additional requests for information from WDNR following each Phase. Work will be done on a Time and Materials basis.
    ii. For budgetary purposes, proposal pricing shall include an allowance to address additional information requested by WDNR, as identified in each Phase of Work.

4. Base Fee

    i. The Base Fees shall include all costs necessary to perform the work, including but not limited to, meetings, data gathering, design, processing, subcontractors, equipment and materials, reproducing and mailing submittals, and other work as outlined in each Phase.

5. Unit Price

    i. Unit prices will include all costs for materials and labor necessary to perform specified work. Payment will be based on actual quantities, outside of Work included in the Base Fee.

6. Rate Schedule

    i. Rate Schedule must be provided as part of the Proposal. Proposer must maintain these rates until December 31, 2024 at which point the rates shall be adjusted by the All Urban Consumer- Minneapolis-St. Paul, Minnesota-Wisconsin CPI, or equivalent if unavailable.

7. Document Submittals

    i. Submittals to WDNR shall comply with NR 500.05.
    ii. All hard copies submitted to Dane County shall be accompanied with electronic versions delivered on a USB flash drive or ShareFile. Electronic versions shall include Microsoft Word, PDF, and any other original files types (AutoCAD, Microsoft Excel, PowerPoint, etc.).

8. Meetings and Communications

    i. Prepare monthly status reports including budget status (by major task), work completed in past month, work planned for next month, and problems or issues to be resolved.
    ii. Attend meetings described in each phase of the Work.

9. Provide schedule for completion of individual items under each phase of the Work.

10. Proposer shall furnish all labor, materials, equipment, and services necessary to complete the given reports and perform the necessary tests required for the completion of the reports and documentation.

11. Laboratory Certification

    i. Contractor shall be aware that the WDNR requires that all water quality tests specified in this RFP be conducted by a certified laboratory as defined in ss. 144.95(1)(b) Wisc. Stats.

12. Selected Proposer shall be the Engineer of Record, shall stamp, and be responsible for all document and drawing submissions.

C. Phase 1 - Subsurface Exploration Oversight:

1. Dane County anticipates letting a Request for Bid to hire a drilling contractor in September 2022, with a start date anticipated for December 2022 (ground condition and weather dependent). Attachment F details the anticipated drilling work with associated figures and tables. Please note, the drilling and oversight work will require close coordination with the City of Madison to minimize damage to the golf course. Overseer will also need to coordinate with Dane County staff for spoil removal.

   Subsurface exploration oversight work shall be consistent with NR 512.09(3), laboratory and field analysis consistent with NR 512.09(4), and NR 512.09(6) for landfills with extended leachate collection lines. Borings shall be consistent with all requirements in NR 512.09(1) and wells shall be consistent with all requirements in NR 512.09(2).

   Note, all soil and bedrock samples collected shall be retained in accordance with NR 507.05. Dane County may request additional sampling if clay, potentially suitable for liner construction, is encountered. Any additional clay sampling or analysis shall be considered Out of Scope Work.

2. Required Meetings

   i. Kick-Off Meeting with City of Madison staff and awarded Drilling Contractor
   ii. Weekly Check-In Meetings (anticipated to be 30 minutes)
   iii. Documentation Review Meeting prior to WDNR submittal

3. Submittals

   i. Daily Field Notes: Submitted on a weekly basis that details time of arrival for oversight personnel and drilling contractor, time of departure for oversight personnel and drilling contractor (including any breaks), location of drilling work, depth of drilling work, equipment and methods used for drilling, materials used for well development, any field or laboratory samples collected, any correspondence between oversight personnel and drilling contractor, City of Madison staff, or Dane County personnel, and any other pertinent information.
   ii. Well and boring documentation as required under NR 141.23. Additionally, soil testing data shall be summarized in a table, as outlined in NR 512.10(2)(a) and (d).

iii. For Dane County's records, well and boring documentation shall be compiled in the following order for each well or boring: soil boring log, sealing and abandonment log (if applicable), monitoring well construction and development logs (if applicable), monitoring well and point information table (if applicable), and all necessary soil or water analyses. Additionally, a table summarizing pertinent construction or development information shall be included as part of the subsurface exploration work.

4. Timeline

    i. Dane County anticipates the drilling work to occur over eight (8) weeks but is highly dependent on ground and weather conditions.
    ii. Well and borehole construction documentation shall be submitted within 60 days after construction or installation per NR 141.23.

5. Pricing

    i. Pricing for subsurface exploration oversight shall be an hourly rate for all Work associated with subsurface exploration oversight, in-field testing, daily field notes, and required meetings. For the purposes of this RFP, Proposer shall assume eight (8) weeks of oversight at 50 hours per week.
    ii. Pricing for well and boring documentation for WDNR and Dane County's records shall be a fixed fee for all Work associated with the preparation and submittal (Base Fee 1).
    i. Pricing for subsurface laboratory analyses shall be a fixed fee for all Work associated with the sampling interval, outlined in Attachment E (Base Fee 2). Base Fee 2 shall include all costs associated with grain size distribution, Atterberg Limits, Unified Soil Classification (USC) system, and hydraulic conductivity tests. Additional samples may be necessary for qualitative assessment; therefore Proposer shall include a Rate Schedule from the proposed laboratory.

D. Phase 2 – Environmental Monitoring:

1. Environmental monitoring shall be consistent with NR 512.09(4)(e) through NR 512.09(4)(g) and include all work necessary to complete stabilized water level measurements and baseline groundwater monitoring.

2. Required Meetings

    i. Kick-off Meeting with City of Madison staff.

3. Submittals

    i. Proposed Monitoring Schedule: Proposer shall create a monitoring and sampling schedule as required under NR 512. Prior to conducting any monitoring or sampling events, Proposer shall notify Dane County and the City of Madison, at least 48 hours in advance, and confirm any necessary site requirements or considerations.
    ii. Monitoring Event Field Notes: After each monitoring and sampling event, Proposer shall provide Dane County with field notes detailing date, time of arrival, weather conditions, precipitation in the last 24 hours, time of measurement or sampling at each well, in-field measurement or sampling results for each well, and time of departure from site.

iii. When laboratory results become available, Proposer shall submit to Dane County in a single table detailing individual wells, parameters sampled at each well, and laboratory results of each parameter for each well.

4. Timeline

i. Proposed Monitoring Schedule shall be submitted to Dane County prior to the Kick-Off Meeting for initial review. Dane County understands this monitoring schedule is likely to change depending on precipitation events.
ii. Field Notes shall be submitted to Dane County within one (1) week of monitoring or sampling event.
iii. Laboratory results shall be submitted to Dane County, within one (1) week of results returned from the laboratory.

5. Pricing

i. Pricing for environmental monitoring shall be a fixed fee for all Work outlined under Phase 2 (Base Fee 3).
ii. Provide unit pricing, per well, for additional monitoring and sampling.

E. Phase 3 – Local Approval and Negotiation Process

1. Proposer shall initiate the Local Approval and Negotiation Process per Wisconsin State Statute (Wis. Stat.) 289.33 and 289.22. Dane County will take the lead on all local approvals and negotiated agreements.

   Proposer will be required to provide assistance with local approval applications and document or report preparation, as necessary.

2. Required Meetings

i. Kick-off meeting
ii. Municipality response meeting
iii. Assume two Pre-Application meetings
iv. Assume two Public meetings

3. Submittals

i. Proposer shall prepare and submit notifications to affected municipalities, per Wis. Stat. 289.33 and 289.22.
ii. Proposer shall prepare a landscaping and screening plan to assist with local approvals and negotiations.
iii. Proposer shall prepare renderings from four (4) different viewpoints to assist with local approvals and negotiations.
iv. Proposer shall prepare line-of-sights from four (4) different viewpoints to assist with local approvals and negotiations.

4. Timeline

i. Per Wis. Stat. 289.22(1m), affected municipalities shall respond to the written local approval notification within 15 days of receipt. Prior to constructing the proposed landfill, Dane County shall apply for each local approval.
ii. Schedule for local negotiation process shall follow Wis. Stat. 289.33.

5. Pricing

i. Pricing for local approval and negotiation process shall be a fixed fee for all Work outlined under Phase 3 (Base Fee 4).
ii. Proposal pricing shall include an allowance for local approval applications and document or report preparation (as necessary) equal to 10% of Base Fee 6 under Phase 5. If necessary, costs associated with hiring a landscape architect may be done as a contract amendment or by using available allowance funds.
iii. Provide unit pricing for additional rendering viewpoints and line-of-sight drawings.

F. Phase 4 – Soil Borrow Source Permitting Work

**Phase 4 Work may be done under a separate contract depending on what Dane County deems most advantageous.**

1. Soil borrow source permitting work will occur in the following stages:

   Stage 1: Proposer shall be responsible for assisting Dane County in identifying a clay borrow source under NR 504.075. The ideal clay borrow source would be within a 15 mile radius of the proposed landfill site, preferably owned by Dane County, and have clay sufficient for multiple liner construction events. Proposer shall generate a list of potential borrow sites and present to Dane County to determine if field investigations, consisting of excavation of test pits to facilitate subsurface observation and sample collection, will be pursued. For the purposes of this RFP, assume three (3) potential sites are identified for field investigation.

   After identifying potential borrow sites, Proposer will be responsible for creating a field and laboratory investigation plan, compliant with NR 504.075(5). Dane County will provide the equipment and operators necessary to conduct the field investigations. Proposer will be responsible for field oversight, soil sampling, and laboratory analyses.

   After field investigations and laboratory analyses are completed, Proposer shall compile data and evaluate against the volumes necessary to complete the initial phase per NR 512.15. At this time, Dane County may pursue the option to permit multiple borrow sites. For the purposes of this RFP, assume one (1) borrow source will be permitted.

   Stage 2: Proposer shall submit an Initial Site Inspection (ISI) Request for the proposed borrow source, per NR 509.04. Proposer shall present data and visuals in a format that complies with NR 504.075(7) and prepare necessary submittals where applicable under NR 504.075(9) through NR 504.075(11). All information in Stage 2 will be used in the FR, as required by NR 512.15.

   Proposer shall also apply for all applicable permits, including but not limited to, stormwater and erosion control permits through state and local regulatory agencies, rezoning applications (if necessary), conditional use permits, and Non-Metallic Mining Reclamation Permit. All permits for soil borrow source permitting efforts shall be obtained prior to letting the Request for Bid to construct the initial phase of the proposed landfill (Phase 7).

2. Required Meetings

   i. Kickoff Meeting
   ii. Meeting to Review the List of Potential Borrow Sites
   iii. Pre-Field Investigation Meeting
   iv. Data Review and Clay Quantification Meeting

v. ISI Request Review Meeting
vi. ISI with WDNR
vii. Permitting check-in meetings (assume four(4) will be required)

3. Submittals

i. Prepare a list of viable clay borrow sites that rank each potential site by distance from proposed landfill and associated hauling costs, property owner and associated purchase costs of land or clay, and data to support available liner quality clay.
ii. Contents of field investigation plan shall follow NR 504.075(5) for each potential source. Draft plan shall be submitted to Dane County for review.
iii. Contents of ISI request shall follow NR 509.04(4) for one source. Draft ISI request shall be submitted to Dane County for review. Assume one week for each review iteration. Following Dane County approval, Proposer to submit final ISI request to WDNR's field office, WDNR's Bureau of Waste Management, and Dane County personnel.
iv. Contents of data presentation shall follow NR 504.075(7) for one source. Draft data presentation shall be submitted to Dane County for review and ultimately incorporated into the FR as applicable under NR 512.15 (2).
v. Contents of other necessary submittals shall follow NR 504.075(9) through NR 504.075(11) for one source. Draft submittals shall be submitted to Dane County for review.
vi. Permit application packages as applicable under Stage 2, for one source. Dane County to review all packages prior to submittal to regulatory agencies. Assume Dane County will pay applicable permitting fees and attend any required public meetings.

4. Timeline

i. Per NR 502.04(2)(d), WDNR will conduct an inspection within 22 business days of the ISI request. Within 22 business days after inspection, WDNR will give a preliminary opinion and identify any additional studies or information required to show compliance with applicable standards. Proposer will be required to attend the inspection and prepare any follow-up information required by WDNR.
ii. WDNR's Initial Site Inspection Response shall be incorporated into the FR, as required under NR 512.15.

5. Pricing

i. Pricing for Phase 4 shall be a fixed fee, broken out into each Stage of Work, for all Work related to Soil Borrow Source Permitting (Base Fee 5).
ii. For budgetary purposes, include 15% allowance of Base Fee 5 for field oversight, soil sampling, and laboratory costs.
iii. For budgetary purposes, include 10% allowance of Base Fee 5 for additional local permitting assistance.
iv. Provide unit pricing for the preparation and submittal of an ISI request.

G. Phase 5 - Feasibility Report (FR) and Plan Set per NR 512

1. Includes completion of a FR for submittal to WDNR. The FR shall incorporate additional information requested by WDNR from the ISR, done under a separate Contract, and include all contents under NR 512, where applicable. Please note, Dane

County anticipates successful Proposer will perform an analysis into the anticipated waste streams and projected growth as it relates to C&D fines and residuals.

Proposer is responsible for requesting any applicable exemptions, if necessary, and shall be included in the Base Fee for Phase 5.

2. Required Meetings

    i. Kickoff Meeting
    ii. 25% meeting
    iii. 50% meeting
    iv. 90% meeting
    v. Assume two WDNR meetings and three Public meetings during this Phase.

3. Submittals

    i. Feasibility Report: Proposer shall prepare draft FR per NR 512 and submit to Dane County. Following Dane County approval, Proposer to submit final FR to WDNR's field office and Dane County personnel. Please note, FR cannot be submitted until the Local Approval Application Prerequisite conditions are met (Wis. Stat. 289.23).
    ii. Prepare and submit any applicable exemptions to the appropriate regulatory bodies.

4. Timeline

    i. Per NR 512.06(3), WDNR will determine completeness within 60 days of FR submittal.
    ii. If FR is deemed complete, WDNR will publish a Class I public notice and issue a preliminary determination if an environmental impact statement is required.
    iii. After WDNR final determination, the next Phase of Work may commence (Plan of Operations, Plan Set, and Air Permitting), subject to Dane County's approval. Proposer may continue to the next Phase of Work, prior to Dane County's approval, at Proposer's own risk.

5. Pricing

    i. Pricing for Phase 5 shall be a fixed fee for all Work related to FR preparation and submittal (Base Fee 6).
    ii. Provide unit pricing for WDNR meetings and Public meetings in the event more meetings are required than listed above.
    iii. For budgetary purposes, include 15% allowance of Base Fee 6 for additional information requested by WDNR.
    iv. For budgetary purposes, include 10% allowance of Base Fee 6 for local approval assistance.

H. Phase 6 - Plan of Operations (POO) and Plan Set per NR 514 and Air Permitting per NR 400

1. Includes completion of a Plan of Operations (POO) and Plan Set for submittal to WDNR. The POO shall incorporate additional information requested by WDNR from the FR and include all contents under NR 514, where applicable. Proposer will also be responsible for all necessary air permitting work under NR 400.

Proposer shall assume the following Research, Development and Demonstration Plans will be required:

- Leachate recirculation
- Free liquids acceptance

2. Required Meetings

   i. Kickoff Meeting
   ii. 25% meeting
   iii. 50% meeting
   iv. 90% meeting
   v. Assume two WDNR meetings and one Public meeting during this Phase.

3. Submittals

   vi. Plan of Operations Report: Proposer shall prepare draft POO report per NR 514 and submit to Dane County. Proposer, following Dane County approval, to submit final POO report and Plan Set to WDNR's field office and Dane County personnel.
   vii. Plan Set: Proposer shall prepare draft Plan Set per NR 514 and submit to Dane County. Proposer to submit final POO report and Plan Set to WDNR's field office and Dane County personnel.
   viii. Air Permit Application: Proposer shall prepare any necessary air permitting application documents and plans, as required under NR 400 to Dane County for review. Proposer shall submit final air permitting application package to WDNR's air division, or other applicable regulatory agencies.

4. Timeline

   i. Per NR 514.04(4), WDNR will determine completeness within 30 days of POO and Plan Set submittal. If submitted with the FR, WDNR will determine completeness within 30 days after FR is deemed complete.
   ii. WDNR will give approval or disapproval within 90 days of submitting the POO and Plan Set. If POO and Plan Set are submitted simultaneously with the FR, WDNR will give approval or disapproval within 60 days after favorable final determination (whichever is later).
   iii. After POO Report, Plan Set and Air Permit Application are submitted to WDNR, the next Phase of Work may commence (Construction Plan Set and Specifications), subject to Dane County's approval. Proposer may continue to the next Phase of Work, prior to Dane County's approval, at Proposer's own risk.

5. Pricing

   ii. Pricing for Phase 6 shall be a fixed fee broken into two separate Base Fees. One Base Fee will include all Work related to POO and Plan Set preparation and submittal (Base Fee 7) and the other Base Fee will include all Work related to Air Permitting preparation and submittal (Base Fee 8).
   iii. Provide unit pricing for WDNR meetings and Public meetings in the event more meetings are required than listed above.
   iv. For budgetary purposes, include 15% allowance of each Base Fee for additional information requested by WDNR.

I. Phase 7 – Construction Plan Set and Specifications

1. Includes the completion of a Construction Plan Set and Specifications for the first phase of the proposed Dane County Landfill Site No. 3 to ensure compliance with NR 504. Dane County will be responsible for preparing the required front-end documents. Consultant will be required to prepare the estimated quantities for the Bid Form, construction tables, specifications, and Plan Set necessary for potential construction contractors to build the initial phase.

   Similar Construction Plan Sets and Specifications may be found here, under the archived tab, for other liner construction projects (RFB 314005, RFB 315034, RFB 316024, RFB 317040, RFB 319027, etc.).

2. Required Meetings

   i. Kickoff meeting
   ii. 75% meeting
   iii. 95% meeting
   iv. Pre-bid meeting

3. Submittals

   i. Proposer shall prepare a Construction Plan Set and Specifications to ensure the constructability of the initial phase of the proposed Dane County Landfill Site No. 3.

4. Timeline

   i. Prepare Construction Plan Set and Specifications within 6 months of the POO approval.

5. Pricing

   i. Pricing for Phase 5 shall be a fixed fee for all Work related to Construction Plan Set and Specification preparation and submittal (Base Fee 9).

## 3. PROPOSAL CONTENT

A. Interested consultants are requested to submit the following information in their proposal, in eight clearly distinct sections or divisions:

1. Proposal Form, Fair Labor Practices Certification and Proposer's cover letter.

2. Description of firm's qualifications, experience, organization and resources. This description must pay specific attention to the planning and design of similar facilities. Description must include:
   i. Overview, history, and location from which your firm will provide services;
   ii. Experience with, or involvement in developing applicable codes for landfill design and operation;
   iii. Experience with, or involvement in developing alternatives to traditional landfill design;
   iv. Experience with, or involvement in stormwater design and regulatory changes;
   v. Experience with, or involvement in developing alternative monitoring methods; and
   vi. Related new landfill or landfill expansion permitting experience.

3. Listing of at least three design and permitting projects completed by their company that are similar to the one being proposed. Listing shall include for each project:
    i. Brief description of the project including services provided (e.g., subsurface exploration, local approval assistance, FR, POO, etc.);
    ii. Detail the proposing company's role(s) in the project;
    iii. Project references (name of the organization, contact person or responsible official, address, telephone and fax numbers, e-mail address);
        Note: Selected organizations may be contacted to determine the quality of work performed and personnel assigned to the project. The results of the references may be provided to the evaluation team and used in scoring the written proposals.
    iv. Description of project results;
    v. Start and end dates of services; and
    vi. Specific details of originally proposed project budget and time of completion and final (actual) project budget and time of completion.

4. Description of planning and design techniques to be used in approaching the Work. Close attention will be paid to the Consultant's knowledge and understanding of:
    i. Federal, state, and local regulations, statues and codes related to landfills and solid waste disposal alternatives;
    ii. Landfill design and operational requirements;
    iii. WDNR landfill and air permitting processes;
    iv. City of Madison zoning process;
    v. Public engagement process;
    vi. Traffic circulation patterns to optimize operational efficiencies;
    vii. Local negotiated agreement process;
    viii. Innovative leachate collection and management systems (including treatment systems for emerging contaminants);
    ix. Clay borrow source identification approach and methods;
    x. Operational considerations for C&D residuals and fines management;
    xi. Odor mitigation techniques;
    xii. Landfill gas extraction systems and associated emerging technologies;
    xiii. Landfill gas utilization projects;
    xiv. Emerging technologies for monitoring active landfills and Department approval status;
    xv. Innovative landfill design and operational approaches; and
    xvi. Research, Development and Demonstration plans.

5. Identify professional geologist, professional engineer, project manager, drilling oversight lead, air permitting lead, drafting and visualization staff, and other Consultants and their area of expertise, if applicable. Include resumes describing the professional affiliations, educational and work experiences for each of the key staff (including other consultants) that would be assigned to this Work. Key staff shall retain project involvement and oversight throughout the course of the Work. Professional geologist, professional engineer, and project manager will be interviewed if firm is short-listed.

6. Indicate individual staff availability and tentative timetable (in the form of a Gantt chart) for each Phase of Work with specific tasks, using a theoretical start date of December 1, 2022. Include listing of other consultants who will participate in this Work and their area of expertise.

7. List of fees for services as outlined in each Phase of Work and a Rate Schedule shall be attached outlining hour rates and other expenses.

8. State clearly any limitations you wish to include in *Draft Professional Services Agreement* and advise of any conditions that you may have.

## 4. EVALUATION CRITERIA

A. Proposing consultants will be evaluated on this criteria:

| | |
|---|---|
| Schedule | 30% |
| Project Personnel and Staff Availability | 20% |
| Project Experience and References | 20% |
| Approach to Project | 20% |
| Pricing / Cost Proposal | 10% |
| Total | 100% |

Evaluation criteria determines which Firm(s) may appear before an interview panel.

## 5. PRICING

A. Pricing shall be submitted as outlined in each Phase of Work.

B. Additional details about project phases, pricing & payments are detailed in the *Draft Professional Services Agreement*.

## 6. SITE TOUR

A. A site tour will be held on September 20, 2022 at 10 a.m. at the Yahara Hills Site, starting in the Golf Course Club House Parking Lot. This cursory tour will go until approximately 11:30 a.m.. Proposing companies are strongly encouraged to attend this optional tour.

## 7. OWNER'S RESPONSIBILITY

A. Dane County will provide all available reports and documentation to awarded firm.

## 8. TIMETABLE

A. Listed below are specific and estimated dates and times of events related to this RFP. The events with specific dates must be completed as indicated unless otherwise changed by Dane County. In the event that Dane County finds it necessary to change any of the specific dates and times in the calendar of events listed below, it will do so by issuing an addendum to this RFP. There may or may not be a formal notification issued for changes in the estimated dates and times.

| DATE | EVENT |
|---|---|
| September 8, 2022 | RFP issued |
| September 20, 2022 – 10:00 a.m. | Site tour |
| September 22, 2022 - 2:00 p.m. | Written inquiries due |
| September 27, 2022 | Latest addendum (if necessary) |
| October 6, 2022 - 2:00 p.m. | Proposals due |
| Week of October 17, 2022 (estimated) | Oral presentations / interviews for invited proposing companies |
| November 1, 2022 (estimated) | Notification of intent to award sent out |
| December 1, 2022 (estimated) | Start work |

## 9. ADDITIONAL INFORMATION

A. Dane County Department of Waste & Renewables, 1919 Alliant Energy Center Way, Madison, Wisconsin 53713, will receive your Proposal.

B. Information regarding this project may be obtained from Allison Rathsack, Waste & Renewables Project Manager, 608/514-2319, Rathsack.Allison@countyofdane.com.

C. Since RFP documents are obtained from the Dane County web site, proposing company is responsible to check back there regularly for Addenda.

D. All Proposals must be submitted by 2:00 p.m., Thursday, October 6, 2022.

E. Dane County reserves the right to accept or reject any Proposal submitted.

F. Information submitted by consultants will be reviewed and candidates may be scheduled to appear before an interview panel. Those appearing for an interview shall be prepared to discuss their approach for the design of this work, methodology, project team, a timetable, the basis of their fee schedule and answer questions from our staff.

G. Dane County reserves the right to negotiate an Agreement after the successful firm is selected. Selection will be based only on the proposal submitted and subsequent interviews. Therefore, the proposals must be complete. Submission of a proposal shall constitute a valid offer, which may be accepted by the County for a period of ninety (90) calendar days following the proposal due date.

H. Dane County is an Equal Opportunity Employer.

END OF SECTION

# Department of Waste & Renewables

608/266-4018

John Welch, P.E.
**Director**

Joseph T. Parisi
**County Executive**

**Deputy Director**
Roxanne Wienkes

1919 Alliant Energy Center Way
Madison, Wisconsin 53713
Fax: 608/267-1533
https://landfill.countyofdane.com/


SECTION 00 42 13

PROPOSAL FORM

**PROPOSAL NO. 322023**
**PROJECT: ENGINEERING DESIGN AND PERMITTING SERVICES FOR THE PROPOSED DANE COUNTY LANDFILL NO. 3 YAHARA HILLS SITE**

The undersigned, submitting this Proposal, hereby agrees with all terms, conditions and requirements of the above referenced Request for Proposals, and declares that the attached Proposal and pricing are in conformity therewith.

**SIGNATURE:** _____

(Proposal is invalid without signature)

Print or Type Name: _____ Date: _____

Title: _____

Company: _____

Address: _____

Telephone No.: _____ Fax No.: _____

Email Address: _____

Contact Person: _____

Receipt of the following addenda and inclusion of their provisions in this Proposal is hereby acknowledged:

Addendum No(s). _____ through _____

Dated _____

All Proposers are strongly encouraged to be a registered vendor with Dane County. Registering allows vendors an opportunity to receive notifications for RFPs & RFBs issued by the County and provides the County with up-to-date company contact information. Complete a new form or renewal online at: danepurchasing.com/Account/Login?.

**COUNTY OF DANE**

**PROFESSIONAL SERVICES AGREEMENT**

**SIGNATURE PAGE**

Date: [Date]

Project No.: 322023

Agreement No.:

**THIS AGREEMENT** is between the County of Dane, by its Department of Waste & Renewables, hereinafter referred to as "COUNTY", and [Engineer Name, Address, City, State, Zip], hereinafter called the "ENGINEER".

**WITNESSETH**

**WHEREAS,** COUNTY proposes securing engineering services for a project described as follows:

Engineering Design and Permitting Services for the Proposed Dane County Landfill Site No. 3

**WHEREAS,** COUNTY deems it advisable to engage the services of the ENGINEER to furnish professional services in connection with this project, and

**WHEREAS,** COUNTY has authority to engage such services, and

**WHEREAS,** the ENGINEER represents that it is in compliance with the applicable Wisconsin Statutes relating to the registration of professional engineers and geologists, and has agreed to furnish professional services for COUNTY,

**NOW, THEREFORE,** in consideration of the premises and to their mutual and dependent agreements, the parties hereto agree as set forth in the following pages, which are annexed hereto and made a part hereof.

**IN WITNESS WHEREOF,** COUNTY and the ENGINEER have executed this Agreement as of the above date.

| **[ENGINEER Firm Name ]** | **COUNTY OF DANE** |
|---|---|
| Signature Date | Joseph T. Parisi, County Executive Date |
| Printed Name | Scott McDonell, County Clerk Date |
| Title | |
| Federal Employer Identification Number (FEIN) | |

This Agreement, and any amendment or addendum relating to it, may be executed and transmitted to any other party by legible facsimile reproduction or by scanned legible electronic PDF copy, and utilized in all respects as, an original, wet-inked manually executed document. Further, this Agreement and any amendment or addendum thereto, may be stored and reproduced by each party electronically, photographically, by photocopy or other similar process, and each party may at its option destroy any original document so reproduced. All parties hereto stipulate that any such legible reproduction shall be admissible in evidence as the original itself in any judicial, arbitration or administrative proceeding whether or not the original is in existence and whether or not each party made such reproduction in the regular course of business. This term does not apply to the service of notices under this Agreement.

**COUNTY OF DANE**

**PROFESSIONAL SERVICES AGREEMENT**

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## 1. ARTICLE 1: SCOPE OF AGREEMENT

1.A. This Agreement between COUNTY and the person or firm, duly licensed under the laws and in accordance with the regulations of the State of Wisconsin, hereinafter referred to as the "ENGINEER" shall be governed by the following Terms and Conditions.

1.B. The ENGINEER shall provide technical and professional services under this Agreement. The Terms and Conditions of this Agreement shall apply to modifications made to this Agreement and shall apply to both the services rendered in the creation of the design and to the additional services called for in carrying out the design.

1.C. The ENGINEER shall serve as the professional technical advisor and consultant to COUNTY in matters arising out of or incidental to the performance of this Agreement and in that capacity, the ENGINEER shall not have a contractual duty or responsibility to any other person or party or individual regarding the services under this Agreement, except as that duty may arise under the laws of the State of Wisconsin. The ENGINEER is not an agent of the COUNTY within the meaning of s. 893.80 or 895.46, Wis. Stats.

1.D. Professional services performed or furnished under this Agreement shall be based on the care and skill ordinarily used by members of the profession involved, who practice under the authority of and who are governed by the license issued under the Wisconsin Statutes and the Wisconsin Administrative Code.

1.E. By accepting this Agreement, the ENGINEER represents possession of the necessary skill and other qualifications to perform work under this Agreement and is familiar with the practices in the locality where such services and work shall be performed.

1.F. The ENGINEER shall be professionally responsible for work performed under this Agreement. Upon written approval of COUNTY, the ENGINEER may subcontract work to an approved consultant under this Agreement, to the specific extent authorized by COUNTY. The authorization to subcontract shall not relieve the ENGINEER of professional or contractual responsibility for any work performed or delivered under this Agreement. The authorization to subcontract shall not be construed to create any contractual relationship between COUNTY and such consultant.



1.G. Subcontracts for services under this Agreement shall provide that work performed under such subcontract, shall be subject to provisions of this Agreement and shall also provide that any professional duty or responsibility pertaining thereto shall be accomplished to the benefit of COUNTY. Upon request, an electronic copy of each such subcontract for which COUNTY approval is granted shall be furnished to COUNTY.

1.H. The ENGINEER may substitute consultants or professional staff under this Agreement only to the specific extent authorized by COUNTY in writing.

1.I. In the performance of this Agreement, the ENGINEER shall become familiar with and perform such services in accordance with the specifications set forth in the Request for Proposals document.

## 2. ARTICLE 2: SCOPE OF THE SERVICES TO BE PROVIDED

2.A. ENGINEER shall provide the Scope of Services as detailed in Attachment A.

## 3. ARTICLE 3: COUNTY'S RESPONSIBILITIES

3.A. COUNTY will determine the project scope for which the professional design services are required and will fully cooperate in achieving completion of that work.

3.B. COUNTY will establish an internal operating procedure for timely and proper performance of any COUNTY duty required to fulfill the needs of the project.

3.C. COUNTY will provide available information regarding the requirements for the project, which set forth COUNTY's objectives for program, schedule and overall budget. COUNTY will make available to the ENGINEER data or documents known to COUNTY or requested by the ENGINEER, which may be needed for the fulfillment of the professional responsibility of the ENGINEER.

3.D. COUNTY will communicate to the ENGINEER the format of the documents required to be submitted.

3.E. COUNTY will examine documents submitted by the ENGINEER and will render decisions regarding them promptly, to avoid unreasonable delay in the progress of the ENGINEER's work.

## 4. ARTICLE 4: COMPENSATION

4.A. COUNTY shall compensate ENGINEER as detailed in Attachment B, Compensation Schedule.

4.B. Base Fee: The Base Fees shall include all costs necessary to perform the work, including but not limited to, meetings, data gathering, design, processing, subcontractors, equipment and materials, reproducing and mailing submittals, and other work as outlined in each Phase.

4.C. Allowances: Allowances shall be used for additional information requested by regulatory agencies. ENGINEER shall use the Rate Schedule in Attachment B, when billing under an allowance.

4.D. Unit Rates: Unit rates will include all costs for materials and labor necessary to perform specified work. Payment will be based on actual quantities, outside of Work included in the Base Fee.

4.E. Rate Schedule: ENGINEER shall maintain these rates until December 31, 2024 at which point the rates shall be adjusted by the All Urban Consumer- Minneapolis-St. Paul, Minnesota-Wisconsin CPI, or equivalent if unavailable.

4.F. An ENGINEER whose work is found deficient or fails to conform to the requirements set forth in the Agreement, is not entitled to further payments, until corrected to the satisfaction of COUNTY.

4.F.1) Payments to the ENGINEER may be withheld for damages sustained by COUNTY due to error, omission, unauthorized changes or negligence on the part of the ENGINEER. COUNTY will notify the ENGINEER in writing of the alleged, specific damages and amounts involved, on a timely basis.

## 5. ARTICLE 5: ACCOUNTING RECORDS

5.A. Records of the ENGINEER's direct personnel, consultants, and reimbursable expenses pertaining to the project shall be kept in accordance with Generally Accepted Accounting Principles (GAAP) and shall be available to COUNTY or an authorized representative throughout the term of this Agreement and for at least three (3) years after final payment to the ENGINEER.

## 6. ARTICLE 6: TERMINATION OF AGREEMENT

6.A. This Agreement may be terminated by COUNTY without cause upon ten (10) calendar days written notice to the ENGINEER. In the event of termination, the ENGINEER will be paid

fees for services performed to termination date, reimbursable expenses then due, and termination expenses as approved by COUNTY. Work performed prior to the date of termination shall be in accordance with the terms and conditions of this Agreement. Upon termination, the results of such work shall immediately be turned over to the COUNTY Project Manager and is a condition precedent to further payment by COUNTY.

6.B. In the event the Agreement between the ENGINEER and any consultant on this project is terminated, the results of work by that consultant shall immediately be turned over to the ENGINEER.

**7. ARTICLE 7: OWNERSHIP OF DOCUMENTS**

7.A. All reports, drawings, specifications, renderings, models, details, and other such documents prepared by the ENGINEER or any consultant pursuant to this Agreement shall become the property of COUNTY on completion and acceptance of any of the ENGINEER's work, or upon termination of the Agreement, and shall be delivered to COUNTY upon request.

7.B. Documents prepared under this Agreement may be used by COUNTY for informational purposes without additional compensation to the ENGINEER.

7.C. Specifications and isolated, detail drawings inherent to the engineering design of the project, whether provided by the COUNTY or generated by the ENGINEER, shall be available for future use by the parties to this Agreement and other parties, each at their own risk.

**8. ARTICLE 8: LIABILITY- HOLD HARMLESS AND INDEMNIFICATION**

8.A. ENGINEER shall indemnify, hold harmless and defend COUNTY, its boards, commissions, agencies, officers, employees and representatives against any and all liability, loss (including, but not limited to, property damage, bodily injury and loss of life), damages, costs or expenses which COUNTY, its officers, employees, agencies, boards, commissions and representatives may sustain, incur or be required to pay by reason of ENGINEER furnishing the services required to be provided under this Agreement, provided, however, that the provisions of this paragraph shall not apply to liabilities, losses, charges, costs, or expenses caused or resulting from the acts or omissions of COUNTY, its agencies, boards, commissions, officers, employees or representatives. The obligations of ENGINEER under this paragraph shall survive the expiration or termination of this Agreement.



**9. ARTICLE 9: PROFESSIONAL LIABILITY INSURANCE**

9.A. The ENGINEER and its consultants retained under the terms of this Agreement shall procure and maintain a professional liability insurance policy with at least $1,000,000 in coverage that provides for payment of the insured's liability for errors, omissions or negligent acts arising out of the performance of the professional services required under this Agreement. The ENGINEER shall provide up-to-date, accurate professional liability information on the ENGINEER's Data Record, including amount of insurance, deductible, carrier and expiration date of coverage. Upon request by COUNTY, the ENGINEER shall furnish COUNTY with a Certificate of Insurance showing the type, amount, deductible, effective date and date of expiration of such policy. Such certificate shall also contain substantially the following statement: "The insurance covered by this certificate shall not be canceled, the coverage changed or reduced by endorsement, by the insurance company, except after thirty (30) calendar days written notice has been received by COUNTY." The ENGINEER shall not cancel or materially alter this coverage without prior written approval by COUNTY. The ENGINEER shall be responsible for consultants maintaining professional liability insurance during the life of their Agreement.

**10. ARTICLE 10: OTHER INSURANCE**

10.A. The ENGINEER and its consultants retained under terms of this Agreement shall:

10.A.1) Maintain Worker's Compensation Insurance:

10.A.1) a. Procure and maintain Worker's Compensation Insurance as required by State of Wisconsin Statutes for all of the ENGINEER's and consultant's employees engaged in work associated with the project under this Agreement.

10.A.1) b. Maintain Employer's Liability Insurance with a policy limit of not less than $1,000,000 per occurrence and $2,000,000 in the aggregate. Insurance may be met by a combination of primary and excess coverage.

10.A.2) Procure and maintain during the life of this Agreement, and until one year after the completion of this Agreement, Commercial General Liability Insurance, including Products and Completed Operations for all claims that might occur in carrying out the Agreement. Minimum coverage shall be $1,000,000 per occurrence, $1,000,000 general aggregate, combined single limit for bodily injury, personal injury, and property damage. Such coverage shall be of the "occurrence" type form and shall include the employees of the ENGINEER as insureds.

10.A.3) Procure and maintain Commercial Automobile Liability Insurance for all owned, non-owned, and hired vehicles that are used in carrying out the Agreement. Minimum coverage shall be $1,000,000 per occurrence combined single limit for bodily injury and property damage. Insurance may be met by a combination of primary and excess coverage.

10.A.4) Provide an insurance certificate indicating the above Commercial Liability Insurance and property damage coverage, countersigned by an insurer licensed to do business in Wisconsin, covering and maintained for the period of the Agreement. Upon request by COUNTY, the insurance certificate is to be presented on or before execution of the Agreement.



## 11. ARTICLE 11: MISCELLANEOUS PROVISIONS

11.A. ENGINEER warrants that it has complied with all necessary requirements to do business in the State of Wisconsin, that the persons executing this Agreement on its behalf are authorized to do so.

11.B. Legal Relations. The ENGINEER shall comply with and observe federal and state laws and regulations and local zoning ordinances applicable to this project and in effect on the date of this Agreement.

11.C. Approvals or Inspections. None of the approvals or inspections performed by COUNTY shall be construed or implied to relieve the ENGINEER from any duty or responsibility it has for its professional performance, unless COUNTY formally assumes such responsibility in writing from COUNTY so stating that the responsibility has been assumed.

11.D. Successors, Subrogees and Assigns. COUNTY and ENGINEER each bind themselves, their partners, successors, subrogees, assigns, and legal representatives to the other party to this Agreement and to the partners, successors, subrogees, assigns and legal representatives of such other party with respect to covenants of this Agreement.

11.E. Claims. The ENGINEER's project manager will meet with COUNTY's Project Manager to attempt to resolve claims, disputes and other matters in question arising out of, or relating to, this Agreement or the breach thereof. Issues not settled are to be presented in writing to the COUNTY Director of Waste & Renewables for review and resolution. The decision of the Director of Waste & Renewables shall be final. Work shall progress during the period of any dispute or claim. Unless specifically agreed between the parties, venue will be in Dane County, Wisconsin.

11.F. Amendment of Agreement. This Agreement may be amended in writing by both COUNTY and ENGINEER.

11.G. It is expressly understood and agreed to by the parties hereto that in the event of any disagreement or controversy between the parties, Wisconsin law shall be controlling. Venue for any legal proceedings shall be in the Dane County Circuit Court.

11.H. This Agreement is intended to be an agreement solely between the parties hereto and for their benefit only. No part of this Agreement shall be construed to add to, supplement, amend, abridge or repeal existing duties, rights, benefits or privileges of any third party or parties, including but not limited to employees of either of the parties.

11.I. The entire agreement of the parties is contained herein and this Agreement supersedes any and all oral agreements and negotiations between the parties relating to the subject matter hereof. The parties expressly agree that this Agreement shall not be amended in any fashion except in writing, executed by both parties.

**12. ARTICLE 12: NONDISCRIMINATION IN EMPLOYMENT**

12.A. During the term of this Agreement, ENGINEER agrees not to discriminate on the basis of age, race, ethnicity, religion, color, gender, disability, marital status, sexual orientation, national origin, cultural differences, ancestry, physical appearance, arrest record or conviction record, military participation or membership in the national guard, state defense force or any other reserve component of the military forces of the United States, or political beliefs against any person, whether a recipient of services (actual or potential) or an employee or applicant for employment. Such equal opportunity shall include but not be limited to the following: employment, upgrading, demotion, transfer, recruitment, advertising, layoff, termination, training, rates of pay, and any other form of compensation or level of service(s). ENGINEER agrees to post in conspicuous places, available to all employees, service recipients and applicants for employment and services, notices setting forth the provisions of this paragraph. The listing of prohibited bases for discrimination shall not be construed to amend in any fashion state or federal law setting forth additional bases and exceptions shall be permitted only to the extent allowable in state or federal law.

12.B. Civil Rights Compliance:

12.B.1) If ENGINEER has twenty (20) or more employees and receives $20,000 in annual contracts with COUNTY, the ENGINEER shall submit to COUNTY a current Civil Rights Compliance Plan (CRC) for Meeting Equal Opportunity Requirements under Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, Title VI and XVI of the Public Service Health Act, the Age Discrimination Act of 1975, the Omnibus Budget Reconciliation Act of 1981 and Americans with Disabilities Act (ADA) of 1990. ENGINEER shall also file an Affirmative Action (AA) Plan with COUNTY in accordance with the requirements of Chapter 19 of the Dane County Code of Ordinances. ENGINEER shall submit a copy of its discrimination complaint form with its CRC/AA Plan. The CRC/AA Plan must be submitted prior to the effective date of this Agreement and failure to do so by said date shall constitute grounds for immediate termination of this Agreement by COUNTY. If an approved plan has been received during the previous calendar year, a plan update is acceptable. The plan may cover a two-year period. If ENGINEER has less than twenty (20) employees, but receives more than $20,000 from the COUNTY in annual contracts, it may be required to submit a CRC Action Plan to correct any problems discovered as the result of a complaint investigation or other Civil Rights Compliance monitoring efforts set forth herein below. If ENGINEER submits a CRC/AA Plan to a Department of Workforce Development Division or to a Department of Health and Family Services Division that covers the services

purchased by COUNTY, a verification of acceptance by the State of ENGINEER's Plan is sufficient.

12.B.2) ENGINEER agrees to comply with the COUNTY's civil rights compliance policies and procedures. ENGINEER agrees to comply with civil rights monitoring reviews performed by the COUNTY, including the examination of records and relevant files maintained by the ENGINEER. ENGINEER agrees to furnish all information and reports required by the COUNTY as they relate to affirmative action and non-discrimination. ENGINEER further agrees to cooperate with COUNTY in developing, implementing, and monitoring corrective action plans that result from any reviews.

12.B.3) ENGINEER shall post the Equal Opportunity Policy, the name of ENGINEER's designated Equal Opportunity Coordinator and the discrimination complaint process in conspicuous places available to applicants and clients of services, applicants for employment and employees. The complaint process will be according to COUNTY's policies and procedures and made available in languages and formats understandable to applicants, clients and employees. ENGINEER shall supply to COUNTY's Contract Compliance Specialist upon request a summary document of all client complaints related to perceived discrimination in service delivery. These documents shall include names of the involved persons, nature of the complaints, and a description of any attempts made to achieve complaint resolution.

12.B.4) ENGINEER shall provide copies of all announcements of new employment opportunities to COUNTY's Contract Compliance Specialist when such announcements are issued.

## ATTACHMENT A – SCOPE OF SERVICES

1. General:

   a. Services are to be provided by the ENGINEER in each of the following phases:

      Phase 1: Subsurface Exploration Oversight
      Phase 2: Environmental Monitoring
      Phase 3: Local Approval and Negotiation
      Phase 4: Soil Borrow Source Permitting
      Phase 5: Completion of Feasibility Report (FR) and Plan Set per NR 512
      Phase 6: Completion of Plan of Operation Report (POO) and Plan Set per NR 514 and Air Permitting per NR 400

   b. An assigned COUNTY Waste & Renewables Project Manager will be the ENGINEER's contact in securing COUNTY direction and for arranging the necessary meetings with COUNTY or other County Departments and obtaining the approvals required by COUNTY.

   c. The term "written" or "in writing" may be either electronic or hard copy documentation, unless otherwise stated or directed by COUNTY.

   d. Wisconsin Department of Natural Resource (WDNR) Completeness: If WDNR determines any Phase of the Work is incomplete, ENGINEER is solely responsible for preparing necessary documentation to satisfy WDNR completeness requirements. COUNTY will not reimburse for Work required to address incompleteness.

   e. WDNR Requested Additional Information: ENGINEER shall address additional requests for information from WDNR following each Phase. Work will be done on a Time and Materials basis.

   f. Document Submittals: Submittals to WDNR shall comply with NR 500.05. All hard copies submitted to Dane County shall be accompanied with electronic versions delivered on a USB flash drive or ShareFile. Electronic versions shall include Microsoft Word, PDF, and any other original files types (AutoCAD, Microsoft Excel, PowerPoint, etc.).

   g. Meetings and Communications: ENGINEER shall prepare monthly status reports including budget status (by major task), work completed in past month, work planned for next month, and problems or issues to be resolved. ENGINEER shall attend meetings described in each phase of the Work.

   h. ENGINEER shall furnish all labor, materials, equipment, and services necessary to complete the given reports and perform the necessary tests required for the completion of the reports and documentation.

   i. Laboratory Certification: ENGINEER shall be aware that the WDNR requires that all water quality tests specified in this RFP be conducted by a certified laboratory as defined in ss. 144.95(1)(b) Wisc. Stats.

   j. ENGINEER shall be the Engineer of Record, shall stamp, and be responsible for all document and drawing submissions.

2. Phase 1 - Subsurface Exploration Oversight:

   a. COUNTY anticipates letting a Request for Bid to hire a drilling contractor in September 2022, with a start date anticipated for December 2022 (ground condition and weather dependent). Attachment F, of the Request for Proposals dated September

8, 2022, details the anticipated drilling work with associated figures and tables. Drilling and oversight work will require close coordination with the City of Madison to minimize damage to the golf course. Overseer will also need to coordinate with COUNTY staff for spoil removal.

Subsurface exploration oversight work shall be consistent with NR 512.09(3), laboratory and field analysis consistent with NR 512.09(4), and NR 512.09(6) for landfills with extended leachate collection lines. Borings shall be consistent with all requirements in NR 512.09(1) and wells shall be consistent with all requirements in NR 512.09(2).

Note, all soil and bedrock samples collected shall be retained in accordance with NR 507.05. COUNTY may request additional sampling if clay, potentially suitable for liner construction, is encountered. Any additional clay sampling or analysis shall be considered Out of Scope.

b. Required Meetings

i. Kick-Off Meeting with City of Madison staff and awarded Drilling Contractor
ii. Weekly Check-In Meetings (anticipated to be 30 minutes)
iii. Documentation Review Meeting prior to WDNR submittal

c. Submittals

i. Daily Field Notes: Submitted on a weekly basis that details time of arrival for oversight personnel and drilling contractor, time of departure for oversight personnel and drilling contractor (including any breaks), location of drilling work, depth of drilling work, equipment and methods used for drilling, materials used for well development, any field or laboratory samples collected, any correspondence between oversight personnel and drilling contractor, City of Madison staff, or COUNTY personnel, and any other pertinent information.
ii. Well and boring documentation as required under NR 141.23. Additionally, soil testing data shall be summarized in a table, as outlined in NR 512.10(2)(a) and (d).
iii. For COUNTY's records, well and boring documentation shall be compiled in the following order for each well or boring: soil boring log, sealing and abandonment log (if applicable), monitoring well construction and development logs (if applicable), monitoring well and point information table (if applicable), and all necessary soil or water analyses. Additionally, a table summarizing pertinent construction or development information shall be included as part of the subsurface exploration work.

d. Timeline

i. COUNTY anticipates the drilling work to occur over eight (8) weeks but is highly dependent on ground and weather conditions.
ii. Well and borehole construction documentation shall be submitted within 60 days after construction or installation per NR 141.23.

3. Phase 2 - Environmental Monitoring:

a. Environmental monitoring shall be consistent with NR 512.09(4)(e) through NR 512.09(4)(g) and include all work necessary to complete stabilized water level measurements and baseline groundwater monitoring.

b. Required Meetings

i. Kick-off Meeting with City of Madison staff.

c. Submittals

i. Proposed Monitoring Schedule: ENGINEER shall create a monitoring and sampling schedule as required under NR 512. Prior to conducting any monitoring or sampling events, ENGINEER shall notify COUNTY and the City of Madison, at least 48 hours in advance, and confirm any necessary site requirements or considerations.
ii. Monitoring Event Field Notes: After each monitoring and sampling event, ENGINEER shall provide COUNTY with field notes detailing date, time of arrival, weather conditions, precipitation in the last 24 hours, time of measurement or sampling at each well, in-field measurement or sampling results for each well, and time of departure from site.
iii. When laboratory results become available, ENGINEER shall submit to COUNTY in a single table detailing individual wells, parameters sampled at each well, and laboratory results of each parameter for each well.

d. Timeline

i. Proposed Monitoring Schedule shall be submitted to COUNTY prior to the Kick-Off Meeting for initial review. COUNTY understands this monitoring schedule is likely to change depending on precipitation events.
ii. Field Notes shall be submitted to COUNTY within one (1) week of monitoring or sampling event.
iii. Laboratory results shall be submitted to COUNTY, within one (1) week of results returned from the laboratory.

4. Phase 3 - Local Approval and Negotiation Process

a. ENGINEER shall initiate the Local Approval and Negotiation Process per Wisconsin State Statute (Wis. Stat.) 289.33 and 289.22. COUNTY will take the lead on all local approvals and negotiated agreements.

ENGINEER will be required to provide assistance with local approval applications and document or report preparation, as necessary.

b. Required Meetings

i. Kick-off meeting
ii. Municipality response meeting
iii. Two Pre-Application meetings
iv. Two Public meetings

c. Submittals

i. ENGINEER shall prepare and submit notifications to affected municipalities, per Wis. Stat. 289.33 and 289.22.
ii. ENGINEER shall prepare a landscaping and screening plan to assist with local approvals and negotiations.
iii. ENGINEER shall prepare renderings from four (4) different viewpoints to assist with local approvals and negotiations.
iv. ENGINEER shall prepare line-of-sights from four (4) different viewpoints to assist with local approvals and negotiations.

d. Timeline

i. Per Wis. Stat. 289.22(1m), affected municipalities shall respond to the written local approval notification within 15 days of receipt. Prior to constructing the proposed landfill, COUNTY shall apply for each local approval.

ii. Schedule for local negotiation process shall follow Wis. Stat. 289.33.

5. Phase 4 - Soil Borrow Source Permitting

a. Soil borrow source permitting work will occur in the following stages:

Stage 1: ENGINEER shall be responsible for assisting COUNTY in identifying a clay borrow source under NR 504.075. The ideal clay borrow source would be within a 15 mile radius of the proposed landfill site, preferably owned by COUNTY, and have clay sufficient for multiple liner construction events. ENGINEER shall generate a list of potential borrow sites and present to COUNTY to determine if field investigations, consisting of excavation of test pits to facilitate subsurface observation and sample collection, will be pursued.

After identifying potential borrow sites, ENGINEER will be responsible for creating a field and laboratory investigation plan, compliant with NR 504.075(5). COUNTY will provide the equipment and operators necessary to conduct the field investigations. ENGINEER will be responsible for field oversight, soil sampling, and laboratory analyses.

After field investigations and laboratory analyses are completed, ENGINEER shall compile data and evaluate against the volumes necessary to complete the initial phase per NR 512.15. At this time, COUNTY may pursue the option to permit multiple borrow sites.

Stage 2: ENGINEER shall submit an Initial Site Inspection (ISI) Request for the proposed borrow source, per NR 509.04. ENGINEER shall present data and visuals in a format that complies with NR 504.075(7) and prepare necessary submittals where applicable under NR 504.075(9) through NR 504.075(11). All information in Stage 2 will be used in the FR, as required by NR 512.

ENGINEER shall also apply for all applicable permits, including but not limited to, stormwater and erosion control permits through state and local regulatory agencies, rezoning applications (if necessary), conditional use permits, and Non-Metallic Mining Reclamation Permit. All permits for soil borrow source permitting efforts shall be obtained prior to letting the Request for Bid to construct the initial phase of the proposed landfill (Phase 7).



b. Required Meetings

i. Kickoff Meeting
ii. Meeting to Review the List of Potential Borrow Sites
iii. Pre-Field Investigation Meeting
iv. Data Review and Clay Quantification Meeting
v. ISI Request Review Meeting
vi. ISI with WDNR
Four (4) permitting check-in meetings

c. Submittals

i. Prepare a list of viable clay borrow sites that rank each potential site by distance from proposed landfill and associated hauling costs, property owner and associated purchase costs of land or clay, and data to support available liner quality clay.
ii. Contents of field investigation plan shall follow NR 504.075(5) for each potential source. Draft plan shall be submitted to COUNTY for review.
iii. Contents of ISI request shall follow NR 509.04(4) for one source. Draft ISI request shall be submitted to COUNTY for review. Following COUNTY

approval, ENGINEER to submit final ISI request to WDNR's field office, WDNR's Bureau of Waste Management, and COUNTY personnel.

iv. Contents of data presentation shall follow NR 504.075(7) for one source. Draft data presentation shall be submitted to COUNTY for review and ultimately incorporated into the FR as applicable under NR 512.15 (2).

v. Contents of other necessary submittals shall follow NR 504.075(9) through NR 504.075(11) for one source. Draft submittals shall be submitted to COUNTY for review.

vi. Permit application packages as applicable under Stage 2, for one source. COUNTY to review all packages prior to submittal to regulatory agencies. COUNTY will pay applicable permitting fees and attend any required public meetings.

d. Timeline

i. Per NR 502.04(2)(d), WDNR will conduct an inspection within 22 business days of the ISI request. Within 22 business days after inspection, WDNR will give a preliminary opinion and identify any additional studies or information required to show compliance with applicable standards. ENGINEER will be required to attend the inspection and prepare any follow-up information required by WDNR.

ii. WDNR's Initial Site Inspection Response shall be incorporated into the FR, as required under NR 512.15.

6. Phase 5 - Feasibility Report And Plan Set per NR 512:

a. Includes completion of a FR for submittal to WDNR. The FR shall incorporate additional information requested by WDNR from the ISR, done under a separate Contract, and include all contents under NR 512, where applicable. COUNTY will require ENGINEER to perform an analysis into the anticipated waste streams and projected growth as it relates to C&D fines and residuals.

ENGINEER is responsible for requesting any applicable exemptions, if necessary, and shall be included in the Base Fee for Phase 5.



b. Required Meetings

i. Kickoff Meeting
ii. 25% meeting
iii. 50% meeting
iv. 90% meeting
v. Two WDNR meetings and three Public meetings during this Phase.

c. Submittals

i. Feasibility Report: ENGINEER shall prepare draft FR per NR 512 and submit to COUNTY. Following COUNTY approval, ENGINEER to submit final FR to WDNR's field office and COUNTY personnel. Please note, FR cannot be submitted until the Local Approval Application Prerequisite conditions are met (Wis. Stat. 289.23).

ii. Prepare and submit any applicable exemptions to the appropriate regulatory bodies.

d. Timeline

i. Per NR 512.06(3), WDNR will determine completeness within 60 days of FR submittal.

ii. If FR is deemed complete, WDNR will publish a Class I public notice and issue a preliminary determination if an environmental impact statement is required.
iii. After WDNR final determination, the next Phase of Work may commence (Plan of Operations, Plan Set, and Air Permitting), subject to COUNTY's approval. ENGINEER may continue to the next Phase of Work, prior to COUNTY's approval, at ENGINEER's own risk.

7. Phase 6 - Plan Of Operation (POO) and Plan Set Per NR 514 and Air Permitting per NR 400:

a. Includes completion of a Plan of Operations (POO) and Plan Set for submittal to WDNR. The POO shall incorporate additional information requested by WDNR from the FR and include all contents under NR 514, where applicable. ENGINEER will also be responsible for all necessary air permitting work under NR 400.

ENGINEER shall complete the following Research, Development and Demonstration Plans, as part of the POO:

- Leachate recirculation
- Free liquids acceptance

b. Required Meetings

i. Kickoff Meeting
ii. 25% meeting
iii. 50% meeting
iv. 90% meeting
v. Two WDNR meetings and one Public meeting during this Phase.

c. Submittals

i. Plan of Operations Report: ENGINEER shall prepare draft POO report per NR 514 and submit to COUNTY. ENGINEER, following COUNTY approval, to submit final POO report and Plan Set to WDNR's field office and COUNTY personnel.
ii. Plan Set: ENGINEER shall prepare draft Plan Set per NR 514 and submit to COUNTY. ENGINEER to submit final POO report and Plan Set to WDNR's field office and COUNTY personnel.
iii. Air Permit Application: ENGINEER shall prepare any necessary air permitting application documents and plans, as required under NR 400 to COUNTY for review. ENGINEER shall submit final air permitting application package to WDNR's air division, or other applicable regulatory agencies.

d. Timeline

i. Per NR 514.04(4), WDNR will determine completeness within 30 days of POO and Plan Set submittal. If submitted with the FR, WDNR will determine completeness within 30 days after FR is deemed complete.
ii. WDNR will give approval or disapproval within 90 days of submitting the POO and Plan Set. If POO and Plan Set are submitted simultaneously with the FR, WDNR will give approval or disapproval within 60 days after favorable final determination (whichever is later).
iii. After POO Report, Plan Set and Air Permit Application are submitted to WDNR, the next Phase of Work may commence (Construction Plan Set and Specifications), subject to COUNTY's approval. ENGINEER may continue to

the next Phase of Work, prior to COUNTY's approval, at ENGINEER's own risk.

8. Phase 7 - Construction Plan Set and Specifications

    a. Includes the completion of a Construction Plan Set and Specifications for the first phase of the proposed Dane County Landfill Site No. 3 to ensure compliance with NR 504. COUNTY will be responsible for preparing the required front-end documents. Consultant will be required to prepare the estimated quantities for the Bid Form, construction tables, specifications, and Plan Set necessary for potential construction contractors to build the initial phase.

    b. Required Meetings

        i. Kickoff meeting
        ii. 75% meeting
        iii. 95% meeting
        iv. Pre-bid meeting

    c. Submittals

        i. ENGINEER shall prepare a Construction Plan Set and Specifications to ensure the constructability of the initial phase of the proposed Dane County Landfill Site No. 3.

    d. Timeline

        i. Prepare Construction Plan Set and Specifications within 6 months of the POO approval.

## ATTACHMENT B – COMPENSATION SCHEDULE

1. Base Fees
ENGINEER shall be paid on the basis of work completed, when completed at the following rates:

   a. Base Fee 1 (Phase 1, Well Documentation Reports): $[XXXXXX]. Payments shall be made at completion of each milestone as outlined below:

      i. Acceptance by COUNTY of draft well documentation reports: [XX]%
      ii. Acceptance by COUNTY of final well documentation reports: 100%

   b. Base Fee 2 (Phase 1, Subsurface Laboratory Analyses): $[XXXXXX]. Payments shall be made at completion of work.

   c. Base Fee 3 (Phase 2, Environmental Monitoring): $[XXXXXX]. Payments shall be made at completion of each milestone as outlined below:

      i. First monitoring event: [XX]%
      ii. Second monitoring event: [XX]%
      iii. Third monitoring event: [XX]%
      iv. Fourth monitoring event: [XX]%
      v. Fifth monitoring event: [XX]%
      vi. Final monitoring event: 100%

   d. Base Fee 4 (Phase 3, Local Approval and Negotiation Process): $[XXXXXX]. Payments shall be made at completion of each milestone as outlined below:

      i. Submittal of notifications to affected municipalities: [XX]%
      ii. Acceptance by COUNTY of draft renderings and line of sights: [XX]%
      iii. Acceptance by COUNTY of final renderings and line of sights: 100%

   e. Base Fee 5 (Phase 4, Soil Borrow Source Permitting Work): $[XXXXXX]. Payments shall be made at completion of each milestone as outlined below:

      vii. Completion of Stage 1: $[XXXXXX]
      viii. Completion of Stage 2: $[XXXXXX]

   f. Base Fee 6 (Phase 5, Feasibility Report and Plan Set per NR 512): $[XXXXXX]. Payments shall be made at completion of each milestone as outlined below:

      i. Acceptance by COUNTY of draft Feasibility Report and Plan Set: [XX]%
      ii. Acceptance by COUNTY of final Feasibility Report and Plan Set: 100%

   g. Base Fee 7 (Phase 6, Plan of Operations and Plan Set per NR 514): $[XXXXXX]. Payments shall be made at completion of each milestone as outlined below:

      i. Acceptance by COUNTY of draft Plan of Operations and Plan Set: [XX]%
      ii. Acceptance by COUNTY of final Plan of Operations and Plan Set: 100%

   h. Base Fee 8 (Phase 6, Air Permitting per NR 400): $[XXXXXX]. Payments shall be made at completion of each milestone as outlined below:

      i. Acceptance by COUNTY of draft Air Permit Application: [XX]%
      ii. Acceptance by COUNTY of final Air Permit Application: 100%

i. Base Fee 9 (Phase 7, Construction Plan Set and Specifications): $[XXXXXX]. Payments shall be made at completion of each milestone as outlined below:

   i. Acceptance by COUNTY of draft Construction Plan Set and Specifications: [XX]%
   ii. Acceptance by COUNTY of final Construction Plan Set and Specifications: 100%

At COUNTY's sole discretion, partial payments may be made between milestone payments.

2. Allowances
ENGINEER shall be paid allowances on the basis of work completed and are included in the total Contract amount, capped at a maximum of $[XXXXXX], as outlined below:

   a. For the completion of Phase 5, titled Feasibility Report and Plan Set per NR 512, the sum of $[XXXXXX] ($[XXXXXX] to address additional WDNR information and $[XXXXXX] for local approval assistance).
   b. For the completion of Phase 6, titled Plan of Operations and Plan Set per NR 514 and Air Permitting per NR 400, the sum of $[XXXXXX] ($[XXXXXX] to address additional WDNR information related to the Plan of Operations and Plan Set and $[XXXXXX] to address additional WDNR information related to Air Permitting).

Allowances are to address any additional information requested from WDNR and local approval assistance. Expenses incurred as part of allowances shall be billed directly to COUNTY on a time and materials based on the Rate Schedule, the total of which cannot exceed the allowance cap.

3. Unit Rates
If additional wells are required to be monitored and sampled, ENGINEER shall be paid through a Contract Amendment, the unit rate of $[XXXXXX] per well.

If additional drawings are required, ENGINEER shall be paid through a Contract Amendment based on unit rates outlined below:

   a. For additional rendering viewpoints, the unit rate of $[XXXXXX] per viewpoint.
   b. For additional line of sight drawings, the unit rate of $[XXXXXX] per drawing.

If additional WDNR or public meetings are required, ENGINEER shall be paid through a Contract Amendment based on unit rates outlined below:

   a. For attendance at additional WDNR, the unit rate of $[XXXXXX] per meeting.
   b. For attendance at additional Public meetings, the unit rate of $[XXXXXX] per meeting.

4. Rate Schedule
Additional costs borne by ENGINEER and approved by COUNTY shall be based on rates outlined below submitted by ENGINEER on [Date], 2022.

| Services | | |
|---|---|---|
| Description | Unit | Unit Price |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| Expenses | | |

| Description | Unit | Unit Price |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

5. COUNTY may increase the cost to include additional services outside Schedule A per the Rate Schedule, as mutually agreed upon by ENGINEER and COUNTY, in the form of a Contract Amendment.

6. ENGINEER shall issue an invoice upon completion of work, delivered electronically to the Waste & Renewables Project Manager. Invoices shall reference the COUNTY Purchase Order (PO) number associated with the Contract.

7. If ENGINEER is timely with respect to all its obligations under this AGREEMENT, the COUNTY shall make payments due within 30 days of the dates of completion of ENGINEER'S obligations or of billing date, as appropriate. If ENGINEER fails to meet time limits, COUNTY'S payments will be delayed an additional 30 days.

SECTION 00 73 11

FAIR LABOR PRACTICES CERTIFICATION

The undersigned, for and on behalf of the BIDDER, APPLICANT or PROPOSER named herein, certifies as follows:

A. That he or she is an officer or duly authorized agent of the above-referenced BIDDER, APPLICANT or PROPOSER, which has a submitted a bid, application or proposal for a contract or agreement with the county of Dane.

B. That BIDDER, APPLICANT or PROPOSER has (check one):

_____ not been found by the National Labor Relations Board ("NLRB") or the Wisconsin Employment Relations Commission ("WERC") to have violated any statute or regulation regarding labor standards or relations in the seven years prior to the signature date of this Certification.

_____ been found by the National Labor Relations Board ("NLRB") or the Wisconsin Employment Relations Commission ("WERC") to have violated any statute or regulation regarding labor standards or relations in the seven years prior to the signature date of this Certification.

_____ _____

Officer or Authorized Agent Signature Date

_____

Printed or Typed Name and Title

_____

Printed or Typed Business Name

**NOTE:** You can find information regarding the violations described above at: www.nlrb.gov and werc.wi.gov.

For reference, Dane County Ordinance 25.09 is as follows:

(1) BIDDER RESPONSIBILITY. (a) Any bid, application or proposal for any contract with the county, including public works contracts regulated under chapter 40, shall include a certification indicating whether the bidder has been found by the National Labor Relations Board (NLRB) or the Wisconsin Employment Relations Committee (WERC) to have violated any statute or regulation regarding labor standards or relations within the last seven years. The Controller shall investigate any such finding and make a recommendation to the committee, which shall determine whether the conduct resulting in the finding affects the bidder's responsibility to perform the contract.

**If you indicated that the NLRB or WERC have found you to have such a violation, you must include copies of any relevant information regarding such violation with your proposal, bid or application.**

Include this completed Certification with your bid, application or proposal.

END OF SECTION

N

Future Recreation /
Existing Landfill

Maahic Way

Millpond Rd

Public access to Business Park /
Landfill

CTH AB

Campus buildings and facilities will be supported
by municipal sanitary sewer and water service

Lot 1: Dedicated to Sustainable
Business Park and Supporting
Infrastructure (rezoned from PR to IG)

Off-Street shared use path proposed with
WisDOT Interchange Project

Highway 12/18

Property Boundary

Potential stormwater management area

Waste & Renewables support/buffers

Yahara Hills Golf Course

Lot 2: Dedicated to Landfill / Compost / Recreation
(rezoned from PR to IG)

Proposed WisDOT stormwater management
basin to serve interchange project and
Sustainability Campus.

Landfill / Compost
Phasing / Locations to be
determined during permitting

Private drive / truck access to Landfill

Potential future landfill
limits of waste

Continued
Recreation /
Future
Development

Interstate 39/90

Storck Rd

CTH AB

= Lot 1 (approx. 30 acres)

= Lot 2 (approx. 200 acres)

Future CTH AB connection per Yahara Hills
Neighborhood Development Plan

0 300 600 1200 Feet

Document Parth: M:\Dane County\210417_Sustainability Campus\Planning & Zoning\Maps

**Preliminary Site Plan**

Dane County Department of Waste & Renewables
Dane County Sustainability Campus
March 1, 2022

# Figure 1. Anticipated Property Division

vierbicher
planners | engineers | advisors

Attachment A - Initial Site Inspection Request, dated March 17, 2022

TETRA TECH

March 17, 2022

Carolyn Cooper
Hydrogeologist
Wisconsin Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg, WI 53711-5367

Re: Request for Initial Site Inspection – Proposed Dane County Landfill Site No. 3
Dane County Department of Waste & Renewables

Dear Ms. Cooper:

On behalf of Dane County Department of Waste and Renewables (Dane County) and in accordance with the Wisconsin Administrative Code (WAC) NR 509.04, Cornerstone Environmental Group, a Tetra Tech company (Tetra Tech) is requesting an Initial Site Inspection (ISI) of the proposed Dane County Landfill Site No. 3, located in the City of Madison, Dane County, Wisconsin within a portion of the existing Yahara Hills Golf Course (Figure 1).

Included with this letter is the NR 509.04 Landfill ISI Request Completeness Checklist (Attachment 1). Tetra Tech, on behalf of Dane County, respectfully requests an initial site inspection at your earliest convenience.

## Background

The proposed Dane County Landfill Site No. 3 will be a new landfill with an organics management area located contiguously with the new landfill. The precise location and orientation of these areas are still being evaluated; therefore, the limits of waste will be refined to an area of approximately 40 acres that is located within the approximately 115-acre area shown on Figures 1 and 3.

This ISI request identifies a proposed limits of disturbance to include additional area surrounding the proposed limits of waste to account for ancillary features such as perimeter berms, visual screening, soil stockpiles and stormwater management basins. The total area of the proposed limits of disturbance is approximately 230-acres. Dane County is in the process of purchasing the 230-acre area that includes property parcels 251/0710-254-0099-7 and 251/0710-361-0099-0 from the City of Madison.

Tetra Tech is providing the following information in accordance with WAC NR 509.04 (4):

| | |
|---|---|
| Applicant: | Dane County Department of Waste & Renewables<br>1919 Alliant Energy Center Way, Madison, WI 53713 |
| Authorized Facility Contact: | John Welch, Director of Waste & Renewables<br>Phone: (608) 516-4154 |
| Property Ownership: | City of Madison Parks Yahara Hills Golf Course (currently)<br>Dane County (pending purchase) |
| Existing Facility Type: | Municipal Golf Course (Yahara Hills Golf Course) |

Cornerstone – A Tetra Tech Company
8413 Excelsior Drive, Suite 160, Madison, WI 53717
Tel 877.294.9070 Fax 877.845.1456 tetratech.com

| | |
|---|---|
| Operation Proposed: | Non-hazardous Municipal Solid Waste (MSW) Landfill using Area Fill |
| Site Location: | Property Parcel No. 251/0710-254-0099-7 and 251/0710-361-0099-0<br>SE ¼ of Section 25 and N ½ of NE ¼ of Section 36, T7N, R10E,<br>City of Madison, Dane County, Wisconsin. |
| Present Land Use: | Recreation (Golf Course) and Water (man-made Pond) |

## Surrounding Land Use and Residence Information

Residences within one mile of the proposed limits of disturbance are shown on Figure 1. There are no residences within the proposed limits of waste or proposed limits of disturbance. The nearest resident and assumed off-site private water supply well to the proposed limits of disturbance and proposed limits of waste is approximately 250 feet and 380 feet to the east, respectively. The Yahara Hills Golf Course has three water supply wells within the proposed limits of disturbance.

The land use within one mile of the proposed limits of disturbance is shown on Figure 2. The land use information was provided by Dane County Land Information Office. The land use for the proposed limits of disturbance area is entirely Recreation with one man-made pond. The proposed limits of disturbance is bound to the north by U.S. Highway 12 & 18 with the Dane County Landfill Site No. 2 beyond. County Highway AB bounds the eastern side of the proposed limits of disturbance with a mixture of agriculture, woodlands, open land and residential beyond. The Yahara Hills Golf Course continues to the west of the proposed limits of disturbance with agriculture, residential, and open land to the south. Land uses identified within one mile of the proposed limits of disturbance include agriculture, cemetery, commercial, communication/utilities, industrial, institutional/ governmental, open land, recreation, residential, transportation, under construction, vacant subdivided land, water and woodlands.

## Known or Potential Impacts to Endangered and Threatened Species

An Endangered Resources Preliminary Assessment was conducted through the WDNR Natural Heritage Inventory (NHI) public portal, accessed online on March 10, 2022, for the proposed limits of disturbance area. The results of this assessment stated further actions are required to verify compliance. According to this preliminary assessment, the project site overlaps the Karner Blue Butterfly High Potential Range and the Rusty Patched Bumble Bee High Potential Zone. A copy of the preliminary assessment is provided as Attachment 2.

The WDNR published a Karner Blue Butterfly High Potential Range map in 2019. This map shows the approximate project location within Dane County which is outside the Karner Blue Butterfly High Potential Range (Attachment 3). The US Fish and Wildlife Service (USFWS) publishes an interactive map of the Rusty Patched Bumble Bee High and Low Potential Zones. According to this map, the proposed limits of disturbance is not located within the high potential zone.

A list of known endangered species present in Dane County, according to the USFWS, is included in Attachment 3. There are eight species currently recognized as endangered, threatened or proposed within Dane County - Northern Long-Eared Bat, Whooping Crane, Higgins Eye Pearly mussel, Sheepnose mussel, Rusty Patched Bumble Bee, Eastern Prairie Fringed Orchid, Mead's Milkweed and Prairie Bush-clover. Based on the habitat description for the listed species, the historical and existing land use of the proposed limits of disturbance are not applicable or conducive to support these species. Of note, the non-suitable habitat for the Rusty Patched Bumble Bee includes "areas mowed too frequently to allow development of foraging resources." The Yahara Hills Golf Course has been in operation since the late-1960s and requires frequent and routine mowing. It is believed that the golf course would be a non-suitable habitat for the Rusty Patched Bumble Bee with the potential presence being very low.

## Known or Potential Impacts to Historic, Scientific or Archeological Areas

The proposed Dane County Landfill Site No. 3 is located on land previously disturbed by agriculture then by the construction and operation of the Yahara Hills Golf Course. If cultural resources were once within the proposed limits of disturbance, it is unlikely these still exist after the land was shaped and graded for the golf course.

Archaeological Consulting Services, Inc. (ACS) reviewed available literature and records on previously reported cultural resources in and around the Yahara Hills Golf Course. The reviewed study area included the proposed limits of disturbance. A report of investigations was prepared by ACS in November 2021 (Attachment 4). The results of this study found no previously reported archaeological sites within the study area. According to ACS, the closest archaeological site is approximately 350-meters to the north of the Yahara Hills Golf Course but several Euro-American farmsteads were located within the study area prior to the development of the golf course. No standing buildings or other structures in the study area are listed on the Wisconsin Architecture and History Inventory. The 1967 Club House has been identified as potentially significant and is located to the west (see Figure 3).

An Archaeological Survey Field Report, prepared by Commonwealth Heritage Group, Inc. in October 2020, was provided to Dane County by the State Historical Preservation Office which reported results of the cultural resources field survey for the proposed Wisconsin Department of Transportation (WisDOT) US Highway 12 & 18, County Highway AB Interchange project (Attachment 5). A portion of the proposed limits of disturbance was previously studied as part of this WisDOT project. The reported findings stated, “no cultural materials or features were identified during survey”.

## Locational Criteria and Performance Standard Review

### NR 504.04(3) and NR 502.12(8) Locational Criteria Assessment

NR 504.04(3)(a) within 1,000 feet of any navigable lake, pond or flowage:

The proposed limits of waste is located within 1,000 feet of a navigable lake, pond or flowage. According to the WDNR Surface Water Data Viewer, an unnamed pond (WBIC 5575561) is located within the proposed limits of waste. A preliminary review of historical aerial imagery indicates this unnamed pond is not naturally occurring but was man-made for operation and maintenance of the golf course. Construction of the proposed Dane County Landfill Site No. 3 would remove the unnamed man-made pond as well as any unsuitable soils prior to constructing the landfill liner system. Surface water features from the WDNR’s Surface Water Data Viewer are shown on Figures 1 and 3.

NR 504.04(3)(b) within 300 feet of any navigable river or stream:

The proposed limits of waste is not located within 300 feet of any navigable stream or river. An unnamed river or stream (WBIC 803000) is located southeast of the proposed limits of waste. At its nearest point, the unnamed stream is approximately 850-feet from the proposed limits of disturbance and approximately 950-feet from the proposed limits of waste. This unnamed stream flows to the northeast and discharges into Door Creek (WBIC 802800). Surface water features are shown on Figures 1 and 3.

NR 504.04(3)(c) within a floodplain:

The proposed limits of waste is not located within a floodplain, as shown on Figure 1.

NR 504.04(3)(d) within 1,000 feet of the nearest edge of the right-of-way of any state trunk highway, interstate, federal aid primary highway or the boundary of any public park unless the landfill is screened by natural objects, plantings, fences or other appropriate means so that it is not visible from the highway or park:

The proposed limits of waste will be located approximately 425 feet to the south of US Highway 12 & 18 and approximately 150 feet to the west of County Highway AB. Interstate I-90/I-39 is approximately 1,350 feet southwest from the proposed limits of waste.

The City of Madison has indicated that they plan to maintain at least 18 holes of the Yahara Hills Golf Course after the proposed Dane County Landfill Site No. 3 is constructed. The proposed limits of waste, as shown in Figure 3, overlaps portions of the currently proposed 18-hole golf course. The final routing of the golf course may be subject to change through the City of Madison's reconfiguration of the golf course and Dane County would not utilize this area if it conflicted with the plans for golf. Dane County has included this area for the ISI request to depict the maximum limits of waste in the event golf does not remain in that area at the time that it would need to be developed for landfill use.

Dane County will propose appropriate screening measures from US Highway 12 & 18, County Highway AB and the Yahara Hills Golf Course, as required in future submittals for the proposed Dane County Landfill Site No. 3.

NR 504.04(3)(e) within an area where the design or operations of the landfill would pose a significant bird hazard to aircraft.

There are no airports designed or planned to be designed within 5,000 feet or 10,000 feet of the proposed limits of waste. The nearest public airport is the Blackhawk Airfield, located in Cottage Grove, and Dane County Regional Airport, located in Madison, Wisconsin. Blackhawk Airfield and Dane County Regional Airport are located approximately 5.25 miles and 7 miles from the proposed limits of waste, respectively. The nearest private use airport is the Quale Airport, located in Cottage Grove, approximately 3 miles from the proposed limits of waste.

NR 504.04(3)(f) within 1,200 feet of a public or private well:

Three private water supply wells (PW-C, PW-D and PW-E), owned by the City of Madison, are used to service the Yahara Hills Golf Course and are located within the proposed limits of waste (Figure 3). These private wells are proposed to be abandoned prior to constructing the proposed Dane County Landfill Site No. 3. Private water supply wells PW-A and PW-B are located approximately 1,250 feet south and approximately 1,100 feet west of the proposed limits of waste, respectively (Figure 3).

Four assumed private water supply wells are located east of County Highway AB where residences are located. These private wells are assumed to be located approximately 380, 800, 1,000 and 1,030 feet from the proposed limits of waste. One assumed private water supply well associated with a residence is located approximately 1,100 feet southwest of the proposed limits of waste. A known private water supply well (Biogas Well YZ391) is located approximately 990 feet north of the proposed limits of waste, adjacent to the Biogas Facility for the Dane County Landfill Site No. 2.

Other assumed or known private and public water supply wells are located beyond 1,200 feet from the proposed limits of waste. See Figures 1 and 3 for assumed and known public and private water supply well locations.

NR 504.04(3)(g) within 200 feet of a fault that has had displacement in Holocene time:

The proposed Dane County Landfill Site No. 3 is not located within 200 feet of a fault that has had displacement in Holocene times. No faults in Wisconsin are known to have had displacements since the Holocene time.

NR 504.04(3)(h) within seismic impact zones:

The proposed Dane County Landfill Site No. 3 is not within a seismic impact zone.

NR 504.04(3)(i) within unstable areas:

The bedrock beneath the proposed Dane County Landfill Site No. 3 consists of Prairie du Chien Group dolomite and sandstone and/or the Cambrian Sandstone. Based on previous site geologic studies at the Dane County Landfill Site No. 2 and supply wells drilled at the golf course, there is no evidence of unstable conditions.

## NR 504.04(4) and NR 502.04(1) Performance Standards Assessment

NR 504.04(4)(a) A significant adverse impact on wetlands:

Based on a review of the WDNR mapped wetlands, the proposed limits of disturbance would directly impact one wetland. The WDNR Surface Water Data Viewer showed a wetland overlapping the unnamed man-made pond within the limits of waste. This wetland is classified as W0Hx (Open water, Subclass unknown, Wet soil - Palustrine, Excavated) and is approximately 2.27-acres in size. The WDNR also indicated the presence of “wetlands too small to delineate” in the northeast corner of the proposed limits of disturbance. Figure 3 includes the known wetland boundaries from the WDNR Mapped Wetlands.

Wetland indicators within the northeast portion of the proposed limits of disturbance include Os (Orion silt loam, wet) and VwA (Virgil silt loam, gravelly substratum, 0 to 3 percent slopes) soil descriptions. A map of the known wetlands and wetland indicators prepared from the WDNR Surface Water Data Viewer on March 11, 2022 is provided in Attachment 6.

Dane County will conduct wetland delineations and initiate the appropriate wetland permitting process if the field delineations indicate wetlands will be impacted as a result of the proposed Dane County Landfill Site No. 3.

NR 504.04(4)(b) A take of an endangered or threatened species:

According to the USFWS interactive map and WDNR published map, there is a low potential for the presence of the Rusty Patched Bumble Bee and Karner Blue Butterfly identified through the NHI public portal, as previously discussed. The proposed limits of disturbance are not anticipated to take an endangered or threatened species.

An Environmental Resources Review (ERR) application will be submitted to the WDNR following this ISI request. A copy of the ERR application and response from the WDNR will be included with future permitting submittals to the WDNR for the proposed Dane County Landfill Site No. 3.

NR 504.04(4)(c) A detrimental effect on any surface water:

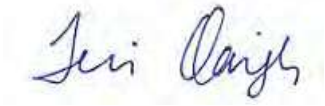
No naturally occurring surface water is located in or immediately adjacent to the proposed limits of disturbance. Surface water runoff from the proposed Dane County Landfill Site No. 3 will be managed in accordance with NR 216 and NR 500 and will pose no detrimental effect on surface water.

NR 504.04(4) subsections (d) through (f) are not required to be evaluated as part of the NR 509.04(4) requirements for an ISI request.

Please contact Teri Daigle at (630) 410-7231 or teri.daigle@tetratech.com with any questions regarding the provided information. Dane County will transmit the required inspection fee in a separate submittal.

Sincerely,

**CORNERSTONE ENVIRONMENTAL GROUP, LLC – A TETRA TECH COMPANY**



Teri Daigle
Project Manager

Enclosures:

**Figures:**

Figure 1 – Site Location Map

Figure 2 – Land Use Map

Figure 3 – Existing Conditions Map

**Attachments:**

Attachment 1 – WDNR NR 509.04 Initial Site Inspection Request Completeness Checklist

Attachment 2 – Endangered Resources Preliminary Assessment (March 10, 2022)

Attachment 3 – USFWS List of Current Federally Listed Endangered, Threatened and Proposed Species for Dane County (January 2018)
WDNR Karner Blue Butterfly High Potential Range Map (2019)

Attachment 4 – A Literature and Records Search on the Previously Reported Cultural Resources in and Near the Yahara Hills Golf Course in Madison, Dane County, Wisconsin (ACS, November 2021)

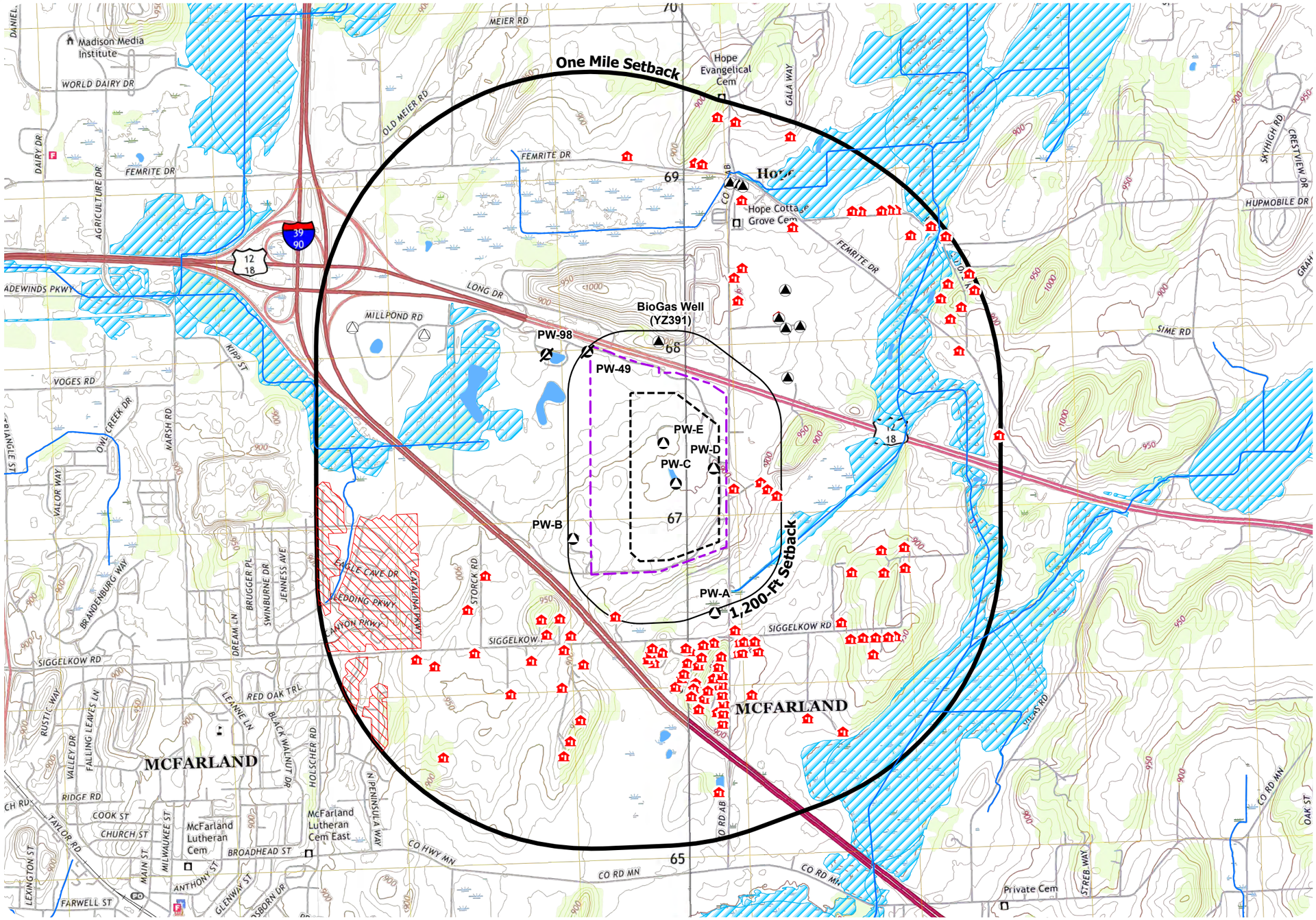
Attachment 5 – Archaeological Survey Field Report, USH 12/18, CTH AB Interchange, Dane County, Wisconsin (Commonwealth Heritage Group, October 2020)

Attachment 6 – WDNR Surface Water Data Viewer Map of Wetlands and Wetland Indicator Soils (March 11, 2022)

cc: Ann Bekta, WDNR (1 Hard Copy and Electronic Copy)
Valerie Joosten, WDNR (Electronic Copy)
Joe Lourigan, WDNR (Electronic Copy)
John Welch, Dane County (1 Hard Copy and Electronic Copy)
Allison Rathsack, Dane County (1 Hard Copy and Electronic Copy)
John Oswald, P.G., Tetra Tech (Electronic Copy)
Mark Torresani, P.E., Tetra Tech (Electronic Copy)

X:\PROJECTS\DANE COUNTY\4221302 - INITIAL GREENFIELD PERMITTING\ISI\Dane Co Landfill Site No 3 ISI Request FINAL_3-17-22.docx

# FIGURES




## Legend

- Proposed Landfill Limits of Disturbance
- Proposed Landfill Limits of Waste
- Setback 1-Mile from Limits of Disturbance
- Setback 1,200-ft from Limits of Waste
- Stream
- Waterbody
- FEMA 100-Year Floodplain
- Assumed Offsite Private Well, Approximate Location
- Known Offsite Private Well, Approximate Location
- Known Yahara Hills Private Well, Approximate Location
- Abandoned Private Well
- Residence and Assumed Offsite Private Well, Approximate
- Residential Developement on City Water Supply


NOTES:
1. Streams, Waterbodies and Floodplains are from WDNR Surface Water Data Viewer.

BASEMAP SOURCE:
USGS Topographic Quadrangles 7.5 Minute
Series: Madison East, WI (2022)
Series: Cottage Grove, WI (2022)

Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
Datum: North American 1983

N

0 1000 2000 4000
FEET
1" = 2,000'

| REV | DATE | DESCRIPTION | DES BY | DWN BY | CHK BY | APP BY |
|---|---|---|---|---|---|---|

DATE OF ISSUE 3/17/2022
DESIGNED BY SSW
DRAWN BY SSW
CHECKED BY TD
APPROVED BY JO

TETRA TECH

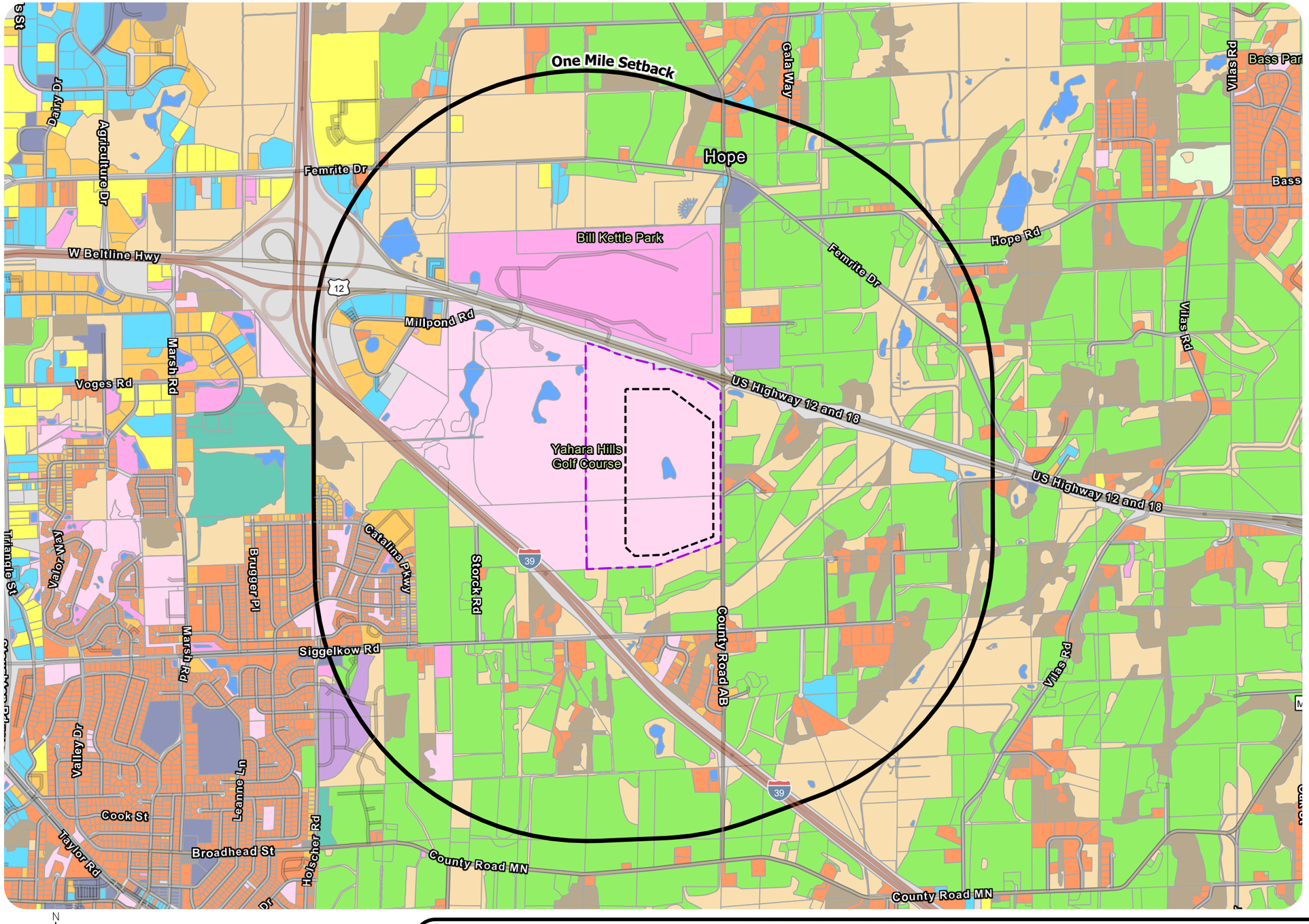
PREPARED BY: TETRATECH



Dane County Waste & Renewables Department
City of Madison, Dane County, Wisconsin
Proposed Dane County Landfill Site No. 3
**INITIAL SITE INSPECTION**
# SITE LOCATION MAP

FIGURE NO. **1**
PROJECT NO. 4221302

X:\PROJECTS\DANE COUNTY\4221302 - INITIAL GREENFIELD PERMITTING_GIS\DCI_01-IISI-Site Location.aprx




## Legend

- Proposed Landfill Limits of Disturbance
- Proposed Landfill Limits of Waste
- Setback

Land Use

- Agriculture
- Cemetery
- Commercial
- Communication/Utilities
- Fallow Farm Field
- Industrial
- Institutional/Governmental
- Mineral Extraction
- Open Land
- Recreation
- Residential
- Transportation
- Under Construction
- Vacant Subdivided Land
- Water
- Woodlands


SOURCE:
Land use information is from 2015 and supplied by Dane County.

Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
Datum: North American 1983

N

0 1000 2000 4000

FEET

1" = 2,000'

| REV | DATE | DESCRIPTION | DES BY | DWN BY | CHK BY | APP BY |
|---|---|---|---|---|---|---|

DATE OF ISSUE 3/17/2022
DESIGNED BY SSW
DRAWN BY SSW
CHECKED BY TD
APPROVED BY JO

TETRA TECH

PREPARED BY: TETRATECH



Dane County Waste & Renewables Department
City of Madison, Dane County, Wisconsin
Proposed Dane County Landfill Site No. 3

**INITIAL SITE INSPECTION**

# LAND USE MAP

FIGURE NO.
**2**
PROJECT NO.
4221302

X:\PROJECTS\DANE COUNTY\4221302 - INITIAL GREENFIELD PERMITTING\GIS\DCL-02-ISI-Land Use.aprx

N 382,000 | N 381,500 | N 381,000 | N 380,500 | N 380,000 | N 379,500 | N 379,000 | N 378,500 | N 378,000 | N 377,500 | N 377,000 | N 376,500 | N 376,000 | N 375,500 | N 375,000

E 2171000 | E 2170500 | E 2170000 | E 2169500 | E 2169000 | E 2168500 | E 2168000 | E 2167500 | E 2167000 | E 2166500 | E 2166000

UNNAMED STREAM (WBIC 6035000)

SEC 30 T7N R11E

SEC 31 T7N R11E

CTH AB

USH 12-18

PW-A

PW-D

EXISTING MAINTENANCE BUILDINGS

PW-C

UNNAMED POND (WBIC 5575561)

PW-E

YZ391

SEC 25 T7N R10E

SEC 36 T7N R10E

PARCEL NO. 251/0710-254-0099-7

PARCEL NO. 251/0710-361-0099-0

1000'

1200'

PW-49

PW-B

UNNAMED POND (WBIC 5575477)

UNNAMED POND (WBIC 5575502)

PW-98

EXISTING YAHARA HILLS GOLF COURSE CLUB HOUSE

I-90 / I-39

## LEGEND

- PARCEL BOUNDARY (TO BE PURCHASED)
- SIXTEENTH SECTION LINE
- SEC 25 T7N R10E — SECTION-TOWNSHIP-RANGE DESIGNATION
- 900 — EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING BUILDING / STRUCTURE
- PW-E — KNOWN YAHARA HILLS PRIVATE WELL, APPROXIMATE LOCATION
- ASSUMED OFFSITE PRIVATE WELL, APPROXIMATE LOCATION
- KNOWN PRIVATE WELL, APPROXIMATE LOCATION
- PW-49 — ABANDONED YAHARA HILLS PRIVATE WELL
- WNDR MAPPED WETLANDS
- WETLAND LOCATION TOO SMALL TO DELINEATE
- STREAM / SHORELINE LIMITS
- PROPOSED LIMITS OF WASTE
- PROPOSED LIMITS OF DISTURBANCE
- PROPOSED LIMITS OF WASTE SETBACK
- APPROXIMATE LIMITS OF WEST 18 HOLE GOLF COURSE

## NOTES:

1. TOPOGRAPHIC SURVEY OF THE DEVELOPMENT AREA TAKEN FROM THE WISCONSIN VIEW PORTAL LIDAR DATA, YEAR OF ACQUISITION: 2017. TOPOGRAPHIC SURVEY DATA PROVIDED BY STATE CARTOGRAPHER'S OFFICE.
2. HORIZONTAL DATUM IS REFERENCED TO WISCONSIN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM (NAD 83), US SURVEY FEET.
3. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM 1988. CONTOUR INTERVAL IS TWO FEET.
4. WETLAND BOUNDARIES TAKEN FROM WDNR SURFACE WATER DATA VIEWER.
5. STREAM AND SHORELINE TAKEN FROM WDNR SURFACE WATER DATA VIEWER.
6. STREAM AND WATERBODY IDENTIFICATION (WBIC#) TAKEN FROM WDNR SURFACE WATER DATA VIEWER.
7. LIMITS OF DISTURBANCE LINE IS OFFSET FROM PARCEL BOUNDARY (TO BE PURCHASED) FOR CLARITY.

N

0 300 600

SCALE IN FEET



| REV | DATE | DESCRIPTION | DWN BY | DES BY | CHK BY | APP BY |
|---|---|---|---|---|---|---|
| | | | | | | |

DATE OF ISSUE MAR. 2022 | DRAWN BY RBN | DESIGNED BY RBN | CHECKED BY TD | APPROVED BY JCO

TETRA TECH

ALL PROFESSIONAL ENGINEERING WORK IS PERFORMED BY DULY LICENSED PROFESSIONAL ENGINEERS UNDER THE APPROPRIATE STATE REGISTERED PROFESSIONAL ENTITY.

DANE COUNTY WASTE & RENEWABLES DEPARTMENT
PROPOSED DANE COUNTY LANDFILL SITE NO. 3
CITY OF MADISON, DANE COUNTY, WISCONSIN

**INITIAL SITE INSPECTION**
**EXISTING CONDITIONS MAP**

FIGURE NO. **3**

PROJECT NO. 4221302

1" 1/2" 0" 1"

File: X:\PROJECTS\DANE COUNTY\4221302 - INITIAL GREENFIELD PERMITTING_Plan Set\01-DCL_ISI-S-EC.dwg Layout: 3 User: RANDY.NOLDEN Mar 17, 2022 - 12:03pm

# ATTACHMENT 1

WDNR NR 509.04 Initial Site Inspection Request Completeness Checklist

# LANDFILL INITIAL SITE INSPECTION REQUEST
# COMPLETENESS CHECKLIST

**SECTION NR 503.07, WISCONSIN ADMINISTRATIVE CODE – C&D AND ONE-TIME DISPOSAL LANDFILLS**
**SECTION NR 509.04, WISCONSIN ADMINISTRATIVE CODE – ALL OTHER LANDFILLS**

Refer to Applicable Codes for Exact Requirements

**General Information**

**Applicant:**

Applicant Name: Dane County Dept. of Waste & Renewables

Contact/Title: John Welch, Director of Waste & Renewables

Address: 1919 Alliant Center Way, Madison, WI 53713

Phone #: (608) 516-4154

FID #: Not assigned

Site Location: Yahara Hills Golf Course

6701 U.S. Highway 12 & 18, Madison, WI 53718

Date of Initial Site Inspection Request: _____

**Consultant:**

Consultant Name: Tetra Tech

Contact/Title: Teri Daigle, Project Manager

Address: 8413 Excelsior Drive, Suite 160, Madison, WI 53717

Phone #: 630-410-7231

Date Project Entered into FIST System: _____

Date ISI is Due (Max. 22 bus. Days after receipt of request):

_____

Legal Note:
This document is intended solely as guidance, and does not contain any mandatory requirements except where requirements found in statute or administrative rule are referenced. This guidance does not establish or affect legal rights or obligations and is not finally determinative of any of the issues addressed. This guidance does not create any rights enforceable by any party in litigation with the State of Wisconsin Department of Natural Resources. Any regulatory decisions made by the Department of Natural Resources in any matter addressed by this guidance will be made by applying the governing statutes and administrative rules to the relevant facts.

| GENERAL SUBMITTAL REQUIREMENTS - NR 503.07(2) or 509.04(2) | Y | N | NA | LOCATION | COMMENTS |
|---|---|---|---|---|---|
| 1. Report sent to region and central office | Y | | | | |
| 2. Current standard technical procedures used and test methods specified – NR 500.05(5) | Y | | | | |
| 3. Visuals - NR 500.05(6) | | | | | |
| a. 8.5x11 to 32x44 inches in size | Y | | | | |
| b. Appropriate scale to show all required details with sufficient clarity | Y | | | | |
| c. Be numbered; referenced in the narrative; have a title, legend, horizontal and vertical scales; and drafting or origination dates | Y | | | | |
| d. Uniform scales | Y | | | | Figure 3 provided at 1"=300' to show greater detail for review |
| e. North arrow | Y | | | | |
| f. Mean sea level as basis for all elevations | Y | | | | |
| g. Survey grid based on field monuments and utilizing a coordinate system acceptable to the department | Y | | | | |
| h. Original topography and grid system on plan sheets showing construction, operation or closure topography | Y | | | | |
| i. Cross-sections include survey grid location, reference to major plan sheets and reduced diagram of cross-section location plan view map | | | X | | |
| 3. Table of contents – NR 500.05(7) | | | X | | |
| 4. Appendix listing all references, raw data, testing and sampling procedures and calculations – NR 500.05(8) | | | X | | |

| LANDFILL REQUEST MINIMUM REQUIREMENTS - NR 503.07(4) or 509.04(4) | Y | N | NA | LOCATION | COMMENTS |
|---|---|---|---|---|---|
| 1. Cover Letter | | | | | |
| a. Applicant identified | Y | | | Page 1 | |
| b. Authorized contact identified | Y | | | Page 1 | |
| c. Current property owner identified | Y | | | Page 1 | |
| d. Type of landfill being proposed | Y | | | Page 2 | |
| e. Project location by ¼, ¼ section | Y | | | Page 2 | |
| f. Present land use | Y | | | Page 2 | |
| 2. Known potential impacts to endangered and threatened species - NR 29 | Y | | | Page 2 | |
| 3. Known potential impacts to historic, scientific or archeological areas, including prior studies or surveys, identified - s. 44.40, Wis. Stats. | Y | | | Page 3 | |
| 4. Enlarged 7.5 minute USGS map or equivalent (minimum 1"=500') | | | | | |
| a. Ground surface relief within one mile of project | Y | | | Figure 1 | |
| b. Surface water bodies within one mile of project | Y | | | Figure 1 | |
| c. Floodplains within one mile of project | Y | | | Figure 1 | |
| d. Existing land use within one mile of project | Y | | | Figure 2 | |
| e. All water supply wells and residences within one mile of project | Y | | | Figure 1 | |
| 5. Preliminary identification of all potential conflicts with locational criteria and performance standards in:<br>● for C&D and one-time disposal landfills, NR 503.04<br>● for all other landfills, NR 504.04 excluding NR 504.04(4)(d) to (f) | Y | | | Pages 3 - 6 | |

# ATTACHMENT 2

Endangered Resources Preliminary Assessment (March 10, 2022)

# Endangered Resources Preliminary Assessment

Created on **3/10/2022**. This report is good for one year after the created date.

*DNR staff will be reviewing the ER Preliminary Assessments to verify the results provided by the Public Portal. ER Preliminary Assessments are only valid if the project habitat and waterway-related questions are answered accurately based on current site conditions. If an assessment is deemed invalid, a full ER review may be required even if the assessment indicated otherwise.*

## Results

A search was conducted of the NHI Portal within a 1-mile buffer (for terrestrial and wetland species) and a 2-mile buffer (for aquatic species) of the project area. Based on these search results, below are your follow-up actions.

**Further actions are required to ensure compliance** with Wisconsin's Endangered Species Law (s. 29.604 Wis. Stats.) and the Federal Endangered Species Act (16 USC ss 1531-43).

One or more of the following situations apply:

- The species recorded are state or federal threatened or endangered animals.
- The species recorded are state threatened or endangered plants on public land.
- The species recorded are federal threatened or endangered plants on federal land or involve federal funds or a federal permit.
- The project site overlaps the Karner Blue Butterfly High Potential Range.
- The project overlaps the Rusty Patched Bumble Bee High Potential Zone.

Therefore you should request an Endangered Resources Review https://dnr.wi.gov/topic/ERReview/Review.html. An ER Review is the mechanism to ensure compliance with Wisconsin's Endangered Species Law (s. 29.604 Wis. Stats.) and the Federal Endangered Species Act (16 USC ss 1531-43). The ER Review will list the endangered resources that have been recorded within the vicinity of the project area and follow-up actions may be necessary.

*A copy of this document can be kept on file and submitted with any other necessary DNR permit applications to show that the need for an ER Review has been met. This notice only addresses endangered resources issues. This notice does not constitute DNR authorization of the proposed project and does not exempt the project from securing necessary permits and approvals from the DNR and/or other permitting authorities.*

## Project Information

| | |
|---|---|
| Landowner name | **Yahara Hills Golf Course** |
| Project address | **7101 US Highway 12 & 18, Madison, WI 53718** |
| Project description | **Potential Greenfield SIte** |

## Project Questions

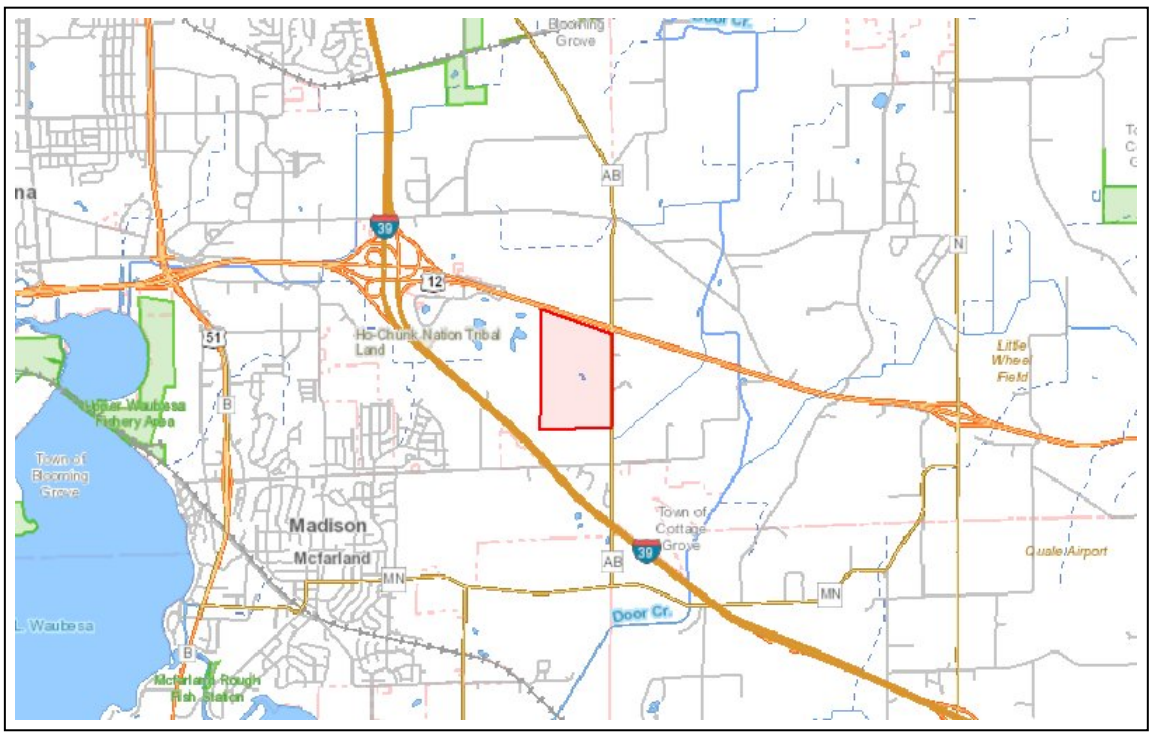
| | |
|---|---|
| Does the project involve a public property? | **Yes** |
| Is there any federal involvement with the project? | **No** |
| Is the project a utility, agricultural, forestry or bulk sampling (associated with mining) project? | **No** |
| Is the project property in Managed Forest Law or Managed Forest Tax Law? | **No** |
| Project involves tree removal? | **Yes** |
| Is project near (within 300 ft) a waterbody or a shoreline? | **Yes** |

| | |
|---|---|
| Is project within a waterbody or along the shoreline? | **Yes** |

Does the project area (including access routes, staging areas, laydown yards, select sites, source/fill sites, etc.) occur **entirely within** one or more of the following habitats?

| | |
|---|---|
| Urban/residential | **No** |
| Manicured lawn | **No** |
| Artificial/paved surface | **No** |
| Agricultural land | **No** |
| Areas covered in crushed stone or gravel | **No** |

## Project Area Maps



# ATTACHMENT 3

USFWS List of Current Federally Listed Endangered, Threatened and Proposed Species for Dane County (January 2018)

WDNR Karner Blue Butterfly High Potential Range Map (2019)

# Wisconsin

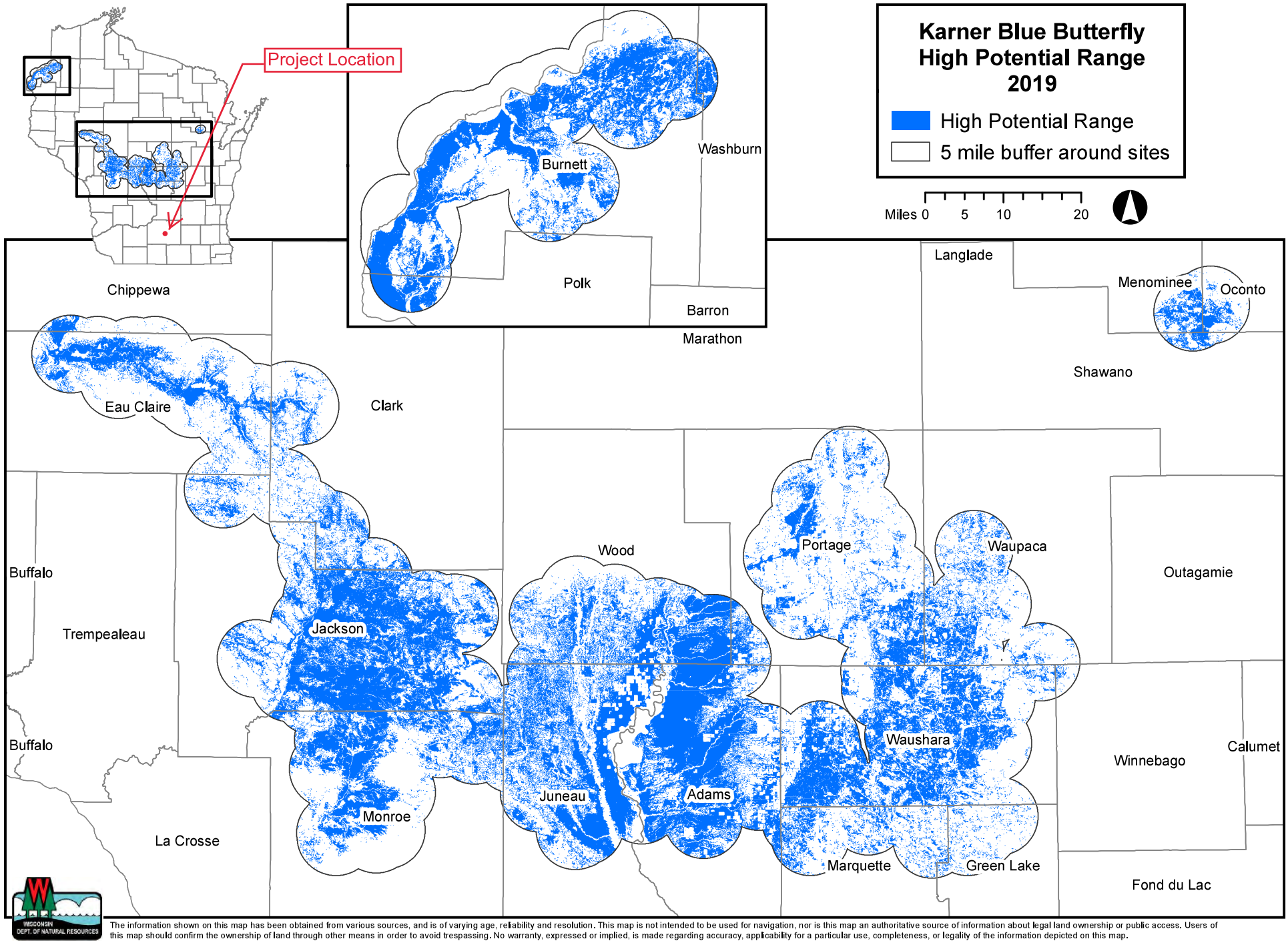
## County Distribution of Federally-listed Endangered, Threatened and Proposed Species

*Jan. 10, 2018*

| County | Species | Status | Habitat |
|---|---|---|---|
| **Adams** | Gray wolf<br>*Canis lupus* | Endangered | Northern forested areas |
| | Northern long-eared bat<br>*Myotis septentrionalis* | Threatened | Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. Roosts and forages in upland forests and woods. |
| | Kirtland's warbler<br>*Setophaga kirtlandii* | Endangered | Young jack pine stands (5 to 25 years old) |
| | Whooping crane<br>Grus americanus | **Non-essential experimental population | Open wetlands and lakeshores<br><br>Whooping cranes have nested in this county |
| | Karner blue butterfly<br>*Lycaeides melissa samuelis* | Endangered | Prairie, oak savanna, and jack pine areas with wild lupine |
| **Ashland** | Canada lynx<br>*Lynx canadensis* | Threatened | While no resident populations are known from Wisconsin, the species occasionally occurs in northern forested areas, and counties listed are those with the highest likelihood of occurrence. |
| | Gray wolf<br>*Canis lupus* | Endangered | Northern forested areas |
| | Northern long-eared bat<br>*Myotis septentrionalis* | Threatened | Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. During summer, roosts and forages in upland forests. |
| | Piping plover<br>*Charadrius melodus* | Endangered | Sandy beaches; bare alluvial and dredge spoil islands |
| | Piping plover<br>*Charadrius melodus* | Critical Habitat Designated | |
| | Rufa red knot<br>*(Calidris canutus rufa)* | Threatened | Along Lake Superior |
| **Barron** | Gray wolf<br>*Canis lupus* | Endangered | Northern forested areas |
| | Northern long-eared bat<br>*Myotis septentrionalis* | Threatened | Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. During summer, roosts and forages in upland forests. |

| County | Species | Status | Habitat |
|---|---|---|---|
| | Mead's milkweed *(Asclepias meadii)* | Threatened | Upland tallgrass prairie or glade/barren habitat<br><br>**Note:** all the Mead's milkweed sites in Wisconsin are reintroduction attempts and occur on protected conservation lands. |
| | Prairie bush-clover *(Lespedeza leptostachya*) | Threatened | Dry to mesic prairies with gravelly soil |
| **Crawford** | Northern long-eared bat *Myotis septentrionalis* | Threatened | Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. During summer, roosts and forages in upland forests. |
| | Whooping crane (*Grus americanus*) | **Non-essential experimental population | Open wetlands and lakeshores |
| | Higgins eye pearly mussel *(Lampsilis higginsii)* | Endangered | Mississippi River |
| | Sheepnose (*Plethobasus cyphyus*) | Endangered | Shallow areas in larger rivers and streams |
| | Spectaclecase (*Cumberlandia monodonta*) | Endangered | Mississippi River<br>**Note:** EO for Crawford county is historic-last observation 1982 |
| | Rusty patched bumble bee *Bombus affinis*<br><br>**Note for project proponents**: this bee is not known to occur throughout the entire counties. To determine if your project or ongoing action is within an area that is likely to have the rusty patched bumble bee, use our online tool at https://ecos.fws.gov/ipac/ | Endangered | Grasslands with flowering plants from April through October, underground and abandoned rodent cavities or clumps of grasses above ground as nesting sites, and undisturbed soil for hibernating queens to overwinter. |
| **Dane** | Northern long-eared bat *Myotis septentrionalis* | Threatened | Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. During summer, roosts and forages in upland forests. |
| | Whooping crane (*Grus americanus*) | **Non-essential experimental population | Open wetlands and lakeshores |
| | Higgins eye pearly mussel *(Lampsilis higginsii)* | Endangered | Lower Wisconsin River |
| | Sheepnose (*Plethobasus cyphyus*) | Endangered | Shallow areas in larger rivers and streams |

| County | Species | Status | Habitat |
|---|---|---|---|
| | Rusty patched bumble bee *Bombus affinis*<br><br>**Note for project proponents**: this bee is not known to occur throughout the entire counties. To determine if your project or ongoing action is within an area that is likely to have the rusty patched bumble bee, use our online tool at https://ecos.fws.gov/ipac/ | Endangered | Grasslands with flowering plants from April through October, underground and abandoned rodent cavities or clumps of grasses above ground as nesting sites, and undisturbed soil for hibernating queens to overwinter. |
| | Eastern prairie fringed orchid *(Platanthera leucophaea)* | Threatened | Wet grasslands |
| | Mead's milkweed *(Asclepias meadii)* | Threatened | Upland tallgrass prairie or glade/barren habitat<br><br>**Note:** all the Mead's milkweed sites in Wisconsin are reintroduction attempts and occur on protected conservation lands. |
| | Prairie bush-clover *(Lespedeza leptostachya)* | Threatened | Dry to mesic prairies with gravelly soil |
| **Dodge** | Northern long-eared bat *Myotis septentrionalis* | Threatened | Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. During summer, roosts and forages in upland forests. |
| | Whooping crane (*Grus americanus*) | **Non-essential experimental population | Open wetlands and lakeshores |
| | Rusty patched bumble bee *Bombus affinis*<br><br>**Note for project proponents**: this bee is not known to occur throughout the entire counties. To determine if your project or ongoing action is within an area that is likely to have the rusty patched bumble bee, use our online tool at https://ecos.fws.gov/ipac/ | Endangered | Grasslands with flowering plants from April through October, underground and abandoned rodent cavities or clumps of grasses above ground as nesting sites, and undisturbed soil for hibernating queens to overwinter. |
| **Door** | Northern long-eared bat *Myotis septentrionalis* | Threatened | Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. During summer, roosts and forages in upland forests. |
| | Hine's emerald dragonfly *(Somatochlora hineana)* | Endangered | Calcareous streams & associated wetlands overlying dolomite bedrock |



# ATTACHMENT 4

A Literature and Records Search on the Previously Reported Cultural Resources in and Near the Yahara Hills Golf Course in Madison, Dane County, Wisconsin (ACS, November 2021)


# *A LITERATURE AND RECORDS SEARCH ON THE PREVIOUSLY REPORED CULTURAL RESOURCES IN AND NEAR THE YAHARA HILLS GOLF COURSE IN MADISON, DANE COUNTY, WISCONSIN*

***REPORT OF INVESTIGATIONS NO. 2185***

***PREPARED BY:***

***PHILIP H. SALKIN***
***ARCHAEOLOGICAL CONSULTING AND SERVICES, INC.***
***POB 260274***
***MADISON, WISCONSIN 53726-02274***

***NOVEMBER, 2021***

## *PROJECT SUMMARY*

Title: A Literature and Records Search on the Previously Reported Cultural Resources in and Near the Yahara Hills Golf Course in Madison, Dane County, Wisconsin

I.D.: ACS 2185

Principal Investigator: Philip H. Salkin
Archaeological Consulting and Services, Inc.
POB 260274
Madison, Wisconsin 53526-0274

Project Personnel: Lauren Glover

Contractor: Dane County Department of Waste and Renewables
7102 USH 12
Madison, Wisconsin 533718

Methods: Literature and Records Search

Results of the Study:
No previously reported archaeological sites lie within the project area, although the closest is approximately 350 meters to the north. Several Euro-American farmsteads were within the project area prior to the development of the golf course. No standing buildings or other structures in the project area are listed on the Wisconsin Architectural/Historical Inventory, but the 1967 Club House is immediately to the west.

Recommendations:
Portions of the project area to be disturbed by the potential landfill should be archaeologically survey prior to construction. However, portions of the project area were not well-drained in the past and most of it has been disturbed by cultivation and then the construction of the golf course. Consultation with the State Historic Preservation Office and the Wisconsin DNR will help to craft the best approach to any archaeological studies, considering the lack of previously reported archaeological sites and wet and/or disturbed conditions.

Date of Research: November, 2021
Date of Report: November, 2021

## *Abstract*

In November, 2021, the author conducted a literature and records search on the previously reported cultural resources associated with the potential redevelopment of a portion of the Yahara Golf Course into a landfill in the City of Madison, Wisconsin. In the course of the study, various data sources were checked on the previously reported Native American and Euro-American archaeological resources in and around the project area. The Wisconsin Architectural and Historical Inventory was examined to see if any potential significant architectural resources might be impacted.

The study indicated that no previously reported archaeological sites lie in the project area. However, sites are reported for the Rodenfeld Landfill area north of USH 12/18 in Sec. 25, T7N, R10E, the closest within about 350 meters of the project area. Other sites lie with 1.6km away in surrounding sections. Using old maps and plats and the 1937 aerial photos, it is clear that a small number of mid-19$^{th}$ to mid-20$^{th}$ century farmsteads were located within the project area. The Yahara Hills Club House is listed on the Wisconsin Architectural and Historical Inventory. While not in the project area, it might be visually impacted depending on the design of the proposed landfill.

This study indicated several things about the physical setting of the golf course. As indicated by the 1939 Wisconsin Economic Inventory Map, much of the area was cultivated for generations prior to the development of the golf course. This would have impacted archaeological sites within the project area, although deeper deposits may have survived undisturbed. Most of the project area was impacted by grading for its development. Depending on the depth of the excavations, this may have further impacted any archaeological resources present. Importantly, the 1978 soil manual indicates the presence of somewhat poorly or poorly drained soils in portions of the golf course. This is also indicated by early maps. Such areas have a lower archaeological potential, although sites may present on their periphery. Any draining and filling of wetlands would have also impacted potential sites.

The recommendations for this project are to examine any records on the construction of the course. This will help determine which areas were disturbed beyond typical agricultural impacts. In coordination with the State Historical Preservation Office and the Wisconsin DNR, this may help to eliminate the need for archaeological survey in some areas. This is also true for poorly drained soils, especially those impacted by drainage and filling activities, or it could call for less intensive archaeological investigations.

## *Table of Contents*



## *Figures*

## ***Introduction***

In November, 2021, the author conducted a literature and records search on the previously reported cultural resources in and near a portion of the Yahara Hills Golf Course in Madison, Wisconsin. The project relates to the potential redevelopment of a portion of the golf course into a landfill. The project area is approximately 149.4 hectares (369 acres) in size. It includes most of the SE1/4, Sec. 25, and portions of the SW1/4, Sec. 25, the SE1/4, NW1/4, Sec. 25, the SW1/4, NE1/4, Sec. 25 and the N1/2, N1/2, Sec. 36, T7N, R10E, Dane County.

The study was conducted by the author with the assistance of Lauren Glover of Archaeological Consulting and Services, Inc. of Madison, Wisconsin. It was conducted for Dane County Department of Waste and Renewables.

***The General Area***

The project area is located in east-central Dane County in the south-central portion of the state (Figs. 1-2). This part of Wisconsin lies in the Eastern Ridges and Lowlands Province, a region distinguished by a relatively level topography with elevations from about 140 to 378 meters m.s.l. It is dominated by cuestas; ridges with steep escarpments on one side and long, gentle slopes on the other (Martin 1965: 212). The bedrock in the general project area is complex with Cambrian sandstones, dolomites and shales, sandstones, limestones and conglomerates of the St. Peter Formation and dolomites, sandstones and shales of the Prairie du Chien Group (Wisconsin Geological and Natural History Survey 1981). This is covered in this area with ground moraines, with small areas of end moraines and outwash deposits (Wisconsin Geological and Natural History Survey 1976). Numerous drumlins are found in this portion of Wisconsin (Martin 1965: 258, Fig. 91).

Prior to the intensive utilization of the region by Euro-American populations, the vegetation cover consisted of oak-savanna and prairie. The former included upland stands of bur, white and black oak, with a mesic prairie understory and lowland stands of swamp white oak with a wet, mesic prairie understory (Curtis 1959: 326). The latter were dominated by non-arboreal species of grasses (such as bluestem), forbs and some woody plants (ibid: 262). Finley (1976) shows the area as covered by oak stands, mixed hardwood stands and marsh and sedge meadows.

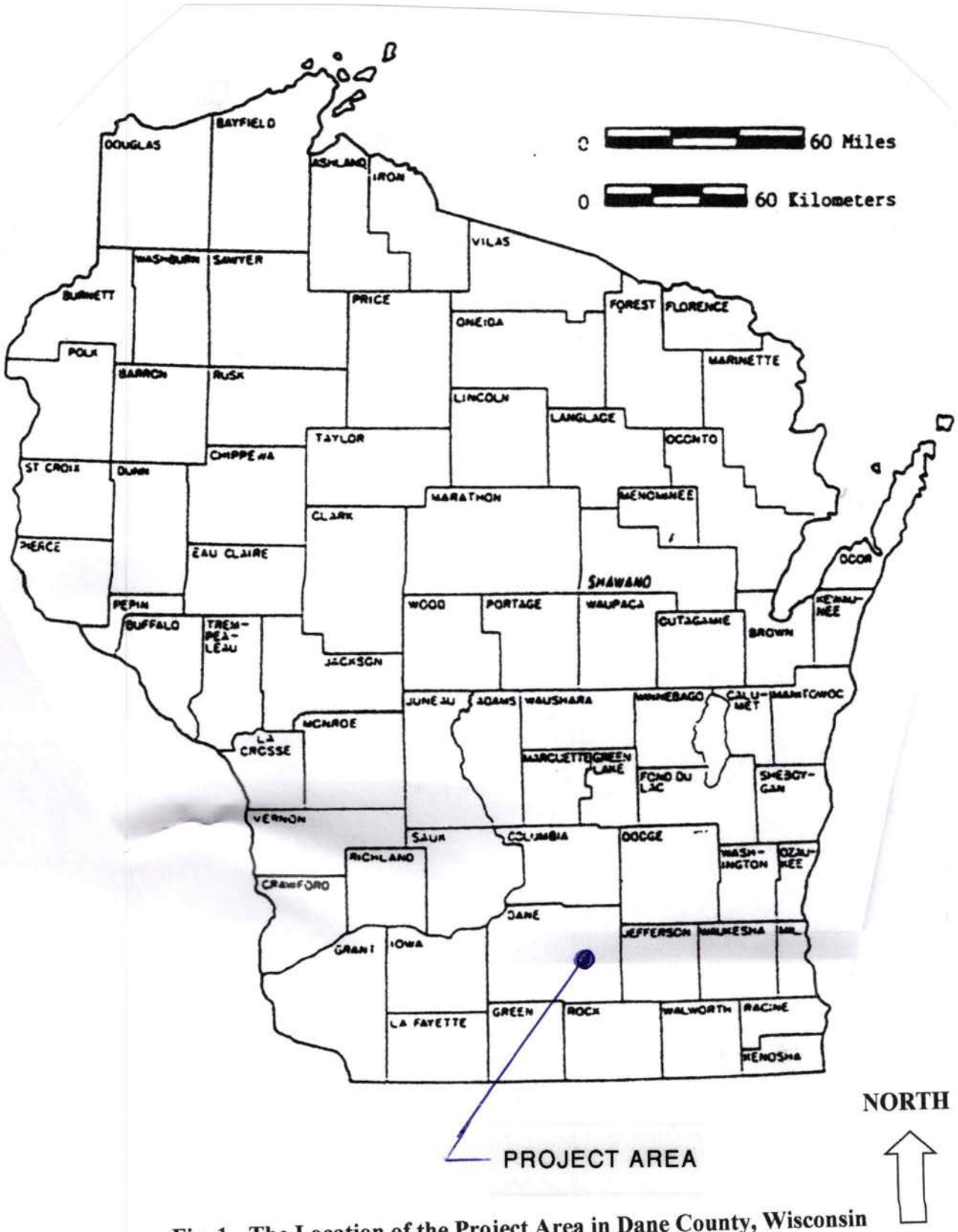



**Fig. 1 - The Location of the Project Area in Dane County, Wisconsin**

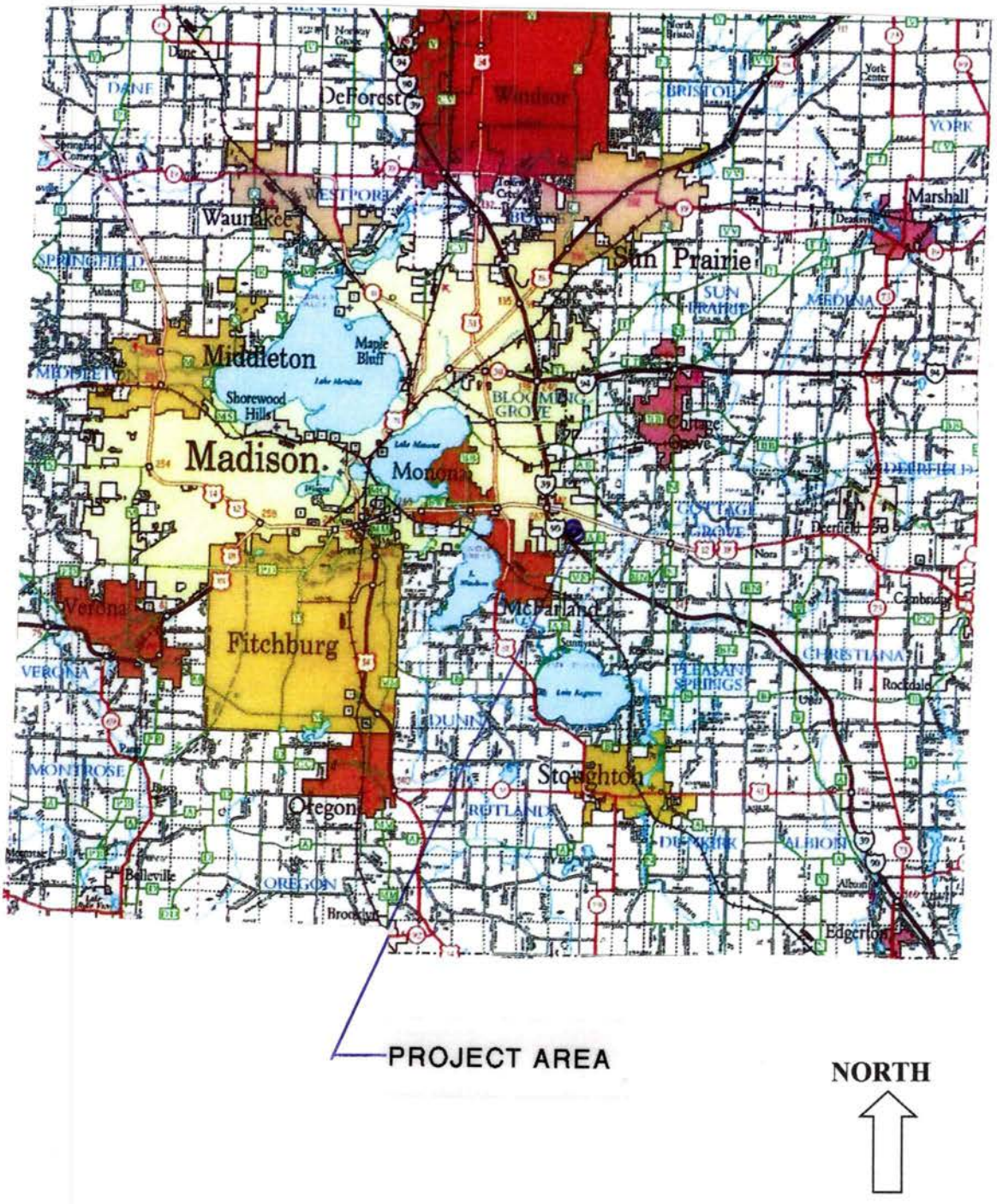



**Fig. 2 - The Location of the Project Area in Dane County (WisDOT Map)**

***The Project Area***

The project area is located south of USH 12/18 and north of I-90. To the east is CTH 'AB" (Figs. 3-5). Much of the golf course can be described as level to gently rolling, but there is a general slope uphill to the southeast, Elevations range from approximately 265 meters m.s.l. near the club house to 280 meters m.s.l. in the southeastern corner.

In terms of vegetation, the project area was developed as two golf courses in the 1960's. It opened as a 122 ha. (400 acre) facility in 1968. The 1939 Wisconsin Economic Inventory Map (Fig. 5 ) shows most of the project area in agricultural use. However, it does show an area covered by marsh grass in the NE1/4, SW1/4, Sec. 25 into the SE1/4, NW1/4, Sec. 25, T7N, R10E.

As might be expected in a facility this size, there are a variety of soil types present. The largest portion lies in an area of Dodge silt loam, 2-6% slopes soils (Fig. 7), This a well-drained soil found of the tops of ridges and on upper side slopes. They form in loess over sandy loam glacial till under a cover of mixed hardwoods (Glocker and Patzer 1978: 22). Another well-drained soil present is the McHenry silt loam, 6-12% slopes, eroded type. This is found on middle side slopes. It forms in thin loess and sandy loam glacial till under thin stands of mixed hardwoods (ibid: 43-44).

The project area also has significant areas with less well-drained soils. These include:

Orion silt loam, wet – somewhat poorly drained soil found on low bottoms in stream valleys – formed in recent silty alluvium and dark colored, older silty alluvium under a cover of mixed hardwoods (Glocker and Patzer 1978: 48) – areas of such soils may require deeper shovel testing as older archaeological materials might lie in the older alluvial layer

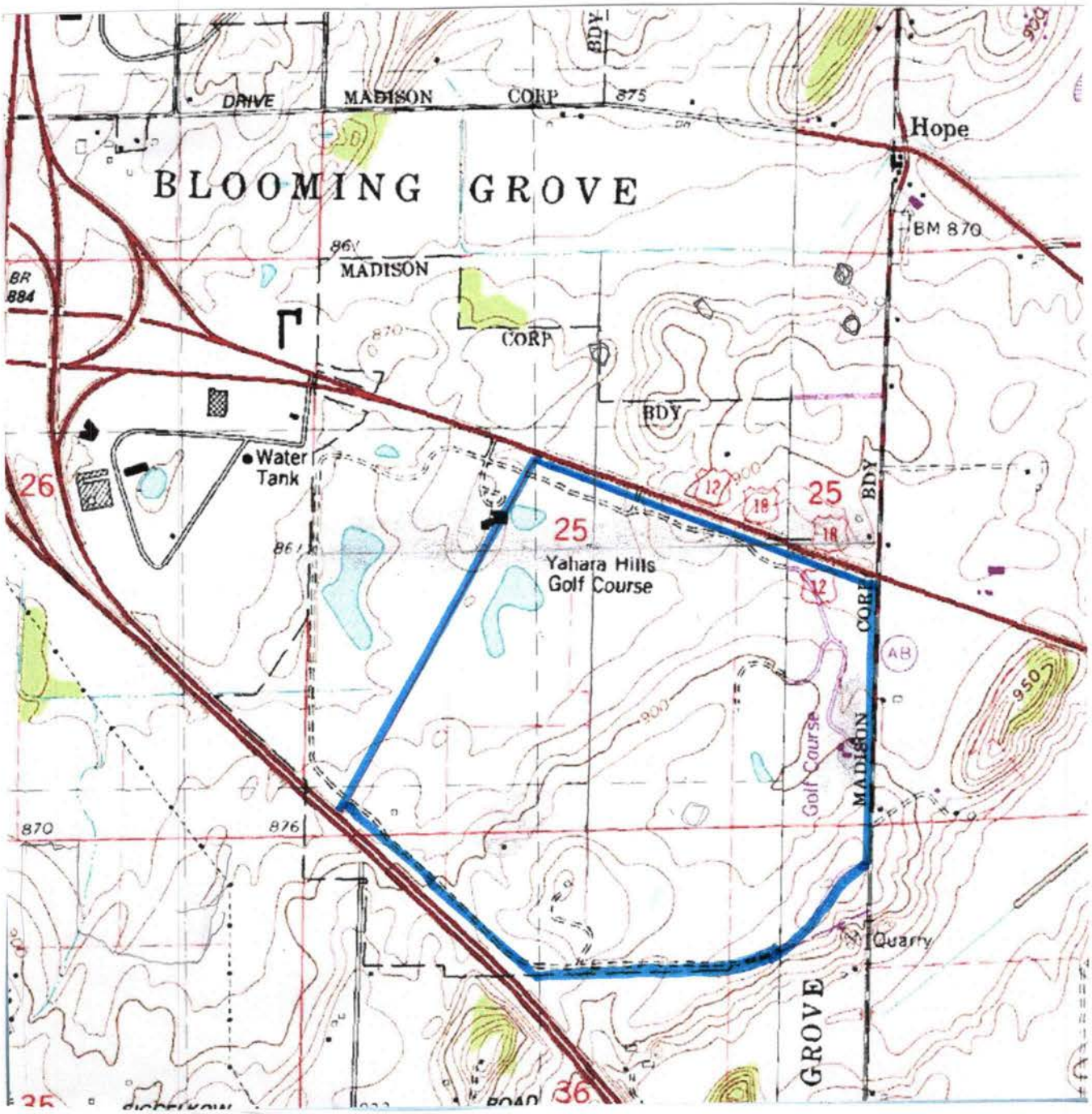



**Fig. 3 – The Topography of the General Project Area**

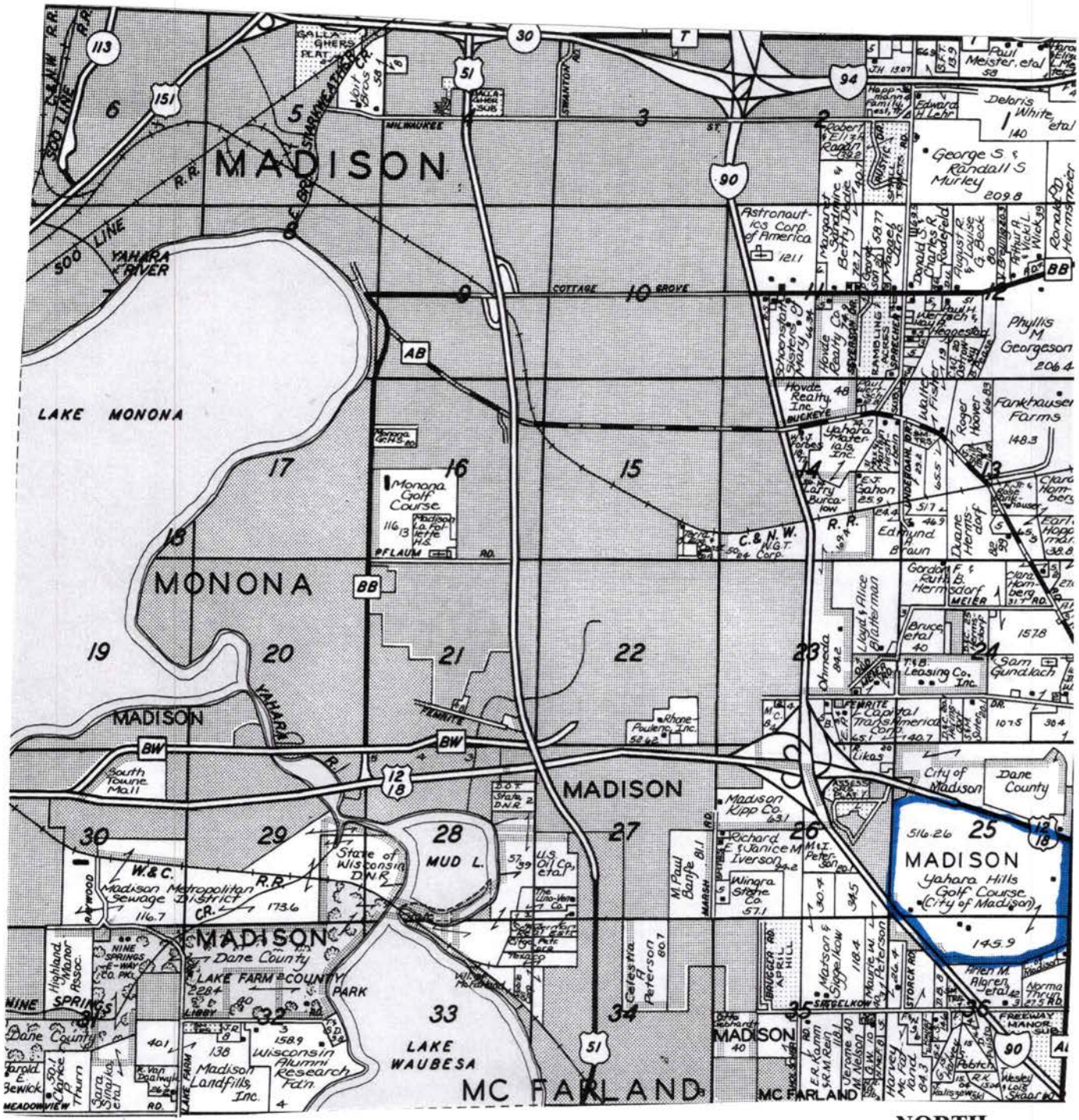



**Fig. 4 – The Location of the Project Area in the City of Madison**


**Fig. 5 – Aerial View of the Yahara Hills Golf Course**

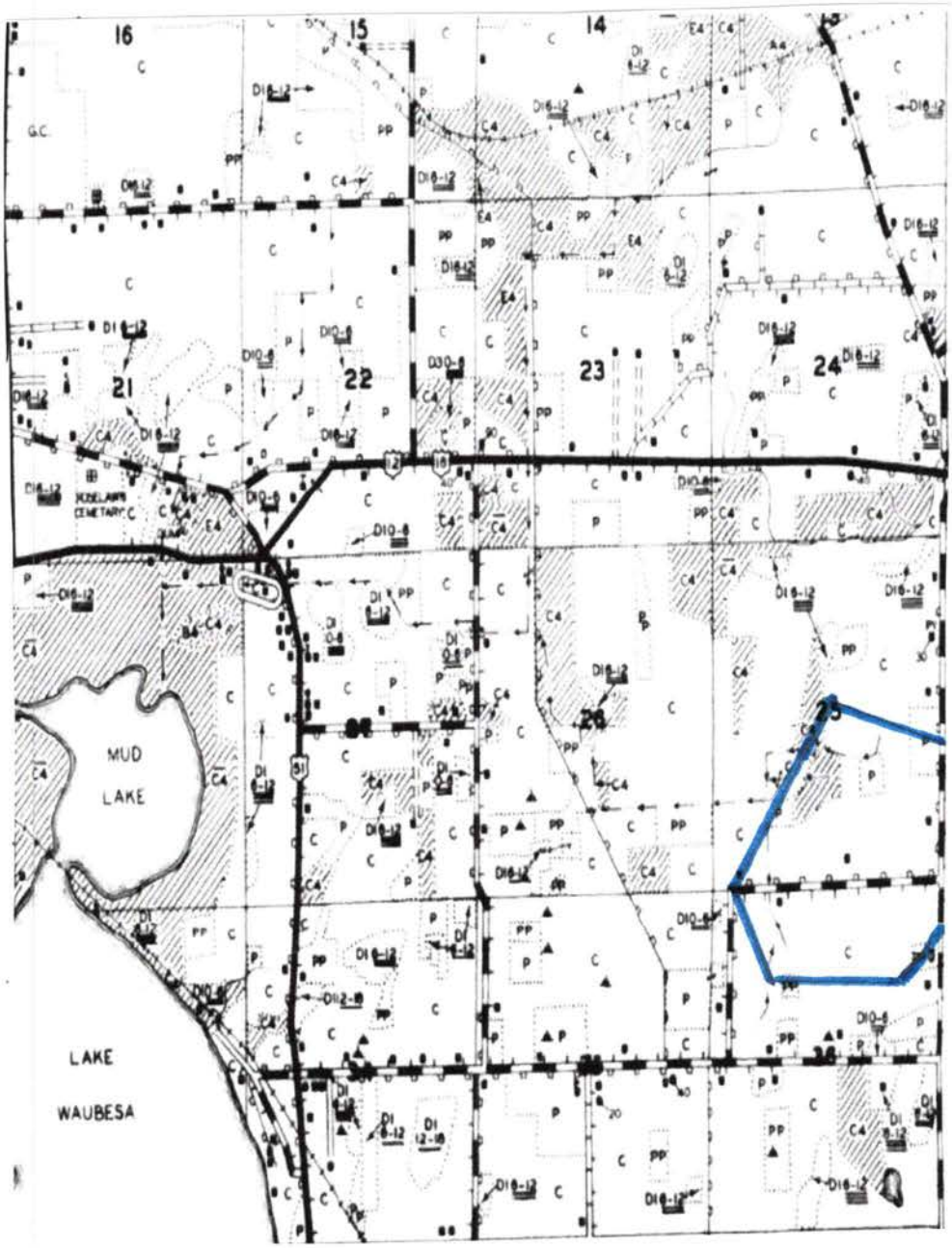



**Fig. 6 – The Land Use in the General Project Area in 1939**
**(Wisconsin Economic Inventory Map)**
**C – Cropland C4 – Marsh Grass**

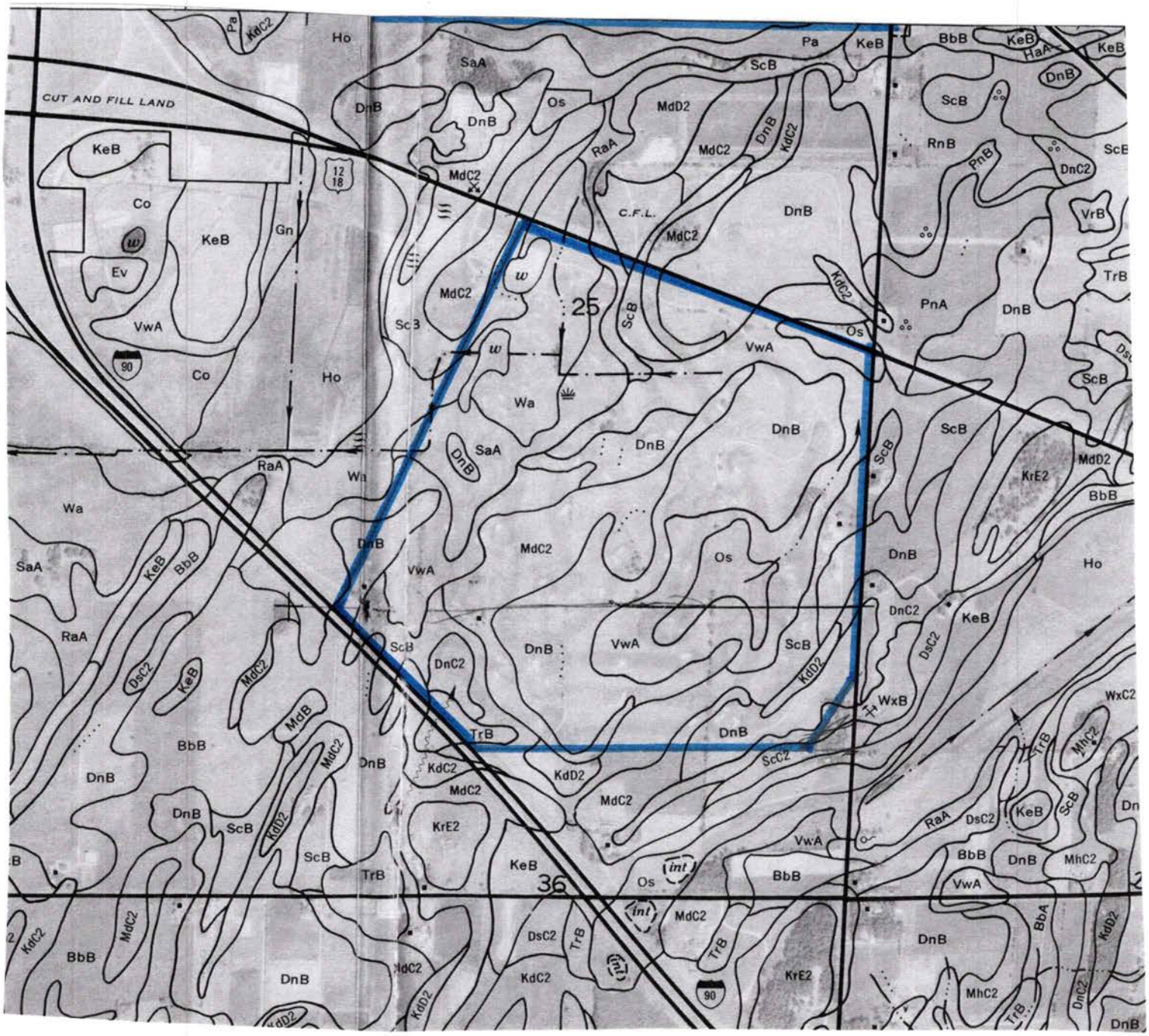



**Fig. 7 – Soils in the General Project Area**
**(Glocker and Patzer 1978)**
**DnB – Dodge silt loam, 2-6% slopes  Or – Orion silt loam, wet**
**VwA – Virgil silt loam, gravel substratum 0-3% slopes**
**Wa – Wacousta silty clay loam  MdC2 – McHenry silt loam, 6-12% slopes, eroded**

Virgil silt loam, gravelly substratum, 0-3% slopes – somewhat poorly drained soil found on convex benchlands on outwash plains – formed in loess and glacial till or sand and gravel outwash under a cover of mixed hardwoods with a grassy understory (Glocker and Patzer 1978: 69)

Wacousta silty clay loam – poorly drained soil found on low benches in old lake basins – formed under sedges in silt with some fine layers of sand (ibid: 70).

The significance of these areas with somewhat poorly to poorly drained soils is that archaeological sites, especially larger occupations are less likely to be found in these locations.

There are only limited water resources in the project area at this time. These include the two ponds in the project area and the two immediately to the west (Fig. 3). However, the ponds relate to the development of the golf course. They do not appear on the 1937 aerial photograph of the area. The ponds suggest relatively wet conditions in the area. This is supported by the soils present. Further, the 1834 G.L.O. map (Fig. 8), the 1862 plat map (Ligowsky 1862) and the 1904 U.S.G.S. map show significant marshes in the western portion of the project area .

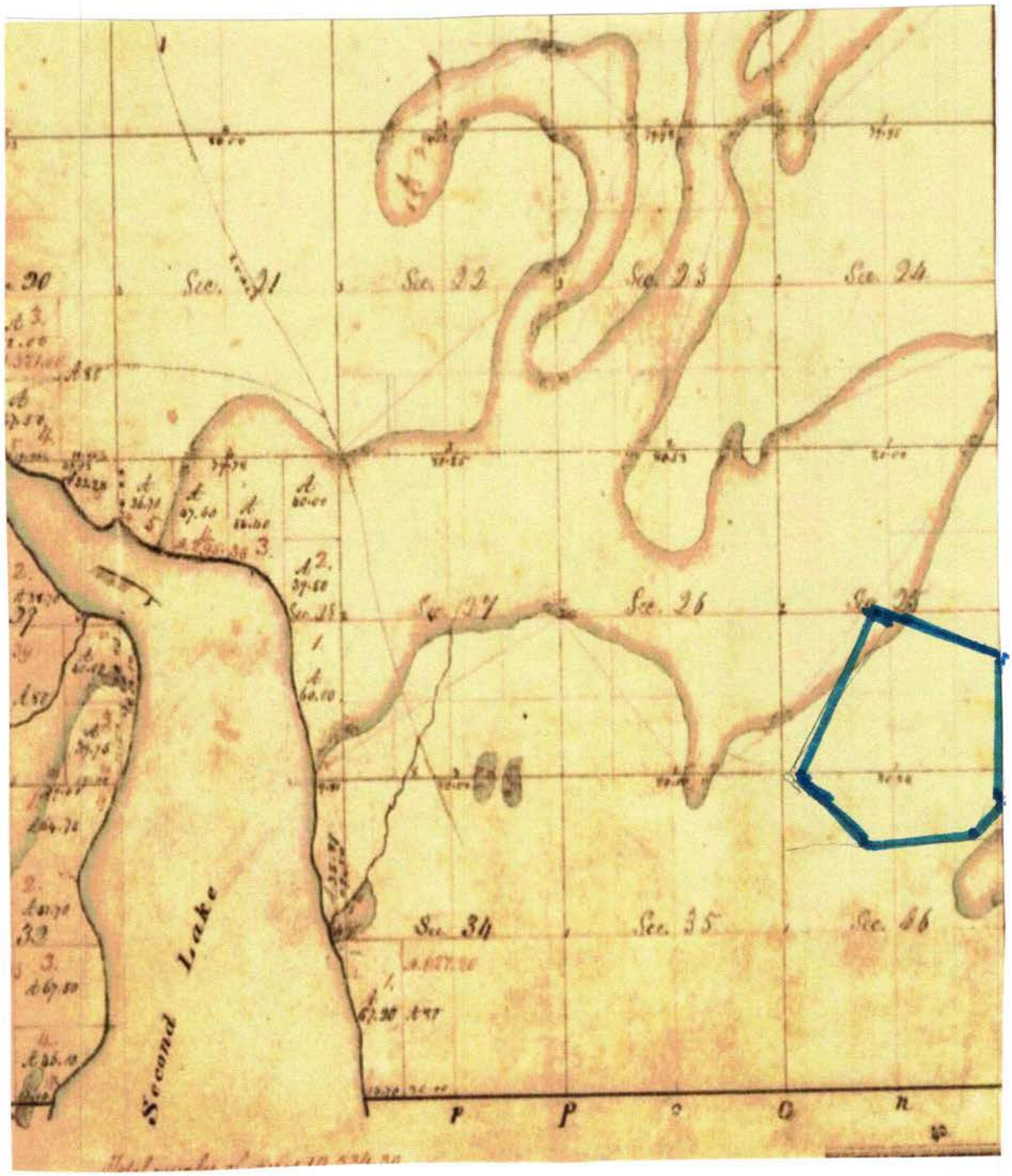



**Fig. 8 – The General Project Area on the 1834 G.L.O. Map**

***Previously Reported Cultural Resources in and Near the Project Area***

In conducting the literature and records search was conducted on the project area, the following data sources were reviewed:

Site files and archives of the Wisconsin Historic Preservation Division

Archives Division of the State Historical Society of Wisconsin

Archives of Archaeological Consulting and Services, Inc. (various reports on projects within 2.0km of this project area)

"A Literature and Records Search on the Prehistoric Cultural Resources o Dane County, Wisconsin" (Salkin 1983)

National Register of Historic Places

Charles E. Brown Atlas

Charles E. Brown Manuscripts

Wisconsin Archeologist

Local and County Histories.

The literature and records search indicated that the following sites are those closest to the project area (all sites in T7N, R10E);

47DA-1068 – Locus 1 – Sec. 25 – Native American occupation – 7 artifacts – approx. 350m north of the project area

47DA-1070 – Locus 3 – Sec. 25 – isolate Native American artifact – approx. 515m north of the project area

47DA-0049 – Sigglekow Mounds – Sec. 35 – Native American mound group – approx.. 525m southwest of the project area

47DA-1071 – Locus 4 – Sec. 25 – isolated Native American artifact – approx.. 680m north of the project area

47DA-1069 – Locus 2 – Sec. 25 – Native American occupation – approx. 850m north of the project area

47DA-0624 – Sec. 35 - Koch 4 Site – Native American occupation with a Woodland Tradition component – approx. 900m southwest of the project area

47DA-0306 – Soiney Group - Sec. 26 – Native American mound group – probably destroyed – approx. 1.0km west of the project area

47DA-0034 – Schimming Mound – Sec. 24 – single linear Native American mound – approx. 1.15km northwest of the project area.

47DA-1358 – Marsh Road I Site – Sec. 26 – Native American occupation – approx.. 1.6km west of the project area

Thus, no Native American sites were previously located in, or immediately near the project area. The nearest sites were those identified within the bounds of a survey area for the Rodenfeld Landfill north of USH 12/18 (Stoltman 1982, Salkin 2012).

In terms of Euro-American resources, a review of available plats from 1862 to 1955, show a small number of Euro-American farmsteads located within the project area. For example, the 1862 plat shows the following farmsteads:

Sec. 25 – SE1/4, SW1/4, SE1/4 – Lamp
Sec. 25 – C., S1/2, SW1/4, SW1/4 – Messner
Sec. 36 – NW1/4, NE1/4, NW1/4 – Sigglekow.

In 1873, the following farms are noted:

Sec. 25 – SE1/4, SW1/4, SE1/4 – Lamp
Sec. 25 – SE1/4, NE1/4, SE1/4 – Keen (?)
Sec. 25 – C., S1/2, SW1/4, SW1/4 – Messner
Sec. 36 – NE1/4, NE1/4, NW1/4 – Messner

Houses remained in those approximate locations into the 1950's. The 1937 aerial appears to show four farms with the addition of the E. Brand property in the NE1/4, SE1/4, SE1/4, Sec. 25, T7N, R10E.

It can be difficult to rely on plat maps for the location of structures. Some maps do not show houses at all. The location of homes may vary from map to map. The significance of mid-19th to 20th century farmsteads as archaeological sites varies. Sites with extant basements might be the location of interesting artifacts, although if the farm was long-lived, such materials are often overwhelmed by more modern mass-produced items.

A review of the Wisconsin Architectural Historical Inventory indicated that no listed properties lie in the project area. However, the Yahara Hills Golf Club, immediately to the west is listed (Ref. 227030). The potential visual impact of the development of a landfill should be investigated.

***Summation and Recommendations***

In November, 2021, the author conducted a literature and records search on the previously reported cultural resources associated with the potential redevelopment of a portion of the Yahara Golf Course into a landfill in the City of Madison, Wisconsin. In the course of the study, various data sources were checked on the previously reported Native American and Euro-American archaeological resources in and around the project area. The Wisconsin Architectural and Historical Inventory was examined to see if any potential significant architectural resources might be impacted.

The study indicated that no previously reported archaeological sites lie in the project area. However, sites are reported for the Rodenfeld Landfill area north of USH 12/18 in Sec. 25, T7N, R10E, the closest within about 350 meters of the project area. Other sites lie with 1.6km away in surrounding sections. Using old maps and plats and the 1937 aerial photos, it is clear

that a small number of mid-19th to mid-20th century farmsteads were located within the project area. In some situations, these might provide information on the early Euro-American settlement of the area. Finally, the Yahara Hills Club House is listed on the Wisconsin Architectural and Historical Inventory. While not in the project area, it might be visually impacted depending on the design of the proposed landfill.

This study indicated several things about the physical setting of the golf course. As indicated by the 1939 Wisconsin Economic Inventory Map, much of the area was cultivated for generations prior to the development of the golf course. This would have impacted archaeological sites within the project area, although deeper deposits may have survived undisturbed. Most of the project area was impacted by grading for its development. Depending on the depth of the excavations, this may have further impacted any archaeological resources present. Importantly, the 1978 soil manual indicates the presence of somewhat poorly or poorly drained soils in portions of the golf course. This is also indicated by early maps. Such areas have a lower archaeological potential, although sites may present on their periphery. Any draining and filling of wetlands would have also impacted potential sites.

The recommendations for this project are to examine any records on the construction of the course. This will help determine which areas were disturbed beyond typical agricultural impacts. In coordination with the State Historical Preservation Office and the Wisconsin DNR, this may help to eliminate the need for archaeological survey in some areas. This is also true for poorly drained soils, especially those impacted by drainage and filling activities, or it could call for less intensive archaeological investigations.

## ***Bibliography***

Curtis, John T.
1959 The Vegetation of Wisconsin. University of Wisconsin Press. Madison.

Finley, Robert W.
1976 Original Vegetation Cover of Wisconsin. University of Wisconsin-Extension. Madison.

Glocker, Carl L. and Robert A. Patzer.
1978 Soil Survey of Dane County, Wisconsin. USDA Soil Conservation Services. Washington, D.C.

Martin, Lawrence.
1965 The Physical Geography of Wisconsin. University of Wisconsin Press. Madison.

Salkin, Philip H.
1983 A Literature and Records Search on the Prehistoric Cultural Resources of Dane County, Wisconsin. Reports of Investigations, No. 111. Archaeological Consulting and Services, Inc. Verona.

Salkin, Philip H.
1991 An Archaeological Survey of Proposed Improvement to the Odana Hills Golf Course. Reports of Investigations, No. 692. Archaeological Consulting and Services, Inc. Verona.

Salkin, Philip H.
2012 An Archaeological Survey of a Proposed Expansion Area for the Rodenfeld Landfill in Madison, Dane County, Wisconsin. Reports of Investigations, No. 1905. Archaeological Consulting and Services, Inc. Verona.

Salzer, Robert J. and Larry A. Johns.
1992 Final Report of the Dane County Indian Mounds Identification Project. Unpublished Manuscript on file at the Wisconsin Historical Society. Madison.

Stoltman, James B.
1982 A Report of Archaeological Survey on the Site of Possible Landfill Construction East of Madison in Dane County, Wisconsin.

Wisconsin Geological and Natural History Survey.
1976 Geological Deposits of Wisconsin. Wisconsin Geological and Natural History Survey, Map 10. Madison.

Wisconsin Geological and Natural History Survey.
1981 Bedrock Geology of Wisconsin. Wisconsin Geological and Natural History Survey. Madison

**Maps and Plats**

1862 - Map of Dane County, Wisconsin - A. Ligowsky - Madison

1873 - Atlas of Dane County, Wisconsin - Harrison and Warner - Madison

1890 - Plat Book of Dane County, Wisconsin - C.M. Foote and Co. - Minneapolis

1899 - New Atlas of Dane County, Wisconsin - Leonard W. Gray and Co. - Madison

1904 - Atlas of Dane County, Wisconsin - Democrat Printing Co. - Madison

1911 - Standard Historical Atlas of Dane County, Wisconsin - Cantwell Printing Co. - Madison

1922? - Plat Book of Dane County, Wisconsin - W.W. Hixson and Co. - Rockford

1926 - New Atlas of Dane County, Wisconsin - Dane County Atlas Co. - Madison

1931 - Atlas and Plat Book of Dane County, Wisconsin - The Thrift Press – Rockford

1937 – Aerial Photographic Map of 1937

1939 – Wisconsin Economic Inventory Map, Town of Blooming Grove – Wisconsin Economic Inventory Map

1940 - Dane County Plat Book - W.W. Hixson and Co. - Rockford

1947 - Ownership Plat Book of Dane County, Wisconsin - Marathon Map Service – Milwaukee

1955 – Plat Book of Dane County, Wisconsin – Derr Map Studios - Madison

1993 – Plat Book of Dane County – Rockford Map Publishers - Rockford

# ATTACHMENT 5

Archaeological Survey Field Report, USH 12/18, CTH AB Interchange, Dane County, Wisconsin (Commonwealth Heritage Group, October 2020)

# ARCHAEOLOGICAL SURVEY FIELD REPORT

Wisconsin Department of Transportation
DT1978 6/2007 (Replaces ED864)

## PROJECT INFORMATION

| Project ID | Highway/Street | County | SHSW Compliance Number |
|---|---|---|---|
| 3080-01-05 | USH 12/18 | Dane | |

| Project Termini | Project Size |
|---|---|
| CTH AB Overpass/Interchange | 1.7 miles 206.08 acres |

| Township(s) | Town/Range | Sections |
|---|---|---|
| City of Madison, Town of Cottage Grove | 7N/10E \| 7N/11E | 25, 26 \| 30 |

Project Type

☒ Reconstruction ☐ Reconditioning ☐ Bridge ☐ Wetland Mitigation ☐ Other

| Landowners Contacted - If No, Explain | Permits Obtained - If Yes, Attach |
|---|---|
| ☒ Yes ☐ No | ☒ Yes ☐ No |

## LITERATURE SEARCH

| Previously Reported Sites in Project Area | Archaeology and Records Literature Search | Cemetery in Project Area |
|---|---|---|
| ☒ Yes ☐ No | ☒ Attached | ☒ Yes ☐ No |

## FIELDWORK

| Dates of Field Work | Crew Size | Area Surveyed |
|---|---|---|
| 8/13/2020, 8/27/2020, 10/8/2020 | 1 | 72.95 acres |

SURVEY TECHNIQUES - Attach project plans showing survey coverage.

| | | |
|---|---|---|
| ☒ Shovel Testing | ☐ Surface Collection | ☒ Other - Describe<br>133.13 ac previously surveyed; visual observation of disturbed (23.18 ac) and wet (5.74 ac) areas |
| 44.03 acres | acres | |
| 15 m interval | interval | |

Describe Visibility

0% - Entire APE was paved, covered in vegetation, or golf course ponds

LAND USE – Describe. Also, attach map, showing location.

Were there area(s), which were not surveyed? If yes, show on project plans and explain.

☐ Yes ☒ No

Were there area(s), which were extensively impacted? If yes, show on project plans and explain.

☒ Yes ☐ No Most of current survey area was in a heavily disturbed golf course

Comments

One previously identified mound site in APE located within previously surveyed area. Site was described as destroyed by previous construction. Current survey area was shovel tested where possible, obvious areas of disturbance (paved areas, golf course fairways/tees, sand traps) and wet areas were visually inspected

ISOLATED FINDS – Describe. Also, attach map, showing location.

n/a

I certify that the literature search and all fieldwork conducted for this report was done according to the Wisconsin Archeological Survey Guidelines. No archeological sites were identified in the project area.

Commonwealth Heritage Group
(Print Name of Firm or Institution)

Richard W. Edwards VI, PhD, RPA
(Print Name of Archaeologist)

Richard W Edwards IV
(Signature of Archaeologist)

10/13/2020
(Date)

**Note:** Current archaeological methods may not detect buried sites or burial areas. If artifacts, or human remains are discovered during construction, immediately stop construction in that area and notify the Wisconsin Department of Transportation, Bureau of Equity & Environmental Services.

# ARCHAEOLOGICAL LITERATURE AND RECORDS REVIEW

Wisconsin Department of Transportation
DT1459 2/2013

## PROJECT INFORMATION

| Project ID | Highway/Street | County | SHSW Compliance Number |
|---|---|---|---|
| 3080-01-05 | USH 12/18 | Dane | |

Project Termini
CTH AB Overpass/Interchange

| Township(s) | Town/Range | Sections |
|---|---|---|
| City of Madison, Town of Cottage Grove | 7N/10E \| 7N/11E | 25, 26 \| 30 |

USGS Quadrangle(s)
Madison East (1983), Cottage Grove (1991)

## SOURCES RESEARCHED

☒ See Continuation Sheet

☒ OSA USGS Maps ☒ Previous Surveys ☒ CEB Atlas
☒ WI Land Economic Inventory (WLEI) ☐ County History ☒ CEB Manuscripts
☒ Burial Sites Office ☐ Archival Maps:

| Publisher | Year | Publisher | Year |
|---|---|---|---|
| Harrison and Warner | 1873 | Leonard W. Gray & Co. | 1899 |
| C.M. Foote & Co. | 1890 | Democrat Printing Co. | 1904 |

☒ Other GLO survey maps (Lyon 1834)

## SITES IN PROJECT AREA

☐ See Continuation Sheet

| Total Number of Sites | Prehistoric | Historic | Cemeteries/Burials |
|---|---|---|---|
| | 1 | 0 | 1 |

| CODE | TYPE | AFFILIATION |
|---|---|---|
| #47 DA – 0062/BDA-0334 | Mound(s) Linear | Late Woodland |
| #47 – | | |
| #47 – | | |

## SITES WITHIN ONE MILE OF THE PROJECT AREA

☒ See Continuation Sheet

| Total Number of Sites | Prehistoric | Historic | Cemeteries/Burials |
|---|---|---|---|
| | 20 | 4 | 11 |

| CODE | TYPE | AFFILIATION |
|---|---|---|
| # BDA – 0030 | Cemetery/Burial | Historic Euroamerican |
| # BDA – 0031 | Cemetery/Burial | Historic Euroamerican |
| #47 DA – 0034/BDA-0314 | Mound(s) Linear | Late Woodland |

☒ Sites Reported in the Project Area ☒ Sites Reported Within One Mile ☒ No Sites Reported in the Project Area

Research Conducted by: Elissa Hulit; Richard Edwards
Date (m/d/yy): 8/4/2020

I certify that the literature search was done according to the Wisconsin Survey Guidelines.

Richard W. Edwards IV, PhD, RPA
(Print Name of Archaeologist)

Commonwealth Heritage Group, Inc.
(Print Name of Firm or Institution)

X Richard W Edwards IV
(Signature of Archaeologist)

08/05/2020
(Date – m/d/yy)

## SOURCES RESEARCHED *(continued)*

| Publisher | Year | Publisher | Year |
|---|---|---|---|
| Cantwell Printing Co. | 1911 | | |
| W.W. Hixson and Co. | 1922 | | |
| Dane County Atlas Co. | 1926 | | |
| Thrift Press | 1931 | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

## SITES IN PROJECT AREA *(continued)*

| CODE | TYPE | AFFILIATION |
|---|---|---|
| #47 – | | |
| #47 – | | |
| #47 – | | |
| #47 – | | |

## SITES WITHIN ONE MILE OF THE PROJECT AREA *(continued)*

| Total Number of Sites | Prehistoric | Historic | Cemeteries/Burials |
|---|---|---|---|
| | 20 | 4 | 11 |

| CODE | TYPE | AFFILIATION |
|---|---|---|
| #47 DA – 0035/BDA-0315 | Mound (s) Effigy | Late Woodland |
| #47 DA – 0036/BDA-0316 | Mound (s) Conical | Late Woodland |
| #47 DA – 0063/BDA0332 | Mound (s) Linear | Late Woodland |
| #47 DA – 0064/BDA0333 | Mound (s) Linear | Late Woodland |
| #47 DA – 0065/BDA0330 | Mound (s) Linear | Late Woodland |
| #47 DA – 0066/BDA0335 | Mound (s) Linear | Late Woodland |
| #47 DA – 0067/BDA0331 | Mound (s) Other/Unknown | Late Woodland |
| #47 DA – 0492 | Campsite/Village | Unknown Prehistoric |
| #47 DA – 0493 | Campsite/Village | Unknown Prehistoric |
| #47 DA – 0601 | Campsite/Village | Unknown Prehistoric |
| #47 DA – 0723/BDA0525 | Mound (s) Effigy; Lithic Scatter | Late Woodland |
| #47 DA – 1069 | Lithic Scatter | Unknown Prehistoric |
| #47 DA – 1071 | Isolated Finds | Unknown Prehistoric |
| #47 DA – 1358 | Lithic Scatter | Unknown Prehistoric |
| #47 DA – 1468 | Lithic Scatter | Unknown Prehistoric |
| #47 DA – 1469 | Lithic Scatter | Unknown Prehistoric |
| #47 DA – 1470 | HCM Concentration | Unknown Historic |
| #47 DA – 1471 | Isolated Finds | Unknown Prehistoric |
| #47 DA – 1483 | Isolated Finds | Unknown Prehistoric |
| #47 DA – 1523 | Isolated Finds | Unknown Prehistoric |
| #47 DA – 1524 | Isolated Finds | Unknown Historic |

Attachment 1

# WISCONSIN PUBLIC LANDS FIELD ARCHAEOLOGICAL PERMIT

REQUIRED TO CONDUCT ARCHAEOLOGY ON ALL NON-FEDERAL PUBLIC LAND UNDER WIS. STAT. § 44.47

**Wisconsin Historical Society**

Name/Organization/Contact: Robert Watson  Telephone#: 414-446-4121 ext 104

Address: 8669 N Deerwood Dr  City: Milwaukee  State: WI  Zip Code: 53209

E-mail Address: rwatson@chg-inc.com  FAX#: 414-446-4325

Institutional Affiliation: Commonwealth Heritage Group, Inc.

---

**Location:** County: WisDOT Properties  Civil Town: _____

Town: _____  Range: _____  Section: _____  Quarter Sections: _____

Hwy/Rd ☐  Hwy/Rd: _____  Other Type of Project ☐

Project Description: _____

**Type of fieldwork:** Phase I/Survey ☑  Phase II/Testing ☐  Phase III/Excavation ☐  Monitoring ☑

**Purpose of the fieldwork:** Federal Compliance ☑  State Compliance ☑  Education ☐  Other ☑

Site #: _____  Burial Site#: _____  Burial Permit Secured? Y ☐  N ☐

**Dates of field work:** Begin date: January 6, 2020  End date: December 31, 2020

**What institution will curate recovered artifacts, notes, and records?** UWM or MVAC

(*Curation agreement must be on file with WHS; all materials must be curated in an appropriate, staffed facility.*)

Print name: Robert Watson  ☐ see attachments

**Signature of Archaeologist** Robert J Wat  Date: 1-6-2020

Maps and/or Letters of explanation can accompany this application

---

Landowner or custodian name (**print**): Jason Kennedy  Phone: 608-267-6693

Affiliation: Wisconsin Department of Transportation

**Signature of Landowner** Jason Kennedy  Date: 01/06/2020

DO NOT WRITE BELOW THIS LINE

Permit Approved: John H. Broihahn  Date: 8 Jan 2020

**PLP #** 20 002

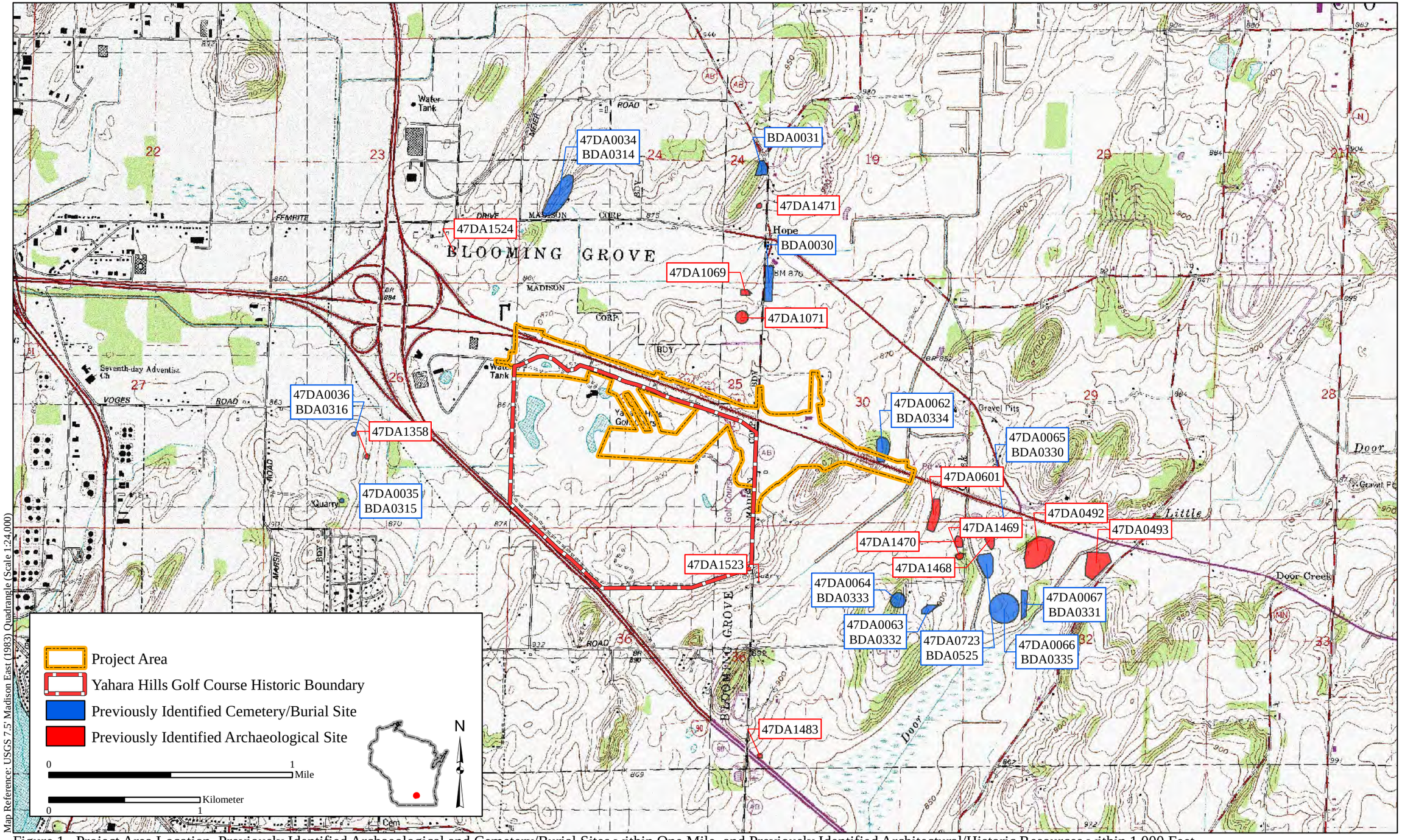
John H. Broihahn
State Archaeologist
Wisconsin Historical Society
816 State Street Madison, WI 53706
FAX: 608-264-6504 / PH 608-264-6496
Email: john.broihahn@wisconsinhistory.org

WISCONSIN HISTORICAL SOCIETY

**One paper copy and one PDF copy of the final report must be submitted to the State Historic Preservation Office.**

**Additional authorization or permitting is necessary to conduct work within the boundaries of uncataloged and cataloged human burial sites under Wis. Stat. § 157.70. For additional information please see:** http://wihist.org/10WqFCf

WisDOT ID 3080-01-05
USH 12/18, CTH AB Overpass/Interchange
Dane County




Map Reference: USGS 7.5' Madison East (1983) Quadrangle (Scale 1:24,000)

Job: W-1756; Date Saved: 10/1/2020 3:17:00 PM

Figure 1. Project Area Location, Previously Identified Archaeological and Cemetery/Burial Sites within One Mile, and Previously Identified Architectural/Historic Resources within 1,000 Feet

WisDOT ID 3080-01-05
USH 12/18, CTH AB Overpass/Interchange
Dane County

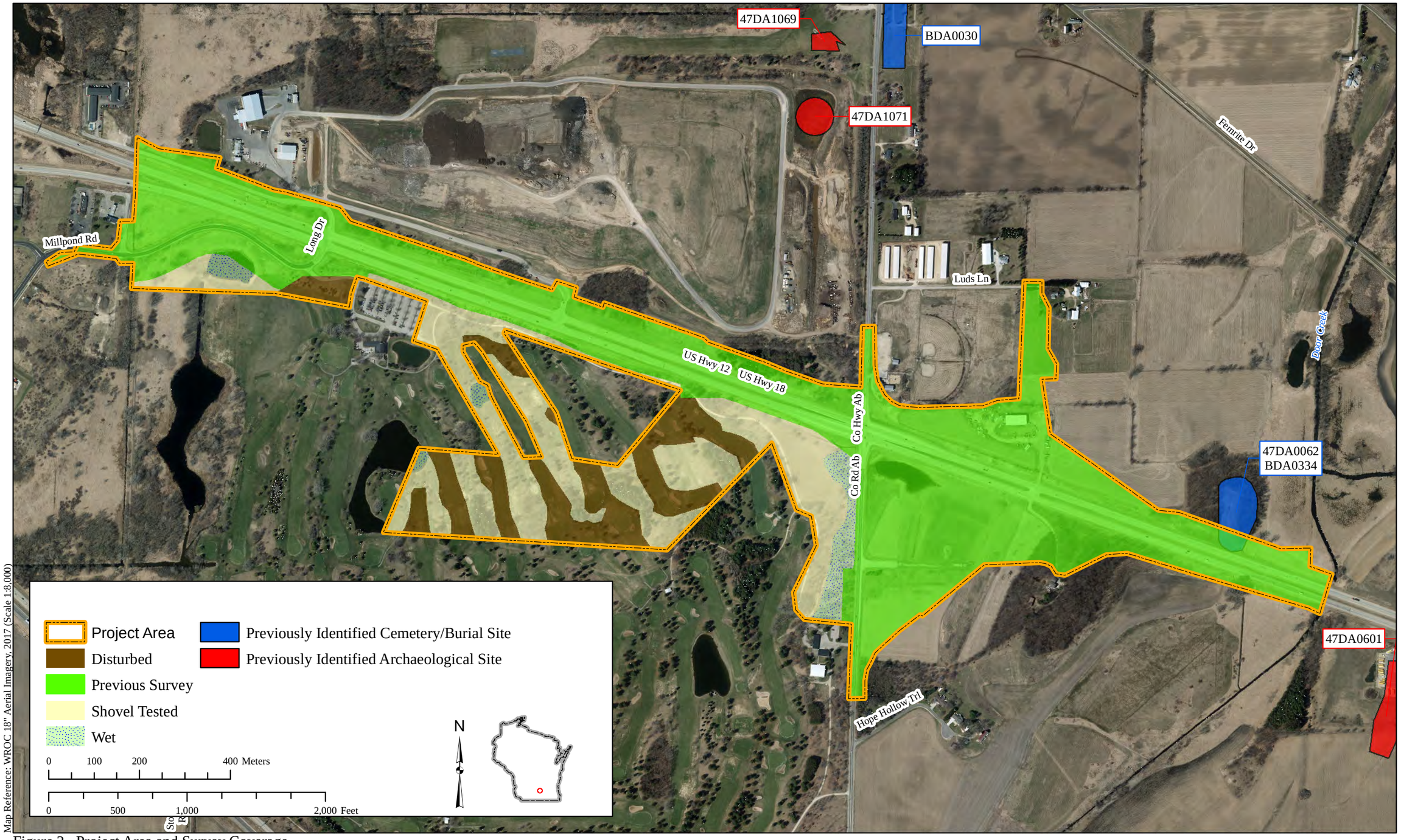



Figure 2. Project Area and Survey Coverage


Figure 3. Project Area Overview, Shovel Tested Portion of Golf Course, View East


Figure 4. Project Area Overview, Wetland at West Edge of APE, View East

Figure 5. Project Area Overview, Shovel Tested Portion East of Golf Course, View Southeast

Figure 6. Project Area Overview, Wetland East of Golf Course, View South

# ARCHAEOLOGICAL REPORT INVENTORY FORM

WHS/SHSW # COUNTY Dane

AUTHORS: Richard W. Edwards, IV

REPORT TITLE: Archaeological Survey Field Report, USH 12/18, CTH AB Overpass/Interchange, Dane County, Wisconsin.

DATE OF REPORT (MONTH AND YEAR): October 2020

SERIES/NUMBER: WR-1762

PLACE OF PUBLICATION: Commonwealth Heritage Group, Inc., Milwaukee, Wisconsin

LOCATIONAL INFORMATION [LEGAL DESCRIPTION OF SURVEY AREA (T-R-S)]
T7N-R10E-25, 26 | T7N-R11E-30

U.S.G.S. QUAD MAP(S): Madison East (1983), Cottage Grove (1991)

SITE(S) INVESTIGATED: None

ACRES INVESTIGATED: 72.95 AGENCY # 3080-01-05

INVESTIGATION TECHNIQUES COMPLETED (Check all that apply.)

| | | |
|---|---|---|
| ☐ Avocational Survey | ☐ Chance Encounter | ☐ Historical Research |
| ☐ Faunal Analysis | ☐ Floral Analysis | ☐ Interview/Informant |
| ☒ Literature Background Research | ☐ Major Excavation/Phase III | ☐ Mechanical Stripping |
| ☐ Monitoring | ☐ Osteological Analysis | ☐ Geomorphology |
| ☒ Records/Background | ☒ Surface Survey | ☐ Soil Core |
| ☐ Remote Sensing | ☐ Shovel Testing/Probing | |
| ☐ Test Excavation/Phase II | ☐ Traditional Knowledge | |
| ☐ Underwater | ☒ Walk Over /Visual Inspection | |

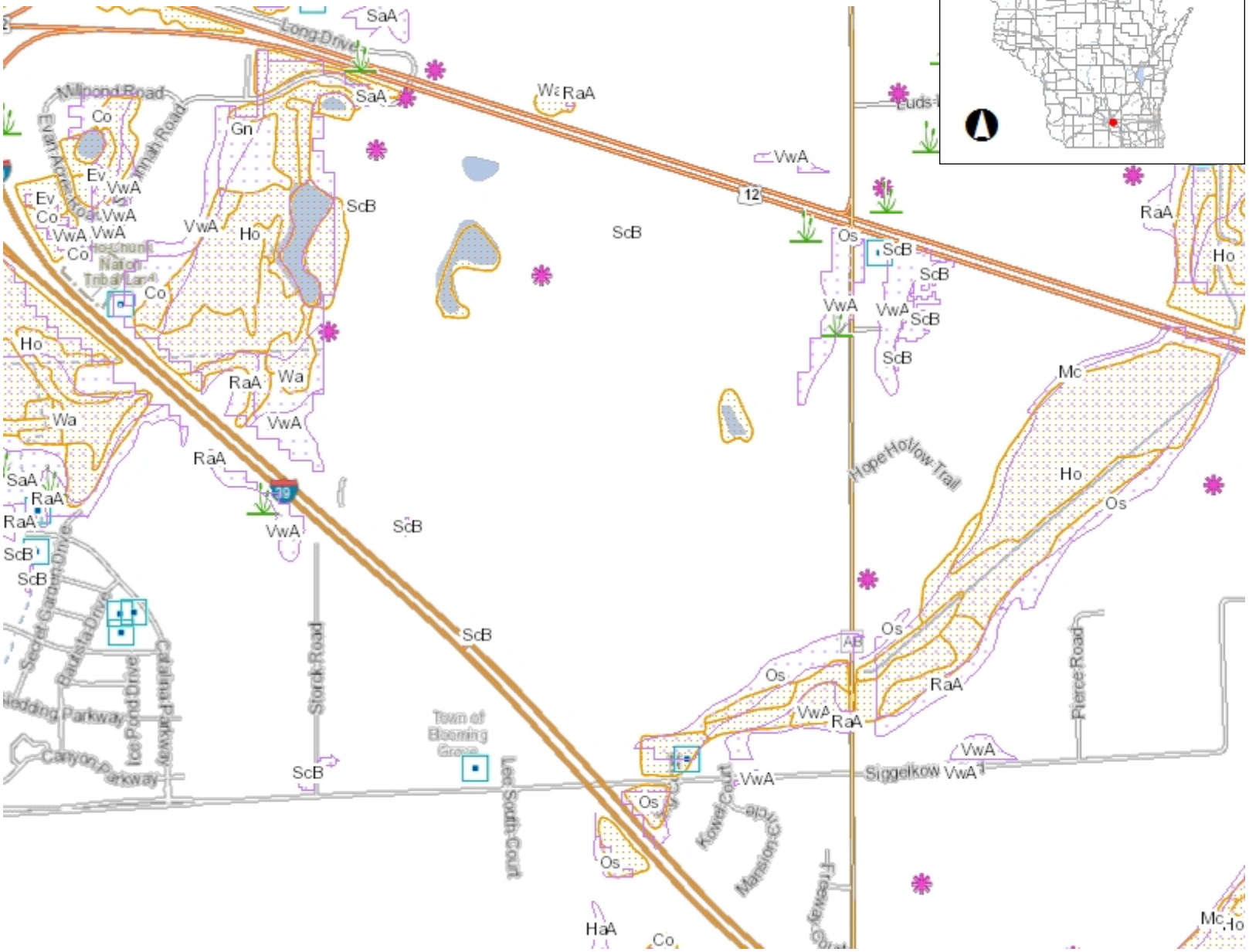
ABSTRACT: ☐ Included in report ☒ Written in space below

In August and October 2020, Commonwealth Heritage Group, Inc. (Commonwealth) conducted archaeological survey for a proposed WisDOT project in Dane County to remove the at-grade Millpond Road/Long Drive and CTH AB intersections on USH 12/18 and construct a new grade-separated interchange at CTH AB. Most of the Area of Potential Effects (APE) was previously surveyed (133.13 ac), including one previously identified mound site (47DA0062/BDA0334) that was determined to have been destroyed. The portion of the APE not previously surveyed included paved surfaces, vegetated areas, and an active golf course. Shovel testing was implemented throughout this portion of the APE (44.03 ac). No cultural materials or features were identified during survey. Based on the results of the archaeological survey, Commonwealth concludes that the project will have no effect on archaeological historic properties.

# ATTACHMENT 6

WDNR Surface Water Data Viewer Map of Wetlands and Wetland Indicator Soils (March 11, 2022)

# Surface Water Data Viewer Map
# Wetlands and Wetland Indicator Soils




## Legend

- Wetland Indicators
- Wetland Class Areas
- Wetland Class Points
  - Dammed pond
  - Excavated pond
  - Filled/drained wetland
  - Wetland too small to delineate
  - Filled excavated pond
- Filled Points
- Wetland Class Areas
- Filled Areas
- Wetland Class Areas
- Wetland Class Points
  - Dammed pond
  - Excavated pond
  - Filled/drained wetland
  - Wetland too small to delineate
  - Filled excavated pond
- Filled Points
- Wetland Class Areas
- Filled Areas
- Wetland Identifications and Confirmations
- NRCS Wetspots
- Municipality
- State Boundaries
- County Boundaries
- Major Roads
  - Interstate Highway
  - State Highway
  - US Highway
- County and Local Roads
  - County HWY
  - Local Road
- Railroads

## Notes

0.5 0 0.25 0.5 Miles

NAD_1983_HARN_Wisconsin_TM

1: 15,840

Attachment B - Initial Site Inspection Response, dated May 11, 2022

**State of Wisconsin**
**DEPARTMENT OF NATURAL RESOURCES**
**3911 Fish Hatchery Road**
**Fitchburg WI 53711-5397**

**Tony Evers, Governor**
**Preston D. Cole, Secretary**
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

May 11, 2022

File Ref: FID 113450480
Dane County
SW/CORR

Mr. John Welch
Director of Waste & Renewables
Dane County Landfill
1919 Alliant Energy Center Way
Madison, WI 53713

Subject: Initial Site Inspection Response - Proposed Dane County Landfill Site #3
6701 US Highway 12 & 18, Madison, Wisconsin

Dear Mr. Welch:

This letter documents the initial site inspection (ISI) performed by the Department of Natural Resources (department) on April 14, 2022, for the proposed Dane County Landfill Site #3, and the department's preliminary opinion regarding the suitability of the site location. Department staff conducted the initial site inspection with staff from Dane County Waste & Renewables (county) and representatives from Tetra Tech, the county's consultant. The purpose of the inspection was to identify any potential conflicts the proposed development might have with the location and performance standards in s. NR 504.04, Wis. Adm. Code.

As part of the inspection, the department evaluated the information in Tetra Tech's March 17, 2022 ISI request letter submitted on behalf of the county. According to the letter, the proposed development consists of an approximate 230-acre parcel located in the SE¼ of Section 25 and the N½ of the NE¼ of Section 36, T17N, R10E, and is currently developed as the City of Madison Yahara Hills Golf Course.

Based on the review of the March 17, 2022 ISI request and observations from the ISI, the department's preliminary opinion regarding the suitability of site location is that the site location has potential. However, there may be some conflicts with the locational criteria contained in s. NR 504.04(3), Wis. Adm. Code, that will need to be addressed. If there are conflicts that cannot be satisfactorily addressed in accordance with applicable requirements, the conflicts would be constraints to site development.

Summary of Locational Criteria: As described in s. NR 504.04(3)(a) to (i), Wis. Adm. Code, there are several locational criteria that apply to the proposed landfill development. The proposed limits of filling may not be located within:

(a) *1,000 feet of any navigable lake, pond or flowage.* According to the ISI request, the proposed limits of waste are located within 1,000 feet of a navigable lake, pond or flowage. According to the department's Surface Water Data Viewer (SWDV), an unnamed pond (WBIC 5575561) is located within the proposed limits of waste. A preliminary review of historical aerial imagery indicates this unnamed pond is not naturally occurring but was constructed during development of the golf course. The pond would be removed prior to constructing the landfill liner system.

Based on the information provided in the ISI request and consultation with Al Ramminger, department Water Regulation and Zoning Specialist, the pond is considered to be an artificial wetland which would

likely qualify as exempt from state permitting requirements. Consultation with the department's Watershed Management Program, and possibly the U.S. Army Corps of Engineers (ACOE), will be conducted again by department Waste and Materials Program plan review staff during review of the Initial Site Report (ISR) and the feasibility report to ensure that there are no areas of the pond, or around the pond, that may be regulated under wetland or waterway rules and to assess if an artificial wetland determination would be needed by the department or the ACOE.

(b) *300 feet of any navigable river or stream*. According to the ISI request, no navigable rivers or streams are located within 300 feet of the proposed site. An unnamed stream (WBIC 803000) is located approximately 850 feet southeast of the proposed limits of disturbance and approximately 950 feet from the proposed limits of waste. The stream flows to the northeast and discharges into Door Creek.

(c) *A floodplain*. According to the ISI request, the proposed development is not within a floodplain. The SWDV also indicates this area is not in a floodplain.

(d) *1,000 feet of the nearest edge of the right-of-way of any state trunk highway, interstate or federal aid primary highway or the boundary of any public park or state natural area, unless the landfill is screened.* According to the ISI request, the proposed limits of waste would be located approximately 425 feet south of US Highway 12 & 18 and 150 feet west of County Highway AB. Interstate 90/39 (I-90/I-39) is approximately 1,350 feet southwest of the proposed limits of waste. The City of Madison intends to maintain 18 holes of the Yahara Hills Golf Course after the proposed landfill is constructed. The proposed limits of waste overlap portions of the currently proposed 18-hole golf course; however, the final reconfiguration of the golf course has not been determined. The department understands that the county will propose screening measures from US Highway 12 & 18 and the Yahara Hills Golf Course, as required in future submittals for the proposed landfill. Screening is also proposed for County Highway AB although it is not considered a state trunk highway that requires screening. Screening should also be considered for I-90/I-39. Screening should be utilized to the maximum extent practicable.

(e) *An area where the design or operation of the landfill would pose a significant bird hazard to aircraft.* The ISI request states that there are no airports designed or planned within 5,000 feet of the proposed limits of waste. The nearest public airport is the Blackhawk Airfield, located in Cottage Grove, and Dane County Regional Airport (DCRA), located in Madison. Blackhawk Airfield and DCRA are located approximately 5.25 miles and 7 miles from the proposed limits of waste, respectively. The nearest private use airport is the Quale Airport, located in Cottage Grove, about three miles from the proposed site.

(f) *1,200 feet of any public or private water supply well*. The ISI request states that three private water supply wells (PW-C, PW-D and PW-E) are located within the proposed limits of waste. These wells are owned by the City of Madison and serve the Yahara Hills Golf Course. The county would abandon these wells prior to constructing the proposed landfill. Golf course private water supply wells PW-A and PW-B are located approximately 1,250 feet south and approximately 1,100 feet west of the proposed limits of waste, respectively, and are not anticipated to be abandoned as part of the proposed development. If the county pursues landfill development that would result in the limits of waste to include the areas where water supply wells are located, then the department may require additional well filling and sealing requirements that would involve either complete removal of the well casing or perforation of the well casing to ensure the annular space is filled and sealed with impermeable material. This has successfully been done in the past at other facilities and provides protection to the groundwater quality for the surrounding area. The department is happy to share and discuss the methods and procedures that may be used.

Four assumed private water supply wells are located at residences east of County Highway AB. Based on mapping estimates, the wells are approximately 380, 800, 1,000 and 1,030 feet from the proposed limits

of waste. Another assumed private water supply well associated with a residence is located approximately 1,100 feet southwest of the proposed limits of waste. A known private water supply well (Biogas Well YZ391) is located approximately 990 feet north of the proposed limits of waste, adjacent to the Biogas Facility for the Dane County Landfill Site No. 2. The ISR and feasibility report for the proposed facility should verify and document the actual locations and separation distances of these water supply wells.

(g) *200 feet of a fault that has had displacement in Holocene time*. The ISI request states that the proposed development is not within 200 feet of a fault that has had displacement since Holocene time and that no faults in Wisconsin are known to have had displacements since the Holocene time. This assessment will be completed during the ISR and feasibility reviews.

(h) *Seismic impact zone*. The ISI request concludes that the site is not in a seismic impact zone based on United States Geological Survey (USGS) information. This assessment will be completed during the ISR and feasibility reviews.

(i) *Unstable areas*. The ISI request states that the bedrock beneath the proposed landfill site consists of Prairie du Chien Group dolomite and sandstone and/or the Cambrian Sandstone. Based on previous site geologic studies at the Dane County Landfill Site No. 2 and supply wells drilled at the golf course, there is no evidence of unstable conditions. This assessment will be completed during the ISR and feasibility reviews.

It appears that the site meets, or could be constructed and operated to meet, the performance standards in s. NR 504.04 (4), Wis. Adm. Code.

(a) Wetland Areas –Based on a review of the department's SWDV, the proposed landfill would directly impact one wetland. The SWDV shows an approximate 2.27-acre wetland overlying the unnamed pond that is proposed for removal and is located within the proposed limits of waste. The SWDV also indicated the presence of "wetlands too small to delineate" in the northeast corner of the proposed limits of disturbance. The department understands that the county will conduct wetland delineations in these areas and will initiate the wetland permitting process if the field delineations indicate wetlands would be impacted as a result of the proposed development.

(b) Critical Habitat Areas - Based on a review of the Natural Heritage Inventory (NHI), it appears unlikely that there would be any significant adverse impact on critical habitat areas or endangered or threatened species due to the proposed landfill development. The department understands that the county will submit an Environmental Resources Review application to the NHI Program. A copy of the application and response from the NHI Program should be included with future submittals for the proposed landfill. The department requests that any documentation identifying locations of specific endangered or threatened species from the NHI review be submitted as a stand-alone document to the department, so the department can maintain confidentiality of this information. Locations of endangered or threatened species are considered confidential information under Wisconsin's endangered species law in order to protect those species from collectors and poachers.

(c) Archaeological Resources: According to the ISI request, the county's archaeological consultant reviewed available literature and records on previously reported cultural resources in and around the Yahara Hills Golf Course. The study found no previously reported archaeological sites within the study area and no standing buildings or other structures that are listed on the Wisconsin Architecture and History Inventory. The 1967 Club House, located to the west of the proposed site and within the property that the City of Madison would maintain, has been identified as potentially significant.

Archaeological issues and historical structures for the site were cleared by Richard Kubicek, Departmental Archaeologist/Departmental Historic Preservation Officer, on March 23, 2022. The department understands that the county will conduct additional archaeological investigation at the site to satisfy the requirements of the State Historic Preservation Office.

The performance criteria outlined in s. NR 504.04 (4) (c) through (f), Wis. Adm. Code include evaluation of surface water, groundwater, gas migration and air contaminant impacts. These performance criteria would be evaluated during the department's review of a feasibility report for the proposed development.

Please remember that s. NR 504.04 (4) (d), Wis. Adm. Code, requires submittal of a 7.5 Minute USGS map or equivalent with a minimum scale of 1 inch=500 feet. The ISI request included a 1 inch=2,000 feet scale topographic map; however, a 1 inch=500 feet scale map will be required in the ISR submittal. Several maps at this scale may be needed to show all items listed in this code section, which include the depiction of contour intervals to sufficiently show relief, surface waters, floodplains, existing land use conditions including the location of public parks, and all water supply wells and residences located within one mile of the property boundaries of the proposed landfill.

Please note that s. NR 504.09 (2) (f), Wis. Adm. Code, requires a minimum separation distance of 100 feet be maintained between the limits of filling and the adjacent property line. A minimum distance of 50 feet must be maintained between any permanent berms or excavations associated with the landfill, excluding stormwater diversion structures, and the adjacent property line.

The locational and performance criteria will be evaluated again as the department reviews the ISR and feasibility report. Please keep in mind that as the department continues its review of the proposed development and as new information is presented, the department may have additional questions, concerns or requests for further information before a feasibility determination is made.

Please do not hesitate to contact me at 608-931-9387 or by email at carolyn.cooper@wisconsin.gov with any questions about this letter.

Sincerely,

Carolyn Cooper

Carolyn Cooper
Hydrogeologist
South Central Region

cc: Roxanne Wienkes - Dane County (e-copy)
Bridget Kelly, DNR-WA (e-copy)
Ann Bekta, DNR-WA (e-copy)
Joe Lourigan, DNR-WA (e-copy)
Valerie Joosten, DNR-WA (e-copy)
Teri Daigle - Tetra Tech (e-copy)
John Oswald - Tetra Tech (e-copy)

Attachment C - Initial Site Report, dated September 1, 2022

TETRA TECH

September 1, 2022

Carolyn Cooper
Senior Hydrogeologist
Wisconsin Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg, WI 53711-5367

Re: Initial Site Report – Proposed Dane County Landfill Site No. 3
Dane County Department of Waste & Renewables
WDNR License No. 4911, FID No. 113450480

Dear Ms. Cooper,

On behalf of Dane County Department of Waste & Renewables (Dane County), Cornerstone Environmental Group - a Tetra Tech Company (Tetra Tech) is pleased to submit to the Wisconsin Department of Natural Resources (WDNR) the Initial Site Report (ISR) for the proposed Dane County Landfill Site No. 3.

The ISR was prepared in accordance with Wisconsin Administration Code NR 509. Per your request, three (3) hard copies and an electronic copy of the ISR are included for your review. Additional copies of the ISR have been distributed according to the attached distribution list.

If you have any questions or comments regarding the ISR, please call me at (630) 410-7231. We look forward to receiving your response on the proposed Dane County Landfill Site No. 3.

Sincerely,

**CORNERSTONE ENVIRONMENTAL GROUP, LLC – A TETRA TECH COMPANY**

Teri Daigle
Project Manager

Enclosure: Initial Site Report - Dane County Landfill Site No. 3

cc: Per the attached distribution list

TETRA TECH
8413 Excelsior Drive, Suite 160, Madison, WI 53717
Tel 877.294.9070 Fax 877.845.1456 tetratech.com

# Dane County Department of Waste & Renewables
# Proposed Dane County Landfill Site No. 3
# ISR Distribution List

| Send To: | Number of Copies: |
|---|---|
| Ms. Carolyn Cooper<br>Wisconsin DNR<br>3911 Fish Hatchery Road<br>Fitchburg, WI 53711-5367 | Electronic Copy<br>(USB Card File & Email)<br>3 Hard Copies |
| Ms. Ann Bekta<br>Wisconsin DNR<br>2514 Morse St.<br>Janesville, WI 53545-0249 | Electronic Copy (Email)<br>1 Hard Copy |
| Mr. Colin Maus<br>Wisconsin DNR<br>3911 Fish Hatchery Rd.<br>Fitchburg, WI 53711-5367 | Electronic Copy (Email) |
| Ms. Valerie Joosten<br>Wisconsin DNR<br>2984 Shawano Avenue<br>Green Bay, WI 54313-6727 | Electronic Copy (Email) |
| Mr. Joe Lourigan<br>Wisconsin DNR<br>GEF2 DNR Central Office<br>Madison, WI 53707-7921 | Electronic Copy (Email) |
| Mr. John Welch<br>Dane County<br>1919 Alliant Energy Center Way<br>Madison, WI 53713 | Electronic Copy (Email)<br>1 Hard Copy |
| Ms. Allison Rathsack<br>Dane County<br>1919 Alliant Energy Center Way<br>Madison, WI 53713 | Electronic Copy (Email) |
| Mr. Mark Torresani<br>Tetra Tech<br>8413 Excelsior Drive, Ste 160<br>Madison, WI 53717 | Electronic Copy (Email) |
| Mr. John Oswald<br>Tetra Tech<br>8413 Excelsior Drive, Ste 160<br>Madison, WI 53717 | Electronic Copy (Email) |

# Initial Site Report

## Dane County Landfill Site No. 3

SEPTEMBER 2022
209-4221302

### PREPARED FOR

**Dane County Department of Waste & Renewables**
1919 Alliant Energy Center Way
Madison, WI 53713

### SUBMITTED BY

Cornerstone Environmental Group, LLC,
a Tetra Tech Company
8413 Excelsior Drive, Ste. 160
Madison, Wisconsin 53717

P +1.877.294.9070
F +1.877.845.1456
tetratech.com

# REPORT CERTIFICATION

I, Mark J. Torresani, hereby certify that I am a licensed professional engineer in the State of Wisconsin in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the Rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 500 to 538, Wis. Adm. Code.

Mark Torresani, P.E.

Signature

Vice President / Engineer

Title

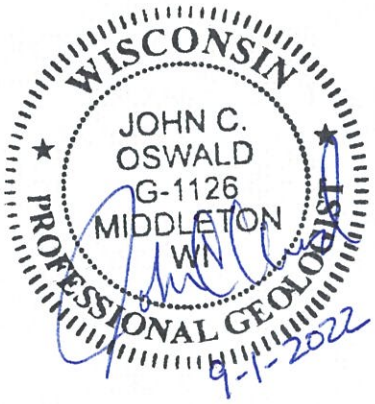

I, John C. Oswald, hereby certify that I am a licensed professional geologist in the State of Wisconsin in accordance with the requirements of ch. GHSS 2, Wis. Adm. Code; that the preparation of this document has not involved any unprofessional conduct as detailed in ch. GHSS 5, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 500 to 538, Wis. Adm. Code.

John C. Oswald, P.G.

Signature

Central Region Area Manager / Geologist

Title



# TABLE OF CONTENTS

# LIST OF FIGURES



# APPENDIX SECTIONS

# 1.0 INTRODUCTION

This Initial Site Report (ISR) has been prepared for Dane County Department of Waste & Renewables (Dane County) by Cornerstone Environmental Group, LLC, a Tetra Tech Company (Tetra Tech), for the proposed Dane County Landfill Site No. 3, located in the City of Madison, Dane County, Wisconsin. Figure 1 shows the location of the proposed landfill on a United States Geological Survey (USGS) map. Figure 1A provides the same USGS map as Figure 1 but is provided on a larger page size in order to meet the minimum 1 inch=500 feet scale, required by NR 509.04(4)(d).

The site for development of the proposed Dane County Landfill Site No. 3 is located on two parcels of land (Property Parcel No. 251/0710-254-0099-7 and 251/0710-361-0099-0) totaling approximately 230-acres (Figure 2). This land is currently owned by the City of Madison and pending purchase through a Land Sale Agreement by Dane County. That agreement was executed on June 1, 2022 with closing to occur in December 2022. The site is located in the SE ¼ of Section 25 and N ½ of NE ¼ of Section 36, T7N, R10E, City of Madison, Dane County, Wisconsin, within a portion of the existing Yahara Hills Golf Course. The site is located south of US Highway (USH) 12 & 18, northeast of Interstate I-90/I-39 and west of County Highway (CTH) AB.

The proposed Dane County Landfill Site No. 3 limits of waste are shown on Figures 1-14 of this ISR and include approximately 83.1-acres of new waste disposal area. The land within the future property boundary will include the proposed limits of waste, surrounding area for perimeter berms, soil stockpiles, stormwater management features and other ancillary features. Figure 14 provides the proposed top of waste grades and anticipated perimeter berms for the proposed Dane County Landfill Site No. 3. Setback requirements shown on the ISR figures and evaluated in this ISR are based on the proposed limits of waste boundary.

## 1.1 PURPOSE AND SCOPE

The ISR presents information required for the Wisconsin Department of Natural Resources (WDNR) to determine the potential for development of the proposed Dane County Landfill Site No. 3. The report and information submitted herein were prepared in accordance with the requirements of Ch. NR 509, Wisconsin Administrative Code (WAC). A completeness checklist identifying the locations of the required information in the report is provided in Appendix A.

The scope of work conducted during preparation of this report included the following tasks:

- Content as required by NR 509.05(3)
- Land use information as required by NR 509.06
- Regional geotechnical information as required by NR 509.07
- Development and illustration of preliminary design concepts

Potential local and regional impacts that may result from the proposed Dane County Landfill Site No. 3 are expected to be similar to those of the existing Dane County Landfill Site No. 2 (Rodefeld). The proposed Dane County Landfill Site No. 3 will be managed to minimize impacts to the environment and surrounding properties.

## 1.2 EXEMPTION REQUEST

Four requests for exemption are anticipated to be included in the Feasibility Report (FR), based on the preliminary geotechnical investigation data and review of locational, performance, and design information to date. Detailed information supporting these exemption requests will be furnished with the FR. If additional exemption requests are required, they will be included in the FR. The anticipated requests for exemption will include the following:

Landfill Locational Criteria per NR 504.04(3):

- An exemption to WAC NR 504.04(3)(a) will be requested to allow the proposed limits of waste be located within 1,000 feet of a pond. The unnamed, man-made pond, located within the proposed limits of waste will be filled in to construct the proposed landfill. A preliminary review of historical aerial imagery indicates this unnamed pond is not naturally occurring but was constructed during development of the golf course. More information on the unnamed pond is discussed in Section 2.1.1.
- An exemption to WAC NR 504.04(3)(f) will be requested to allow the proposed limits of waste be located within 1,200 feet of up to four water supply wells. Three known on-site private water supply wells (to be abandoned prior to landfill construction) and four known off-site private water supply wells are currently located within 1,200 feet of the proposed limits of waste. More information on the water supply wells within 1,200 feet of the proposed limits of waste are discussed in Section 2.1.6.

Minimum Design and Construction Criteria for Landfills per NR 504.06:

- An exemption to WAC NR 504.06(2)(b) will be requested to allow the bottom of the clay component of a composite liner be constructed within the 10-foot separation distance to the seasonal high groundwater table. The proposed Dane County Landfill Site No. 3 subbase and base grades will be above but within 10 feet of the seasonal high groundwater table. A groundwater gradient control system will likely be proposed to underlie the entire landfill.
- An exemption to WAC NR 504.06(2)(c) may be requested to allow the bottom of the clay component of a composite liner be constructed within the 10-foot separation distance to the underlying competent bedrock surface. A distinction between weathered bedrock and competent bedrock surfaces will be discussed as part of the FR. It is expected the design of the landfill and underlying components will encroach or be within the weathered bedrock surface.

## 1.3 GENERAL INFORMATION

| | |
|---|---|
| Project Title | Dane County Department of Waste & Renewables<br>Dane County Landfill Site No. 3<br>WDNR License No. (4911)<br>FID No. 113450480 |
| Present Land Owner | City of Madison Parks Yahara Hills Park West<br>7101 US Highway 12 & 18<br>Madison, WI 53718<br>(608) 266-4601 |
| Present Land Owner Contact | Eric Knepp<br>Parks Superintendent<br>City-County Building, Room 104<br>210 Martin Luther King Jr. Blvd<br>Madison, WI 53703<br>(608) 266-4711 |
| Proposed Landfill Owner & Operator | Dane County Department of Waste & Renewables<br>1919 Alliant Energy Center Way<br>Madison, WI 53713<br>(608) 266-4018 |
| Proposed Landfill Contact | John Welch<br>Director, Dane County Department of Waste & Renewables<br>1919 Alliant Energy Center Way<br>Madison, WI 53713<br>(608) 516-4154 |
| Consultant | Tetra Tech<br>8413 Excelsior Drive, Suite 160<br>Madison, WI 53717<br>(877) 294-9070 |
| Consultant Contact | Mrs. Teri Daigle<br>Project Manager<br>8413 Excelsior Drive, Suite 160<br>Madison, WI 53717<br>(630) 410-7231 |
| Proposed Facility Location | Property Parcel No. 251/0710-254-0099-7 and 251/0710-361-0099-0<br>SE ¼ of Section 25 and N ½ of NE ¼ of Section 36, T7N, R10E,<br>City of Madison, Dane County, Wisconsin. |
| Present Land Use | Recreation (Golf Course) and Water (man-made Pond) |
| Property Acreage & Anticipated Limits of Filling | 230 Acres (pending purchase from City of Madison) where 83.1 acres is anticipated to be used for landfilling |
| Service Area | Primary service area will be Dane County. Waste may be accepted from outside Dane County, depending on local negotiations. |
| Design Capacity | 10.3 million cubic yards |
| Site Life | Approximately 14-15 years |

| | |
|---|---|
| Anticipated Waste Types | Category 1 waste: 60-80% (municipal solid waste)<br>Remaining waste categories: 20-40% (primarily construction and demolition (C&D) waste, material recycling facility (MRF) residuals, other non-hazardous waste, and alternative daily cover (ADC) materials) |
| Anticipated Total Waste Intake | Approximately 375,000 – 625,000 tons of waste are expected annually between 2030-2045.<br><br>The range accounts for an annual increase of 3.71% based on average % increase recorded between 2017-2021 at Dane County Landfill Site No. 2 (Rodefeld).<br><br>The first year of waste intake at Dane County Landfill Site No. 3 is anticipated to be in 2030 but may be earlier depending on permitting timeline and remaining Rodefeld landfill capacity. |
| Anticipated Volume of Each Major Waste Stream | Category 1 (MSW): Approximately 262,400 - 437,000 tons<br>Category 6 (non-hazardous solid waste): Approximately 2,300 – 3,900 tons<br>Category 19 (alternative daily cover): Approximately 41,800 – 69,700 tons<br>Category 25 (C&D waste): Approximately 21,300 – 35,500 tons<br>Category 27 (waste generated by non-profit organizations): Approximately 5,200 – 8,700 tons<br>Category 30 (MRF residuals): Approximately 8,000 – 13,400 tons<br>Category 31 (C&D residuals): Approximately 34,300 – 57,200 tons<br><br>Categories not specifically identified will be accepted under the special waste acceptance plan, in limited quantities.<br><br>Waste volumes tend to increase in summer months by approximately 10% and decrease in winter months by approximately 15%. |
| Anticipated Cover Frequency | The working face will be covered with a minimum six inches of daily cover soils or approved alternate daily cover (ADC) at the end of each working day. |
| Mode of Operation | Phased area filling |
| Conceptual Design | See Section 5.0 |
| Base and Subbase Grades | See Section 5.0 |
| Conceptual Final Grades | See Section 5.0 |

## 1.4 INITIAL SITE INSPECTION RESPONSE

A request for an Initial Site Inspection (ISI) was submitted to the WDNR on March 17, 2022. The ISI Request is provided in Appendix B. The ISI Request Letter included information regarding the locational criteria and performance standards.

WDNR performed a site inspection on April 14, 2022 and issued an ISI Response Letter dated May 11, 2022 documenting the ISI (Appendix C). The letter indicates that the site is potentially suitable for a landfill. The landfill will need to comply with the standards of NR 504.04 less any justified and granted exemptions. The anticipated exemptions are identified and summarized in Section 1.2 of this ISR.

# 2.0 INITIAL SITE INSPECTION

The WDNR requires a review and evaluation of the Locational Criteria and Performance Standards for the submittal of an ISR. The following is a summary of conditions in the vicinity of the proposed Dane County Landfill Site No. 3 relative to the NR 504.04 Locational Criteria and Performance Standards.

## 2.1 NR 504.04(3) LOCATIONAL CRITERIA

### 2.1.1 Within 1,000 Feet of Any Navigational Lake, Pond or Flowage

The proposed limits of waste are located within 1,000 feet of a navigable lake, pond or flowage. According to the WDNR Surface Water Data Viewer, an unnamed pond (WBIC 5575561) is located within the proposed limits of waste. As noted in the WDNR ISI Response, in Appendix C, a preliminary review of historical aerial imagery indicates this unnamed pond is not naturally occurring but was constructed during development of the golf course.

Construction of the proposed Dane County Landfill Site No. 3 would remove the unnamed man-made pond as well as any unsuitable soils prior to constructing the landfill liner system. Surface water features from the WDNR's Surface Water Data Viewer are shown on Figure 3.

### 2.1.2 Within 300 Feet of Any Navigable River or Stream

The proposed limits of waste are not located within 300 feet of any navigable stream or river. An unnamed river or stream (WBIC 803000) is located southeast of the proposed limits of waste. At its nearest point, the unnamed stream located east of CTH AB is approximately 1,390-feet from the proposed limits of waste. This unnamed stream flows to the northeast and discharges into Door Creek (WBIC 802800). Surface water features are shown on Figure 3.

### 2.1.3 Within a Floodplain

The proposed Dane County Landfill Site No. 3 is not located within a floodplain, as shown on Figure 3.

### 2.1.4 Within 1,000 Feet of the Nearest Edge of the Right-of-Way of Any State Trunk Highway, Interstate, Federal Aid Primary Highway or the Boundary of Any Public Park Unless the Landfill is Screened by Natural Objects, Plantings, Fences or Other Appropriate Means so That It Is Not Visible from the Highway or Park

The proposed limits of waste will be located approximately 385 feet to the south of USH 12 & 18 and approximately 150 feet to the west of CTH AB. Interstate I-90/I-39 is approximately 1,850 feet southwest from the proposed limits of waste as shown in Figure 2. The proposed limits of waste is currently located on land zoned as Parks and Recreation and owned by the City of Madison Yahara Hills Golf Course.

The City of Madison plans to maintain at least 18 holes of the Yahara Hills Golf Course until at least 2042. This will be facilitated through a lease agreement between Dane County and the City of Madison, where approximately 76 acres will be leased back to the City of Madison. The anticipated 18-hole golf course configuration and the lease boundary are shown on Figure 2. Dane County and City of Madison have a mutual understanding that there may be a need to construct berms and stormwater management features within the leased boundary. Dane County, in accordance with the approved neighborhood development plan, will maintain at least a 150-foot buffer around the landfill limits of waste and provide appropriate screening. Additionally, a parcel to the south of the golf course is owned by the City of Madison Parks Yahara Hills Park South, which is also zoned as Parks and Recreation and approximately 700 feet from the proposed limits of waste.

Dane County will propose appropriate screening measures from USH 12 & 18, CTH AB, and the Yahara Hills Golf Course, as required in future submittals for the proposed Dane County Landfill Site No. 3. Screening will be used to mitigate visual impacts to surrounding highways and recreational areas.

### 2.1.5 Within an Area Where the Design or Operations of the Landfill Would Pose a Significant Bird Hazard to Aircraft

There are no airports designed or planned to be designed within 5,000 feet or 10,000 feet of the proposed limits of waste. The nearest public airports are the Blackhawk Airfield, located in Cottage Grove, Wisconsin and the Dane County Regional Airport, located in Madison, Wisconsin. Blackhawk Airfield and Dane County Regional Airport are located approximately 5.25 miles and 7 miles from the proposed limits of waste, respectively. The nearest private use airport is the Uff-Da Airport, located in Stoughton, approximately 6.5 miles from the proposed limits of waste. The location of airports in relation to the proposed Dane County Landfill Site No. 3 is shown on Figure 4.

### 2.1.6 Within 1,200 Feet of a Public or Private Well

There are five known and active water supply wells (PW-A, B, C, D and E) that serve the Yahara Hills Golf Course which are owned by the City of Madison. Three of these wells (PW-C, D and E) are located within the proposed limits of waste (Figure 5). These three private wells are proposed to be abandoned prior to constructing the proposed Dane County Landfill Site No. 3. As noted in the WDNR ISI Response, in Appendix C, Dane County acknowledges that the WDNR may require additional well filling and sealing requirements for the abandonment of the aforementioned wells.

Private water supply wells PW-A and PW-B are located approximately 1,940 feet south and approximately 1,220 feet west of the proposed limits of waste, respectively. Another known private water supply well (Biogas Well YZ391) is located approximately 985 feet north of the proposed limits of waste, adjacent to the Biogas Facility for the Dane County Landfill Site No. 2 (Rodefeld). Well Construction Reports for these known and active water supply wells are provided in Appendix D.

There are three known private water supply wells located east of CTH AB where four residences are located on Hope Hollow Trail (two residences share a well). These private wells are assumed to be located approximately 400, 795 and 1,030 feet from the proposed limits of waste. Dane County will evaluate if exemption requests are applicable for the three wells or if they need to be abandoned and redrilled further away from the proposed limits of waste, as part of the FR. Additionally, water supply well documentation for these wells will be included in the FR.

Other assumed or known private and public water supply wells are located beyond 1,200 feet from the proposed limits of waste. Refer to Figure 5 for assumed and known public and private water supply well locations.

### 2.1.7 Within 200 Feet of a Fault that has Displaced in Holocene Time

The proposed Dane County Landfill Site No. 3 is not located within 200 feet of a fault that has had displacement in Holocene times. No faults in Wisconsin are known to have had displacements since the Holocene time. It should be noted, fault lines are depicted on a Wisconsin Geological and Natural History Survey map (Figure 10) in and around the proposed landfill. However, the origin and geologic time of this fault line is not known at this time. Additional discussion on the fault lines is provided in Section 4.3.1.

### 2.1.8 Within Seismic Impact Zones

The proposed Dane County Landfill Site No. 3 is not within a seismic impact zone.

### 2.1.9 Within Unstable Areas

The bedrock beneath the proposed Dane County Landfill Site No. 3 consists of Prairie du Chien Group dolomite and sandstone and/or Cambrian Sandstone. Based on previous site geologic studies at the Dane County Landfill Site No. 2 (Rodefeld) and borings and wells drilled at the Yahara Hills Golf Course, there is no evidence of unstable conditions.

## 2.2 NR 504.04(4) PERFORMANCE STANDARDS

### 2.2.1 A Significant Adverse Impact on Wetlands

The 230-acre property where the Dane County Landfill Site No. 3 is proposed has been evaluated for wetlands. TRC Environmental Corporation (TRC) performed a wetland delineation study in November 2021 within the northern property parcel (Parcel No. 251/0710-254-0099-7) and identified five (5) wetlands and one pond, outlined below:

1. W-1 located in a depressional swale on the NE corner of the project area (3.66 acres),
2. W-2 located in a swale on the NW corner of the project area (0.08 acres),
3. W-3 located in a swale on the NW corner of the project area (0.01 acres),
4. W-4 located as an isolated wetland contained within a shallow depression on the eastern portion of the project area (0.18 acres),
5. W-5 located around the edge of a manmade pond in the central portion of the project area (0.11 acres), and
6. P-1 is a manmade pond located in the central portion of the project area (2.02 acres).

Heartland Ecological Group (Heartland) performed a wetland delineation study in April 2022 within the southern property parcel (Parcel No. 251/10-361-0099-0). Heartland prepared a Wetland Determination Summary letter, dated May 23, 2022, and determined there were no wetlands present. The wetland delineation reports by TRC and Heartland are provided in Appendix E.

Based on a review of the delineated wetlands, the proposed limits of waste and additional area for perimeter berms (Figure 14) may directly impact three delineated wetlands (W-1, W-4 and W-5). A large portion of W-1, approximately 3.05 acres, will be disturbed in 2022-2023 as part of the Wisconsin Department of Transportation (WisDOT) US 12/18 and County AB Interchange Project (Project ID 3080-01-40/75/76).. Area outside of the planned WisDOT work for W-1, approximately 0.50 acres, may be impacted by landfill or perimeter berm construction. Additionally, all of W-4 and W-5 (totaling approximately 0.29 acres) may be impacted by landfill or perimeter berm construction. Figures 2 and 6 include the known wetland boundaries from the WDNR Mapped Wetlands and the delineated wetlands from TRC. Furthermore, the WDNR ISI Response, in Appendix C, noted the pond is considered to be an artificial wetland which would likely qualify as exempt from state permitting requirements.

Dane County submitted a Jurisdictional Determination request to the U.S. Army Corps of Engineers on July 22, 2022 and received an acknowledgement letter with a file number on July 29, 2022 (Appendix C). Following the jurisdictional determination, Dane County will initiate the appropriate wetland permitting process for the impacted wetlands as a result of the proposed Dane County Landfill Site No. 3.

### 2.2.2 A Significant Adverse Effect on Critical Habitat Areas

The proposed Dane County Landfill Site No. 3 is not anticipated to pose significant adverse effects on critical habitat areas. The proposed landfill is located on land previously disturbed by agriculture then by the construction and operation of the Yahara Hills Golf Course.

An Endangered Resources Review Request application was submitted to the WDNR Endangered Resources Review Program on June 10, 2022 for the entire 230-acre property. The WDNR determined the project is covered

under the Broad Incidental Take Permit/Authorization for No/Low Impact Activities and does not require an Endangered Resources Review. The Endangered Resources (ER) Review Verification application form from the WDNR Endangered Resources Review Program, which was signed June 10, 2022, is provided in Appendix C.

### 2.2.3 A Detrimental Effect on Any Surface Water

No naturally occurring surface water is located in or immediately adjacent to the proposed limits of waste or limits of disturbance. Surface water runoff from the proposed Dane County Landfill Site No. 3 will be managed in accordance with NR 216 and NR 500 and will pose no detrimental effect on surface water.

# 3.0 EXISTING LAND USE INFORMATION

The WDNR requires a summary of the land use information for the submittal of an ISR. The following is a discussion of land uses in the vicinity of the proposed Dane County Landfill Site No. 3 in accordance with the NR 509.06 requirements.

## 3.1 ADJACENT LANDOWNERS

A property ownership map is provided on Figure 7. Property owners of parcels located contiguous to the proposed landfill's property and within 1,200 feet of the proposed limits of waste boundary are listed in the table included on Figure 7. Please note, areas immediately adjacent to USH 12 & 18 and CTH AB are right-of-ways owned by the State of Wisconsin (WisDOT).

## 3.2 LAND USE ZONING

The property is currently zoned as parks and recreation (PR) and will require rezoning to be used as a landfill (Figure 8). The rezoning application has been submitted to the City of Madison to rezone the property from PR to Industrial – General (IG). A conditional use permit may be required for some landfill operations and will be submitted as part of the local approval process.

The existing zoning conditions within one mile of the proposed limits of waste are shown on Figure 8 and include planned developments, mixed uses, employment districts, commercial, residential (varying grades), agricultural (varying grades), conservancy, and recreational district. Zoning information exists from the City of Madison Zoning Districts, the County of Dane Rural Zoning and the Village of McFarland.

## 3.3 PRESENT LAND USES

The present land use of the proposed landfill property is a municipal golf course (recreation). The existing land use conditions within one mile of the proposed limits of waste are shown on Figure 9. There are predominantly scattered rural residences, agriculture, woodlands and open land located to the east and south of the proposed landfill. Land uses to the west predominantly include recreation, commercial, woodlands, agriculture, open land, water and vacant subdivided land. There is a developing and expanding small tract residential subdivision located to the southwest of the proposed landfill. To the north there is industrial, commercial, open land, agriculture, some residential, institutional/governmental and the existing Dane County Landfill Site No. 2 (Rodefeld) which is shown as communication/utilities.

### 3.3.1 Known Recreational Areas

The Yahara Hills Golf Course immediately to the west and an adjacent property to the south of the proposed landfill property are zoned as a parks and recreation, both of which are owned by the City of Madison (Figure 8). Dane County will be working closely with the City of Madison to mitigate any potential impacts to golf. The adjacent property to the southeast of the golf course is currently used for agriculture, open land, and woodlands (Figure 9).

### 3.3.2 Known Historical or Archeological Areas

Archaeological Consulting Services, Inc. (ACS) reviewed available literature and records on previously reported cultural resources in and around the Yahara Hills Golf Course. The reviewed study area included the proposed limits of disturbance. A Literature and Records Search Report was prepared by ACS in November 2021 which was included in the ISI Request submittal (Appendix B). The results of this study found no previously reported

archaeological sites within the study area. According to ACS, the closest archaeological site is approximately 350-meters to the north of the Yahara Hills Golf Course but several Euro-American farmsteads were located within the study area prior to the development of the golf course. No standing buildings or other structures in the study area are listed on the Wisconsin Architecture and History Inventory. The 1967 Club House has been identified as potentially significant and is located to the west (see Figure 2).

An Archaeological Survey Field Report, prepared by Commonwealth Heritage Group, Inc. in October 2020, was provided to Dane County by the State Historical Preservation Office which reported results of the cultural resources field survey for the proposed WisDOT USH 12 & 18, CTH AB Interchange project (Appendix B). A portion of the proposed limits of disturbance was previously studied as part of this WisDOT project. The reported findings stated, “no cultural materials or features were identified during survey”.

ACS performed an archaeological survey of the proposed landfill property (230-acres) in April and May 2022. A summary of the results is below:

- No previously reported Native American archaeological sites lie within the project area.
- No Native American artifacts were found and Euro-American materials were limited to items of recent age.
- A concrete foundation and a concrete slab were found, but no artifacts and no evidence of a house foundation was found.
- Yahara Hills Golf Course and Clubhouse has been determined eligible for the National Register of Historic Places.
- No additional archeological work is recommended for the proposed landfill property.

The ACS report on the archaeological survey of the project area, dated May 2022, was submitted to Felipe Avila, with the Wisconsin State Historic Preservation Office (SHPO) on July 22, 2022. Dane County, Tetra Tech, SHPO, ACS, and WDNR held an initial meeting on July 28, 2022. Dane County will continue to work with these agencies to determine any applicable permitting steps.

### 3.3.3 Areas that Contain Threatened or Endangered Species

An Endangered Resources Review Request application was submitted to the WDNR Endangered Resources Review Program on June 10, 2022 for the entire 230-acre property. The WDNR determined the project is covered under the Broad Incidental Take Permit/Authorization for No/Low Impact Activities and does not require an Endangered Resources Review. The Endangered Resources (ER) Review Verification application form from the WDNR Endangered Resources Review Program, which was signed June 10, 2022, is provided in Appendix C.

### 3.3.4 State or Local Natural Areas and County Forest Land

The proposed landfill property does not contain state or local natural areas or county forest land.

### 3.3.5 Airports

See Section 2.1.5 for discussion on nearby public and private airports to the proposed landfill. The Quale Airport and the Little Wheel Field Airport, both located in Cottage Grove, Wisconsin, were once privately owned airports within 5 miles of the proposed landfill. However, these private airports have been closed and are no longer in use. Refer to Appendix F for e-mail correspondences from the owners, or family members, confirming that the Little Wheel Field Airport was closed in 2018/2019 and the Quale Airport was closed in 2021.

Tetra Tech notified the Federal Aviation Administration (FAA) and the Quale Airport owner of the proposed landfill on June 22, 2022. The Quale Airport owner was notified before it was known that the private airport had been closed. The FAA acknowledged receipt of the notification letter via email on August 10, 2022. The notification letters to the Quale Airport owner and the FAA, delivery receipts from UPS, as well as the acknowledgement

email from FAA, are provided in Appendix F. A response letter from the FAA has not yet been received but will be included as part of the FR.

## 3.4 TRANSPORTATION AND ACCESS

The proposed Dane County Landfill Site No. 3 is currently accessed from the north via USH 12 & 18 at the Yahara Hills Golf Course entrance, located off Millpond Road, or from the east via CTH AB using Yahara Hills Golf Course service driveways.

WisDOT has awarded a contract and will begin construction of an overpass with a series of roundabouts for the USH 12 & 18 and CTH AB interchange. These road improvements have been designed to accommodate typical landfill customer vehicles. The WisDOT changes will impact traffic routes and access to the proposed landfill, resulting in most traffic using the new interchange and roundabouts to travel from USH 12/18 to CTH AB or a service road. The proposed access to the landfill may be split between large haulers and residential customers. Under this scenario, large haulers may access the proposed landfill directly off CTH AB while residential customers may use an entrance off of the extended Millpond service road.

The proposed transportation routes, within the proposed landfill, will be similar to the existing Dane County Landfill Site No. 2 (Rodefeld) where service roads are used around the perimeter to provide access to the landfill disposal area.

There are no known weight restrictions for vehicles using USH 12 & 18 or CTH AB.

# 4.0 REGIONAL GEOTECHNICAL INFORMATION

The WDNR requires a summary of the regional geotechnical information for the submittal of an ISR. The following is a discussion of the regional setting in the vicinity of the proposed Dane County Landfill Site No. 3 in accordance with the NR 509.07 requirements.

Regional geotechnical information contained in Section 4 is compiled from previous permitting documents prepared by Donohue, RMT, Inc. and TRC, Inc. for the Dane County Landfill Site No. 2 (Rodefeld).

## 4.1 TOPOGRAPHY

The proposed Dane County Landfill Site No. 3 is located in the Drumlin Zone of Dane County (Clayton and Attig, 1997). This region is characterized by generally flat to slightly hilly topography with abundant drumlins or drumlinoid hills. Topography within one-mile of the proposed landfill is shown on Figures 1 and 1A.

The proposed landfill property is generally flat and gently rises to the southeast and southwest. The current ground surface ranges in elevation from 870 feet above mean sea level (M.S.L) in the northwestern portion of the property to 930 feet above M.S.L. in the far southern portions of the property (Figure 2). Based on a review of historical topography from 1961, the current elevations are a result of ground surface modifications during the development of the Yahara Hills Golf Course. The existing contours provided on Figure 2 reflect topography from 2017 that was retrieved from the Wisconsin State Cartographer's Office.

## 4.2 HYDROLOGY

The proposed Dane County Landfill Site No. 3 is located within the Yahara River and Lake Monona Watershed. The Yahara River, Lake Monona, Lake Waubesa and Lake Kegonsa are the major surface water features in the study area, according to the watershed data provided by the WDNR. Most of the streams in the study area flow into the lakes and/or the Yahara River. Two unnamed streams are the closest water features to the proposed Dane County Landfill Site No. 3. One, located west of the proposed landfill property, flows to the north and northwest toward a floodplain which then drains towards Lake Waubesa via Upper Mud Lake. The other unnamed stream which may not be part of the site surface water drainage is located to the southeast of the proposed Dane County Landfill Site No. 3 and flows northeast before draining into Door Creek, eventually reaching Lake Kegonsa. Wetlands and several small unnamed lakes exist in the watershed area. Most of the wetlands are associated with creeks where topography is lowest. However, many small, isolated wetlands are present in topographic lows across the area due to the hummocky terrain. Lake Monona, Lake Waubesa and Lake Kegonsa located to the west and south of the Yahara Hills Golf Course, are the largest lakes in the surrounding area. Both Lake Monona and Lake Wabesa have an elevation of approximately 845 ft above M.S.L and Lake Kegonsa has an elevation of approximately 843 ft above M.S.L. Surface water features in the vicinity of the golf course area can be seen on Figures 1, 1A and 3.

## 4.3 GEOLOGY

The region near the proposed Dane County Landfill Site No. 3 contains Ordovician Dolomite, Cambrian Sandstone and Pleistocene to Holocene sediment of glacial origin. The rocks and sediments range in age from about 541 million years old to modern (Mudrey, 1982).

### 4.3.1 Bedrock

Regional information suggests that the uppermost bedrock under a majority of the proposed site consists of Ordovician dolomite of the Prairie du Chien group, and in the northeastern portion of the proposed Dane County

Landfill Site No 3, Cambrian sandstone of the Trempealeau, Tunnel City, and Elk Mound groups (Figure 10). Logs from wells and borings drilled at the proposed Dane County Landfill Site No. 3 indicate competent dolomitic bedrock occurs at depths ranging from 18 to greater than 60 feet below ground surface (bgs), where encountered (Tetra Tech, 2022). The dolomitic rock is thickest (over 400 feet) to the northwest of the proposed Dane County Landfill Site No. 3 and thins to a few feet to the southeast of the proposed Dane County Landfill Site No. 3. Generally, the dolomite is underlain by shale and/or sandstone, based on the available well log information. Wells drilled at the Dane County Landfill Site No. 2 (Rodefeld), located north of USH 12 & 18, encountered bedrock at depths ranging from 70 to 195 feet bgs.

In the area of the proposed Dane County Landfill Site No. 3, there is also a fault complex, informally called the "Yahara Hills Complex", where the disturbed area is subdivided into discrete blocks separated by normal faults. A report titled “Geologic Structure in the Yahara Hills Golf Course Area in Southeast Madison, Wisconsin” by P. G. Olcott was published in 1968. The study and subsequent report stemmed from abnormalities observed during water supply well installations by personnel from the Wisconsin Geologic Survey that indicated the presence of a relatively complex fault system in the bedrock. This preliminary report presented an interpretation of the fault complex and its effects on hydrology in southeast Madison and points out locations of suspected faults in the area. The report described the potential implications it could have on groundwater movement but clearly states further exploration (geophysical survey and/or drilling program) is warranted for an accurate description of the geology of the area. There is no evidence of faults in Wisconsin that are known to have had displacements since the Holocene time.

An additional geotechnical and hydrogeologic investigation in and around the proposed footprint is planned to commence in late 2022 or early 2023. The investigation will provide additional information to further define the subsurface conditions in the proposed landfill area.

### 4.3.2 Glacial Deposits

The proposed Dane County Landfill Site No. 3. area is underlain by a relatively thin sequence of unconsolidated glacial drift of the Horicon Formation deposited over dolomite bedrock of Ordovician age. This sequence thickens to the west. The Horicon Formation generally consists of brown sandy till, but also includes sand and gravel deposited by glacial meltwater and clay, silt and sand deposited in glacial lakes. This till was deposited by the Wisconsin Valley Lobe during the Wisconsin Stage of continental glaciations. On-site well and boring logs encountered glacial material noted as clay, sand and gravel, and drift that extend to 60 feet bgs. The regional surficial or glacial geology is shown on Figure 11. The area to the west of proposed Dane County Landfill Site No. 3 was formerly the bed of a large proglacial lake called Glacial Lake Yahara (Mickelson, 1983) and contains lake sediments.

### 4.3.3 Soils

The mapped soils in the proposed Dane County Landfill Site No. 3 footprint and surrounding area are shown on Figure 12. Development and construction of the existing Yahara Hills Golf Course included substantial regrading of the historical topography and has subsequently impacted the soils on the site. A brief description of the soils from the USDA soil survey is provided below and more detail can be found in Appendix G:

- Dodge silt loam (DnB), 2 to 6 percent slopes, not hydric, well drained, and prime farmland. Most commonly found on drumlins and is formed from loess overlying calcareous loamy glacial till.
- Virgil silt loam (VwA), 6 to 12 percent slopes, not hydric, well drained and farmland of statewide importance. Most commonly found on moraines and is formed from loess overlying loamy glacial till.
- Orion silt loam, (Os), 0 to 2 percent slopes, hydric, poorly drained, and prime farmland if drained. Most commonly found on floodplains and is formed from silty alluvium.
- McHenry silt loam (MdC2), 6 to 12 percent slopes, not hydric, well drained, and farmland of statewide importance. Most commonly found on moraines and is formed from loess overlying loamy glacial till.

- Saint Charles silt loam (ScB), 2 to 6 percent slopes, not hydric, well drained, and prime farmland. Most commonly found on till plains and is formed from loess overlying loamy glacial till.
- Kidder loam (KdD2), 12 to 20 percent slopes, not hydric, well drained, and not prime farmland. Most commonly found on moraines and is formed from loamy till.

## 4.4 HYDROGEOLOGY

The elevation of the regional water table in this area is approximately 880 feet above M.S.L. (Figure 13). In the area of the proposed landfill, the groundwater system consists of two distinct hydrostratigraphic units, a bedrock aquifer, and the surficial glacial deposits. According to regional sources, the flow direction in the bedrock aquifer is generally to the southwest toward the Yahara River basin. The uppermost hydrostratigraphic unit in the vicinity of the proposed site generally occurs within the till and outwash glacial deposits. However, where bedrock is shallower, the first occurrence of groundwater may be in the upper bedrock unit. In general, based on observed conditions at a limited amount of monitoring wells, it is suspected shallow groundwater flow is to the northwest in the northern portion of the proposed landfill property and the groundwater flows to the southeast in the southern portion of the proposed landfill property. A groundwater model performed by the Wisconsin Geological and Natural History Survey (WGHNS), that simulates 2010 shallow and deep groundwater flow conditions in Dane County, indicates groundwater flow is primarily to the west/southwest near the proposed Dane County Landfill Site No. 3 (Parsens, 2016).

Three major aquifers and one aquitard exist in Dane County. The aquifers consist of the Mount Simon (Cambrian sandstone), the Upper Paleozoic, and unlithified aquifers, while the aquitard is the Eau Claire Formation. The unlithified sand and gravel aquifers can yield economically useful quantities of water in some areas of Dane County. However, the Cambrian sandstone units are considered to be the principal aquifer in Dane County (Bradbury et al, 1999). Municipal and production water supply wells in the Madison area primarily draw water from the Cambrian sandstone.

Additional analysis of the subsurface conditions is planned to commence in late 2022 or early 2023 within and around the proposed limits of waste. The data and information collected during the investigation will further define the groundwater movement and potential groundwater divides within the study area.

## 4.5 WATER QUALITY

### 4.5.1 Groundwater Quality

According to the watershed detail for the Yahara River and Lake Monona Watershed, published on the WDNR website (https://dnr.wi.gov/water/watershedDetail.aspx?key=924664), the principal groundwater concern is the decrease in groundwater levels due to urban pumping and increasing numbers of impervious surfaces that limit surface water infiltration. Both changes affect base flow and thus water temperature and quality in streams. In addition, elevated chloride and sodium levels in groundwater exist due to winter road salting. According to Geology and Ground-Water Resources of Dane County, Wisconsin report by Denzel Cline in 1965, Dane County groundwater is naturally high in calcium, magnesium and bicarbonate. Average hardness is 326 parts per million (ppm) and average dissolved solids is 348 ppm. Iron concentrations in the county range from less than 0.05 to 6.6 ppm with higher concentrations tending to occur in glacial deposits and poorly drained areas. Other constituents noted in the groundwater at insignificant levels include silicon (Si), manganese (Mn), sodium (Na), potassium (K), sulfate (SO4), chlorine (Cl), nitrite (NO2), nitrate (NO3), fluorine (F), and hydrogen sulfide (H2S). Although very hard, most of the groundwater in Dane County is in good chemical quality for most applications.

### 4.5.2 Surface Water Quality

According to the same WDNR watershed detail, the surface water quality in the Yahara River and Lake Monona Watershed is characterized as 70% urban; meaning the water quality is impacted by urban runoff such as nutrients, solids, organic contaminants, heavy metals, oil and grease, etc. The biggest concerns are nutrients, sediment, and contaminants attached to the sediment. Chloride and sodium levels in surface water are elevated due to winter road salting. According to the WDNR website (https://dnr.wi.gov/water/waterSearch.aspx), the streams that eventually drain the proposed Dane County Landfill Site No. 3 (unnamed, WBIC 804100 and Door Creek, WBIC 802800) are listed as impaired due to degraded biological community and unknown impairment, respectively. Total phosphorus is a known pollutant for both streams.

# 5.0 PROPOSED CONCEPTUAL DESIGN

The proposed Dane County Landfill Site No. 3 solid waste footprint will encompass approximately 83.1-acres of horizontal area (Figure 2) within the eastern portion of the existing Yahara Hills Golf Course. Primary access to the proposed Dane County Landfill Site No. 3 is anticipated to be from USH 12 & 18 to CTH AB, east of the proposed landfill or a service road north of the proposed landfill. However, access may be split between large haulers and residential customers. Under this scenario, large haulers may access the proposed landfill from the primary access directly off CTH AB while residential customers may use an entrance off of the extended Millpond service road as discussed in Section 3.4.

The design for the proposed Dane County Landfill Site No. 3 will be developed to provide efficient, environmentally sound, and cost-effective disposal for approximately 10.3 million cubic yards of waste, and approximately 14-15 years of site life based on estimated filling rates. Conceptual top of waste grades are shown on Figure 14. The proposed design will meet the requirements of NR 500 through 520, the WDNR permitting process review conditions, as well as site-specific conditions.

The proposed Dane County Landfill Site No. 3 will be area filled over a series of contiguous liner cells. The intermediate waste grades are proposed to be extended to a point 5% higher (measured by waste depth) than the conceptual final top of waste grades to allow for settlement prior to final cover placement. Prior to placing final cover, waste volume will be verified and established as to not exceed the maximum waste capacity of 10.3 million cubic yards. The proposed landfill will include environmental monitoring, a landfill gas conveyance and control system and surface water management features.

The proposed Dane County Landfill Site No. 3 will be sized to accept the projected annual waste tonnages for an approximate 14-15 year period, with acceptance of waste anticipated to start in 2030. The criteria considered when determining the conceptual design of the proposed landfill include the following:

- Locational criteria setbacks specified in NR 504.04(3), except as noted in Section 2.1;
- Subbase and base grades established to maintain a separation to the seasonally high groundwater table and/or competent bedrock surface with a gradient control system underlying the composite liner system as noted in Section 1.2;
- Optimum use of available land and soil balance across the property, while also meeting requirements specified in NR 504;
- Maximum elevation based on landfill slope requirements specified in NR 504;
- Waste grades that will provide the greatest practicable volume for waste, while also meeting requirements specified in NR 504;
- Final cover system design in accordance with requirements specified in NR 504.07;
- Visual screening to be implemented between the proposed landfill and surrounding area as outlined in Section 2.1.4; and
- Revegetation in accordance with requirements specified in NR 504.07(8).

The proposed Dane County Landfill Site No. 3 will be located and designed to minimize the impacts to adjacent properties. Preliminary design concepts to minimize potential impacts that may be identified during subsequent investigations and analysis will be presented in the FR. Sedimentation basins, diversions berms and/or perimeter drainage swales will be constructed to contain surface water runoff from the proposed development and to release collected surface water in a controlled manner.

# 6.0 LIMITATIONS

The work product included in the attached was undertaken in full conformity with generally accepted professional consulting principles and practices and to the fullest extent as allowed by law we expressly disclaim all warranties, express or implied, including warranties of merchantability or fitness for a particular purpose. The work product was completed in full conformity with the contract with our client and this document is solely for the use and reliance of our client (unless previously agreed upon that a third party could rely on the work product) and any reliance on this work product by an unapproved outside party is at such party's risk.

The work product herein (including opinions, conclusions, suggestions, etc.) was prepared based on the situations and circumstances as found at the time, location, scope and goal of our performance and thus should be relied upon and used by our client recognizing these considerations and limitations. Cornerstone Environmental Group, LLC shall not be liable for the consequences of any change in environmental standards, practices, or regulations following the completion of our work and there is no warrant to the veracity of information provided by third parties, or the partial utilization of this work product.

# 7.0 REFERENCES

Bradbury, Kenneth R., Swanson, Susan K., Krohelski, James T., and Fritz, Ann K. 1999. Hydrogeology of Dane County, Wisconsin. Open-File Report 1999-04 and Plate 1. Wisconsin Geological and Natural History Survey. University of Wisconsin-Extension. 1999.

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# FIGURES

## Legend

- Property Boundary (Pending)
- Proposed Landfill Limits of Waste
- Setback

One Mile Setback

1,000-Ft Setback

Hope

MCFARLAND

Madison Media Institute

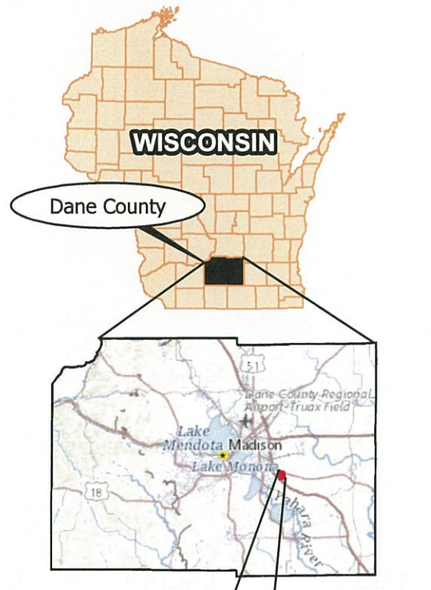
Hope Evangelical Cem

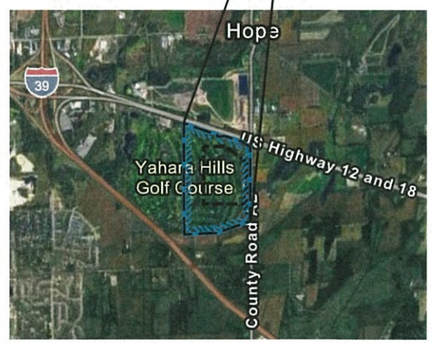
Hope Cottage Grove Cem

McFarland Lutheran Cem

McFarland Lutheran Cem East

Private Cem




SITE LOCATOR

BASEMAP SOURCE:
USGS Topographic Quadrangles 7.5 Minute
Series: Madison East, WI (2022)
Series: Cottage Grove, WI (2022)

Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
Datum: North American 1983

N

0 1000 2000 4000
FEET
1" = 2,000'

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DATE OF ISSUE 8/31/2022 DESIGNED BY SSW CHECKED BY TD DRAWN BY SSW APPROVED BY TD

TETRA TECH

PREPARED BY: TETRATECH



Dane County Waste & Renewables Department
City of Madison, Dane County, Wisconsin
Proposed Dane County Landfill Site No. 3

**INITIAL SITE REPORT**

# SITE LOCATION MAP

FIGURE NO. 1

PROJECT NO. 4221302

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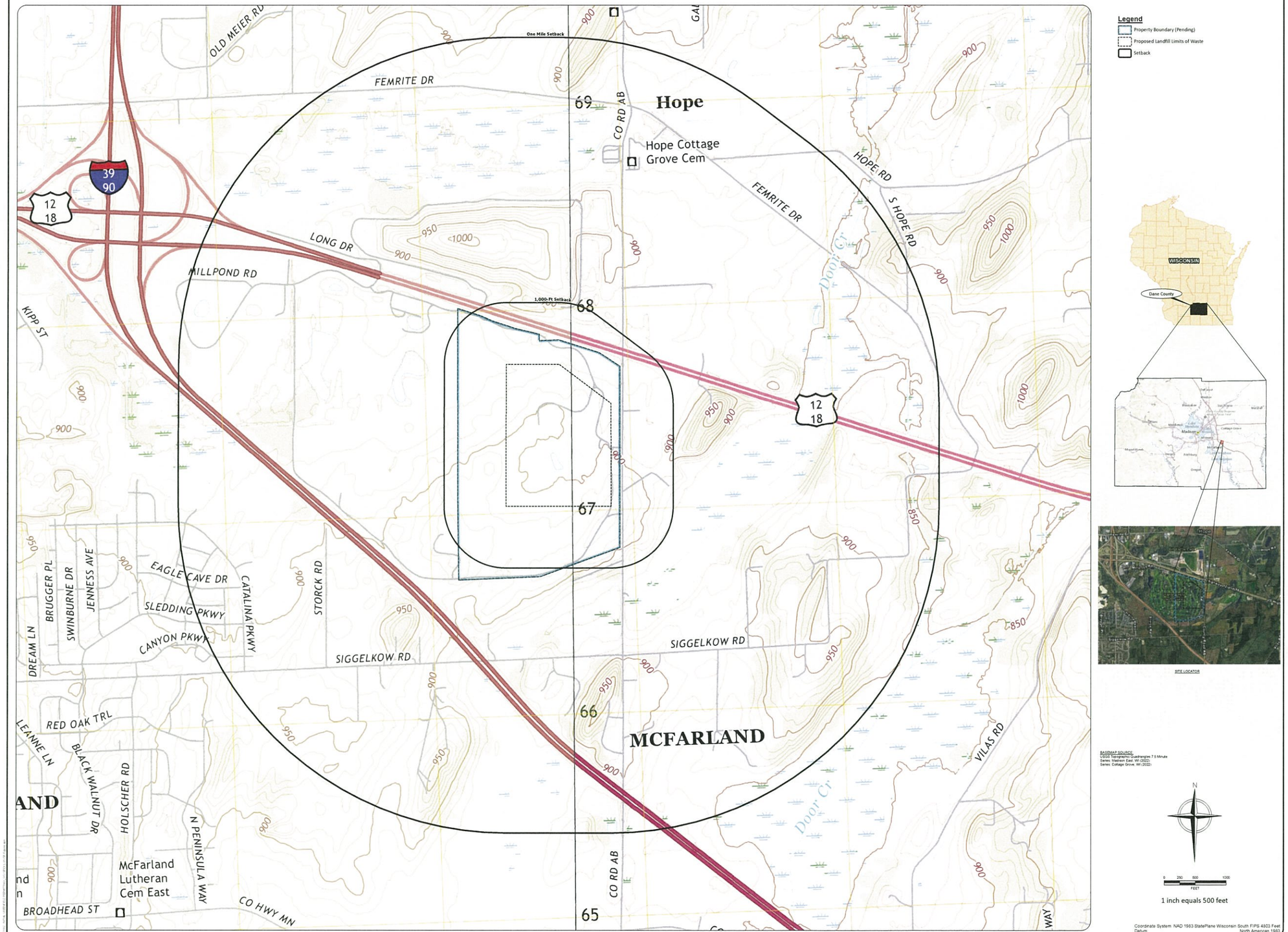


Legend

- Property Boundary (Pending)
- Proposed Landfill Limits of Waste
- Setback




SITE LOCATOR

BASEMAP SOURCE:
USGS Topographic Quadrangles 7.5 Minute
Series: Madison East, WI (2022)
Series: Cottage Grove, WI (2022)

N

0 250 500 1000
FEET

1 inch equals 500 feet

Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
Datum: North American 1983

TETRA TECH

Dane County Waste & Renewables Department
City of Madison, Dane County, Wisconsin
Proposed Dane County Landfill Site No. 3

**INITIAL SITE REPORT**

**SITE LOCATION MAP**

SHEET NO.
1A

PROJECT NO.
4221302

N 382,000 | N 381,500 | N 381,000 | N 380,500 | N 380,000 | N 379,500 | N 379,000 | N 378,500 | N 378,000 | N 377,500 | N 377,000 | N 376,500 | N 376,000 | N 375,500 | N 375,000

E 2171000 | E 2170500 | E 2170000 | E 2169500 | E 2169000 | E 2168500 | E 2168000 | E 2167500 | E 2167000 | E 2166500 | E 2166000

UNNAMED STREAM (WBIC 803000)

SEC 30 T7N R11E

SEC 31 T7N R11E

SEC 25 T7N R10E

SEC 36 T7N R10E

CTH AB

USH 12-18

M17AR M17BR M29 301A

M303AR YZ391 M23 MW-208RR M14B M14A M22 P119B WT119A WT206AR

DANE COUNTY LANDFILL SITE NO. 2 (RODEFELD)

PROPOSED WASTE FOOTPRINT (83.1 ACRES)

EXISTING MAINTENANCE BUILDINGS

UNNAMED POND (WBIC 5575561)

UNNAMED POND (WBIC 5575477)

UNNAMED POND (WBIC 5575502)

EXISTING YAHARA HILLS GOLF COURSE CLUB HOUSE

PARCEL NO. 251/0710-254-0099-7

PARCEL NO. 251/0710-361-0099-0

W-1 W-2 W-3 W-4 W-5 P-1

CP102 CP101 CP103 PW-E PW-D PW-C PW-A PW-B PW-49 PW-88

I-90 / I-39

## LEGEND

- PROPERTY BOUNDARY (PENDING)
- SIXTEENTH SECTION LINE
- SEC 25 T7N R10E — SECTION-TOWNSHIP-RANGE DESIGNATION
- 920 — EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING BUILDING / STRUCTURE
- CP101 — EXISTING SURVEY CONTROL POINT
- PW-E — KNOWN YAHARA HILLS PRIVATE WELL, APPROXIMATE LOCATION
- ASSUMED OFFSITE PRIVATE WELL, APPROXIMATE LOCATION
- KNOWN PRIVATE WELL, APPROXIMATE LOCATION
- PW-49 — ABANDONED YAHARA HILLS PRIVATE WELL
- FIELD DELINEATED WETLANDS (SEE NOTE 4)
- DELINEATED WETLANDS (SEE NOTE 4)
- STREAM / SHORELINE LIMITS
- PROPOSED LIMITS OF WASTE
- APPROXIMATE LIMITS OF WEST 18 HOLE GOLF COURSE
- LIMITS OF GOLF COURSE LEASE BOUNDARY PER AGREEMENT BETWEEN DANE COUNTY AND CITY OF MADISON

## NOTES:

1. TOPOGRAPHIC SURVEY OF THE DEVELOPMENT AREA TAKEN FROM THE WISCONSIN VIEW PORTAL LIDAR DATA, YEAR OF ACQUISITION: 2017. TOPOGRAPHIC SURVEY DATA PROVIDED BY STATE CARTOGRAPHER'S OFFICE.
2. HORIZONTAL DATUM IS REFERENCED TO WISCONSIN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM (NAD 83), US SURVEY FEET.
3. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM 1988. CONTOUR INTERVAL IS TWO FEET.
4. FIELD WETLAND DELINEATIONS PROVIDED BY TRC, DATED DECEMBER 2021, AND ADDITIONAL WETLAND BOUNDARIES TAKEN FROM WISCONSIN DEPARTMENT OF NATURAL RESOURCES, BUREAU OF WATERSHED MANAGEMENT - WETLANDS SECTION, DATED JULY 28, 2021.
5. STREAM AND SHORELINE TAKEN FROM WDNR SURFACE WATER DATA VIEWER. STREAM AND SHORELINE TAKEN FROM WISCONSIN DEPARTMENT OF NATURAL RESOURCES DATA CURATOR, PUBLISHED AUGUST 9, 2017 AND UPDATED AUGUST 16, 2021. STREAM AND WATERBODY IDENTIFICATION (WBIC#) TAKEN FROM WDNR SURFACE WATER DATA VIEWER.

N

0 300 600

SCALE IN FEET

1" 1/2" 0" 1"

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DATE OF ISSUE SEPT. 2022

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CHECKED BY TD APPROVED BY MJT

TETRA TECH

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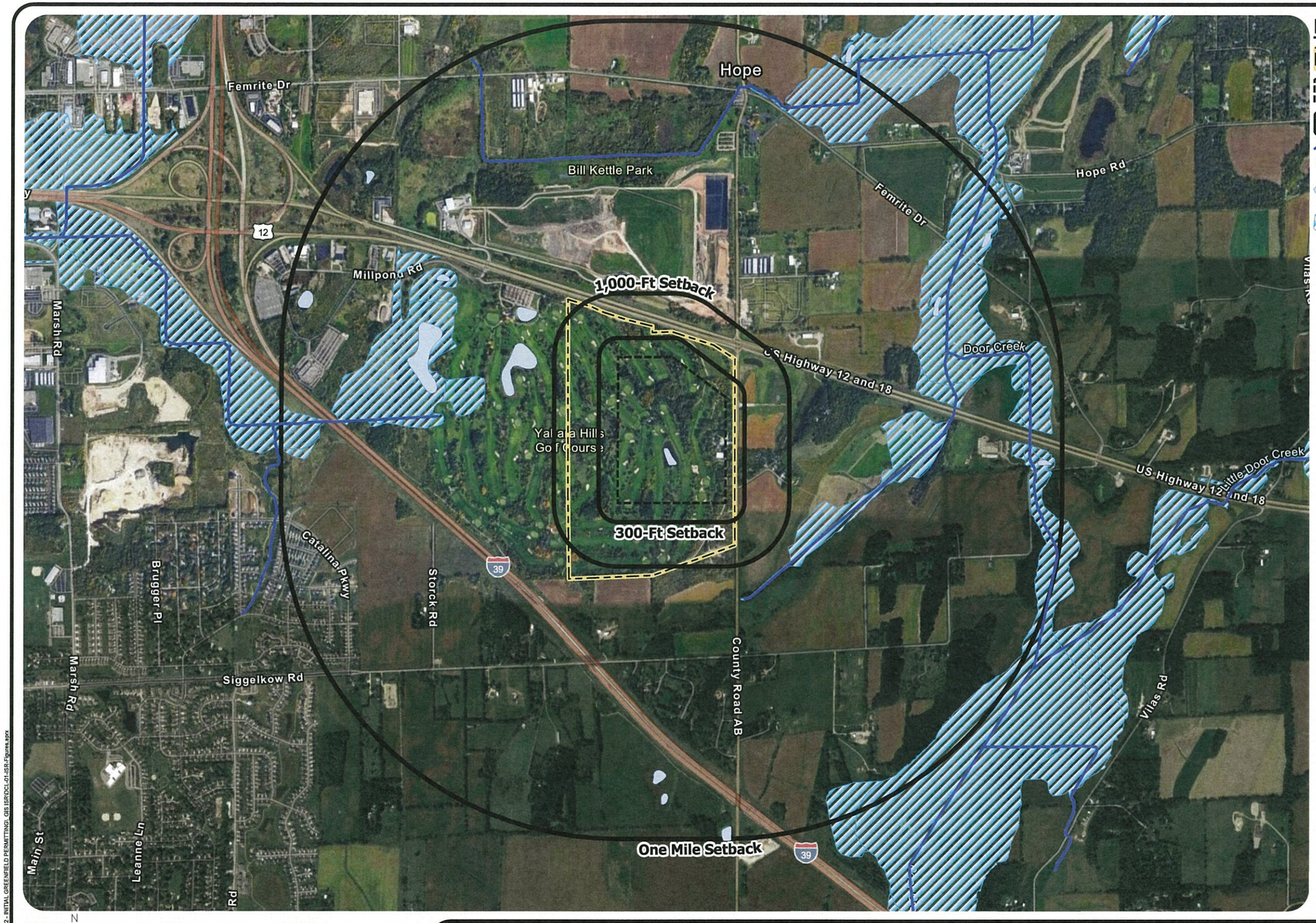
DANE COUNTY WASTE & RENEWABLES DEPARTMENT
PROPOSED DANE COUNTY LANDFILL SITE NO. 3
CITY OF MADISON, DANE COUNTY, WISCONSIN

**INITIAL SITE REPORT**
**EXISTING CONDITIONS**

FIGURE NO. **2**

PROJECT NO. 4221302




## Legend

- Property Boundary (Pending)
- Proposed Landfill Limits of Waste
- Setback
- Stream
- Waterbody
- FEMA 100-Year Floodplain

NOTES:

1. Waterbodies and Streams from US Geology Survey, National Hydrography Dataset, Wisconsin, 2022.
2. Floodplain sources is FEMA National Flood Hazard Layer.
3. Aerial Imagery Source is Google Imagery, 2022..

Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
Datum: North American 1983

N

0 500 1000 2000

FEET

1" = 1,600'

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DATE OF ISSUE 8/31/2022 | DESIGNED BY SSW | DRAWN BY SSW | CHECKED BY TD | APPROVED BY TD

TETRA TECH

PREPARED BY: TETRATECH



Dane County Waste & Renewables Department
City of Madison, Dane County, Wisconsin
Proposed Dane County Landfill Site No. 3

**INITIAL SITE REPORT**

# FLOODPLAIN AND SURFACE WATER FEATURES MAP

FIGURE NO. **3**

PROJECT NO. 4221302

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## Legend

- Proposed Landfill Limits of Waste
- Setback
- Airport (Public)
- Airport (Private)
- Heliport
- (MSN) FAA Airport Code

5 Mile Setback
10,000 Ft. Setback
5,000 Ft. Setback

DANE COUNTY (MSN)
ARMY GUARD
BLACKHAWK AIRFIELD (87Y)
UW HOSPITAL &
MERITER/PARK
SSM HEALTH, ST.
UFF-DA (2WI1)
MC MANUS (0WI9)
SPIEGEL FIELD (WI40)
MATSON (2WI6)
WISERSKY (95WI)

Mendota
Middleton
Monona
Vilas
Pierceville
Deerfield
Kroghville
London
Nora
Lake Ripley
Fitchburg
Lakeview
Oak Hall
Basco
Stoughton
Kegonsa
Hillside
Door Creek
Lake Farm Park
Goose Lake Wildlife Area
Legend at Bergamont
Coachman's Golf Resort
Yahara Hills Golf Course
University of Wisconsin Arboretum
Cherokee Marsh-North Unit
Seminary Springs
Hook Lake
Lake Mendota
Lake Kegonsa
Fisher

1017 ft
1062 ft
1050 ft
1074 ft
1041 ft
1111 ft
1120 ft
1161 ft
1211 ft

Meffert Rd
Old Sauk Rd
Odana Rd
Verona Rd
Whalen Rd
Lacy Rd
Irish Ln
Koshkonong Rd
County Road B
County Road C
Oak Park Rd
Reiner Rd
Packers Ave
Milwaukee St
Atwood Ave
E Johnson St
Cottage Grove Rd
E Buckeye Rd
N Main St
Ridge Rd
Tower Dr
Williams Dr
Door Creek Rd
Union Rd
Lake Kegonsa Rd
S Fish Hatchery Rd
S Seminole Hwy
Edgewood Dr
County Road O

N

0 1 3 5
Miles
1" = 12,000'

WISCONSIN
Dane County

NOTES:

1. Airport locations obtained from the Wisconsin Airport Directory & Pilot's Guide prepared by the Wisconsin Department of Transportation (WisDOT), Bureau of Aeronautics and Google Earth.
2. Basemap provided by USGS & ESRI.

Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
Datum: North American 1983

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Dane County Waste & Renewables Department
City of Madison, Dane County, Wisconsin
Proposed Dane County Landfill Site No. 3

**INITIAL SITE REPORT**

# AIRPORT LOCATION MAP

FIGURE NO. **4**

PROJECT NO. 4221302

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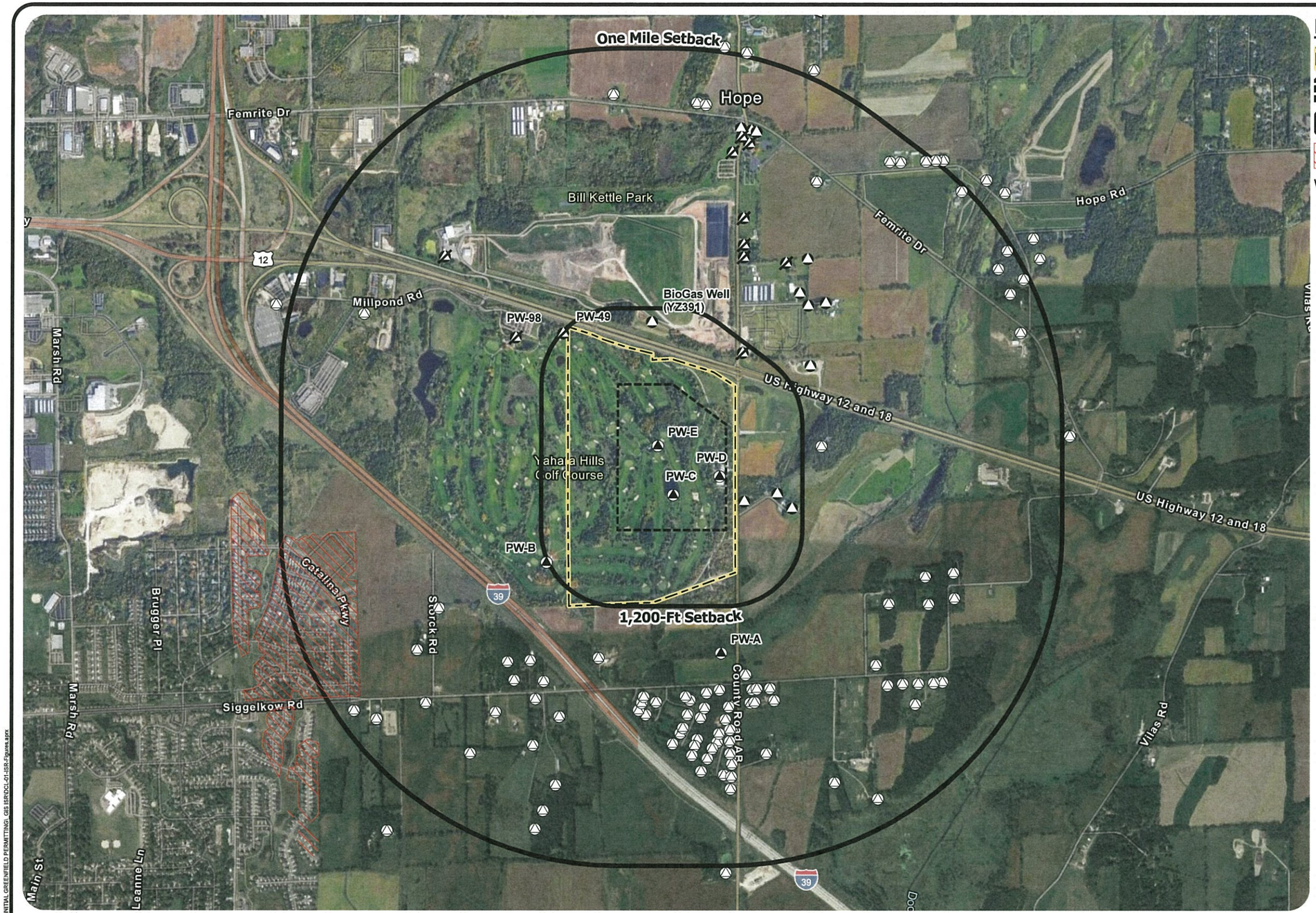


## Legend

- Property Boundary (Pending)
- Proposed Landfill Limits of Waste
- Setback
- Residential Developement on City Water Supply

Water Wells

- Assumed Offsite Private Well, Approximate Location
- Known Offsite Private Well, Approximate Location
- Known Yahara Hills Private Well, Approximate Location
- Abandoned Private Well

NOTES:

1. The assumed offsite private water supply well locations are based on a review of aerials for potential residences/structures and also data points provided in the WDNR and WGNHS databases.
2. The abandoned and known offsite private water supply well locations are based on private well locations provided on the Existing Conditions Map (Sheet 2) of the Dane County Landfill Site No. 2 Feasibility Report – Eastern Vertical Expansion, dated 5/31/2021.
3. Aerial Imagery Source is Google Imagery, 2022.
4. PW-B is approximately 1,220 feet from the proposed limits of waste, at its nearest point.

Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
Datum: North American 1983

N

0 500 1000 2000

FEET

1" = 1,600'

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TETRA TECH

PREPARED BY: TETRATECH



Dane County Waste & Renewables Department
City of Madison, Dane County, Wisconsin
Proposed Dane County Landfill Site No. 3

**INITIAL SITE REPORT**

# WATER SUPPLY WELL LOCATION MAP

FIGURE NO. **5**

PROJECT NO. 4221302

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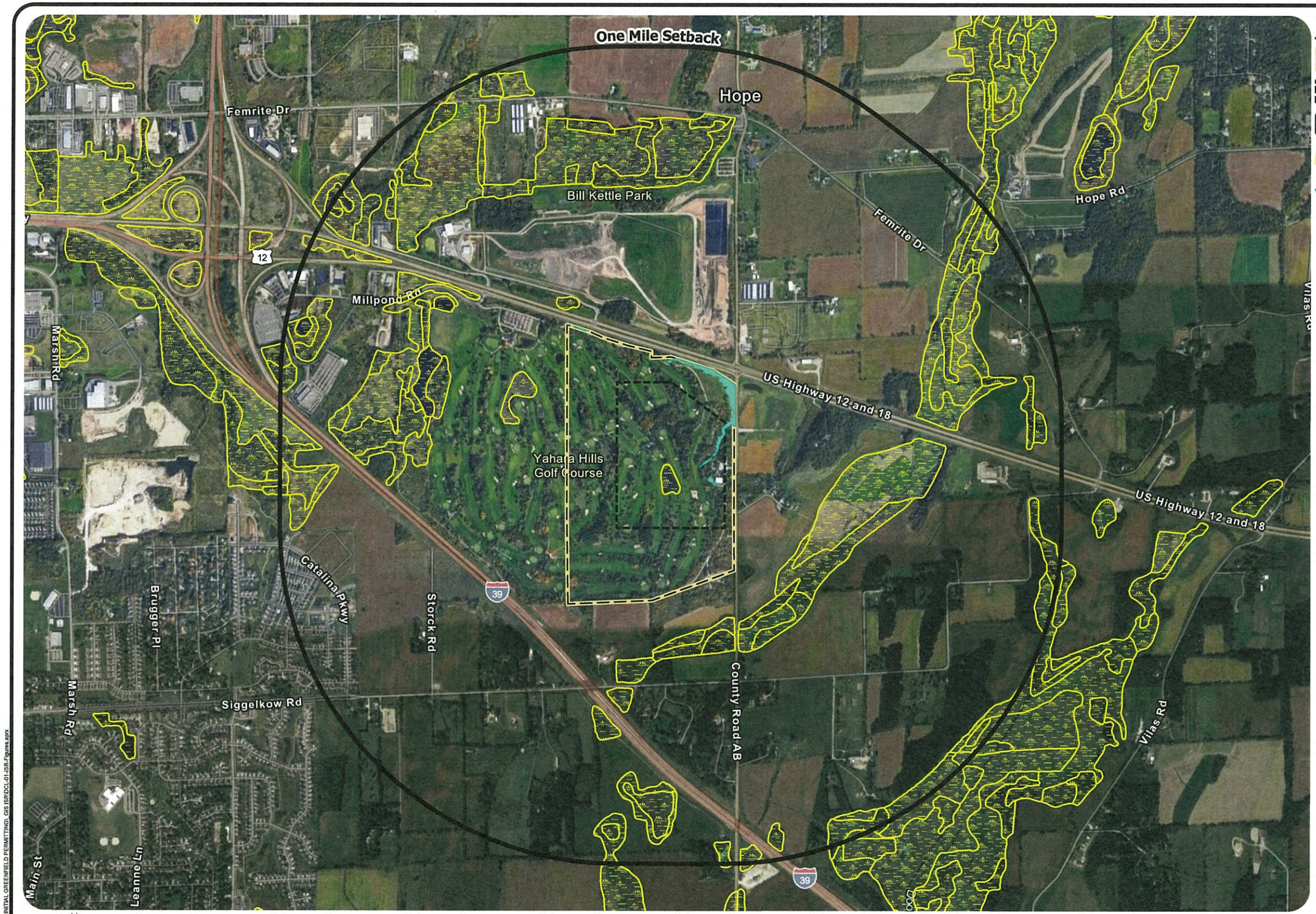


## Legend

- Property Boundary (Pending)
- Proposed Landfill Limits of Waste
- Setback
- Wetlands, Wisconsin DNR
- Field Delineated Wetland (See Note 2)

NOTES:

1. Wisconsin Department of Natural Resources, Bureau of Watershed Management - Wetlands Section, July 28, 2021.
2. TRC Environmental Corporation performed a wetland study of Parcel 251/0710-361-0099-0 in November 2021 and Heartland Ecological Group performed a wetland study of Parcel 251/0710-254-0099-7 in April 2022. TRC prepared a Wetland and Waterway Delineation Report dated December 8, 2021 which included the delineated wetlands shown on this figure. Heartland Ecological Group determined no wetlands were present within the study area in a report dated May 23, 2022.
3. See Figure 2 of the Initial Site Report or Exhibit A provided in the TRC Wetland and Waterway Delineation Report for delineated wetland IDs.
4. Basemap imagery from Google Earth 2022.

Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
Datum: North American 1983

N

0 500 1000 2000

FEET

1" = 1,600'

| REV | DATE | DESCRIPTION | DES BY | DWN BY | CHK BY | APP BY |
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TETRA TECH

PREPARED BY: TETRATECH



Dane County Waste & Renewables Department
City of Madison, Dane County, Wisconsin
Proposed Dane County Landfill Site No. 3

**INITIAL SITE REPORT**

# WETLAND INVENTORY MAP

FIGURE NO. **6**

PROJECT NO. 4221302

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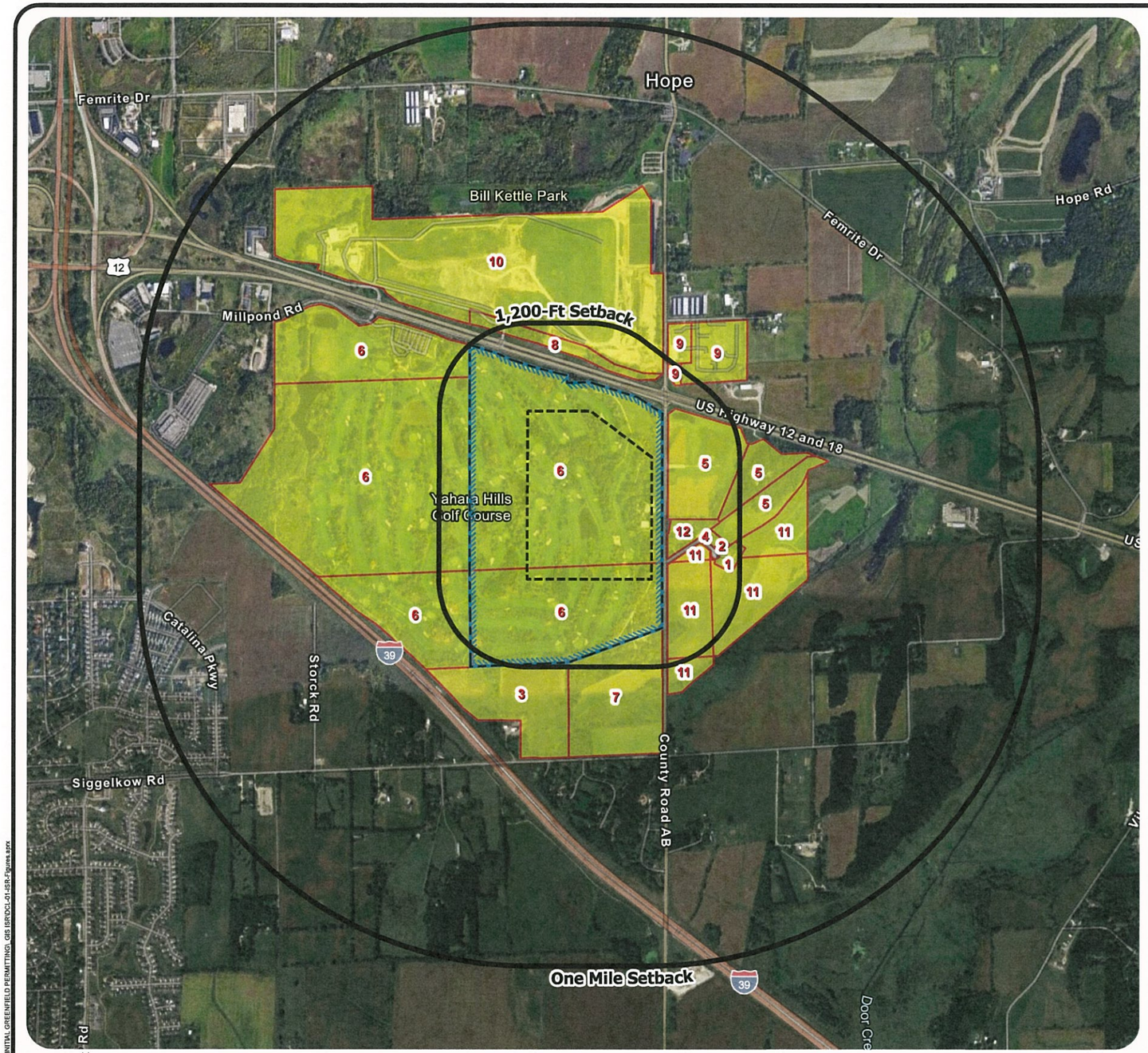


## Legend

- Property Boundary (Pending)
- Proposed Landfill Limits of Waste
- Setback
- 13 — Properties within 1,200-ft of proposed limits of waste and/or contiguous with the proposed property boundary

| MAPID | Owner | Mailing Address | City, State |
|---|---|---|---|
| 1 | AMY M FLUKE | 3104 HOPE HOLLOW TRL | MCFARLAND WI 53558 |
| 2 | AMY MARLENE FLUKE | 3098 HOPE HOLLOW TRL | MCFARLAND WI 53558 |
| 3 | ARLEN M ALGREM & CAROL ALGREM | 5034 HOUGH ST | MCFARLAND WI 53558 |
| 4 | BRIAN D ROGERS | 3108 HOPE HOLLOW TRL | MCFARLAND WI 53558 |
| 5 | C & L INVESTMENT PARTNERSHIP | W1085 COUNTY HIGHWAY K | COLUMBUS WI 53925 |
| 6 | CITY OF MADISON PARKS YAHARA HILLS GOLF COURSE | 210 MLK JR BLVD RM 104 | MADISON WI 53703-3342 |
| 7 | CITY OF MADISON PARKS YAHARA HILLS PARK SOUTH | 210 MLK JR BLVD RM 104 | MADISON WI 53703-3342 |
| 8 | CITY OF MADISON STREETS YAHARA WOOD PROCESS SITE | 4502 SYCAMORE AVE | MADISON WI 53704-6461 |
| 9 | DANE COUNTY | RM 114 210 MARTIN LUTHER KING JR BLVD | MADISON WI 53703-3342 |
| 10 | DANE COUNTY PUBLIC WORKS RODEFELD LANDFILL | 1919 ALLIANT ENGY CTR WAY | MADISON WI 53713-1400 |
| 11 | LARRY G SKAAR | 4374 SECRETARIAT CT | COTTAGE GROVE WI 53527 |
| 12 | VERNON J RATHERT | 3124 HOPE HOLLOW TRL | MCFARLAND WI 53558 |

NOTES:

1. Parcel Source is the Dane County GIS (Geographic Information System) and LIO (Land Information Office) services, Open Data Portal, Dated April 21, 2022.
2. The unassigned areas around US Highway 12 and 18 and County Road AB are rights-of-way owned by the State of Wisconsin (WisDOT).
3. Current ownership verified in Dane County DCiMap Viewer (June 2022).
4. Aerial Imagery Source is Google Imagery, 2022.

Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
Datum: North American 1983

N

0 500 1000 2000
FEET
1" = 1,600'

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TETRA TECH

PREPARED BY: TETRATECH



Dane County Waste & Renewables Department
City of Madison, Dane County, Wisconsin
Proposed Dane County Landfill Site No. 3
**INITIAL SITE REPORT**
# PROPERTY OWNERSHIP MAP

FIGURE NO. **7**
PROJECT NO. 4221302

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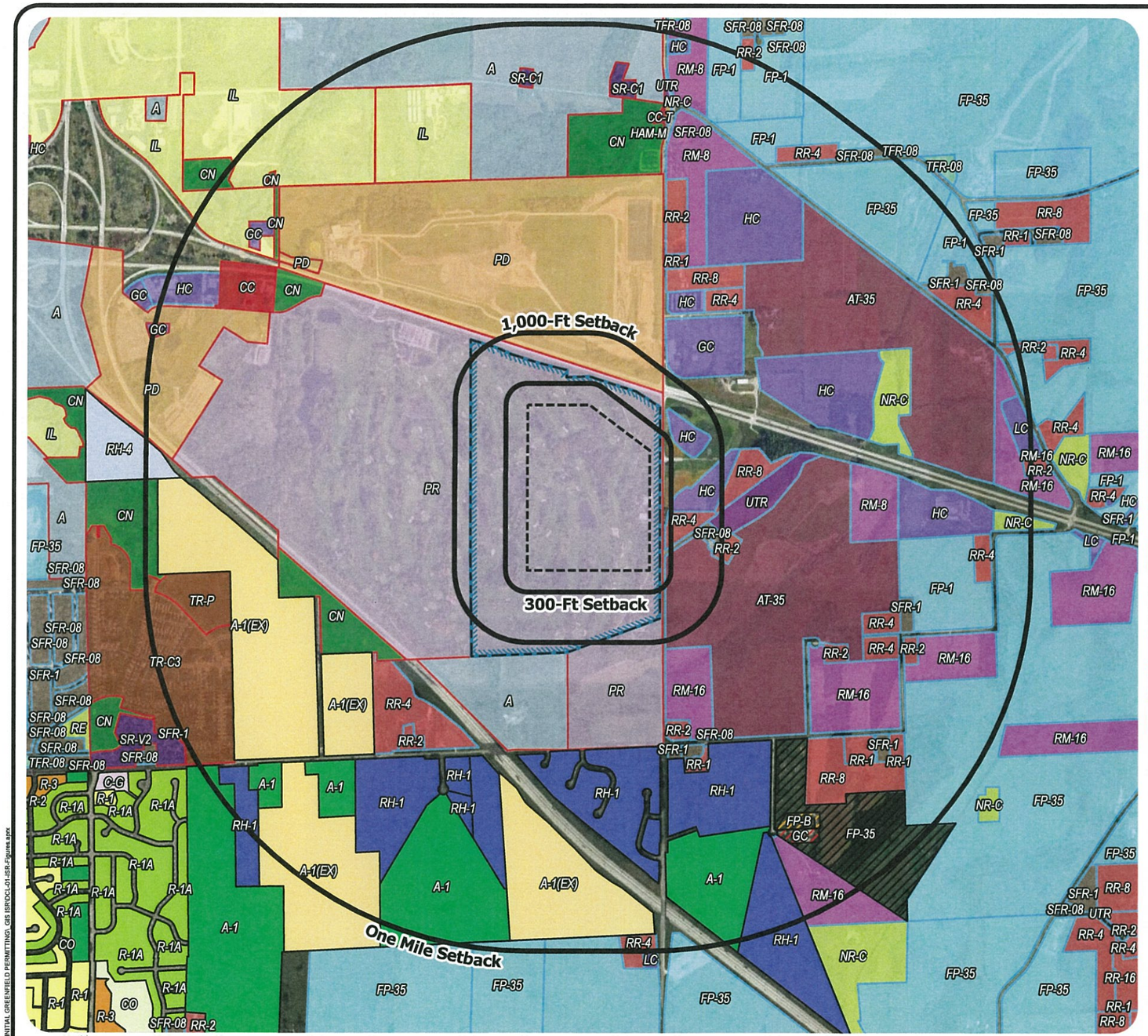


## Legend

- Property Boundary (Pending)
- Proposed Landfill Limits of Waste
- Setback

County of Dane, Rural Zoning

Zoning Code

- Transitional Districts (AT-35 ST-5 AT-B)
- Farmland Preservation (FP-1 FP-35 FP-B)
- Commercial (GC HC LC)
- Hamlet District (HAM-M HAM-R)
- Natural Resource and Recreation (RE NR-C)
- Rural, Mixed Use (RM-8 RM-16)
- Residential, Rural (RR-1 RR-2 RR-4 RR-8 RR-16)
- Residential, Single Family (SFR-1 SFR-2 SFR-08)
- Residential, Two Family (TFR-08)
- Special Use (UTR)

City of Madison, Zoning Districts

Zoning Code

- Agricultural (A)
- Conservancy (CN)
- Mixed Use and Commercial (LMX NMX TSS MXC CC-T CC)
- Planned Development (PD)
- Parks and Recreation (PR)
- Suburban Residential (SR-C1 SR-C2 SR-C3 SR-V1 SR-V2)
- Employment District (TE SE SEC EC IL IG)
- Traditional Residential (TR-C1 TR-C2 TR-C3 TR-C4 TR-P TR-R TR-U1 TR-U2 TR-V1 TR-V2)

Village of McFarland Zoning

Zoning Code

- A-1 (Exclusive Agriculture Dane County)
- A-1 (Agriculture-Transition Village)
- CO (Conservancy)
- R-1 (Single Family Residence)
- R-1A (Single Family Residence)
- R-2 (Single & Two-Family Residence)
- R-3 (General Residence)
- RH-1 (Rural Homes)
- RH-4 (Dane County)
- C-G (General Commercial)
- GC (Dane County)
- FP-35 (Dane County)
- FP-B (Dane County)

NOTES:

1. City of Madison Zoning Districts data from City of Madison Department of Planning and Community and Economic, Development, Planning Division City of Madison Department of Planning and Community and Economic, Development, Building Inspection, Dated September 7, 2017.

https://data-cityofmadison.opendata.arcgis.com/datasets/cityofmadison::zoning-districts/about

2. Dane County Rural Zoning data from the Dane County Land Information Office, Dated December 27, 2021.

https://gis-countyofdane.opendata.arcgis.com/datasets/countyofdane::rural-zoning/about

3. Village of McFarland zoning layer is maintained by Dane County. Contact Aaron Krebs for updates or additional information (AaronK@countyofdane.com ). Last update received from Aaron on 7-27-2018.

4. The unassigned areas around US Highway 12 and 18 and County Road AB are rights-of-way owned by the State of Wisconsin (WisDOT).

Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
Datum: North American 1983

N

0 500 1000 2000

FEET

1" = 1,600'

| REV | DATE | DESCRIPTION | DES BY | DWN BY | CHK BY | APP BY |
|---|---|---|---|---|---|---|
| | | | | | | |

DATE OF ISSUE 8/31/2022 | DESIGNED BY SSW | DRAWN BY SSW | CHECKED BY TD | APPROVED BY TD

TETRA TECH

PREPARED BY: TETRATECH



Dane County Waste & Renewables Department
City of Madison, Dane County, Wisconsin
Proposed Dane County Landfill Site No. 3
**INITIAL SITE REPORT**
# ZONING MAP

FIGURE NO. **8**

PROJECT NO. 4221302

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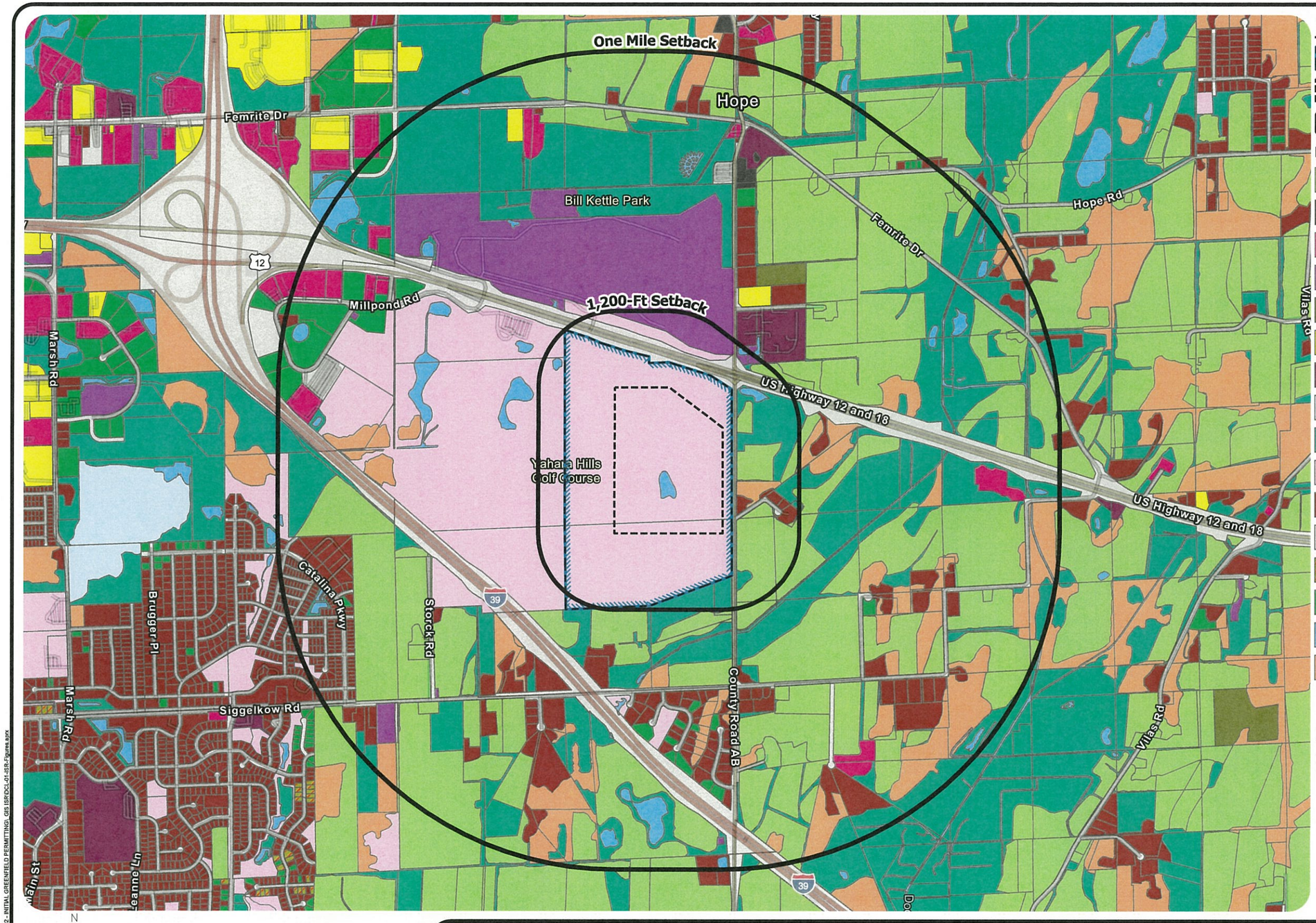


## Legend

- Property Boundary (Pending)
- Proposed Landfill Limits of Waste
- Setback

Land Use

- Agriculture
- Cemetery
- Commercial
- Communication/Utilities
- Fallow Farm Field
- Industrial
- Institutional/Governmental
- Mineral Extraction
- Open Land
- Recreation
- Residential
- Transportation
- Under Construction
- Vacant Subdivided Land
- Water
- Woodlands

NOTES:

1. Land Use data from Dane County Land Information Office, Dated October 12, 2020. https://gis-countyofdane.opendata.arcgis.com/documents/countyofdane::land-use/explore

Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
Datum: North American 1983

N

0 500 1000 2000

FEET

1" = 1,600'

| REV | DATE | DESCRIPTION | DES BY | DWN BY | CHK BY | APP BY |
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TETRA TECH

PREPARED BY: TETRATECH



Dane County Waste & Renewables Department
City of Madison, Dane County, Wisconsin
Proposed Dane County Landfill Site No. 3

**INITIAL SITE REPORT**

# LAND USE MAP

FIGURE NO. **9**

PROJECT NO. 4221302

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## Legend

- Property Boundary (Pending)
- Proposed Landfill Limits of Waste

BEDROCK GEOLOGIC UNITS

Cambrian System

- Cu — Sandstone with some dolomite and shale, undivided; includes Trempealeau, Tunnel City, and Elk Mound Groups.

Ordovician System

- Os — Sinnipee Group - dolomite with some limestone and shale; includes Galena, Decorah, and Platteville Formations.
- Oa — Ancel Group - orthoquartzitic sandstone with minor limestone, shale, and conglomerate; includes Glenwood and St. Peter Formations.
- Opc — Prairie du Chien Group - dolomite with some sandstone and shale; includes Shakopee and Oneota Formations.

- Fault Line
- Waterbody

NOTES:

1. Geology from "Bedrock Geologic Map of Wisconsin", WGNHS, 1982.

Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
Datum: North American 1983

N

0 5000 10000 20000

FEET

1" = 10,000'

| REV | DATE | DESCRIPTION | DES BY | DWN BY | CHK BY | APP BY |
|---|---|---|---|---|---|---|

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TETRA TECH

PREPARED BY: TETRATECH



Dane County Waste & Renewables Department
City of Madison, Dane County, Wisconsin
Proposed Dane County Landfill Site No. 3

**INITIAL SITE REPORT**

# REGIONAL BEDROCK GEOLOGY

FIGURE NO. **10**

PROJECT NO. 4221302

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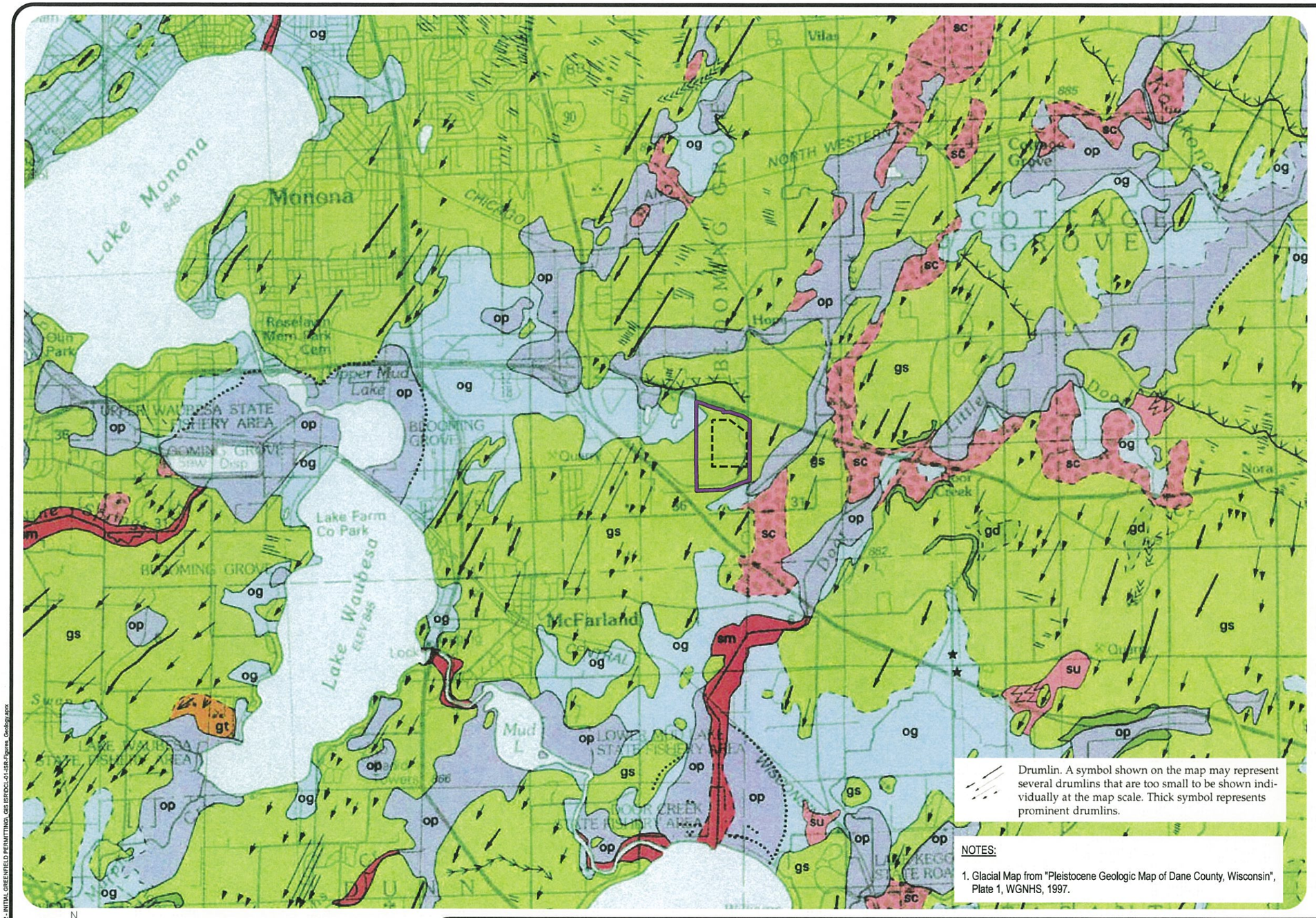


## Legend

- Property Boundary (Pending)
- Proposed Landfill Limits of Waste

- w — Windblown sand
- sm, sp — Nonglacial-stream sediment
- su, sc, se, so — Meltwater-stream sediment
- og, op, oe — Offshore lake sediment
- gs, gt, gh, gt, gb, gp — Till
- gd — Glacially scoured dolomite plateaus
- ge — Steep eroded slopes in glaciated areas

Drumlin. A symbol shown on the map may represent several drumlins that are too small to be shown individually at the map scale. Thick symbol represents prominent drumlins.

NOTES:

1. Glacial Map from "Pleistocene Geologic Map of Dane County, Wisconsin", Plate 1, WGNHS, 1997.

Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
Datum: North American 1983

N

0 2500 5000 10000

FEET

1" = 5,000'

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TETRA TECH

PREPARED BY: TETRATECH



Dane County Waste & Renewables Department
City of Madison, Dane County, Wisconsin
Proposed Dane County Landfill Site No. 3
**INITIAL SITE REPORT**
# REGIONAL GLACIAL GEOLOGY

FIGURE NO. **11**

PROJECT NO. 4221302

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## Legend

- Property Boundary (Pending)
- Proposed Landfill Limits of Waste
- Setback

NRCS Soils Data

MUSYM,muname

- 1180D2,Newglarus-Dunbarton silt loams, 12 to 20 percent slopes, moderately eroded
- Ad,Adrian muck, 0 to 2 percent slopes
- BbA,Batavia silt loam, gravelly substratum, 0 to 2 percent slopes
- BbB,Batavia silt loam, gravelly substratum, 2 to 6 percent slopes
- Co,Colwood silt loam, 0 to 2 percent slopes
- Cu,Cut and fill land
- DnB,Dodge silt loam, 2 to 6 percent slopes
- DnC2,Dodge silt loam, 6 to 12 percent slopes, eroded
- DrD2,Dresden loam, 12 to 20 percent slopes, eroded
- DsB,Dresden silt loam, 2 to 6 percent slopes
- DsC2,Dresden silt loam, 6 to 12 percent slopes, eroded
- Ev,Elvers silt loam
- GP,Gravel pit
- Gn,Granby loamy sand
- HaA,Hayfield silt loam, 0 to 3 percent slopes
- Ho,Houghton muck
- KcB,Kickapoo fine sandy loam, 2 to 6 percent slopes
- KdC2,Kidder loam, 6 to 12 percent slopes, eroded
- KdD2,Kidder loam, 12 to 20 percent slopes, eroded
- KeA,Kegonsa silt loam, 0 to 2 percent slopes
- KeB,Kegonsa silt loam, 2 to 6 percent slopes
- KrD2,Kidder soils, 10 to 20 percent slopes, eroded
- KrE2,Kidder soils, 20 to 35 percent slopes, eroded
- LDF,Landfill
- Mc,Marshan silt loam
- MdB,McHenry silt loam, 2 to 6 percent slopes
- MdC2,McHenry silt loam, 6 to 12 percent slopes, eroded
- MdD2,McHenry silt loam, 12 to 20 percent slopes, eroded
- MhC2,Military loam, 6 to 12 percent slopes, eroded
- MhD2,Military loam, 12 to 20 percent slopes, eroded
- Os,Orion silt loam, wet
- Ot,Otter silt loam
- Pa,Palms muck, 0 to 2 percent slopes
- PeC2,Pecatonica silt loam, 6 to 12 percent slopes, eroded
- PnA,Plano silt loam, till substratum, 0 to 2 percent slopes
- PnB,Plano silt loam, till substratum, 2 to 6 percent slopes
- PoA,Plano silt loam, gravelly substratum, 0 to 2 percent slopes
- RaA,Radford silt loam, 0 to 3 percent slopes
- RnB,Ringwood silt loam, 2 to 6 percent slopes
- SaA,Sable silty clay loam, 0 to 2 percent slopes
- ScB,St. Charles silt loam, 2 to 6 percent slopes
- ScC2,St. Charles silt loam, 6 to 12 percent slopes, eroded
- TrB,Troxel silt loam, 0 to 3 percent slopes
- VrB,Virgil silt loam, 1 to 4 percent slopes
- VwA,Virgil silt loam, gravelly substratum, 0 to 3 percent slopes
- W,Water
- Wa,Wacousta silty clay loam, 0 to 2 percent slopes
- WxB,Whalan silt loam, 2 to 6 percent slopes
- WxC2,Whalan silt loam, 6 to 12 percent slopes, eroded

NOTES:

1. Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture, Web Soil Survey. Available online at https://websoilsurvey.nrcs.usda.gov/.

Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
Datum: North American 1983

N

0 500 1000 2000

FEET

1" = 1,600'

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DATE OF ISSUE 8/31/2022 DESIGNED BY SSW CHECKED BY TD DRAWN BY SSW APPROVED BY TD

TETRA TECH

PREPARED BY: TETRATECH



Dane County Waste & Renewables Department
City of Madison, Dane County, Wisconsin
Proposed Dane County Landfill Site No. 3
**INITIAL SITE REPORT**
**REGIONAL NRCS SOIL MAP**

FIGURE NO. **12**

PROJECT NO. 4221302

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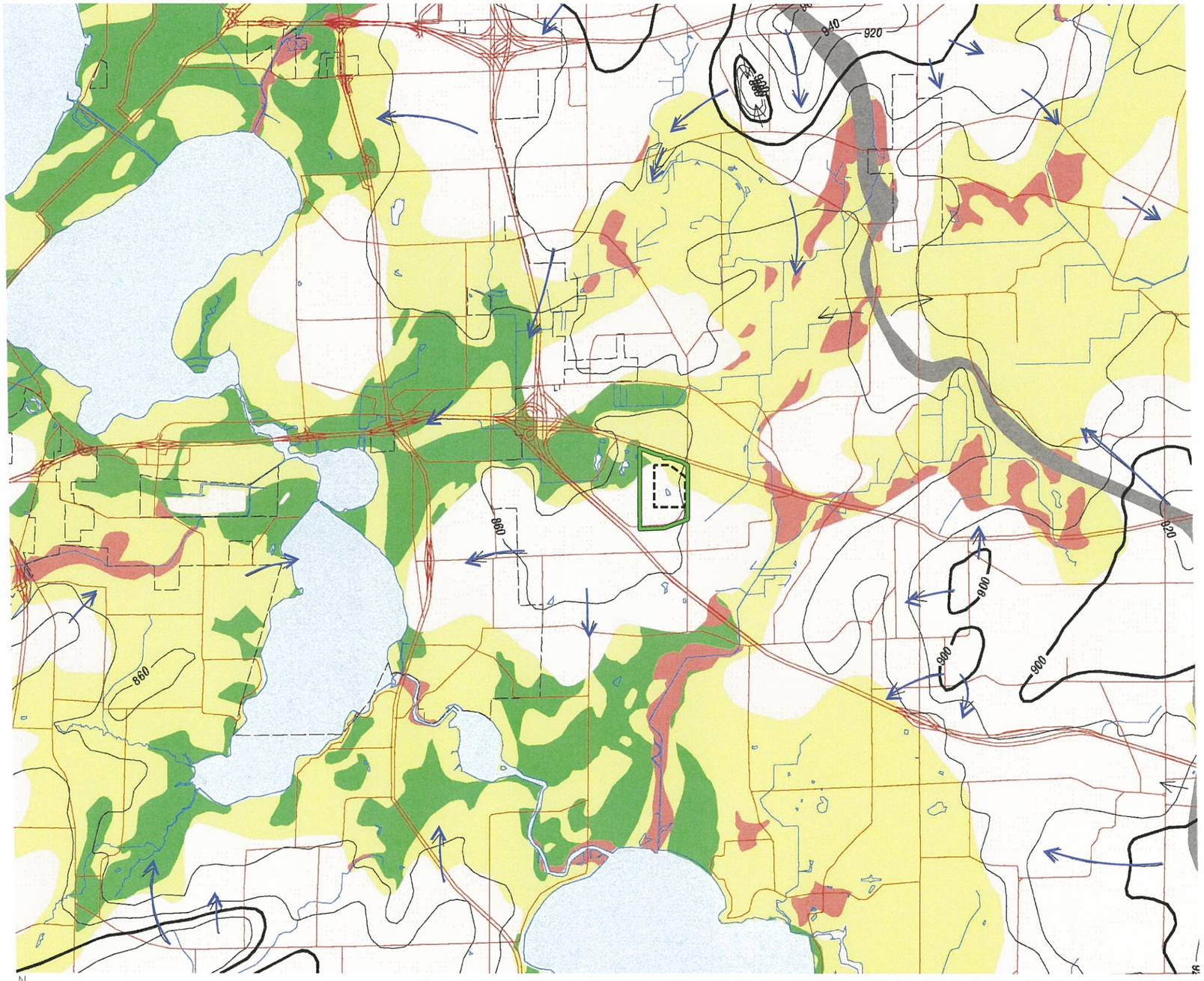


## Legend

- Property Boundary (Pending)
- Proposed Landfill Limits of Waste

**Type 1 - Unconfined**

- Well sorted sand and gravel deposited as stream sediment

**Type 2 - Unconfined**

- Poorly sorted sand, gravel and silt deposited as diamiction or well sorted offshore glacial lake sediment

**Type 3 Confined or partially confined**

- Well to moderately well sorted sand and gravel overlain by silty or slayey lake sediments
- Area is not considered an unlithified surficial aquifer
- Water
- Contours of equal elevation of the water table, in feet above sea level; contour interval 100 ft.
- Contours of equal elevation of the water table, in feet above sea level; contour interval 20 ft.
- General direction of shallow groundwater flow
- Approximate location of groundwater divideds; width indicates interpreted uncertainty.

NOTES:

1. Wisconsin geological and Natural History Survey Open-File Report 1999-04 Plate 1.

Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
Datum: North American 1983

N

0 3000 6000 12000

FEET

1" = 6,000'

| REV | DATE | DESCRIPTION | DES BY | DWN BY | CHK BY | APP BY |
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TETRA TECH

PREPARED BY: TETRATECH



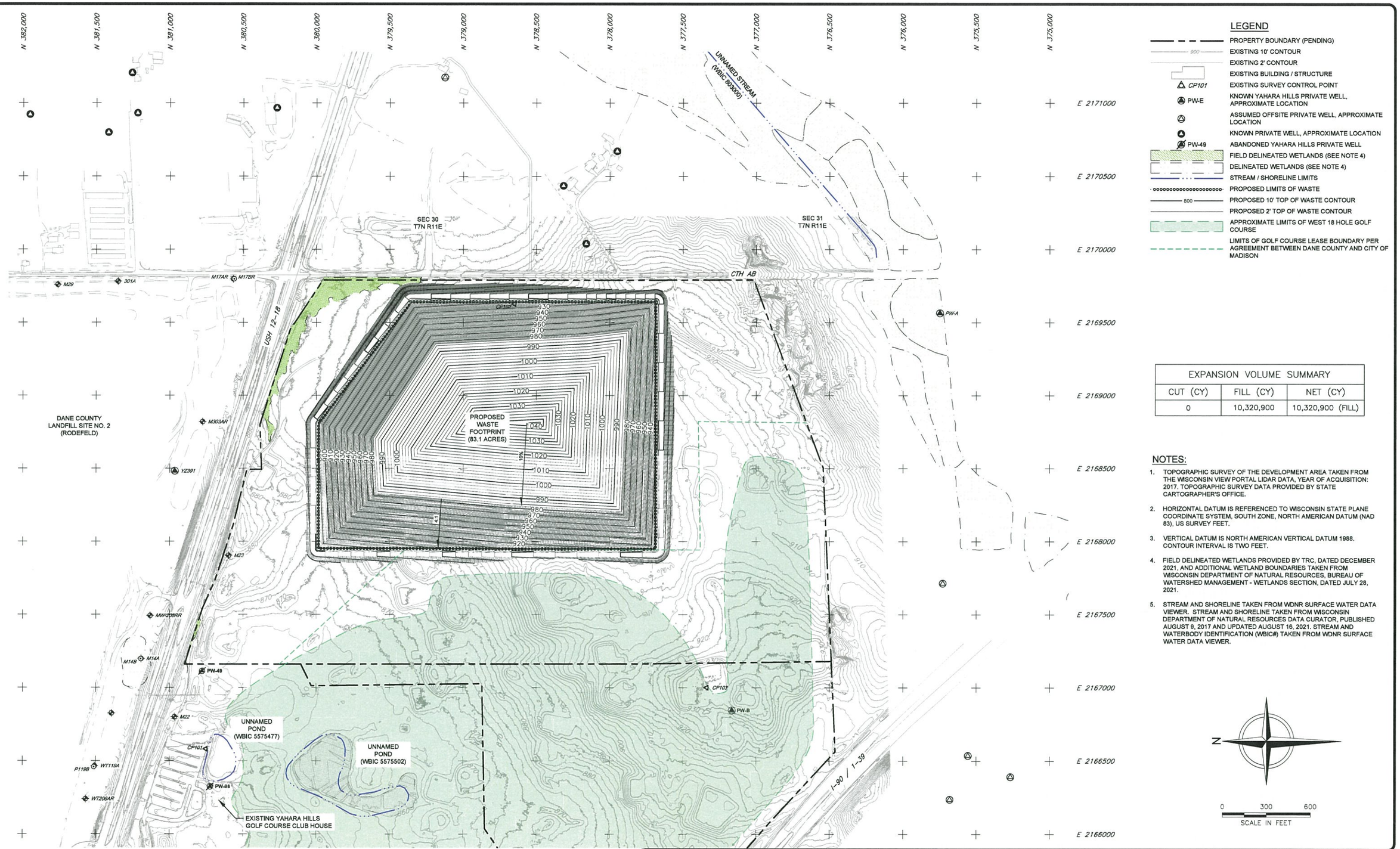
Dane County Waste & Renewables Department
City of Madison, Dane County, Wisconsin
Proposed Dane County Landfill Site No. 3

**INITIAL SITE REPORT**

# REGIONAL WATER TABLE MAP

FIGURE NO. **13**

PROJECT NO. 4221302




## LEGEND

- PROPERTY BOUNDARY (PENDING)
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING BUILDING / STRUCTURE
- CP101 — EXISTING SURVEY CONTROL POINT
- PW-E — KNOWN YAHARA HILLS PRIVATE WELL, APPROXIMATE LOCATION
- ASSUMED OFFSITE PRIVATE WELL, APPROXIMATE LOCATION
- KNOWN PRIVATE WELL, APPROXIMATE LOCATION
- PW-49 — ABANDONED YAHARA HILLS PRIVATE WELL
- FIELD DELINEATED WETLANDS (SEE NOTE 4)
- DELINEATED WETLANDS (SEE NOTE 4)
- STREAM / SHORELINE LIMITS
- PROPOSED LIMITS OF WASTE
- PROPOSED 10' TOP OF WASTE CONTOUR
- PROPOSED 2' TOP OF WASTE CONTOUR
- APPROXIMATE LIMITS OF WEST 18 HOLE GOLF COURSE
- LIMITS OF GOLF COURSE LEASE BOUNDARY PER AGREEMENT BETWEEN DANE COUNTY AND CITY OF MADISON

| EXPANSION VOLUME SUMMARY | | |
|---|---|---|
| CUT (CY) | FILL (CY) | NET (CY) |
| 0 | 10,320,900 | 10,320,900 (FILL) |

## NOTES:

1. TOPOGRAPHIC SURVEY OF THE DEVELOPMENT AREA TAKEN FROM THE WISCONSIN VIEW PORTAL LIDAR DATA, YEAR OF ACQUISITION: 2017. TOPOGRAPHIC SURVEY DATA PROVIDED BY STATE CARTOGRAPHER'S OFFICE.
2. HORIZONTAL DATUM IS REFERENCED TO WISCONSIN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM (NAD 83), US SURVEY FEET.
3. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM 1988. CONTOUR INTERVAL IS TWO FEET.
4. FIELD DELINEATED WETLANDS PROVIDED BY TRC, DATED DECEMBER 2021, AND ADDITIONAL WETLAND BOUNDARIES TAKEN FROM WISCONSIN DEPARTMENT OF NATURAL RESOURCES, BUREAU OF WATERSHED MANAGEMENT - WETLANDS SECTION, DATED JULY 28, 2021.
5. STREAM AND SHORELINE TAKEN FROM WDNR SURFACE WATER DATA VIEWER. STREAM AND SHORELINE TAKEN FROM WISCONSIN DEPARTMENT OF NATURAL RESOURCES DATA CURATOR, PUBLISHED AUGUST 9, 2017 AND UPDATED AUGUST 16, 2021. STREAM AND WATERBODY IDENTIFICATION (WBIC#) TAKEN FROM WDNR SURFACE WATER DATA VIEWER.



| REV | DATE | DESCRIPTION | DWN BY | DES BY | CHK BY | APP BY |
|---|---|---|---|---|---|---|
| | | | | | | |

DATE OF ISSUE SEPT. 2022 — DRAWN BY RBN — DESIGNED BY RBN — CHECKED BY TD — APPROVED BY MJT

TETRA TECH

ALL PROFESSIONAL ENGINEERING WORK IS PERFORMED BY DULY LICENSED PROFESSIONAL ENGINEERS UNDER THE APPROPRIATE STATE REGISTERED PROFESSIONAL ENTITY.

DANE COUNTY WASTE & RENEWABLES DEPARTMENT
PROPOSED DANE COUNTY LANDFILL SITE NO. 3
CITY OF MADISON, DANE COUNTY, WISCONSIN

**INITIAL SITE REPORT**
**CONCEPTUAL TOP OF WASTE**

FIGURE NO. **14**

PROJECT NO. 4221302

1" 1/2" 0" 1"

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# APPENDIX A

## ISR CHECKLIST

Initial Site Report Completeness Checklist – Chapter NR 509, Wis. Adm. Code

# Initial Site Report Completeness Checklist
# Chapter NR 509, Wis. Adm. Code

**Revised January 2018**

**Waste & Materials Management**
**P.O. Box 7921**
**Madison, WI 53707-7921**

Instructions: This checklist is intended for use by department staff for the review of landfill initial site reports to determine completeness. The checklist may also be used by applicants and submitted with a landfill initial site report to facilitate department review. Refer to applicable statues and codes for exact requirements.

General Information

Facility Name: Dane County Landfill Site No. 3

Facility Type: Solid Waste Landfill > 500,000 Cu Yd

Initial Submittal: Date Received: ____/____/____ Completeness Due: ____/____/____ DNR Response: ____/____/____ (Complete: __ yes __ no)

Addendum # __ Date Received: ____/____/____ Completeness Due: ____/____/____ DNR Response: ____/____/____ (Complete: __ yes __ no)

Addendum # __ Date Received: ____/____/____ Completeness Due: ____/____/____ DNR Response: ____/____/____ (Complete: __ yes __ no)

Proposed Waste Types: Non-hazardous MSW, C&D Waste, Industrial Waste, Special Waste

Proposed Total Design Capacity: 10.3 million cubic yards (including daily and intermediate covers)

| | | |
|---|---|---|
| Y | N | Have office and work copies been designated? |
| Y | N | Has each copy been stamped with the date received? |
| Y | N | Has the initial submittal been entered into the FIST database? |
| Y | N | Have all additional information submittals been entered into FIST database? |
| Y | N | Have the acknowledgment letter and invoice been sent to the applicant? (if yes, date sent: ____/____/____) |
| Y | N | Has the invoiced plan review fee been paid? (if yes, date received: ____/____/_____) |

Facility Name: Dane County Landfill Site No. 3

| COMPLETENESS REQUIREMENTS | COMPLETE? Y | N | NA | LOCATION | COMMENTS |
|---|---|---|---|---|---|
| **NR 509.04 INITIAL INSPECTION** | | | | | |
| Has the department completed an initial site inspection?<br>Date of inspection: 04 / 14 / 22<br>Date of ISI letter: 05 / 11 / 22 | X | | | Section 1.4 and Appendix C | |
| **NR 509.05 GENERAL SUBMITTAL REQUIREMENTS** | | | | | |
| (1) Has the review fee specified in s. 520.04 been submitted?<br>Note: The department sends an invoice for the plan review fee to the applicant upon receipt of the report. The applicant must send payment to the department within 30 days after receipt of the invoice. | X | | | | |
| (2) Has a cover letter detailing desired action been submitted? | X | | | | |
| (3) Have 3 paper copies been submitted to the regional office (and 1 additional paper and electronic copy submitted to the bureau office, unless otherwise specified by the department)? | X | | | | See Cover Letter |
| (4) Are the report and plan sheets submitted under seal of P.E. and P.G.? | X | | | | See Certification Page |
| **Note: Subsections (5), (6), (7), and (8) below are typically not applicable unless information from ch. NR 510 is included in the ISR.** | | | | | |
| (5) TECHNICAL PROCEDURES: | | | | | |
| Were all test procedures specified in the report? | | | X | | |
| Were all technical procedures used to investigate the facility considered current standard procedures (ASTM, USGS, etc.)?<br>__ yes __ no<br>If no, was explanation and reasoning provided for any deviation from a standard method?<br>__ yes __ no | | | X | | |
| (6) VISUALS: Do all maps, plan sheets, drawings, isometrics, cross-sections, and aerial photographs meet the following requirements: | | | | | |
| (a) No larger than 24 inches by 36 inches and no smaller than 8-1/2 x 11 inches? | X | | | Figures 1-14 | |
| (b) Appropriate scale to show required detail? | X | | | | |
| (c) Do the visuals meet the following requirements?<br>X numbered X legends for all symbols<br>X referenced in the narrative X horizontal/vertical scales<br>X titled X drafting or origination dates | X | | | | |
| (d) Were uniform scales used? | | | | | Figures were scaled to provide the |
| (e) Were north arrows provided? | X | | | | required setback radii and/or provide |
| (f) Was a USGS datum used as a basis for all elevations? | X | | | | clarity and detail of the information |
| (g) Do visuals contain a survey grid based on monuments established in the field that are referenced to state plane coordinates? | X | | | | being presented on each figure. |

Facility Name: Dane County Landfill Site No. 3

| COMPLETENESS REQUIREMENTS | COMPLETE? Y | N | NA | LOCATION | COMMENTS |
|---|---|---|---|---|---|
| (h) Are the original topography and a grid system contained on the plan sheets that show construction, operation or closure topography? | X | | | Figures 1-14 | |
| (i) Do the cross-sections meet the following requirements?<br>___ show survey grid locations<br>___ reference major plan sheets<br>___ provide a reduced diagram of a cross-section location map (plan view) | | | X | | |
| (7) Was a table of contents provided listing all sections of the submittal? | X | | | | See Table of Contents |
| (8) Was an appendix provided listing names of all references, all raw data, testing and sampling procedures and calculations? | X | | | | See list in Table of Contents |
| **NR 509.05(2)** Is the department's initial site inspection evaluation and all pertinent information submitted for the initial site inspection included in the report? | X | | | Section 1.4<br>Appendix B | |
| **NR 509.05(3)** Content - The ISR shall identify the following: | | | | | |
| (a) Project title | X | | | Section 1.3 | |
| (b) Name, address & phone number of primary contacts, including the landfill's owner, operator and any consultants | X | | | | |
| (c) Present property owner | X | | | | |
| (d) Proposed facility owner & operator | X | | | | |
| (e) Proposed landfill location (by ¼-¼ section) | X | | | | |
| (f) Total acreage of property and anticipated limits of filling | X | | | | |
| (g) Proposed landfill life and design capacity | X | | | | |
| (h) Municipalities and industries to be served | X | | | | |
| (i) Anticipated waste types and characteristics: | X | | | | |
| (j) Anticipated volumes of each major waste stream and any seasonal fluctuations taking into account waste reduction, reuse, recycling, composting and the recovery of energy from solid waste | X | | | | |
| (k) Anticipated cover frequency | X | | | | |
| (l) Mode of operation | X | | | | |
| (m) Anticipated sub-base, base and final grades | X | | | Section 1.3 | Section 5.0 |
| **NR 509.06 LAND USE INFORMATION -** At a minimum, the land uses in the area within one mile of the anticipated limits of filling must be discussed in the report. | | | | | |
| Must discuss:<br>X land uses which may have an impact on the suitability of the property for waste disposal<br>X land uses which may have an impact on groundwater quality<br>X address all areas where land use may affect or be affected by the proposed landfill | X | | | Section 3 | |

Facility Name: Dane County Landfill Site No. 3

| COMPLETENESS REQUIREMENTS | COMPLETE? Y | N | NA | LOCATION | COMMENTS |
|---|---|---|---|---|---|
| (1) Does the report locate and identify all adjacent landowners whose property is contiguous to the proposed landfill's property boundaries and all residences within 1,200 feet of the anticipated limits of filling (may be presented on a plat map if it clearly and accurately shows current land ownership conditions). | X | | | Figure 7 | |
| (2) Does the report include a discussion of land use zoning. Note areas zoned as floodplain, conservancy, shoreland, or wetland. | X | | | Figure 3 / Section 3.2 | |
| Are zoning variances required?<br>X yes __ no | X | | | | Property will be re-zoned and may require a conditional use permit |
| If required, has an agricultural impact statement (AIS) been completed?<br>__ yes X no<br>Note: An AIS is required if a municipality or utility will need agricultural lands and have not yet purchased or obtained an option to purchase the land. | | | X | | |
| (3) Does the report include a description of present land uses including known recreational, historical, archaeological, critical habitat areas, county forest lands and state or local natural areas. | X | | | Section 3.3 and Figure 9 | |
| (4) Does the report include all initial communications from FAA concerning any airports within five miles of the anticipated limits of filling if landfill owner proposes to accept municipal solid waste or other putrescible waste. | X | | | Sections 2.1 & 3.3, Figure 4, Appendix F | |
| (4) Does the report discuss existing or proposed transportation routes and access roads (including any weight restrictions). | X | | | Section 3.4 | |
| **NR 509.07 REGIONAL GEOTECHNICAL INFORMATION -** Information may be limited to available publications. At a minimum, the regional setting within one mile of the anticipated limits of filling must be discussed, and when available, supplemented with maps of regional bedrock and glacial geology, along with USGS topographical maps, NRCS soil maps and regional water table maps. | | | | | |
| (1) Topography (the existing topography including predominant topographic features) | X | | | Section 4.1 | Figures 1, 1A & 2 |
| (2) Hydrology (surface water drainage patterns and significant hydrologic features, including surface waters, springs, surface water drainage basins, divides, and wetlands) | X | | | Section 4.2 Figure 3 | |
| (3) Geology (origin, nature and distribution of bedrock; origin, texture, thickness and distribution of the unconsolidated units; and texture and classification of surficial soils) | X | | | Section 4.3 Figures 10 & 11 | |
| (4) Hydrogeology:<br>X depth to groundwater X aquifer(s)<br>X groundwater flow directions X principal aquifers used by water supply wells<br>X groundwater divides | X | | | Section 4.4 | |
| (5) Water quality (information on groundwater and surface water quality available from the USGS, WSGNHS, DNR, UW-Extension, and regional planning commissions) | X | | | Section 4.5 | |

Facility Name: Dane County Landfill Site No. 3

Legal Note: This document is intended solely as guidance, and does not contain any mandatory requirements except where requirements found in statute or administrative rule are referenced. This guidance does not establish or affect legal rights or obligations and is not finally determinative of any of the issues addressed. This guidance does not create any rights enforceable by any party in litigation with the State of Wisconsin or the Department of Natural Resources. Any regulatory decisions made by the Department of Natural Resources in any matter addressed by this guidance will be made by applying the governing statutes and administrative rules to the relevant facts.

# APPENDIX B

## ISI REQUEST LETTER

Tetra Tech, Request for Initial Site Inspection – Proposed Dane County Landfill Site No. 3 (3/17/2022)

TETRA TECH

March 17, 2022

Carolyn Cooper
Hydrogeologist
Wisconsin Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg, WI 53711-5367

Re: Request for Initial Site Inspection – Proposed Dane County Landfill Site No. 3
Dane County Department of Waste & Renewables

Dear Ms. Cooper:

On behalf of Dane County Department of Waste and Renewables (Dane County) and in accordance with the Wisconsin Administrative Code (WAC) NR 509.04, Cornerstone Environmental Group, a Tetra Tech company (Tetra Tech) is requesting an Initial Site Inspection (ISI) of the proposed Dane County Landfill Site No. 3, located in the City of Madison, Dane County, Wisconsin within a portion of the existing Yahara Hills Golf Course (Figure 1).

Included with this letter is the NR 509.04 Landfill ISI Request Completeness Checklist (Attachment 1). Tetra Tech, on behalf of Dane County, respectfully requests an initial site inspection at your earliest convenience.

## Background

The proposed Dane County Landfill Site No. 3 will be a new landfill with an organics management area located contiguously with the new landfill. The precise location and orientation of these areas are still being evaluated; therefore, the limits of waste will be refined to an area of approximately 40 acres that is located within the approximately 115-acre area shown on Figures 1 and 3.

This ISI request identifies a proposed limits of disturbance to include additional area surrounding the proposed limits of waste to account for ancillary features such as perimeter berms, visual screening, soil stockpiles and stormwater management basins. The total area of the proposed limits of disturbance is approximately 230-acres. Dane County is in the process of purchasing the 230-acre area that includes property parcels 251/0710-254-0099-7 and 251/0710-361-0099-0 from the City of Madison.

Tetra Tech is providing the following information in accordance with WAC NR 509.04 (4):

| | |
|---|---|
| Applicant: | Dane County Department of Waste & Renewables<br>1919 Alliant Energy Center Way, Madison, WI 53713 |
| Authorized Facility Contact: | John Welch, Director of Waste & Renewables<br>Phone: (608) 516-4154 |
| Property Ownership: | City of Madison Parks Yahara Hills Golf Course (currently)<br>Dane County (pending purchase) |
| Existing Facility Type: | Municipal Golf Course (Yahara Hills Golf Course) |

Cornerstone – A Tetra Tech Company
8413 Excelsior Drive, Suite 160, Madison, WI 53717
Tel 877.294.9070 Fax 877.845.1456 tetratech.com

| | |
|---|---|
| Operation Proposed: | Non-hazardous Municipal Solid Waste (MSW) Landfill using Area Fill |
| Site Location: | Property Parcel No. 251/0710-254-0099-7 and 251/0710-361-0099-0<br>SE ¼ of Section 25 and N ½ of NE ¼ of Section 36, T7N, R10E,<br>City of Madison, Dane County, Wisconsin. |
| Present Land Use: | Recreation (Golf Course) and Water (man-made Pond) |

## Surrounding Land Use and Residence Information

Residences within one mile of the proposed limits of disturbance are shown on Figure 1. There are no residences within the proposed limits of waste or proposed limits of disturbance. The nearest resident and assumed off-site private water supply well to the proposed limits of disturbance and proposed limits of waste is approximately 250 feet and 380 feet to the east, respectively. The Yahara Hills Golf Course has three water supply wells within the proposed limits of disturbance.

The land use within one mile of the proposed limits of disturbance is shown on Figure 2. The land use information was provided by Dane County Land Information Office. The land use for the proposed limits of disturbance area is entirely Recreation with one man-made pond. The proposed limits of disturbance is bound to the north by U.S. Highway 12 & 18 with the Dane County Landfill Site No. 2 beyond. County Highway AB bounds the eastern side of the proposed limits of disturbance with a mixture of agriculture, woodlands, open land and residential beyond. The Yahara Hills Golf Course continues to the west of the proposed limits of disturbance with agriculture, residential, and open land to the south. Land uses identified within one mile of the proposed limits of disturbance include agriculture, cemetery, commercial, communication/utilities, industrial, institutional/ governmental, open land, recreation, residential, transportation, under construction, vacant subdivided land, water and woodlands.

## Known or Potential Impacts to Endangered and Threatened Species

An Endangered Resources Preliminary Assessment was conducted through the WDNR Natural Heritage Inventory (NHI) public portal, accessed online on March 10, 2022, for the proposed limits of disturbance area. The results of this assessment stated further actions are required to verify compliance. According to this preliminary assessment, the project site overlaps the Karner Blue Butterfly High Potential Range and the Rusty Patched Bumble Bee High Potential Zone. A copy of the preliminary assessment is provided as Attachment 2.

The WDNR published a Karner Blue Butterfly High Potential Range map in 2019. This map shows the approximate project location within Dane County which is outside the Karner Blue Butterfly High Potential Range (Attachment 3). The US Fish and Wildlife Service (USFWS) publishes an interactive map of the Rusty Patched Bumble Bee High and Low Potential Zones. According to this map, the proposed limits of disturbance is not located within the high potential zone.

A list of known endangered species present in Dane County, according to the USFWS, is included in Attachment 3. There are eight species currently recognized as endangered, threatened or proposed within Dane County - Northern Long-Eared Bat, Whooping Crane, Higgins Eye Pearly mussel, Sheepnose mussel, Rusty Patched Bumble Bee, Eastern Prairie Fringed Orchid, Mead's Milkweed and Prairie Bush-clover. Based on the habitat description for the listed species, the historical and existing land use of the proposed limits of disturbance are not applicable or conducive to support these species. Of note, the non-suitable habitat for the Rusty Patched Bumble Bee includes "areas mowed too frequently to allow development of foraging resources." The Yahara Hills Golf Course has been in operation since the late-1960s and requires frequent and routine mowing. It is believed that the golf course would be a non-suitable habitat for the Rusty Patched Bumble Bee with the potential presence being very low.

## Known or Potential Impacts to Historic, Scientific or Archeological Areas

The proposed Dane County Landfill Site No. 3 is located on land previously disturbed by agriculture then by the construction and operation of the Yahara Hills Golf Course. If cultural resources were once within the proposed limits of disturbance, it is unlikely these still exist after the land was shaped and graded for the golf course.

Archaeological Consulting Services, Inc. (ACS) reviewed available literature and records on previously reported cultural resources in and around the Yahara Hills Golf Course. The reviewed study area included the proposed limits of disturbance. A report of investigations was prepared by ACS in November 2021 (Attachment 4). The results of this study found no previously reported archaeological sites within the study area. According to ACS, the closest archaeological site is approximately 350-meters to the north of the Yahara Hills Golf Course but several Euro-American farmsteads were located within the study area prior to the development of the golf course. No standing buildings or other structures in the study area are listed on the Wisconsin Architecture and History Inventory. The 1967 Club House has been identified as potentially significant and is located to the west (see Figure 3).

An Archaeological Survey Field Report, prepared by Commonwealth Heritage Group, Inc. in October 2020, was provided to Dane County by the State Historical Preservation Office which reported results of the cultural resources field survey for the proposed Wisconsin Department of Transportation (WisDOT) US Highway 12 & 18, County Highway AB Interchange project (Attachment 5). A portion of the proposed limits of disturbance was previously studied as part of this WisDOT project. The reported findings stated, “no cultural materials or features were identified during survey”.

## Locational Criteria and Performance Standard Review

### NR 504.04(3) and NR 502.12(8) Locational Criteria Assessment

NR 504.04(3)(a) within 1,000 feet of any navigable lake, pond or flowage:

The proposed limits of waste is located within 1,000 feet of a navigable lake, pond or flowage. According to the WDNR Surface Water Data Viewer, an unnamed pond (WBIC 5575561) is located within the proposed limits of waste. A preliminary review of historical aerial imagery indicates this unnamed pond is not naturally occurring but was man-made for operation and maintenance of the golf course. Construction of the proposed Dane County Landfill Site No. 3 would remove the unnamed man-made pond as well as any unsuitable soils prior to constructing the landfill liner system. Surface water features from the WDNR’s Surface Water Data Viewer are shown on Figures 1 and 3.

NR 504.04(3)(b) within 300 feet of any navigable river or stream:

The proposed limits of waste is not located within 300 feet of any navigable stream or river. An unnamed river or stream (WBIC 803000) is located southeast of the proposed limits of waste. At its nearest point, the unnamed stream is approximately 850-feet from the proposed limits of disturbance and approximately 950-feet from the proposed limits of waste. This unnamed stream flows to the northeast and discharges into Door Creek (WBIC 802800). Surface water features are shown on Figures 1 and 3.

NR 504.04(3)(c) within a floodplain:

The proposed limits of waste is not located within a floodplain, as shown on Figure 1.

NR 504.04(3)(d) within 1,000 feet of the nearest edge of the right-of-way of any state trunk highway, interstate, federal aid primary highway or the boundary of any public park unless the landfill is screened by natural objects, plantings, fences or other appropriate means so that it is not visible from the highway or park:

The proposed limits of waste will be located approximately 425 feet to the south of US Highway 12 & 18 and approximately 150 feet to the west of County Highway AB. Interstate I-90/I-39 is approximately 1,350 feet southwest from the proposed limits of waste.

The City of Madison has indicated that they plan to maintain at least 18 holes of the Yahara Hills Golf Course after the proposed Dane County Landfill Site No. 3 is constructed. The proposed limits of waste, as shown in Figure 3, overlaps portions of the currently proposed 18-hole golf course. The final routing of the golf course may be subject to change through the City of Madison's reconfiguration of the golf course and Dane County would not utilize this area if it conflicted with the plans for golf. Dane County has included this area for the ISI request to depict the maximum limits of waste in the event golf does not remain in that area at the time that it would need to be developed for landfill use.

Dane County will propose appropriate screening measures from US Highway 12 & 18, County Highway AB and the Yahara Hills Golf Course, as required in future submittals for the proposed Dane County Landfill Site No. 3.

NR 504.04(3)(e) within an area where the design or operations of the landfill would pose a significant bird hazard to aircraft.

There are no airports designed or planned to be designed within 5,000 feet or 10,000 feet of the proposed limits of waste. The nearest public airport is the Blackhawk Airfield, located in Cottage Grove, and Dane County Regional Airport, located in Madison, Wisconsin. Blackhawk Airfield and Dane County Regional Airport are located approximately 5.25 miles and 7 miles from the proposed limits of waste, respectively. The nearest private use airport is the Quale Airport, located in Cottage Grove, approximately 3 miles from the proposed limits of waste.

NR 504.04(3)(f) within 1,200 feet of a public or private well:

Three private water supply wells (PW-C, PW-D and PW-E), owned by the City of Madison, are used to service the Yahara Hills Golf Course and are located within the proposed limits of waste (Figure 3). These private wells are proposed to be abandoned prior to constructing the proposed Dane County Landfill Site No. 3. Private water supply wells PW-A and PW-B are located approximately 1,250 feet south and approximately 1,100 feet west of the proposed limits of waste, respectively (Figure 3).

Four assumed private water supply wells are located east of County Highway AB where residences are located. These private wells are assumed to be located approximately 380, 800, 1,000 and 1,030 feet from the proposed limits of waste. One assumed private water supply well associated with a residence is located approximately 1,100 feet southwest of the proposed limits of waste. A known private water supply well (Biogas Well YZ391) is located approximately 990 feet north of the proposed limits of waste, adjacent to the Biogas Facility for the Dane County Landfill Site No. 2.

Other assumed or known private and public water supply wells are located beyond 1,200 feet from the proposed limits of waste. See Figures 1 and 3 for assumed and known public and private water supply well locations.

NR 504.04(3)(g) within 200 feet of a fault that has had displacement in Holocene time:

The proposed Dane County Landfill Site No. 3 is not located within 200 feet of a fault that has had displacement in Holocene times. No faults in Wisconsin are known to have had displacements since the Holocene time.

NR 504.04(3)(h) within seismic impact zones:

The proposed Dane County Landfill Site No. 3 is not within a seismic impact zone.

NR 504.04(3)(i) within unstable areas:

The bedrock beneath the proposed Dane County Landfill Site No. 3 consists of Prairie du Chien Group dolomite and sandstone and/or the Cambrian Sandstone. Based on previous site geologic studies at the Dane County Landfill Site No. 2 and supply wells drilled at the golf course, there is no evidence of unstable conditions.

## NR 504.04(4) and NR 502.04(1) Performance Standards Assessment

NR 504.04(4)(a) A significant adverse impact on wetlands:

Based on a review of the WDNR mapped wetlands, the proposed limits of disturbance would directly impact one wetland. The WDNR Surface Water Data Viewer showed a wetland overlapping the unnamed man-made pond within the limits of waste. This wetland is classified as W0Hx (Open water, Subclass unknown, Wet soil - Palustrine, Excavated) and is approximately 2.27-acres in size. The WDNR also indicated the presence of “wetlands too small to delineate” in the northeast corner of the proposed limits of disturbance. Figure 3 includes the known wetland boundaries from the WDNR Mapped Wetlands.

Wetland indicators within the northeast portion of the proposed limits of disturbance include Os (Orion silt loam, wet) and VwA (Virgil silt loam, gravelly substratum, 0 to 3 percent slopes) soil descriptions. A map of the known wetlands and wetland indicators prepared from the WDNR Surface Water Data Viewer on March 11, 2022 is provided in Attachment 6.

Dane County will conduct wetland delineations and initiate the appropriate wetland permitting process if the field delineations indicate wetlands will be impacted as a result of the proposed Dane County Landfill Site No. 3.

NR 504.04(4)(b) A take of an endangered or threatened species:

According to the USFWS interactive map and WDNR published map, there is a low potential for the presence of the Rusty Patched Bumble Bee and Karner Blue Butterfly identified through the NHI public portal, as previously discussed. The proposed limits of disturbance are not anticipated to take an endangered or threatened species.

An Environmental Resources Review (ERR) application will be submitted to the WDNR following this ISI request. A copy of the ERR application and response from the WDNR will be included with future permitting submittals to the WDNR for the proposed Dane County Landfill Site No. 3.

NR 504.04(4)(c) A detrimental effect on any surface water:

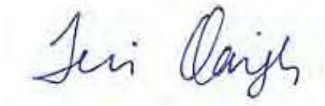
No naturally occurring surface water is located in or immediately adjacent to the proposed limits of disturbance. Surface water runoff from the proposed Dane County Landfill Site No. 3 will be managed in accordance with NR 216 and NR 500 and will pose no detrimental effect on surface water.

NR 504.04(4) subsections (d) through (f) are not required to be evaluated as part of the NR 509.04(4) requirements for an ISI request.

Please contact Teri Daigle at (630) 410-7231 or teri.daigle@tetratech.com with any questions regarding the provided information. Dane County will transmit the required inspection fee in a separate submittal.

Sincerely,

**CORNERSTONE ENVIRONMENTAL GROUP, LLC – A TETRA TECH COMPANY**



Teri Daigle
Project Manager

Enclosures:

**Figures:**

Figure 1 – Site Location Map

Figure 2 – Land Use Map

Figure 3 – Existing Conditions Map

**Attachments:**

Attachment 1 – WDNR NR 509.04 Initial Site Inspection Request Completeness Checklist

Attachment 2 – Endangered Resources Preliminary Assessment (March 10, 2022)

Attachment 3 – USFWS List of Current Federally Listed Endangered, Threatened and Proposed Species for Dane County (January 2018)
WDNR Karner Blue Butterfly High Potential Range Map (2019)

Attachment 4 – A Literature and Records Search on the Previously Reported Cultural Resources in and Near the Yahara Hills Golf Course in Madison, Dane County, Wisconsin (ACS, November 2021)

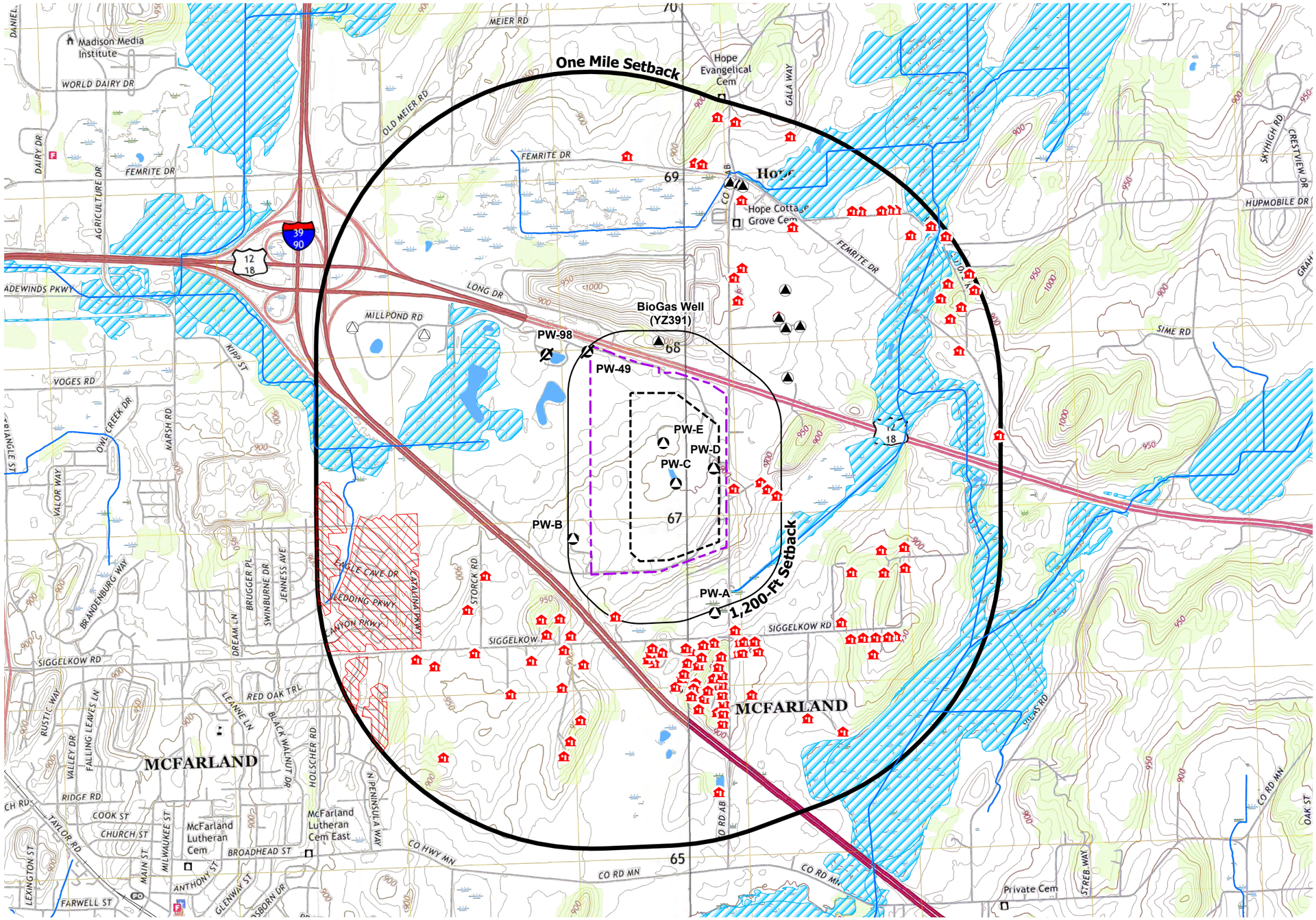
Attachment 5 – Archaeological Survey Field Report, USH 12/18, CTH AB Interchange, Dane County, Wisconsin (Commonwealth Heritage Group, October 2020)

Attachment 6 – WDNR Surface Water Data Viewer Map of Wetlands and Wetland Indicator Soils (March 11, 2022)

cc: Ann Bekta, WDNR (1 Hard Copy and Electronic Copy)
Valerie Joosten, WDNR (Electronic Copy)
Joe Lourigan, WDNR (Electronic Copy)
John Welch, Dane County (1 Hard Copy and Electronic Copy)
Allison Rathsack, Dane County (1 Hard Copy and Electronic Copy)
John Oswald, P.G., Tetra Tech (Electronic Copy)
Mark Torresani, P.E., Tetra Tech (Electronic Copy)

X:\PROJECTS\DANE COUNTY\4221302 - INITIAL GREENFIELD PERMITTING\ISI\Dane Co Landfill Site No 3 ISI Request FINAL_3-17-22.docx

# FIGURES




## Legend

- Proposed Landfill Limits of Disturbance
- Proposed Landfill Limits of Waste
- Setback 1-Mile from Limits of Disturbance
- Setback 1,200-ft from Limits of Waste
- Stream
- Waterbody
- FEMA 100-Year Floodplain
- Assumed Offsite Private Well, Approximate Location
- Known Offsite Private Well, Approximate Location
- Known Yahara Hills Private Well, Approximate Location
- Abandoned Private Well
- Residence and Assumed Offsite Private Well, Approximate
- Residential Developement on City Water Supply


NOTES:
1. Streams, Waterbodies and Floodplains are from WDNR Surface Water Data Viewer.

BASEMAP SOURCE:
USGS Topographic Quadrangles 7.5 Minute
Series: Madison East, WI (2022)
Series: Cottage Grove, WI (2022)

Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
Datum: North American 1983

N

0 1000 2000 4000
FEET
1" = 2,000'

| REV | DATE | DESCRIPTION | DES BY | DWN BY | CHK BY | APP BY |
|---|---|---|---|---|---|---|

DATE OF ISSUE 3/17/2022
DESIGNED BY SSW
DRAWN BY SSW
CHECKED BY TD
APPROVED BY JO

TETRA TECH

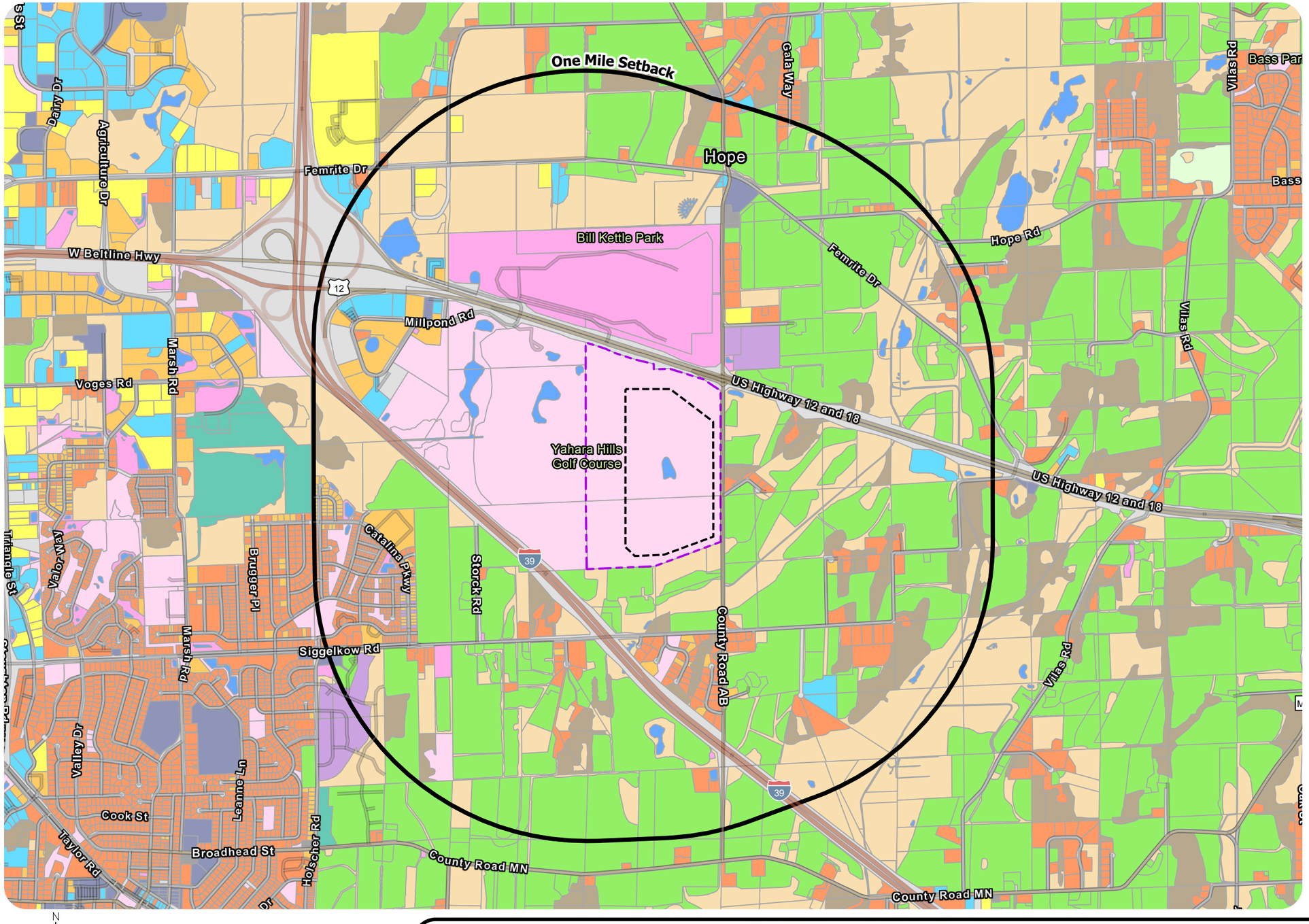
PREPARED BY: TETRATECH



Dane County Waste & Renewables Department
City of Madison, Dane County, Wisconsin
Proposed Dane County Landfill Site No. 3
**INITIAL SITE INSPECTION**
# SITE LOCATION MAP

FIGURE NO. **1**
PROJECT NO. 4221302

X:\PROJECTS\DANE COUNTY\4221302 - INITIAL GREENFIELD PERMITTING_GIS\DCI_01-IISI-Site Location.aprx




## Legend

- Proposed Landfill Limits of Disturbance
- Proposed Landfill Limits of Waste
- Setback

Land Use

- Agriculture
- Cemetery
- Commercial
- Communication/Utilities
- Fallow Farm Field
- Industrial
- Institutional/Governmental
- Mineral Extraction
- Open Land
- Recreation
- Residential
- Transportation
- Under Construction
- Vacant Subdivided Land
- Water
- Woodlands


SOURCE:
Land use information is from 2015 and supplied by Dane County.

Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
Datum: North American 1983

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0 1000 2000 4000

FEET

1" = 2,000'

| REV | DATE | DESCRIPTION | DES BY | DWN BY | CHK BY | APP BY |
|---|---|---|---|---|---|---|

DATE OF ISSUE 3/17/2022
DESIGNED BY SSW
DRAWN BY SSW
CHECKED BY TD
APPROVED BY JO

TETRA TECH

PREPARED BY: TETRATECH



Dane County Waste & Renewables Department
City of Madison, Dane County, Wisconsin
Proposed Dane County Landfill Site No. 3

**INITIAL SITE INSPECTION**

# LAND USE MAP

FIGURE NO.
**2**
PROJECT NO.
4221302

X:\PROJECTS\DANE COUNTY\4221302 - INITIAL GREENFIELD PERMITTING\GIS\DCL-02-ISI-Land Use.aprx

N 382,000 | N 381,500 | N 381,000 | N 380,500 | N 380,000 | N 379,500 | N 379,000 | N 378,500 | N 378,000 | N 377,500 | N 377,000 | N 376,500 | N 376,000 | N 375,500 | N 375,000

E 2171000 | E 2170500 | E 2170000 | E 2169500 | E 2169000 | E 2168500 | E 2168000 | E 2167500 | E 2167000 | E 2166500 | E 2166000

UNNAMED STREAM (WBIC 6035000)

SEC 30 T7N R11E

SEC 31 T7N R11E

CTH AB

USH 12-18

PW-A

PW-D

EXISTING MAINTENANCE BUILDINGS

PW-C

UNNAMED POND (WBIC 5575561)

PW-E

YZ391

SEC 25 T7N R10E

SEC 36 T7N R10E

PARCEL NO. 251/0710-254-0099-7

PARCEL NO. 251/0710-361-0099-0

1000'

1200'

PW-49

PW-B

UNNAMED POND (WBIC 5575477)

UNNAMED POND (WBIC 5575502)

PW-98

EXISTING YAHARA HILLS GOLF COURSE CLUB HOUSE

I-90 / I-39

## LEGEND

- PARCEL BOUNDARY (TO BE PURCHASED)
- SIXTEENTH SECTION LINE
- SEC 25 T7N R10E — SECTION-TOWNSHIP-RANGE DESIGNATION
- 900 — EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING BUILDING / STRUCTURE
- PW-E — KNOWN YAHARA HILLS PRIVATE WELL, APPROXIMATE LOCATION
- ASSUMED OFFSITE PRIVATE WELL, APPROXIMATE LOCATION
- KNOWN PRIVATE WELL, APPROXIMATE LOCATION
- PW-49 — ABANDONED YAHARA HILLS PRIVATE WELL
- WNDR MAPPED WETLANDS
- WETLAND LOCATION TOO SMALL TO DELINEATE
- STREAM / SHORELINE LIMITS
- PROPOSED LIMITS OF WASTE
- PROPOSED LIMITS OF DISTURBANCE
- PROPOSED LIMITS OF WASTE SETBACK
- APPROXIMATE LIMITS OF WEST 18 HOLE GOLF COURSE

## NOTES:

1. TOPOGRAPHIC SURVEY OF THE DEVELOPMENT AREA TAKEN FROM THE WISCONSIN VIEW PORTAL LIDAR DATA, YEAR OF ACQUISITION: 2017. TOPOGRAPHIC SURVEY DATA PROVIDED BY STATE CARTOGRAPHER'S OFFICE.
2. HORIZONTAL DATUM IS REFERENCED TO WISCONSIN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM (NAD 83), US SURVEY FEET.
3. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM 1988. CONTOUR INTERVAL IS TWO FEET.
4. WETLAND BOUNDARIES TAKEN FROM WDNR SURFACE WATER DATA VIEWER.
5. STREAM AND SHORELINE TAKEN FROM WDNR SURFACE WATER DATA VIEWER.
6. STREAM AND WATERBODY IDENTIFICATION (WBIC#) TAKEN FROM WDNR SURFACE WATER DATA VIEWER.
7. LIMITS OF DISTURBANCE LINE IS OFFSET FROM PARCEL BOUNDARY (TO BE PURCHASED) FOR CLARITY.

N

0 300 600

SCALE IN FEET



| REV | DATE | DESCRIPTION | DWN BY | DES BY | CHK BY | APP BY |
|---|---|---|---|---|---|---|
| | | | | | | |

DATE OF ISSUE MAR. 2022 | DRAWN BY RBN | DESIGNED BY RBN | CHECKED BY TD | APPROVED BY JCO

TETRA TECH

ALL PROFESSIONAL ENGINEERING WORK IS PERFORMED BY DULY LICENSED PROFESSIONAL ENGINEERS UNDER THE APPROPRIATE STATE REGISTERED PROFESSIONAL ENTITY.

DANE COUNTY WASTE & RENEWABLES DEPARTMENT
PROPOSED DANE COUNTY LANDFILL SITE NO. 3
CITY OF MADISON, DANE COUNTY, WISCONSIN

**INITIAL SITE INSPECTION**
**EXISTING CONDITIONS MAP**

FIGURE NO. **3**

PROJECT NO. 4221302

1" 1/2" 0" 1"

File: X:\PROJECTS\DANE COUNTY\4221302 - INITIAL GREENFIELD PERMITTING_Plan Set\01-DCL_ISI-S-EC.dwg Layout: 3 User: RANDY.NOLDEN Mar 17, 2022 - 12:03pm

# ATTACHMENT 1

WDNR NR 509.04 Initial Site Inspection Request Completeness Checklist

# LANDFILL INITIAL SITE INSPECTION REQUEST
# COMPLETENESS CHECKLIST

**SECTION NR 503.07, WISCONSIN ADMINISTRATIVE CODE – C&D AND ONE-TIME DISPOSAL LANDFILLS**
**SECTION NR 509.04, WISCONSIN ADMINISTRATIVE CODE – ALL OTHER LANDFILLS**

Refer to Applicable Codes for Exact Requirements

**General Information**

**Applicant:**

Applicant Name: Dane County Dept. of Waste & Renewables

Contact/Title: John Welch, Director of Waste & Renewables

Address: 1919 Alliant Center Way, Madison, WI 53713

Phone #: (608) 516-4154

FID #: Not assigned

Site Location: Yahara Hills Golf Course

6701 U.S. Highway 12 & 18, Madison, WI 53718

Date of Initial Site Inspection Request: _____

**Consultant:**

Consultant Name: Tetra Tech

Contact/Title: Teri Daigle, Project Manager

Address: 8413 Excelsior Drive, Suite 160, Madison, WI 53717

Phone #: 630-410-7231

Date Project Entered into FIST System: _____

Date ISI is Due (Max. 22 bus. Days after receipt of request):

_____

Legal Note:
This document is intended solely as guidance, and does not contain any mandatory requirements except where requirements found in statute or administrative rule are referenced. This guidance does not establish or affect legal rights or obligations and is not finally determinative of any of the issues addressed. This guidance does not create any rights enforceable by any party in litigation with the State of Wisconsin Department of Natural Resources. Any regulatory decisions made by the Department of Natural Resources in any matter addressed by this guidance will be made by applying the governing statutes and administrative rules to the relevant facts.

| GENERAL SUBMITTAL REQUIREMENTS - NR 503.07(2) or 509.04(2) | Y | N | NA | LOCATION | COMMENTS |
|---|---|---|---|---|---|
| 1. Report sent to region and central office | Y | | | | |
| 2. Current standard technical procedures used and test methods specified – NR 500.05(5) | Y | | | | |
| 3. Visuals - NR 500.05(6) | | | | | |
| a. 8.5x11 to 32x44 inches in size | Y | | | | |
| b. Appropriate scale to show all required details with sufficient clarity | Y | | | | |
| c. Be numbered; referenced in the narrative; have a title, legend, horizontal and vertical scales; and drafting or origination dates | Y | | | | |
| d. Uniform scales | Y | | | | Figure 3 provided at 1"=300' to show greater detail for review |
| e. North arrow | Y | | | | |
| f. Mean sea level as basis for all elevations | Y | | | | |
| g. Survey grid based on field monuments and utilizing a coordinate system acceptable to the department | Y | | | | |
| h. Original topography and grid system on plan sheets showing construction, operation or closure topography | Y | | | | |
| i. Cross-sections include survey grid location, reference to major plan sheets and reduced diagram of cross-section location plan view map | | | X | | |
| 3. Table of contents – NR 500.05(7) | | | X | | |
| 4. Appendix listing all references, raw data, testing and sampling procedures and calculations – NR 500.05(8) | | | X | | |

| LANDFILL REQUEST MINIMUM REQUIREMENTS - NR 503.07(4) or 509.04(4) | Y | N | NA | LOCATION | COMMENTS |
|---|---|---|---|---|---|
| 1. Cover Letter | | | | | |
| a. Applicant identified | Y | | | Page 1 | |
| b. Authorized contact identified | Y | | | Page 1 | |
| c. Current property owner identified | Y | | | Page 1 | |
| d. Type of landfill being proposed | Y | | | Page 2 | |
| e. Project location by ¼, ¼ section | Y | | | Page 2 | |
| f. Present land use | Y | | | Page 2 | |
| 2. Known potential impacts to endangered and threatened species - NR 29 | Y | | | Page 2 | |
| 3. Known potential impacts to historic, scientific or archeological areas, including prior studies or surveys, identified - s. 44.40, Wis. Stats. | Y | | | Page 3 | |
| 4. Enlarged 7.5 minute USGS map or equivalent (minimum 1"=500') | | | | | |
| a. Ground surface relief within one mile of project | Y | | | Figure 1 | |
| b. Surface water bodies within one mile of project | Y | | | Figure 1 | |
| c. Floodplains within one mile of project | Y | | | Figure 1 | |
| d. Existing land use within one mile of project | Y | | | Figure 2 | |
| e. All water supply wells and residences within one mile of project | Y | | | Figure 1 | |
| 5. Preliminary identification of all potential conflicts with locational criteria and performance standards in:<br>● for C&D and one-time disposal landfills, NR 503.04<br>● for all other landfills, NR 504.04 excluding NR 504.04(4)(d) to (f) | Y | | | Pages 3 - 6 | |

# ATTACHMENT 2

Endangered Resources Preliminary Assessment (March 10, 2022)

# Endangered Resources Preliminary Assessment

Created on **3/10/2022**. This report is good for one year after the created date.

*DNR staff will be reviewing the ER Preliminary Assessments to verify the results provided by the Public Portal. ER Preliminary Assessments are only valid if the project habitat and waterway-related questions are answered accurately based on current site conditions. If an assessment is deemed invalid, a full ER review may be required even if the assessment indicated otherwise.*

## Results

A search was conducted of the NHI Portal within a 1-mile buffer (for terrestrial and wetland species) and a 2-mile buffer (for aquatic species) of the project area. Based on these search results, below are your follow-up actions.

**Further actions are required to ensure compliance** with Wisconsin's Endangered Species Law (s. 29.604 Wis. Stats.) and the Federal Endangered Species Act (16 USC ss 1531-43).

One or more of the following situations apply:

- The species recorded are state or federal threatened or endangered animals.
- The species recorded are state threatened or endangered plants on public land.
- The species recorded are federal threatened or endangered plants on federal land or involve federal funds or a federal permit.
- The project site overlaps the Karner Blue Butterfly High Potential Range.
- The project overlaps the Rusty Patched Bumble Bee High Potential Zone.

Therefore you should request an Endangered Resources Review https://dnr.wi.gov/topic/ERReview/Review.html. An ER Review is the mechanism to ensure compliance with Wisconsin's Endangered Species Law (s. 29.604 Wis. Stats.) and the Federal Endangered Species Act (16 USC ss 1531-43). The ER Review will list the endangered resources that have been recorded within the vicinity of the project area and follow-up actions may be necessary.

*A copy of this document can be kept on file and submitted with any other necessary DNR permit applications to show that the need for an ER Review has been met. This notice only addresses endangered resources issues. This notice does not constitute DNR authorization of the proposed project and does not exempt the project from securing necessary permits and approvals from the DNR and/or other permitting authorities.*

## Project Information

| | |
|---|---|
| Landowner name | **Yahara Hills Golf Course** |
| Project address | **7101 US Highway 12 & 18, Madison, WI 53718** |
| Project description | **Potential Greenfield SIte** |

## Project Questions

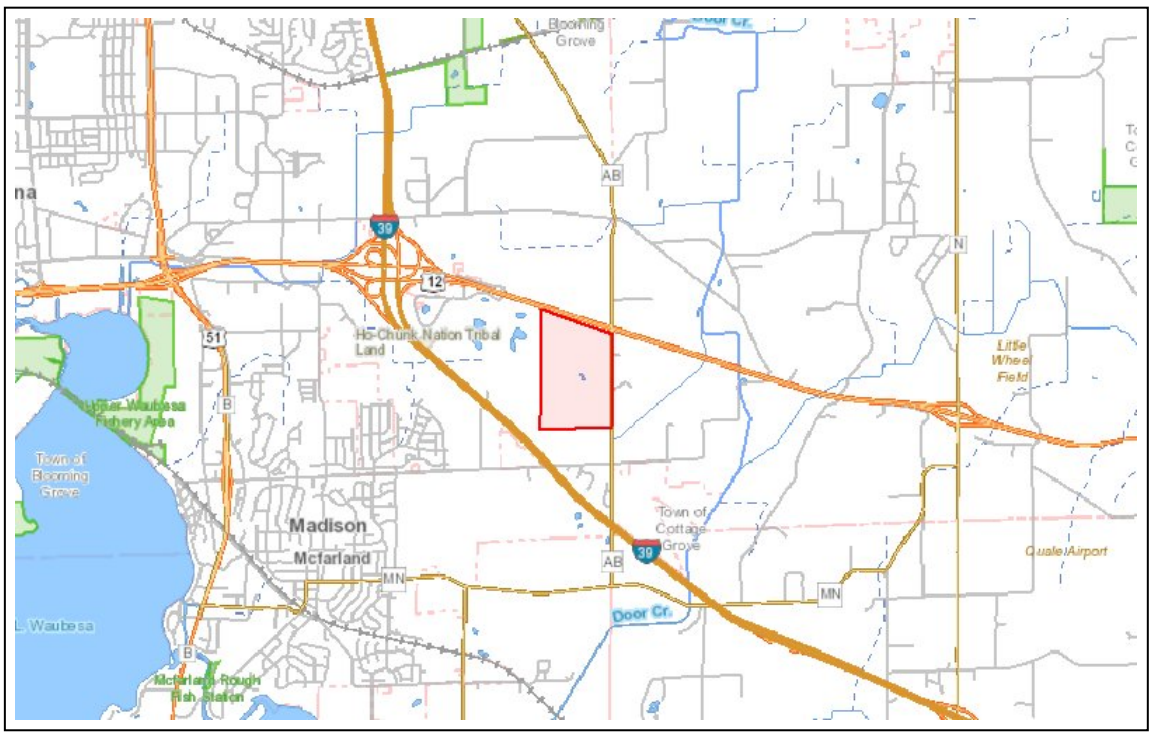
| | |
|---|---|
| Does the project involve a public property? | **Yes** |
| Is there any federal involvement with the project? | **No** |
| Is the project a utility, agricultural, forestry or bulk sampling (associated with mining) project? | **No** |
| Is the project property in Managed Forest Law or Managed Forest Tax Law? | **No** |
| Project involves tree removal? | **Yes** |
| Is project near (within 300 ft) a waterbody or a shoreline? | **Yes** |

| | |
|---|---|
| Is project within a waterbody or along the shoreline? | **Yes** |

Does the project area (including access routes, staging areas, laydown yards, select sites, source/fill sites, etc.) occur **entirely within** one or more of the following habitats?

| | |
|---|---|
| Urban/residential | **No** |
| Manicured lawn | **No** |
| Artificial/paved surface | **No** |
| Agricultural land | **No** |
| Areas covered in crushed stone or gravel | **No** |

## Project Area Maps



# ATTACHMENT 3

USFWS List of Current Federally Listed Endangered, Threatened and Proposed Species for Dane County (January 2018)

WDNR Karner Blue Butterfly High Potential Range Map (2019)

# Wisconsin

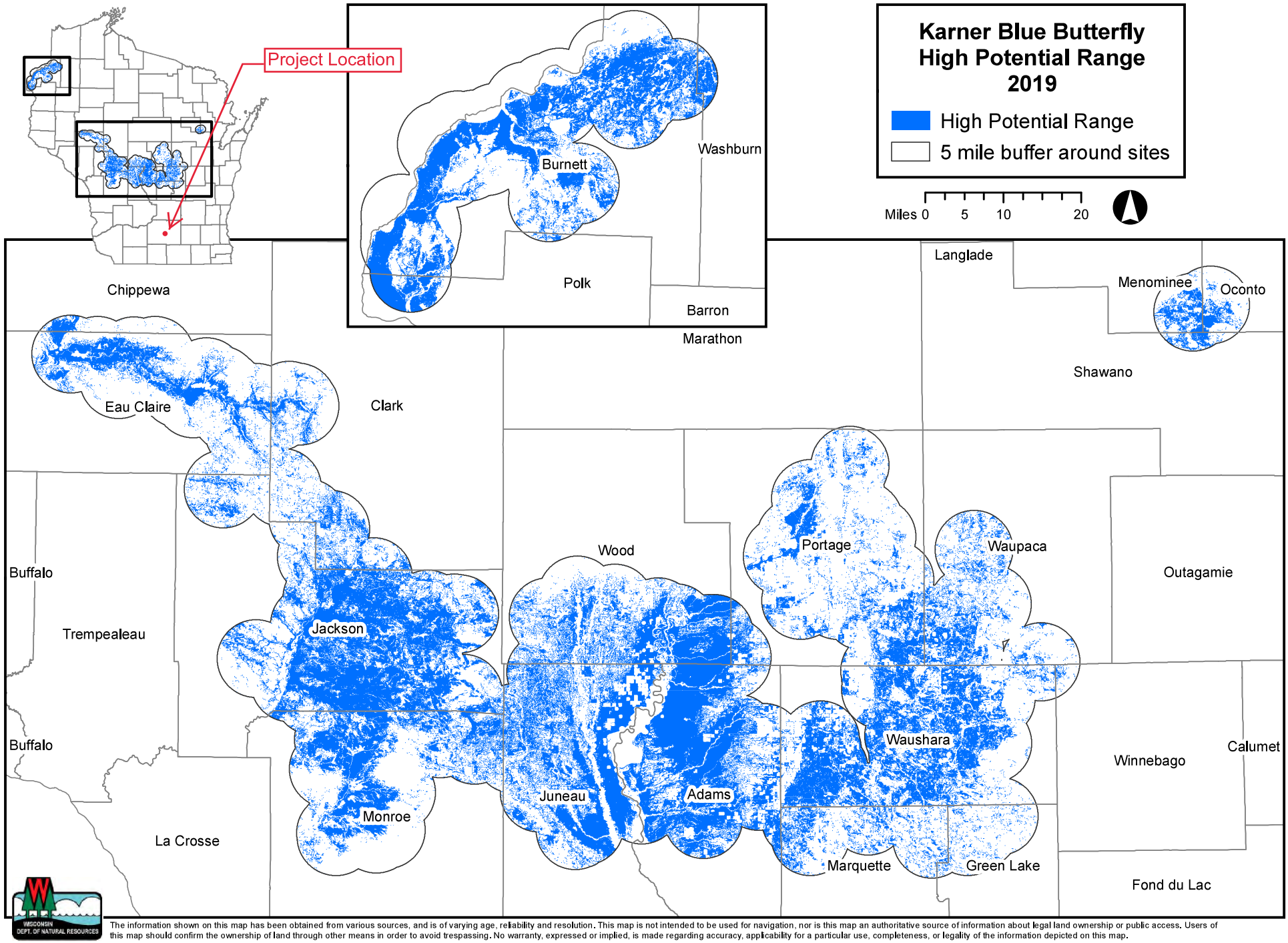
## County Distribution of Federally-listed Endangered, Threatened and Proposed Species

*Jan. 10, 2018*

| County | Species | Status | Habitat |
|---|---|---|---|
| **Adams** | Gray wolf<br>*Canis lupus* | Endangered | Northern forested areas |
| | Northern long-eared bat<br>*Myotis septentrionalis* | Threatened | Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. Roosts and forages in upland forests and woods. |
| | Kirtland's warbler<br>*Setophaga kirtlandii* | Endangered | Young jack pine stands (5 to 25 years old) |
| | Whooping crane<br>Grus americanus | **Non-essential experimental population | Open wetlands and lakeshores<br><br>Whooping cranes have nested in this county |
| | Karner blue butterfly<br>*Lycaeides melissa samuelis* | Endangered | Prairie, oak savanna, and jack pine areas with wild lupine |
| **Ashland** | Canada lynx<br>*Lynx canadensis* | Threatened | While no resident populations are known from Wisconsin, the species occasionally occurs in northern forested areas, and counties listed are those with the highest likelihood of occurrence. |
| | Gray wolf<br>*Canis lupus* | Endangered | Northern forested areas |
| | Northern long-eared bat<br>*Myotis septentrionalis* | Threatened | Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. During summer, roosts and forages in upland forests. |
| | Piping plover<br>*Charadrius melodus* | Endangered | Sandy beaches; bare alluvial and dredge spoil islands |
| | Piping plover<br>*Charadrius melodus* | Critical Habitat Designated | |
| | Rufa red knot<br>*(Calidris canutus rufa)* | Threatened | Along Lake Superior |
| **Barron** | Gray wolf<br>*Canis lupus* | Endangered | Northern forested areas |
| | Northern long-eared bat<br>*Myotis septentrionalis* | Threatened | Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. During summer, roosts and forages in upland forests. |

| County | Species | Status | Habitat |
|---|---|---|---|
| | Mead's milkweed *(Asclepias meadii)* | Threatened | Upland tallgrass prairie or glade/barren habitat<br><br>**Note:** all the Mead's milkweed sites in Wisconsin are reintroduction attempts and occur on protected conservation lands. |
| | Prairie bush-clover *(Lespedeza leptostachya*) | Threatened | Dry to mesic prairies with gravelly soil |
| **Crawford** | Northern long-eared bat *Myotis septentrionalis* | Threatened | Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. During summer, roosts and forages in upland forests. |
| | Whooping crane (*Grus americanus*) | **Non-essential experimental population | Open wetlands and lakeshores |
| | Higgins eye pearly mussel *(Lampsilis higginsii)* | Endangered | Mississippi River |
| | Sheepnose (*Plethobasus cyphyus*) | Endangered | Shallow areas in larger rivers and streams |
| | Spectaclecase (*Cumberlandia monodonta*) | Endangered | Mississippi River<br>**Note:** EO for Crawford county is historic-last observation 1982 |
| | Rusty patched bumble bee *Bombus affinis*<br><br>**Note for project proponents**: this bee is not known to occur throughout the entire counties. To determine if your project or ongoing action is within an area that is likely to have the rusty patched bumble bee, use our online tool at https://ecos.fws.gov/ipac/ | Endangered | Grasslands with flowering plants from April through October, underground and abandoned rodent cavities or clumps of grasses above ground as nesting sites, and undisturbed soil for hibernating queens to overwinter. |
| **Dane** | Northern long-eared bat *Myotis septentrionalis* | Threatened | Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. During summer, roosts and forages in upland forests. |
| | Whooping crane (*Grus americanus*) | **Non-essential experimental population | Open wetlands and lakeshores |
| | Higgins eye pearly mussel *(Lampsilis higginsii)* | Endangered | Lower Wisconsin River |
| | Sheepnose (*Plethobasus cyphyus*) | Endangered | Shallow areas in larger rivers and streams |

| County | Species | Status | Habitat |
|---|---|---|---|
| | Rusty patched bumble bee *Bombus affinis*<br><br>**Note for project proponents**: this bee is not known to occur throughout the entire counties. To determine if your project or ongoing action is within an area that is likely to have the rusty patched bumble bee, use our online tool at https://ecos.fws.gov/ipac/ | Endangered | Grasslands with flowering plants from April through October, underground and abandoned rodent cavities or clumps of grasses above ground as nesting sites, and undisturbed soil for hibernating queens to overwinter. |
| | Eastern prairie fringed orchid *(Platanthera leucophaea)* | Threatened | Wet grasslands |
| | Mead's milkweed *(Asclepias meadii)* | Threatened | Upland tallgrass prairie or glade/barren habitat<br><br>**Note:** all the Mead's milkweed sites in Wisconsin are reintroduction attempts and occur on protected conservation lands. |
| | Prairie bush-clover *(Lespedeza leptostachya)* | Threatened | Dry to mesic prairies with gravelly soil |
| **Dodge** | Northern long-eared bat *Myotis septentrionalis* | Threatened | Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. During summer, roosts and forages in upland forests. |
| | Whooping crane (*Grus americanus*) | **Non-essential experimental population | Open wetlands and lakeshores |
| | Rusty patched bumble bee *Bombus affinis*<br><br>**Note for project proponents**: this bee is not known to occur throughout the entire counties. To determine if your project or ongoing action is within an area that is likely to have the rusty patched bumble bee, use our online tool at https://ecos.fws.gov/ipac/ | Endangered | Grasslands with flowering plants from April through October, underground and abandoned rodent cavities or clumps of grasses above ground as nesting sites, and undisturbed soil for hibernating queens to overwinter. |
| **Door** | Northern long-eared bat *Myotis septentrionalis* | Threatened | Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. During summer, roosts and forages in upland forests. |
| | Hine's emerald dragonfly *(Somatochlora hineana)* | Endangered | Calcareous streams & associated wetlands overlying dolomite bedrock |



# ATTACHMENT 4

A Literature and Records Search on the Previously Reported Cultural Resources in and Near the Yahara Hills Golf Course in Madison, Dane County, Wisconsin (ACS, November 2021)


# *A LITERATURE AND RECORDS SEARCH ON THE PREVIOUSLY REPORED CULTURAL RESOURCES IN AND NEAR THE YAHARA HILLS GOLF COURSE IN MADISON, DANE COUNTY, WISCONSIN*

***REPORT OF INVESTIGATIONS NO. 2185***

***PREPARED BY:***

***PHILIP H. SALKIN***
***ARCHAEOLOGICAL CONSULTING AND SERVICES, INC.***
***POB 260274***
***MADISON, WISCONSIN 53726-02274***

***NOVEMBER, 2021***

## *PROJECT SUMMARY*

Title: A Literature and Records Search on the Previously Reported Cultural Resources in and Near the Yahara Hills Golf Course in Madison, Dane County, Wisconsin

I.D.: ACS 2185

Principal Investigator: Philip H. Salkin
Archaeological Consulting and Services, Inc.
POB 260274
Madison, Wisconsin 53526-0274

Project Personnel: Lauren Glover

Contractor: Dane County Department of Waste and Renewables
7102 USH 12
Madison, Wisconsin 533718

Methods: Literature and Records Search

Results of the Study:
No previously reported archaeological sites lie within the project area, although the closest is approximately 350 meters to the north. Several Euro-American farmsteads were within the project area prior to the development of the golf course. No standing buildings or other structures in the project area are listed on the Wisconsin Architectural/Historical Inventory, but the 1967 Club House is immediately to the west.

Recommendations:
Portions of the project area to be disturbed by the potential landfill should be archaeologically survey prior to construction. However, portions of the project area were not well-drained in the past and most of it has been disturbed by cultivation and then the construction of the golf course. Consultation with the State Historic Preservation Office and the Wisconsin DNR will help to craft the best approach to any archaeological studies, considering the lack of previously reported archaeological sites and wet and/or disturbed conditions.

Date of Research: November, 2021
Date of Report: November, 2021

## *Abstract*

In November, 2021, the author conducted a literature and records search on the previously reported cultural resources associated with the potential redevelopment of a portion of the Yahara Golf Course into a landfill in the City of Madison, Wisconsin. In the course of the study, various data sources were checked on the previously reported Native American and Euro-American archaeological resources in and around the project area. The Wisconsin Architectural and Historical Inventory was examined to see if any potential significant architectural resources might be impacted.

The study indicated that no previously reported archaeological sites lie in the project area. However, sites are reported for the Rodenfeld Landfill area north of USH 12/18 in Sec. 25, T7N, R10E, the closest within about 350 meters of the project area. Other sites lie with 1.6km away in surrounding sections. Using old maps and plats and the 1937 aerial photos, it is clear that a small number of mid-19$^{th}$ to mid-20$^{th}$ century farmsteads were located within the project area. The Yahara Hills Club House is listed on the Wisconsin Architectural and Historical Inventory. While not in the project area, it might be visually impacted depending on the design of the proposed landfill.

This study indicated several things about the physical setting of the golf course. As indicated by the 1939 Wisconsin Economic Inventory Map, much of the area was cultivated for generations prior to the development of the golf course. This would have impacted archaeological sites within the project area, although deeper deposits may have survived undisturbed. Most of the project area was impacted by grading for its development. Depending on the depth of the excavations, this may have further impacted any archaeological resources present. Importantly, the 1978 soil manual indicates the presence of somewhat poorly or poorly drained soils in portions of the golf course. This is also indicated by early maps. Such areas have a lower archaeological potential, although sites may present on their periphery. Any draining and filling of wetlands would have also impacted potential sites.

The recommendations for this project are to examine any records on the construction of the course. This will help determine which areas were disturbed beyond typical agricultural impacts. In coordination with the State Historical Preservation Office and the Wisconsin DNR, this may help to eliminate the need for archaeological survey in some areas. This is also true for poorly drained soils, especially those impacted by drainage and filling activities, or it could call for less intensive archaeological investigations.

## *Table of Contents*



## *Figures*

## ***Introduction***

In November, 2021, the author conducted a literature and records search on the previously reported cultural resources in and near a portion of the Yahara Hills Golf Course in Madison, Wisconsin. The project relates to the potential redevelopment of a portion of the golf course into a landfill. The project area is approximately 149.4 hectares (369 acres) in size. It includes most of the SE1/4, Sec. 25, and portions of the SW1/4, Sec. 25, the SE1/4, NW1/4, Sec. 25, the SW1/4, NE1/4, Sec. 25 and the N1/2, N1/2, Sec. 36, T7N, R10E, Dane County.

The study was conducted by the author with the assistance of Lauren Glover of Archaeological Consulting and Services, Inc. of Madison, Wisconsin. It was conducted for Dane County Department of Waste and Renewables.

***The General Area***

The project area is located in east-central Dane County in the south-central portion of the state (Figs. 1-2). This part of Wisconsin lies in the Eastern Ridges and Lowlands Province, a region distinguished by a relatively level topography with elevations from about 140 to 378 meters m.s.l. It is dominated by cuestas; ridges with steep escarpments on one side and long, gentle slopes on the other (Martin 1965: 212). The bedrock in the general project area is complex with Cambrian sandstones, dolomites and shales, sandstones, limestones and conglomerates of the St. Peter Formation and dolomites, sandstones and shales of the Prairie du Chien Group (Wisconsin Geological and Natural History Survey 1981). This is covered in this area with ground moraines, with small areas of end moraines and outwash deposits (Wisconsin Geological and Natural History Survey 1976). Numerous drumlins are found in this portion of Wisconsin (Martin 1965: 258, Fig. 91).

Prior to the intensive utilization of the region by Euro-American populations, the vegetation cover consisted of oak-savanna and prairie. The former included upland stands of bur, white and black oak, with a mesic prairie understory and lowland stands of swamp white oak with a wet, mesic prairie understory (Curtis 1959: 326). The latter were dominated by non-arboreal species of grasses (such as bluestem), forbs and some woody plants (ibid: 262). Finley (1976) shows the area as covered by oak stands, mixed hardwood stands and marsh and sedge meadows.

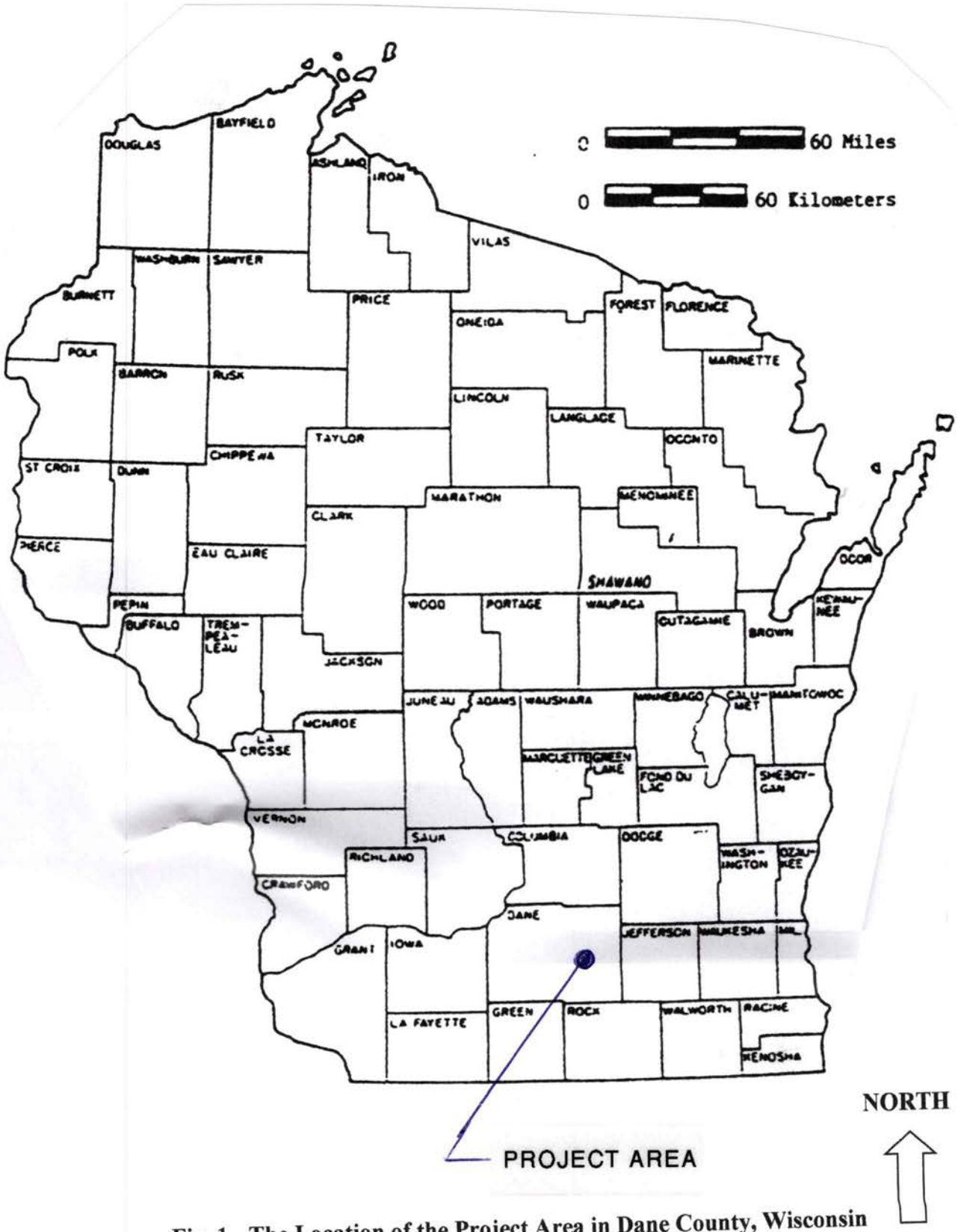



**Fig. 1 - The Location of the Project Area in Dane County, Wisconsin**

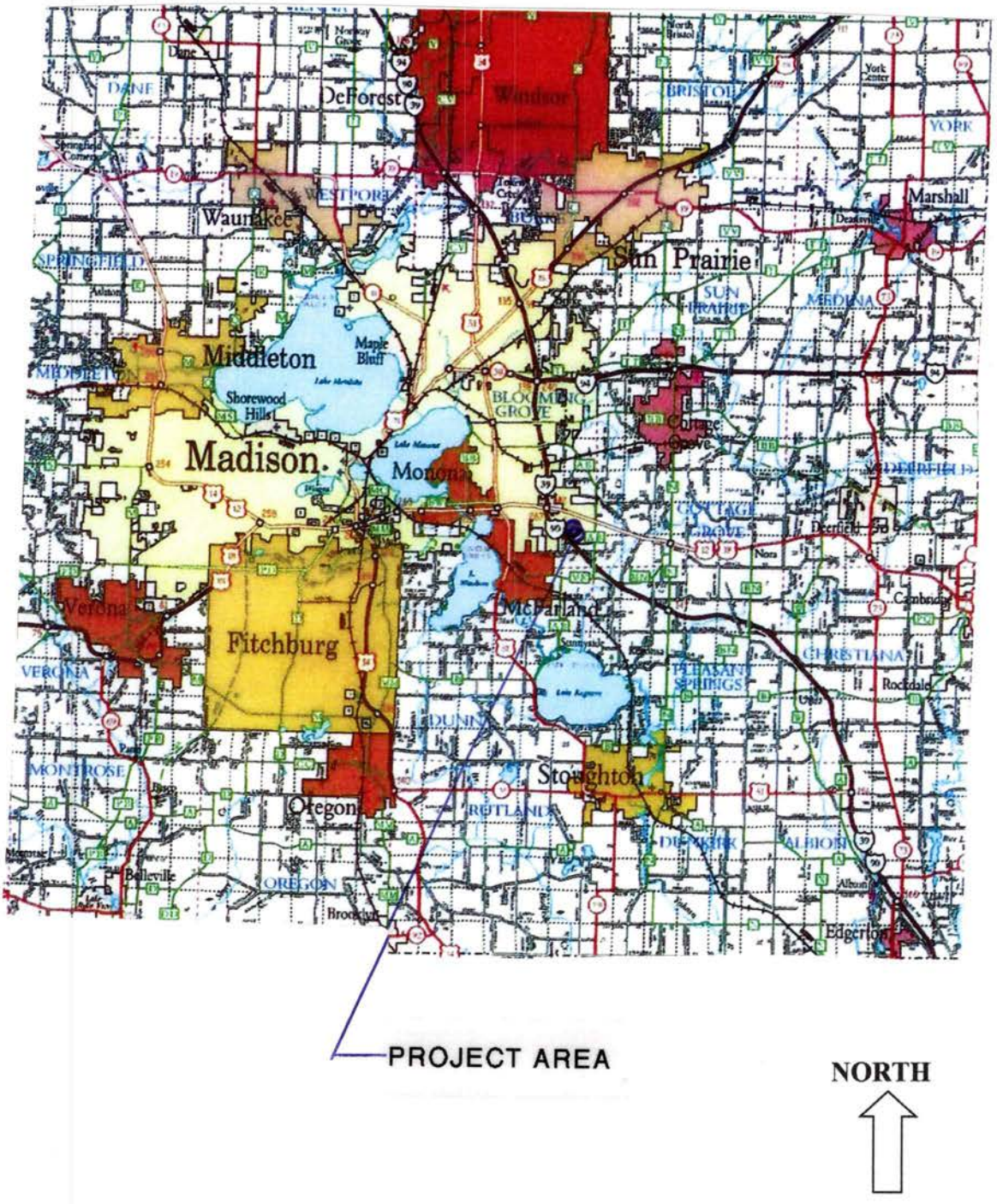



**Fig. 2 - The Location of the Project Area in Dane County (WisDOT Map)**

***The Project Area***

The project area is located south of USH 12/18 and north of I-90. To the east is CTH 'AB" (Figs. 3-5). Much of the golf course can be described as level to gently rolling, but there is a general slope uphill to the southeast, Elevations range from approximately 265 meters m.s.l. near the club house to 280 meters m.s.l. in the southeastern corner.

In terms of vegetation, the project area was developed as two golf courses in the 1960's. It opened as a 122 ha. (400 acre) facility in 1968. The 1939 Wisconsin Economic Inventory Map (Fig. 5 ) shows most of the project area in agricultural use. However, it does show an area covered by marsh grass in the NE1/4, SW1/4, Sec. 25 into the SE1/4, NW1/4, Sec. 25, T7N, R10E.

As might be expected in a facility this size, there are a variety of soil types present. The largest portion lies in an area of Dodge silt loam, 2-6% slopes soils (Fig. 7), This a well-drained soil found of the tops of ridges and on upper side slopes. They form in loess over sandy loam glacial till under a cover of mixed hardwoods (Glocker and Patzer 1978: 22). Another well-drained soil present is the McHenry silt loam, 6-12% slopes, eroded type. This is found on middle side slopes. It forms in thin loess and sandy loam glacial till under thin stands of mixed hardwoods (ibid: 43-44).

The project area also has significant areas with less well-drained soils. These include:

Orion silt loam, wet – somewhat poorly drained soil found on low bottoms in stream valleys – formed in recent silty alluvium and dark colored, older silty alluvium under a cover of mixed hardwoods (Glocker and Patzer 1978: 48) – areas of such soils may require deeper shovel testing as older archaeological materials might lie in the older alluvial layer

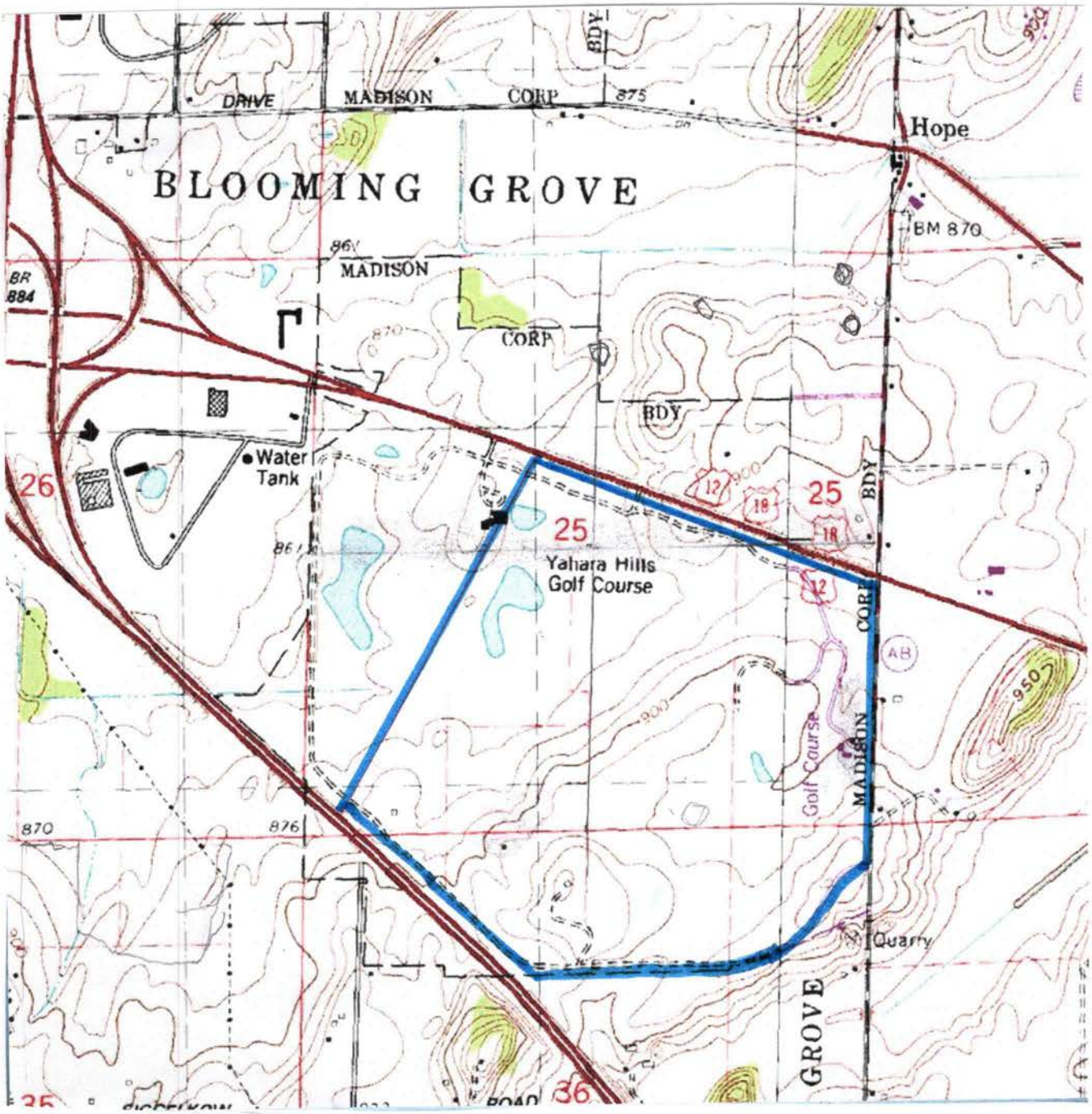



**Fig. 3 – The Topography of the General Project Area**

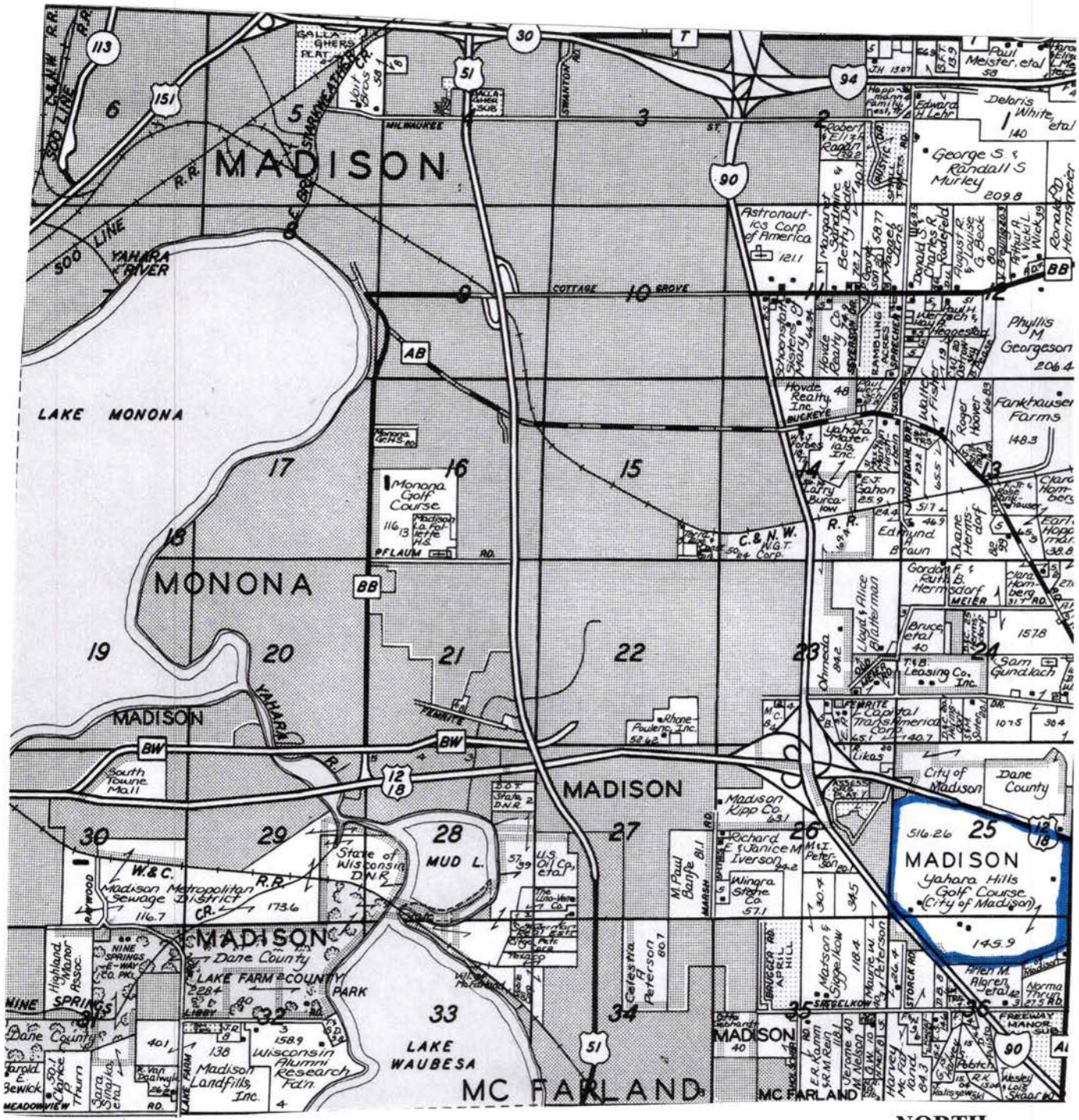



**Fig. 4 – The Location of the Project Area in the City of Madison**


**Fig. 5 – Aerial View of the Yahara Hills Golf Course**

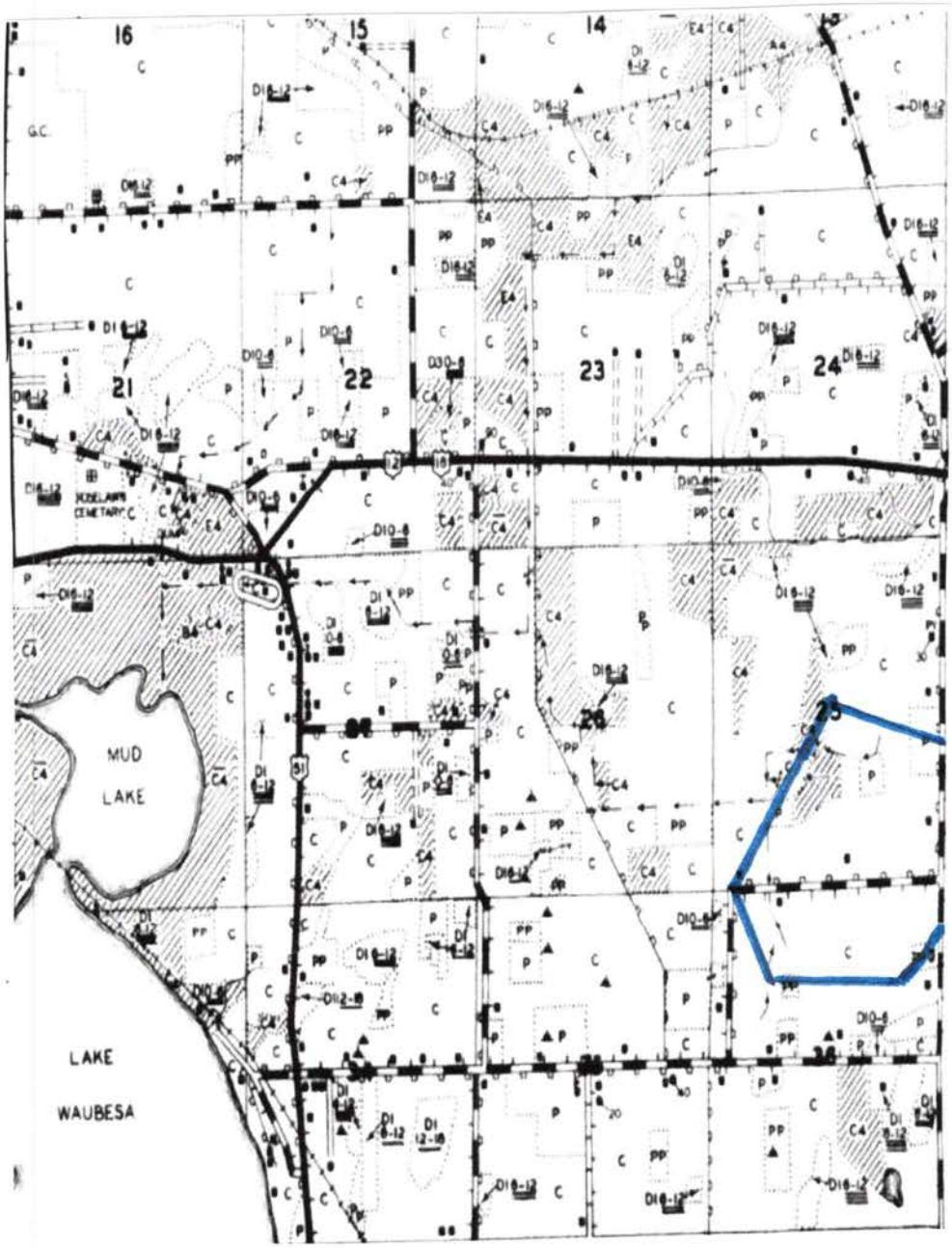



**Fig. 6 – The Land Use in the General Project Area in 1939**
**(Wisconsin Economic Inventory Map)**
**C – Cropland C4 – Marsh Grass**

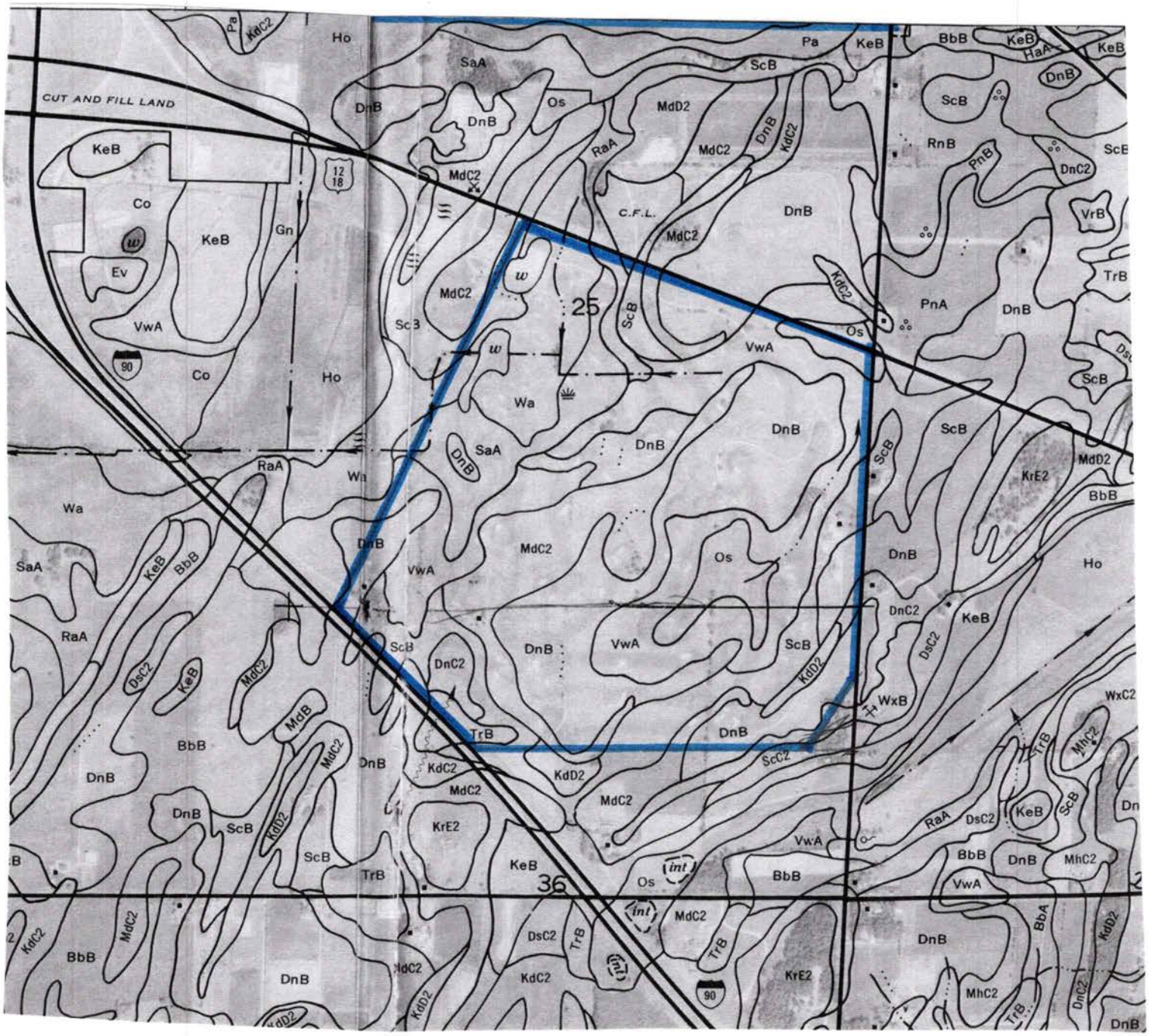



**Fig. 7 – Soils in the General Project Area**
**(Glocker and Patzer 1978)**
**DnB – Dodge silt loam, 2-6% slopes  Or – Orion silt loam, wet**
**VwA – Virgil silt loam, gravel substratum 0-3% slopes**
**Wa – Wacousta silty clay loam  MdC2 – McHenry silt loam, 6-12% slopes, eroded**

Virgil silt loam, gravelly substratum, 0-3% slopes – somewhat poorly drained soil found on convex benchlands on outwash plains – formed in loess and glacial till or sand and gravel outwash under a cover of mixed hardwoods with a grassy understory (Glocker and Patzer 1978: 69)

Wacousta silty clay loam – poorly drained soil found on low benches in old lake basins – formed under sedges in silt with some fine layers of sand (ibid: 70).

The significance of these areas with somewhat poorly to poorly drained soils is that archaeological sites, especially larger occupations are less likely to be found in these locations.

There are only limited water resources in the project area at this time. These include the two ponds in the project area and the two immediately to the west (Fig. 3). However, the ponds relate to the development of the golf course. They do not appear on the 1937 aerial photograph of the area. The ponds suggest relatively wet conditions in the area. This is supported by the soils present. Further, the 1834 G.L.O. map (Fig. 8), the 1862 plat map (Ligowsky 1862) and the 1904 U.S.G.S. map show significant marshes in the western portion of the project area .

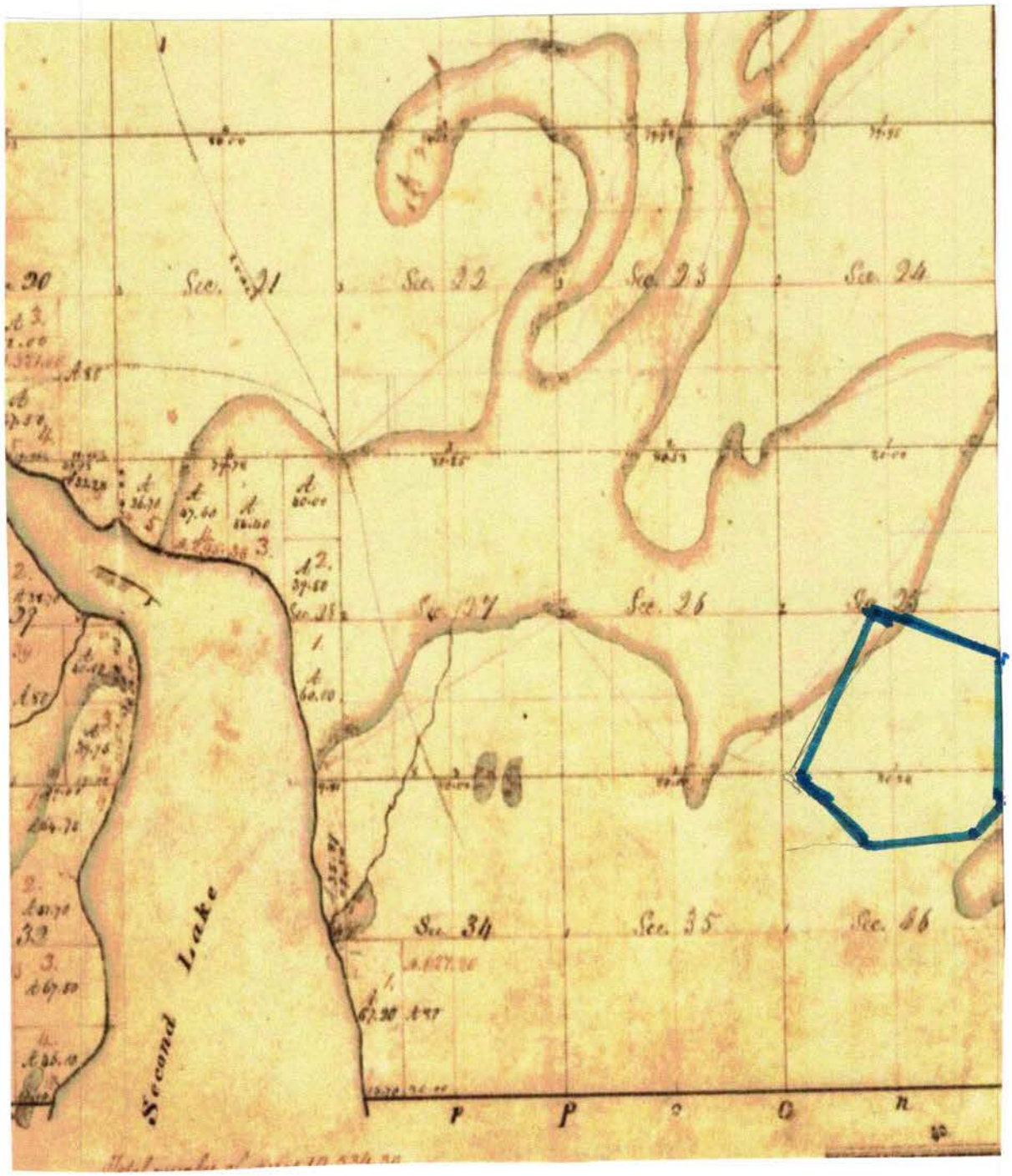



**Fig. 8 – The General Project Area on the 1834 G.L.O. Map**

***Previously Reported Cultural Resources in and Near the Project Area***

In conducting the literature and records search was conducted on the project area, the following data sources were reviewed:

Site files and archives of the Wisconsin Historic Preservation Division

Archives Division of the State Historical Society of Wisconsin

Archives of Archaeological Consulting and Services, Inc. (various reports on projects within 2.0km of this project area)

"A Literature and Records Search on the Prehistoric Cultural Resources o Dane County, Wisconsin" (Salkin 1983)

National Register of Historic Places

Charles E. Brown Atlas

Charles E. Brown Manuscripts

Wisconsin Archeologist

Local and County Histories.

The literature and records search indicated that the following sites are those closest to the project area (all sites in T7N, R10E);

47DA-1068 – Locus 1 – Sec. 25 – Native American occupation – 7 artifacts – approx. 350m north of the project area

47DA-1070 – Locus 3 – Sec. 25 – isolate Native American artifact – approx. 515m north of the project area

47DA-0049 – Sigglekow Mounds – Sec. 35 – Native American mound group – approx.. 525m southwest of the project area

47DA-1071 – Locus 4 – Sec. 25 – isolated Native American artifact – approx.. 680m north of the project area

47DA-1069 – Locus 2 – Sec. 25 – Native American occupation – approx. 850m north of the project area

47DA-0624 – Sec. 35 - Koch 4 Site – Native American occupation with a Woodland Tradition component – approx. 900m southwest of the project area

47DA-0306 – Soiney Group - Sec. 26 – Native American mound group – probably destroyed – approx. 1.0km west of the project area

47DA-0034 – Schimming Mound – Sec. 24 – single linear Native American mound – approx. 1.15km northwest of the project area.

47DA-1358 – Marsh Road I Site – Sec. 26 – Native American occupation – approx.. 1.6km west of the project area

Thus, no Native American sites were previously located in, or immediately near the project area. The nearest sites were those identified within the bounds of a survey area for the Rodenfeld Landfill north of USH 12/18 (Stoltman 1982, Salkin 2012).

In terms of Euro-American resources, a review of available plats from 1862 to 1955, show a small number of Euro-American farmsteads located within the project area. For example, the 1862 plat shows the following farmsteads:

Sec. 25 – SE1/4, SW1/4, SE1/4 – Lamp
Sec. 25 – C., S1/2, SW1/4, SW1/4 – Messner
Sec. 36 – NW1/4, NE1/4, NW1/4 – Sigglekow.

In 1873, the following farms are noted:

Sec. 25 – SE1/4, SW1/4, SE1/4 – Lamp
Sec. 25 – SE1/4, NE1/4, SE1/4 – Keen (?)
Sec. 25 – C., S1/2, SW1/4, SW1/4 – Messner
Sec. 36 – NE1/4, NE1/4, NW1/4 – Messner

Houses remained in those approximate locations into the 1950's. The 1937 aerial appears to show four farms with the addition of the E. Brand property in the NE1/4, SE1/4, SE1/4, Sec. 25, T7N, R10E.

It can be difficult to rely on plat maps for the location of structures. Some maps do not show houses at all. The location of homes may vary from map to map. The significance of mid-19th to 20th century farmsteads as archaeological sites varies. Sites with extant basements might be the location of interesting artifacts, although if the farm was long-lived, such materials are often overwhelmed by more modern mass-produced items.

A review of the Wisconsin Architectural Historical Inventory indicated that no listed properties lie in the project area. However, the Yahara Hills Golf Club, immediately to the west is listed (Ref. 227030). The potential visual impact of the development of a landfill should be investigated.

***Summation and Recommendations***

In November, 2021, the author conducted a literature and records search on the previously reported cultural resources associated with the potential redevelopment of a portion of the Yahara Golf Course into a landfill in the City of Madison, Wisconsin. In the course of the study, various data sources were checked on the previously reported Native American and Euro-American archaeological resources in and around the project area. The Wisconsin Architectural and Historical Inventory was examined to see if any potential significant architectural resources might be impacted.

The study indicated that no previously reported archaeological sites lie in the project area. However, sites are reported for the Rodenfeld Landfill area north of USH 12/18 in Sec. 25, T7N, R10E, the closest within about 350 meters of the project area. Other sites lie with 1.6km away in surrounding sections. Using old maps and plats and the 1937 aerial photos, it is clear

that a small number of mid-19th to mid-20th century farmsteads were located within the project area. In some situations, these might provide information on the early Euro-American settlement of the area. Finally, the Yahara Hills Club House is listed on the Wisconsin Architectural and Historical Inventory. While not in the project area, it might be visually impacted depending on the design of the proposed landfill.

This study indicated several things about the physical setting of the golf course. As indicated by the 1939 Wisconsin Economic Inventory Map, much of the area was cultivated for generations prior to the development of the golf course. This would have impacted archaeological sites within the project area, although deeper deposits may have survived undisturbed. Most of the project area was impacted by grading for its development. Depending on the depth of the excavations, this may have further impacted any archaeological resources present. Importantly, the 1978 soil manual indicates the presence of somewhat poorly or poorly drained soils in portions of the golf course. This is also indicated by early maps. Such areas have a lower archaeological potential, although sites may present on their periphery. Any draining and filling of wetlands would have also impacted potential sites.

The recommendations for this project are to examine any records on the construction of the course. This will help determine which areas were disturbed beyond typical agricultural impacts. In coordination with the State Historical Preservation Office and the Wisconsin DNR, this may help to eliminate the need for archaeological survey in some areas. This is also true for poorly drained soils, especially those impacted by drainage and filling activities, or it could call for less intensive archaeological investigations.

## ***Bibliography***

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1959 The Vegetation of Wisconsin. University of Wisconsin Press. Madison.

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1978 Soil Survey of Dane County, Wisconsin. USDA Soil Conservation Services. Washington, D.C.

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1965 The Physical Geography of Wisconsin. University of Wisconsin Press. Madison.

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1983 A Literature and Records Search on the Prehistoric Cultural Resources of Dane County, Wisconsin. Reports of Investigations, No. 111. Archaeological Consulting and Services, Inc. Verona.

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1991 An Archaeological Survey of Proposed Improvement to the Odana Hills Golf Course. Reports of Investigations, No. 692. Archaeological Consulting and Services, Inc. Verona.

Salkin, Philip H.
2012 An Archaeological Survey of a Proposed Expansion Area for the Rodenfeld Landfill in Madison, Dane County, Wisconsin. Reports of Investigations, No. 1905. Archaeological Consulting and Services, Inc. Verona.

Salzer, Robert J. and Larry A. Johns.
1992 Final Report of the Dane County Indian Mounds Identification Project. Unpublished Manuscript on file at the Wisconsin Historical Society. Madison.

Stoltman, James B.
1982 A Report of Archaeological Survey on the Site of Possible Landfill Construction East of Madison in Dane County, Wisconsin.

Wisconsin Geological and Natural History Survey.
1976 Geological Deposits of Wisconsin. Wisconsin Geological and Natural History Survey, Map 10. Madison.

Wisconsin Geological and Natural History Survey.
1981 Bedrock Geology of Wisconsin. Wisconsin Geological and Natural History Survey. Madison

**Maps and Plats**

1862 - Map of Dane County, Wisconsin - A. Ligowsky - Madison

1873 - Atlas of Dane County, Wisconsin - Harrison and Warner - Madison

1890 - Plat Book of Dane County, Wisconsin - C.M. Foote and Co. - Minneapolis

1899 - New Atlas of Dane County, Wisconsin - Leonard W. Gray and Co. - Madison

1904 - Atlas of Dane County, Wisconsin - Democrat Printing Co. - Madison

1911 - Standard Historical Atlas of Dane County, Wisconsin - Cantwell Printing Co. - Madison

1922? - Plat Book of Dane County, Wisconsin - W.W. Hixson and Co. - Rockford

1926 - New Atlas of Dane County, Wisconsin - Dane County Atlas Co. - Madison

1931 - Atlas and Plat Book of Dane County, Wisconsin - The Thrift Press – Rockford

1937 – Aerial Photographic Map of 1937

1939 – Wisconsin Economic Inventory Map, Town of Blooming Grove – Wisconsin Economic Inventory Map

1940 - Dane County Plat Book - W.W. Hixson and Co. - Rockford

1947 - Ownership Plat Book of Dane County, Wisconsin - Marathon Map Service – Milwaukee

1955 – Plat Book of Dane County, Wisconsin – Derr Map Studios - Madison

1993 – Plat Book of Dane County – Rockford Map Publishers - Rockford

# ATTACHMENT 5

Archaeological Survey Field Report, USH 12/18, CTH AB Interchange, Dane County, Wisconsin (Commonwealth Heritage Group, October 2020)

# ARCHAEOLOGICAL SURVEY FIELD REPORT

Wisconsin Department of Transportation
DT1978 6/2007 (Replaces ED864)

## PROJECT INFORMATION

| Project ID | Highway/Street | County | SHSW Compliance Number |
|---|---|---|---|
| 3080-01-05 | USH 12/18 | Dane | |

| Project Termini | Project Size |
|---|---|
| CTH AB Overpass/Interchange | 1.7 miles 206.08 acres |

| Township(s) | Town/Range | Sections |
|---|---|---|
| City of Madison, Town of Cottage Grove | 7N/10E \| 7N/11E | 25, 26 \| 30 |

Project Type

☒ Reconstruction ☐ Reconditioning ☐ Bridge ☐ Wetland Mitigation ☐ Other

| Landowners Contacted - If No, Explain | Permits Obtained - If Yes, Attach |
|---|---|
| ☒ Yes ☐ No | ☒ Yes ☐ No |

## LITERATURE SEARCH

| Previously Reported Sites in Project Area | Archaeology and Records Literature Search | Cemetery in Project Area |
|---|---|---|
| ☒ Yes ☐ No | ☒ Attached | ☒ Yes ☐ No |

## FIELDWORK

| Dates of Field Work | Crew Size | Area Surveyed |
|---|---|---|
| 8/13/2020, 8/27/2020, 10/8/2020 | 1 | 72.95 acres |

SURVEY TECHNIQUES - Attach project plans showing survey coverage.

| | | |
|---|---|---|
| ☒ Shovel Testing | ☐ Surface Collection | ☒ Other - Describe<br>133.13 ac previously surveyed; visual observation of disturbed (23.18 ac) and wet (5.74 ac) areas |
| 44.03 acres | acres | |
| 15 m interval | interval | |

Describe Visibility

0% - Entire APE was paved, covered in vegetation, or golf course ponds

LAND USE – Describe. Also, attach map, showing location.

Were there area(s), which were not surveyed? If yes, show on project plans and explain.

☐ Yes ☒ No

Were there area(s), which were extensively impacted? If yes, show on project plans and explain.

☒ Yes ☐ No Most of current survey area was in a heavily disturbed golf course

Comments

One previously identified mound site in APE located within previously surveyed area. Site was described as destroyed by previous construction. Current survey area was shovel tested where possible, obvious areas of disturbance (paved areas, golf course fairways/tees, sand traps) and wet areas were visually inspected

ISOLATED FINDS – Describe. Also, attach map, showing location.

n/a

I certify that the literature search and all fieldwork conducted for this report was done according to the Wisconsin Archeological Survey Guidelines. No archeological sites were identified in the project area.

Commonwealth Heritage Group
(Print Name of Firm or Institution)

Richard W. Edwards VI, PhD, RPA
(Print Name of Archaeologist)

Richard W Edwards IV
(Signature of Archaeologist)

10/13/2020
(Date)

**Note:** Current archaeological methods may not detect buried sites or burial areas. If artifacts, or human remains are discovered during construction, immediately stop construction in that area and notify the Wisconsin Department of Transportation, Bureau of Equity & Environmental Services.

# ARCHAEOLOGICAL LITERATURE AND RECORDS REVIEW

Wisconsin Department of Transportation
DT1459 2/2013

## PROJECT INFORMATION

| Project ID | Highway/Street | County | SHSW Compliance Number |
|---|---|---|---|
| 3080-01-05 | USH 12/18 | Dane | |

Project Termini
CTH AB Overpass/Interchange

| Township(s) | Town/Range | Sections |
|---|---|---|
| City of Madison, Town of Cottage Grove | 7N/10E \| 7N/11E | 25, 26 \| 30 |

USGS Quadrangle(s)
Madison East (1983), Cottage Grove (1991)

## SOURCES RESEARCHED

☒ See Continuation Sheet

☒ OSA USGS Maps ☒ Previous Surveys ☒ CEB Atlas
☒ WI Land Economic Inventory (WLEI) ☐ County History ☒ CEB Manuscripts
☒ Burial Sites Office ☐ Archival Maps:

| Publisher | Year | Publisher | Year |
|---|---|---|---|
| Harrison and Warner | 1873 | Leonard W. Gray & Co. | 1899 |
| C.M. Foote & Co. | 1890 | Democrat Printing Co. | 1904 |

☒ Other GLO survey maps (Lyon 1834)

## SITES IN PROJECT AREA

☐ See Continuation Sheet

| Total Number of Sites | Prehistoric | Historic | Cemeteries/Burials |
|---|---|---|---|
| | 1 | 0 | 1 |

| CODE | TYPE | AFFILIATION |
|---|---|---|
| #47 DA – 0062/BDA-0334 | Mound(s) Linear | Late Woodland |
| #47 – | | |
| #47 – | | |

## SITES WITHIN ONE MILE OF THE PROJECT AREA

☒ See Continuation Sheet

| Total Number of Sites | Prehistoric | Historic | Cemeteries/Burials |
|---|---|---|---|
| | 20 | 4 | 11 |

| CODE | TYPE | AFFILIATION |
|---|---|---|
| # BDA – 0030 | Cemetery/Burial | Historic Euroamerican |
| # BDA – 0031 | Cemetery/Burial | Historic Euroamerican |
| #47 DA – 0034/BDA-0314 | Mound(s) Linear | Late Woodland |

☒ Sites Reported in the Project Area ☒ Sites Reported Within One Mile ☒ No Sites Reported in the Project Area

Research Conducted by: Elissa Hulit; Richard Edwards
Date (m/d/yy): 8/4/2020

I certify that the literature search was done according to the Wisconsin Survey Guidelines.

Richard W. Edwards IV, PhD, RPA
(Print Name of Archaeologist)

Commonwealth Heritage Group, Inc.
(Print Name of Firm or Institution)

X Richard W Edwards IV
(Signature of Archaeologist)

08/05/2020
(Date – m/d/yy)

## SOURCES RESEARCHED *(continued)*

| Publisher | Year | Publisher | Year |
|---|---|---|---|
| Cantwell Printing Co. | 1911 | | |
| W.W. Hixson and Co. | 1922 | | |
| Dane County Atlas Co. | 1926 | | |
| Thrift Press | 1931 | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

## SITES IN PROJECT AREA *(continued)*

| CODE | TYPE | AFFILIATION |
|---|---|---|
| #47 – | | |
| #47 – | | |
| #47 – | | |
| #47 – | | |

## SITES WITHIN ONE MILE OF THE PROJECT AREA *(continued)*

| Total Number of Sites | Prehistoric | Historic | Cemeteries/Burials |
|---|---|---|---|
| | 20 | 4 | 11 |

| CODE | TYPE | AFFILIATION |
|---|---|---|
| #47 DA – 0035/BDA-0315 | Mound (s) Effigy | Late Woodland |
| #47 DA – 0036/BDA-0316 | Mound (s) Conical | Late Woodland |
| #47 DA – 0063/BDA0332 | Mound (s) Linear | Late Woodland |
| #47 DA – 0064/BDA0333 | Mound (s) Linear | Late Woodland |
| #47 DA – 0065/BDA0330 | Mound (s) Linear | Late Woodland |
| #47 DA – 0066/BDA0335 | Mound (s) Linear | Late Woodland |
| #47 DA – 0067/BDA0331 | Mound (s) Other/Unknown | Late Woodland |
| #47 DA – 0492 | Campsite/Village | Unknown Prehistoric |
| #47 DA – 0493 | Campsite/Village | Unknown Prehistoric |
| #47 DA – 0601 | Campsite/Village | Unknown Prehistoric |
| #47 DA – 0723/BDA0525 | Mound (s) Effigy; Lithic Scatter | Late Woodland |
| #47 DA – 1069 | Lithic Scatter | Unknown Prehistoric |
| #47 DA – 1071 | Isolated Finds | Unknown Prehistoric |
| #47 DA – 1358 | Lithic Scatter | Unknown Prehistoric |
| #47 DA – 1468 | Lithic Scatter | Unknown Prehistoric |
| #47 DA – 1469 | Lithic Scatter | Unknown Prehistoric |
| #47 DA – 1470 | HCM Concentration | Unknown Historic |
| #47 DA – 1471 | Isolated Finds | Unknown Prehistoric |
| #47 DA – 1483 | Isolated Finds | Unknown Prehistoric |
| #47 DA – 1523 | Isolated Finds | Unknown Prehistoric |
| #47 DA – 1524 | Isolated Finds | Unknown Historic |

Attachment 1

# WISCONSIN PUBLIC LANDS FIELD ARCHAEOLOGICAL PERMIT

REQUIRED TO CONDUCT ARCHAEOLOGY ON ALL NON-FEDERAL PUBLIC LAND UNDER WIS. STAT. § 44.47

**Wisconsin Historical Society**

Name/Organization/Contact: Robert Watson  Telephone#: 414-446-4121 ext 104

Address: 8669 N Deerwood Dr  City: Milwaukee  State: WI  Zip Code: 53209

E-mail Address: rwatson@chg-inc.com  FAX#: 414-446-4325

Institutional Affiliation: Commonwealth Heritage Group, Inc.

---

**Location:** County: WisDOT Properties  Civil Town: _____

Town: _____  Range: _____  Section: _____  Quarter Sections: _____

Hwy/Rd ☐  Hwy/Rd: _____  Other Type of Project ☐

Project Description: _____

**Type of fieldwork:** Phase I/Survey ☑  Phase II/Testing ☐  Phase III/Excavation ☐  Monitoring ☑

**Purpose of the fieldwork:** Federal Compliance ☑  State Compliance ☑  Education ☐  Other ☑

Site #: _____  Burial Site#: _____  Burial Permit Secured? Y ☐  N ☐

**Dates of field work:** Begin date: January 6, 2020  End date: December 31, 2020

**What institution will curate recovered artifacts, notes, and records?** UWM or MVAC

(*Curation agreement must be on file with WHS; all materials must be curated in an appropriate, staffed facility.*)

Print name: Robert Watson  ☐ see attachments

**Signature of Archaeologist** Robert J Wat  Date: 1-6-2020

Maps and/or Letters of explanation can accompany this application

---

Landowner or custodian name (**print**): Jason Kennedy  Phone: 608-267-6693

Affiliation: Wisconsin Department of Transportation

**Signature of Landowner** Jason Kennedy  Date: 01/06/2020

DO NOT WRITE BELOW THIS LINE

Permit Approved: John H. Broihahn  Date: 8 Jan 2020

**PLP #** 20 002

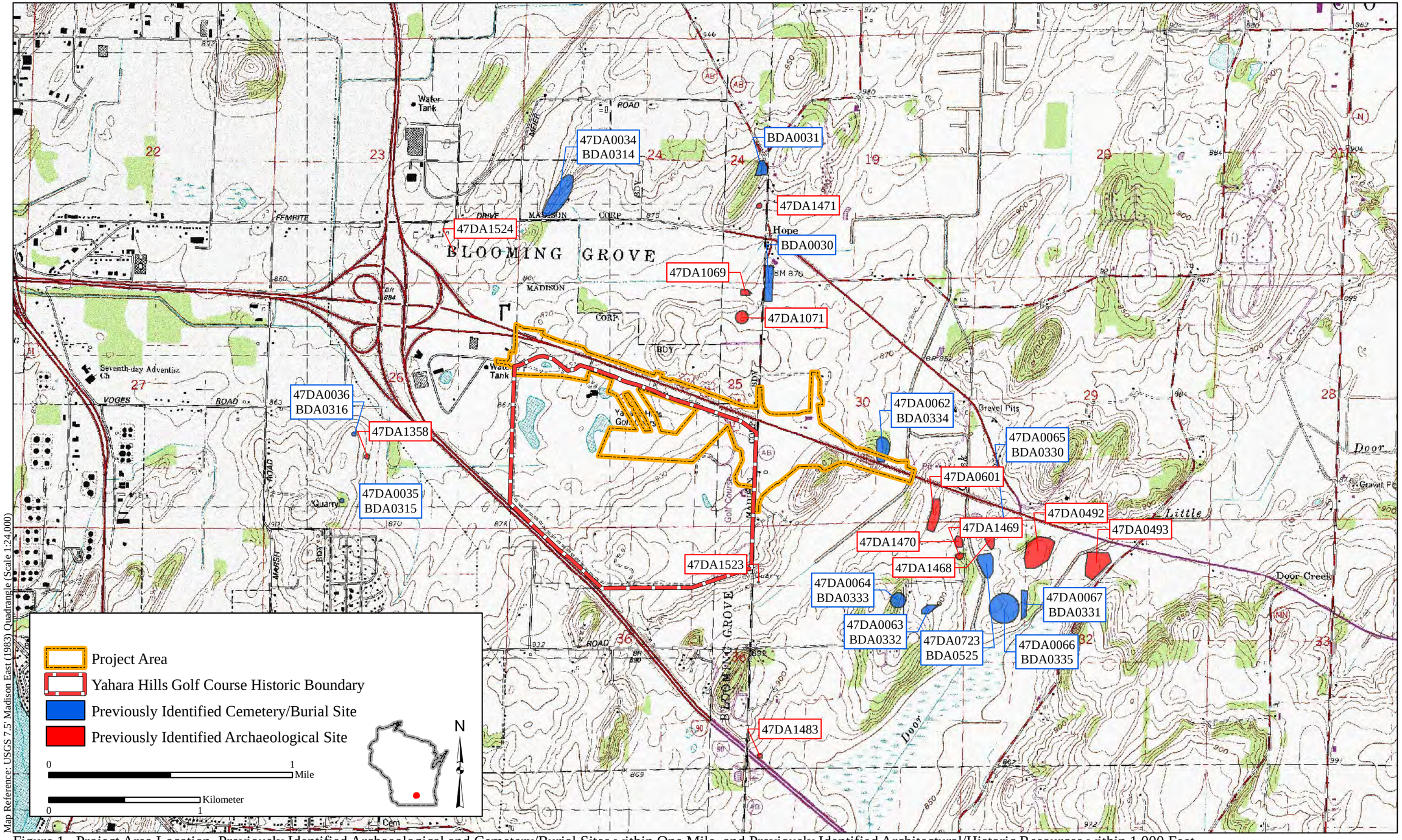
John H. Broihahn
State Archaeologist
Wisconsin Historical Society
816 State Street Madison, WI 53706
FAX: 608-264-6504 / PH 608-264-6496
Email: john.broihahn@wisconsinhistory.org

WISCONSIN HISTORICAL SOCIETY

**One paper copy and one PDF copy of the final report must be submitted to the State Historic Preservation Office.**

**Additional authorization or permitting is necessary to conduct work within the boundaries of uncataloged and cataloged human burial sites under Wis. Stat. § 157.70. For additional information please see:** http://wihist.org/10WqFCf

WisDOT ID 3080-01-05
USH 12/18, CTH AB Overpass/Interchange
Dane County




Map Reference: USGS 7.5' Madison East (1983) Quadrangle (Scale 1:24,000)

Job: W-1756; Date Saved: 10/1/2020 3:17:00 PM

Figure 1. Project Area Location, Previously Identified Archaeological and Cemetery/Burial Sites within One Mile, and Previously Identified Architectural/Historic Resources within 1,000 Feet

WisDOT ID 3080-01-05
USH 12/18, CTH AB Overpass/Interchange
Dane County

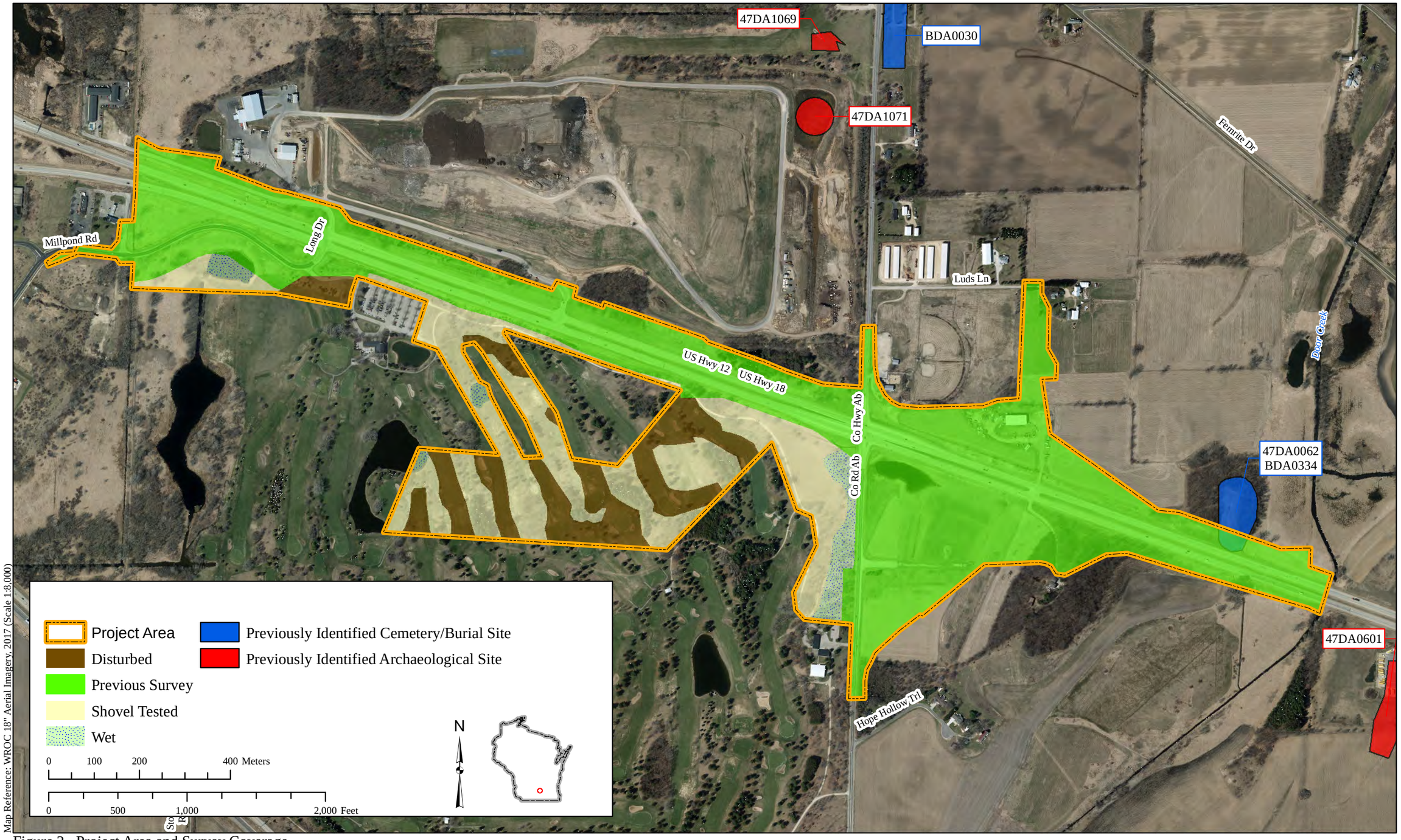



Figure 2. Project Area and Survey Coverage


Figure 3. Project Area Overview, Shovel Tested Portion of Golf Course, View East


Figure 4. Project Area Overview, Wetland at West Edge of APE, View East

Figure 5. Project Area Overview, Shovel Tested Portion East of Golf Course, View Southeast

Figure 6. Project Area Overview, Wetland East of Golf Course, View South

# ARCHAEOLOGICAL REPORT INVENTORY FORM

WHS/SHSW # COUNTY Dane

AUTHORS: Richard W. Edwards, IV

REPORT TITLE: Archaeological Survey Field Report, USH 12/18, CTH AB Overpass/Interchange, Dane County, Wisconsin.

DATE OF REPORT (MONTH AND YEAR): October 2020

SERIES/NUMBER: WR-1762

PLACE OF PUBLICATION: Commonwealth Heritage Group, Inc., Milwaukee, Wisconsin

LOCATIONAL INFORMATION [LEGAL DESCRIPTION OF SURVEY AREA (T-R-S)]
T7N-R10E-25, 26 | T7N-R11E-30

U.S.G.S. QUAD MAP(S): Madison East (1983), Cottage Grove (1991)

SITE(S) INVESTIGATED: None

ACRES INVESTIGATED: 72.95 AGENCY # 3080-01-05

INVESTIGATION TECHNIQUES COMPLETED (Check all that apply.)

| | | |
|---|---|---|
| ☐ Avocational Survey | ☐ Chance Encounter | ☐ Historical Research |
| ☐ Faunal Analysis | ☐ Floral Analysis | ☐ Interview/Informant |
| ☒ Literature Background Research | ☐ Major Excavation/Phase III | ☐ Mechanical Stripping |
| ☐ Monitoring | ☐ Osteological Analysis | ☐ Geomorphology |
| ☒ Records/Background | ☒ Surface Survey | ☐ Soil Core |
| ☐ Remote Sensing | ☐ Shovel Testing/Probing | |
| ☐ Test Excavation/Phase II | ☐ Traditional Knowledge | |
| ☐ Underwater | ☒ Walk Over /Visual Inspection | |

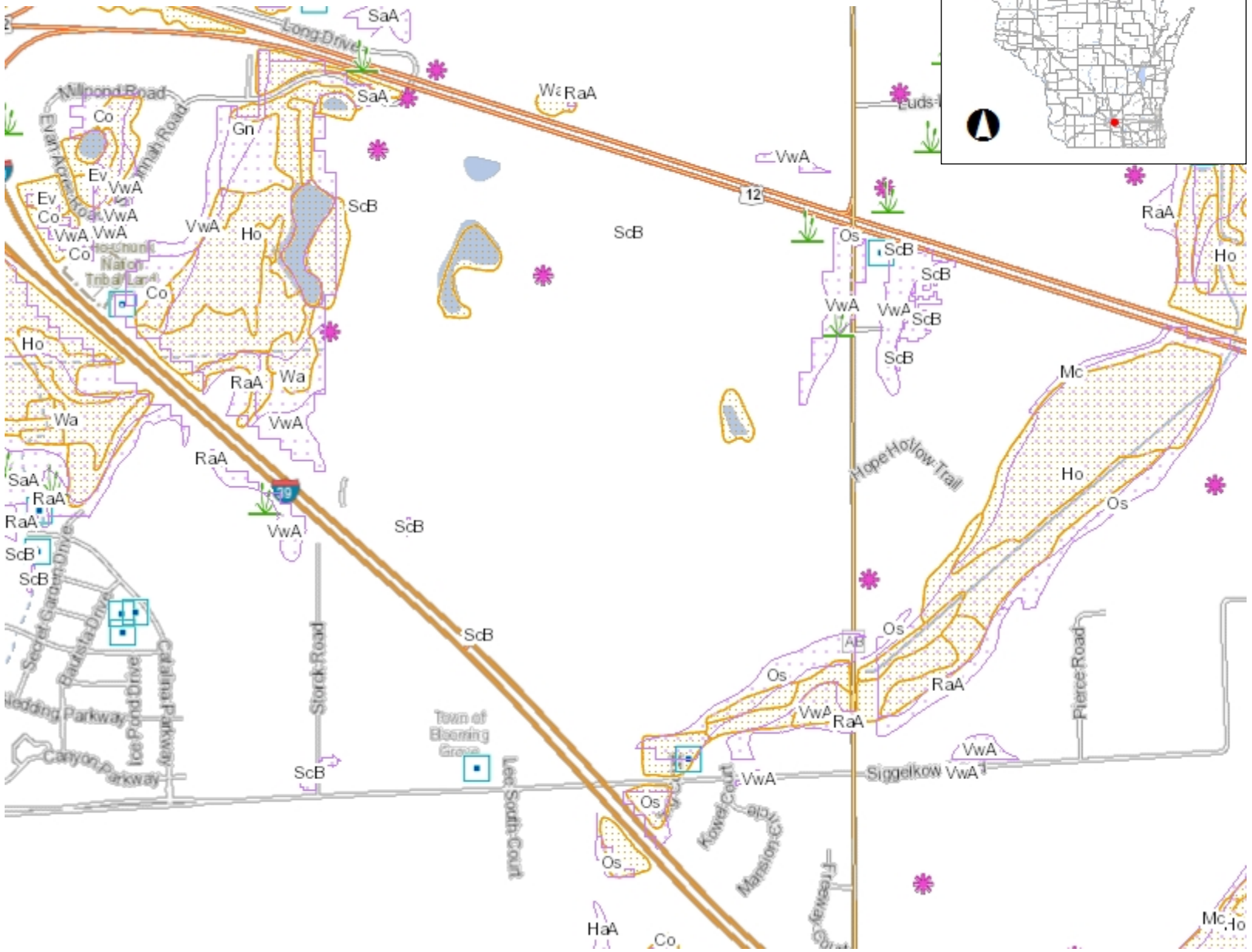
ABSTRACT: ☐ Included in report ☒ Written in space below

In August and October 2020, Commonwealth Heritage Group, Inc. (Commonwealth) conducted archaeological survey for a proposed WisDOT project in Dane County to remove the at-grade Millpond Road/Long Drive and CTH AB intersections on USH 12/18 and construct a new grade-separated interchange at CTH AB. Most of the Area of Potential Effects (APE) was previously surveyed (133.13 ac), including one previously identified mound site (47DA0062/BDA0334) that was determined to have been destroyed. The portion of the APE not previously surveyed included paved surfaces, vegetated areas, and an active golf course. Shovel testing was implemented throughout this portion of the APE (44.03 ac). No cultural materials or features were identified during survey. Based on the results of the archaeological survey, Commonwealth concludes that the project will have no effect on archaeological historic properties.

# ATTACHMENT 6

WDNR Surface Water Data Viewer Map of Wetlands and Wetland Indicator Soils (March 11, 2022)

# Surface Water Data Viewer Map
# Wetlands and Wetland Indicator Soils




## Legend

- Wetland Indicators
- Wetland Class Areas
- Wetland Class Points
  - Dammed pond
  - Excavated pond
  - Filled/drained wetland
  - Wetland too small to delineate
  - Filled excavated pond
- Filled Points
- Wetland Class Areas
- Filled Areas
- Wetland Class Areas
- Wetland Class Points
  - Dammed pond
  - Excavated pond
  - Filled/drained wetland
  - Wetland too small to delineate
  - Filled excavated pond
- Filled Points
- Wetland Class Areas
- Filled Areas
- Wetland Identifications and Confirmations
- NRCS Wetspots
- Municipality
- State Boundaries
- County Boundaries
- Major Roads
  - Interstate Highway
  - State Highway
  - US Highway
- County and Local Roads
  - County HWY
  - Local Road
- Railroads

## Notes

0.5 0 0.25 0.5 Miles

NAD_1983_HARN_Wisconsin_TM

1: 15,840

# APPENDIX C

## CORRESPONDENCE

| | |
|---|---|
| 5/11/2022 | WDNR Initial Site Inspection Response Letter – Proposed Dane County Landfill Site #3 |
| 6/10/2022 | WDNR Endangered Resources Review Verification Form – Proposed Dane County Landfill Site No. 3 |
| 7/29/2022 | USACE Acknowledgement Letter for Jurisdictional Determination Request – Proposed Dane County Landfill Site No. 3 |

**State of Wisconsin**
**DEPARTMENT OF NATURAL RESOURCES**
**3911 Fish Hatchery Road**
**Fitchburg WI 53711-5397**

**Tony Evers, Governor**
**Preston D. Cole, Secretary**
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

May 11, 2022

File Ref: FID 113450480
Dane County
SW/CORR

Mr. John Welch
Director of Waste & Renewables
Dane County Landfill
1919 Alliant Energy Center Way
Madison, WI 53713

Subject: Initial Site Inspection Response - Proposed Dane County Landfill Site #3
6701 US Highway 12 & 18, Madison, Wisconsin

Dear Mr. Welch:

This letter documents the initial site inspection (ISI) performed by the Department of Natural Resources (department) on April 14, 2022, for the proposed Dane County Landfill Site #3, and the department's preliminary opinion regarding the suitability of the site location. Department staff conducted the initial site inspection with staff from Dane County Waste & Renewables (county) and representatives from Tetra Tech, the county's consultant. The purpose of the inspection was to identify any potential conflicts the proposed development might have with the location and performance standards in s. NR 504.04, Wis. Adm. Code.

As part of the inspection, the department evaluated the information in Tetra Tech's March 17, 2022 ISI request letter submitted on behalf of the county. According to the letter, the proposed development consists of an approximate 230-acre parcel located in the SE¼ of Section 25 and the N½ of the NE¼ of Section 36, T17N, R10E, and is currently developed as the City of Madison Yahara Hills Golf Course.

Based on the review of the March 17, 2022 ISI request and observations from the ISI, the department's preliminary opinion regarding the suitability of site location is that the site location has potential. However, there may be some conflicts with the locational criteria contained in s. NR 504.04(3), Wis. Adm. Code, that will need to be addressed. If there are conflicts that cannot be satisfactorily addressed in accordance with applicable requirements, the conflicts would be constraints to site development.

Summary of Locational Criteria: As described in s. NR 504.04(3)(a) to (i), Wis. Adm. Code, there are several locational criteria that apply to the proposed landfill development. The proposed limits of filling may not be located within:

(a) *1,000 feet of any navigable lake, pond or flowage.* According to the ISI request, the proposed limits of waste are located within 1,000 feet of a navigable lake, pond or flowage. According to the department's Surface Water Data Viewer (SWDV), an unnamed pond (WBIC 5575561) is located within the proposed limits of waste. A preliminary review of historical aerial imagery indicates this unnamed pond is not naturally occurring but was constructed during development of the golf course. The pond would be removed prior to constructing the landfill liner system.

Based on the information provided in the ISI request and consultation with Al Ramminger, department Water Regulation and Zoning Specialist, the pond is considered to be an artificial wetland which would

likely qualify as exempt from state permitting requirements. Consultation with the department's Watershed Management Program, and possibly the U.S. Army Corps of Engineers (ACOE), will be conducted again by department Waste and Materials Program plan review staff during review of the Initial Site Report (ISR) and the feasibility report to ensure that there are no areas of the pond, or around the pond, that may be regulated under wetland or waterway rules and to assess if an artificial wetland determination would be needed by the department or the ACOE.

(b) *300 feet of any navigable river or stream*. According to the ISI request, no navigable rivers or streams are located within 300 feet of the proposed site. An unnamed stream (WBIC 803000) is located approximately 850 feet southeast of the proposed limits of disturbance and approximately 950 feet from the proposed limits of waste. The stream flows to the northeast and discharges into Door Creek.

(c) *A floodplain*. According to the ISI request, the proposed development is not within a floodplain. The SWDV also indicates this area is not in a floodplain.

(d) *1,000 feet of the nearest edge of the right-of-way of any state trunk highway, interstate or federal aid primary highway or the boundary of any public park or state natural area, unless the landfill is screened.* According to the ISI request, the proposed limits of waste would be located approximately 425 feet south of US Highway 12 & 18 and 150 feet west of County Highway AB. Interstate 90/39 (I-90/I-39) is approximately 1,350 feet southwest of the proposed limits of waste. The City of Madison intends to maintain 18 holes of the Yahara Hills Golf Course after the proposed landfill is constructed. The proposed limits of waste overlap portions of the currently proposed 18-hole golf course; however, the final reconfiguration of the golf course has not been determined. The department understands that the county will propose screening measures from US Highway 12 & 18 and the Yahara Hills Golf Course, as required in future submittals for the proposed landfill. Screening is also proposed for County Highway AB although it is not considered a state trunk highway that requires screening. Screening should also be considered for I-90/I-39. Screening should be utilized to the maximum extent practicable.

(e) *An area where the design or operation of the landfill would pose a significant bird hazard to aircraft.* The ISI request states that there are no airports designed or planned within 5,000 feet of the proposed limits of waste. The nearest public airport is the Blackhawk Airfield, located in Cottage Grove, and Dane County Regional Airport (DCRA), located in Madison. Blackhawk Airfield and DCRA are located approximately 5.25 miles and 7 miles from the proposed limits of waste, respectively. The nearest private use airport is the Quale Airport, located in Cottage Grove, about three miles from the proposed site.

(f) *1,200 feet of any public or private water supply well*. The ISI request states that three private water supply wells (PW-C, PW-D and PW-E) are located within the proposed limits of waste. These wells are owned by the City of Madison and serve the Yahara Hills Golf Course. The county would abandon these wells prior to constructing the proposed landfill. Golf course private water supply wells PW-A and PW-B are located approximately 1,250 feet south and approximately 1,100 feet west of the proposed limits of waste, respectively, and are not anticipated to be abandoned as part of the proposed development. If the county pursues landfill development that would result in the limits of waste to include the areas where water supply wells are located, then the department may require additional well filling and sealing requirements that would involve either complete removal of the well casing or perforation of the well casing to ensure the annular space is filled and sealed with impermeable material. This has successfully been done in the past at other facilities and provides protection to the groundwater quality for the surrounding area. The department is happy to share and discuss the methods and procedures that may be used.

Four assumed private water supply wells are located at residences east of County Highway AB. Based on mapping estimates, the wells are approximately 380, 800, 1,000 and 1,030 feet from the proposed limits

of waste. Another assumed private water supply well associated with a residence is located approximately 1,100 feet southwest of the proposed limits of waste. A known private water supply well (Biogas Well YZ391) is located approximately 990 feet north of the proposed limits of waste, adjacent to the Biogas Facility for the Dane County Landfill Site No. 2. The ISR and feasibility report for the proposed facility should verify and document the actual locations and separation distances of these water supply wells.

(g) *200 feet of a fault that has had displacement in Holocene time*. The ISI request states that the proposed development is not within 200 feet of a fault that has had displacement since Holocene time and that no faults in Wisconsin are known to have had displacements since the Holocene time. This assessment will be completed during the ISR and feasibility reviews.

(h) *Seismic impact zone*. The ISI request concludes that the site is not in a seismic impact zone based on United States Geological Survey (USGS) information. This assessment will be completed during the ISR and feasibility reviews.

(i) *Unstable areas*. The ISI request states that the bedrock beneath the proposed landfill site consists of Prairie du Chien Group dolomite and sandstone and/or the Cambrian Sandstone. Based on previous site geologic studies at the Dane County Landfill Site No. 2 and supply wells drilled at the golf course, there is no evidence of unstable conditions. This assessment will be completed during the ISR and feasibility reviews.

It appears that the site meets, or could be constructed and operated to meet, the performance standards in s. NR 504.04 (4), Wis. Adm. Code.

(a) Wetland Areas –Based on a review of the department's SWDV, the proposed landfill would directly impact one wetland. The SWDV shows an approximate 2.27-acre wetland overlying the unnamed pond that is proposed for removal and is located within the proposed limits of waste. The SWDV also indicated the presence of "wetlands too small to delineate" in the northeast corner of the proposed limits of disturbance. The department understands that the county will conduct wetland delineations in these areas and will initiate the wetland permitting process if the field delineations indicate wetlands would be impacted as a result of the proposed development.

(b) Critical Habitat Areas - Based on a review of the Natural Heritage Inventory (NHI), it appears unlikely that there would be any significant adverse impact on critical habitat areas or endangered or threatened species due to the proposed landfill development. The department understands that the county will submit an Environmental Resources Review application to the NHI Program. A copy of the application and response from the NHI Program should be included with future submittals for the proposed landfill. The department requests that any documentation identifying locations of specific endangered or threatened species from the NHI review be submitted as a stand-alone document to the department, so the department can maintain confidentiality of this information. Locations of endangered or threatened species are considered confidential information under Wisconsin's endangered species law in order to protect those species from collectors and poachers.

(c) Archaeological Resources: According to the ISI request, the county's archaeological consultant reviewed available literature and records on previously reported cultural resources in and around the Yahara Hills Golf Course. The study found no previously reported archaeological sites within the study area and no standing buildings or other structures that are listed on the Wisconsin Architecture and History Inventory. The 1967 Club House, located to the west of the proposed site and within the property that the City of Madison would maintain, has been identified as potentially significant.

Archaeological issues and historical structures for the site were cleared by Richard Kubicek, Departmental Archaeologist/Departmental Historic Preservation Officer, on March 23, 2022. The department understands that the county will conduct additional archaeological investigation at the site to satisfy the requirements of the State Historic Preservation Office.

The performance criteria outlined in s. NR 504.04 (4) (c) through (f), Wis. Adm. Code include evaluation of surface water, groundwater, gas migration and air contaminant impacts. These performance criteria would be evaluated during the department's review of a feasibility report for the proposed development.

Please remember that s. NR 504.04 (4) (d), Wis. Adm. Code, requires submittal of a 7.5 Minute USGS map or equivalent with a minimum scale of 1 inch=500 feet. The ISI request included a 1 inch=2,000 feet scale topographic map; however, a 1 inch=500 feet scale map will be required in the ISR submittal. Several maps at this scale may be needed to show all items listed in this code section, which include the depiction of contour intervals to sufficiently show relief, surface waters, floodplains, existing land use conditions including the location of public parks, and all water supply wells and residences located within one mile of the property boundaries of the proposed landfill.

Please note that s. NR 504.09 (2) (f), Wis. Adm. Code, requires a minimum separation distance of 100 feet be maintained between the limits of filling and the adjacent property line. A minimum distance of 50 feet must be maintained between any permanent berms or excavations associated with the landfill, excluding stormwater diversion structures, and the adjacent property line.

The locational and performance criteria will be evaluated again as the department reviews the ISR and feasibility report. Please keep in mind that as the department continues its review of the proposed development and as new information is presented, the department may have additional questions, concerns or requests for further information before a feasibility determination is made.

Please do not hesitate to contact me at 608-931-9387 or by email at carolyn.cooper@wisconsin.gov with any questions about this letter.

Sincerely,

Carolyn Cooper

Carolyn Cooper
Hydrogeologist
South Central Region

cc: Roxanne Wienkes - Dane County (e-copy)
Bridget Kelly, DNR-WA (e-copy)
Ann Bekta, DNR-WA (e-copy)
Joe Lourigan, DNR-WA (e-copy)
Valerie Joosten, DNR-WA (e-copy)
Teri Daigle - Tetra Tech (e-copy)
John Oswald - Tetra Tech (e-copy)

State of Wisconsin
Department of Natural Resources
Bureau of Natural Heritage Conservation
Endangered Resources Review Program
PO Box 7921, Madison WI 53707-7921
https://dnr.wi.gov/topic/ERReview/
DNRERReview@wisconsin.gov

# Endangered Resources (ER) Review Verification

## Broad Incidental Take Permit/Authorization for No/Low Impact Activities

Form 1700-079 (R 1/20)

**Notice:** This form is authorized by s. 29.604, Wis. Stats. This completed signed form, once submitted to DNRERReview@wi.gov using the Submit by Email button at the bottom of the form, fulfills the requirement of an Endangered Resources Review and should be attached to other permits requiring an ER Review to show that Endangered Resources requirements have been met. Personal information collected on this form will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records law [ss. 19.31-19.39, Wis. Stats.].

**Instructions: Complete this form if your project is covered under the Broad Incidental Take Permit/Authorization for No/Low Impact Activities and therefore does not require an Endangered Resources Review.**

### Section 1: Applicant and Project Information

| Requester Name | Organization or Agency Name |
|---|---|
| John Welch | Dane County Department of Waste and Renewables |

| Project Name | County | Township | Range | Section |
|---|---|---|---|---|
| Dane County Landfill site No. 3 | Dane | 07 N | 10 (◉E ○W) | 25 |

| Telephone Number | Email Address |
|---|---|
| (608) 516-4154 | welch@countyofdane.com |

Project Description

The proposed Dane County Landfill Site No. 3 will include an approximately 40-acre waste footprint for a municipal solid waste disposal facility and approximately 20-acre organics management (compost) facility within the eastern 230-acre portion of the existing Yahara Hills Golf Course.

Indicate who you are completing this form as:

- ◉ DNR Staff
- ○ Certified Reviewer
- ○ Other: _____

### Section 2: Broad Incidental Take Permit/Authorization Coverage Information

How is your project covered under the Broad Incidental Take Permit/Authorization for No/Low Impact Activities?

- ☐ It is included in the list of activities in Table 1 – No/Low Impact Table for All Species at All Times of the Year.
- ☒ It is included in the list of activities in Table 2 – No/Low Impact Table by Taxa Group for DNR Staff and ER Certified Reviewers Only and the Taxa groups for the species of concern are covered.
- ☐ It is included in the list of activities in Table 2 – No/Low Impact Table by Taxa Group for DNR Staff ER Certified Reviewers Only and the species of concern are covered by the Avoidance Measures document.

Activity Number(s)

2-A3: Any activity with no element occurrences (EOs)--no species, natural communities, natural features or high potential zone/range

### Section 3: Applicant Certification

By my signature below, I certify that to the best of my knowledge, the information stated above is complete and accurate.

**NOTE:** If submitting this verification electronically, please type your name on the signature line. Your typed name, along with the email message generated from electronic submittal of this form, will be used as an electronic signature which is the legal equivalent to an actual signature.

| Angela White | 6/10/2022 | Angela White |
|---|---|---|
| Signature | Date Signed | Requester/Submitter Name (please print) |

**DEPARTMENT OF THE ARMY**
**U.S. ARMY CORPS OF ENGINEERS, ST. PAUL DISTRICT**
**180 FIFTH STREET EAST, SUITE 700**
**ST. PAUL, MN 55101-1678**

07/29/2022

Regulatory File No. MVP-2022-01337-BJL

**THIS IS NOT A PERMIT**

John Welch
1919 Alliant Energy Center Way
Madison, WI 53713

Dear Mr. Welch:

We have received your submittal described below. You may contact the Project Manager with questions regarding the evaluation process. The Project Manager may request additional information necessary to evaluate your submittal.

File Number: MVP-2022-01337-BJL

Applicant: John Welch

Project Name: City of Madison Landfill site 3

Project Location: Section 25 of Township 7 N, Range 10 E, Dane County, Wisconsin (Latitude: 43.036198; Longitude: -89.251204)

Received Date: 07/22/2022

Project Manager: Ben Lacount
(651) 290-5315
benjamin.j.lacount@usace.army.mil

Additional information about the St. Paul District Regulatory Program can be found on our web site at http://www.mvp.usace.army.mil/missions/regulatory.

Please note that initiating work in waters of the United States prior to receiving Department of the Army authorization could constitute a violation of Federal law. If you have any questions, please contact the Project Manager.

Thank you.

U.S. Army Corps of Engineers
St. Paul District
Regulatory Branch

# APPENDIX D

## WATER SUPPLY WELLS INFORMATION

PW-A Well Construction Report for KU336 (4/8/1996)

PW-B Well Constructor's Report for DN-987 (3/18/1970)

PW-C Well Constructor's Report for DN-988 (3/18/1970)

PW-D Well Constructor's Report for DN-985 (3/18/1970)

PW-E Well Constructor's Report for DN-986 (3/18/1970)

PW-129 (BioGas Well) Well Construction Report for YZ391 (8/20/2018)

PW-A

# Well Construction Report For WISCONSIN UNIQUE WELL NUMBER KU336

State of WI - Private Water Systems - DG/2
Department of Natural Resources, Box 7921
Madison, WI 53707
Please type or Print using a black Pen
Please Use Decimals Instead of Fractions.

Form 3300-77A
(R 8/00)

Property Owner: CITY OF MADISON PARKS DIVISION
Telephone -- Number:
Mailing Address: PO BOX 2987
City: MADISON
State: WI
Zip Code: 53701
County of Well Location: Dane
County Well Permit No.: W
Well Completion Date: 04/08/1996

1. Well Location: [X] Town [ ] City [ ] Village of BLOOMING GROVE
Fire # (if available):
Grid or Street Address or Road Name and Number: US HWY 12 18
Subdivision Name / Lot # / Block #:

Well Constructor (Business Name): SAMS ROTARY DRILLERS INC
License #: 370
Facility ID Number (Public Wells):
Address: PO BOX 150
Public Well Plan Approval #: W--
City: RANDOLPH
State: WI
Zip Code: 53956-0150
Date of Approval (mm/dd/yyyy): 02/05/1996

Gov't Lot # / or SE 1/4 of NE 1/4 of
Section 36 T 7 N; R 10 [X] E [ ] W
Latitude Deg. Min.
Longitude Deg. Min.

2. Well Type: [X] New [ ] Reconstruction [ ] Replacement
Lat/Long Method: GPS008
of previous unique well # constructed in
Reason for replaced or Reconstructed Well?

Hicap Permanent well #: 1668
Common Well #:
Specific Capacity: 6.8 gpm/ft

3. Well serves 1 # of homes and or GOLF COURSE
(e.g. barn, restaurant, church, school, industry, etc.)
High capacity Well? [X] Yes [ ] No
Property? [X] Yes [ ] No

[X] Drilled [ ] Driven Point [ ] Jetted [ ] Other:

4. Is the well located upslope or sideslope and not downslope from any contamination source, including those on neighboring properties? [ ] Yes [ ] No
Well located within 1,200 feet of a quarry? [ ] Yes [ ] No If yes, distance in feet from quarry:
Well located in floodplain? [ ] Yes [ ] No
Distance in Feet from Well to Nearest:

1. Landfill
2. Building Overhang
3. Septic [ ] Holding Tank [ ]
4. Sewage Absorption Unit
5. Nonconforming Pit
6. Buried Home Heating Oil Tank
7. Buried Petroleum Tank
8. Shoreline [ ] Swimming Pool [ ]
9. Downspout/Yard Hydrant
10. Privy
11. Foundation Drain to Clearwater
12. Foundation Drain to Sewer
13. Building Drain [ ] Cast Iron or Plastic [ ] Other
14. Building Sewer [ ] Gravity [ ] Pressure [ ] Cast Iron or Plastic [ ] Other
15. Collector or Street Sewer: [ ] Sanitary units in. diam. [ ] Storm [ ] =< 6 [ ] > 6
16. Clearwater Sump
17. Wastewater Sump
18. Paved Animal Barn Pen
19. Animal Yard or Shelter
20. Silo
21. Barn Gutter
22. Manure Pipe [ ] Gravity [ ] Pressure [ ] Cast Iron or Plastic [ ] Other
23. Other Manure Storage
24. Ditch
25. Other NR 812 Waste Storage

5. Drillhole Dimensions and Construction Method

| Dia (in.) | From (ft.) | To (ft.) |
|---|---|---|
| 17.5 | 0 | 300 |
| 12 | 300 | 400 |
| 11.88 | 400 | 700 |
| 9 | 700 | 895 |

Upper Enlarged Drillhole / Lower Open Bedrock
[ ] ---1. Rotary - Mud Circulation----------
[X] ---2. Rotary - Air----------
[ ] ---3. Rotary - Air and Foam----------
[ ] ---4. Drill-Through Casing Hammer
[ ] ---5. Reverse Rotary
[ ] ---6. Cable-tool Bit in. dia------
[ ] 7. Dual Rotary
[ ] 8. Temp. Outer Casing in. dia. depth (ft)
Removed? [ ] Yes [ ] No
If no, why not?

8. Geology

| Type, Caving/Noncaving, Color, Hardness, etc | From (ft.) | To (ft.) |
|---|---|---|
| --C- CLAY | 0 | 4 |
| --Y- SAND @ GRAVEL | 4 | 36 |
| --L- LIMEROCK | 36 | 45 |
| --N- SANDROCK | 45 | 895 |

6. Casing, Liner, Screen

| Dia. (in.) | Material, Weight, Specification | From (ft.) | To (ft.) |
|---|---|---|---|
| 12 | STD BLK PIPE 330 WALL WLD JTS A53 PUSAN | 0 | 300 |

| Dia. (in.) | Screen type, material & slot size | | |
|---|---|---|---|

9. Static Water Level
ft. above ground surface
25 ft. below ground surface

10. Pump Test
Pumping Level 142 ft. below surface
Pumping at 800 GPM for 4 hours

11. Well is: [X] Above Grade 18 in. [ ] Below Grade
Developed? [X] Yes [ ] No
Disinfected? [X] Yes [ ] No
Capped? [X] Yes [ ] No

7. Grout or Other Sealing Material. Method
Method: TREMIE BRADEN HEAD
Kind of Sealing Material

| Kind of Sealing Material | From (ft.) | To (ft.) | # Sacks Cement |
|---|---|---|---|
| CEMENT | 0 | 300 | 200 |

12. Did you notify the owner of the need to permanently abandon and fill all unused wells on this property? [ ] Yes [ ] No If no, explain:

13. Signature of the Well Constructor or Supervisory Driller: SVJ — Date signed: 04/19/1996
Signature of Drill Rig Operator (Mandatory unless same as above): SCK — Date signed: 04/19/1996

Make additional comments on reverse side about geology, additional screens, water quality, etc.

Variance issued [ ] Yes [X] No

APR 7 1970

MAY 19 1970

PW-B DN-987

# WELL CONSTRUCTOR'S REPORT

Wel—6

STATE OF ~~WISCONSIN~~
DEPARTMENT OF NATURAL RESOURCES
Box 450
Madison, Wisconsin

DN-987

WHITE COPY – DIVISION'S COPY
GREEN COPY – DRILLER'S COPY
YELLOW COPY – OWNER'S COPY

Well # 5

1. COUNTY: Dane

CHECK ONE: ☐ Town ☐ Village ☒ City

NAME: ~~Madison~~ Blooming Grove

2. LOCATION (Number and Street or ¼ section, section, township and range. Also give subdivision name, lot and block numbers when available.)

✓in portions of ~~So. 25~~ & 36 T7N R10E SE, SW, SE, NE, NE, NW Sec. 36

3. OWNER AT TIME OF DRILLING

Yahara Hills Golf Course

4. OWNER'S COMPLETE MAIL ADDRESS

Madison, Wis. Perm * 77022, Dane Co. Misc. #14

5. Distance in feet from well to nearest: (Record answer in appropriate block)

| BUILDING | SANITARY SEWER C. I. | SANITARY SEWER TILE | FLOOR DRAIN C. I. | FLOOR DRAIN TILE | FOUNDATION DRAIN SEWER CONNECTED | FOUNDATION DRAIN INDEPENDENT | WASTE WATER DRAIN C. I. | WASTE WATER DRAIN TILE |
|---|---|---|---|---|---|---|---|---|
| There was nothing else in at the time the | | | | | | | | |

| CLEAR WATER DRAIN C. I. | CLEAR WATER DRAIN TILE | SEPTIC TANK | PRIVY | SEEPAGE PIT | ABSORPTION FIELD | BARN | SILO | ABANDONED WELL | SINK HOLE |
|---|---|---|---|---|---|---|---|---|---|
| | | | wells were | | drilled | | | | |

OTHER POLLUTION SOURCES (Give description such as dump, quarry, drainage well, stream, pond, lake, etc.)

none

6. Well is intended to supply water for:

sanitary & drinking purposes

7. DRILLHOLE

| Dia. (in.) | From (ft.) | To (ft.) | Dia. (in.) | From (ft.) | To (ft.) |
|---|---|---|---|---|---|
| 10 | Surface | 50 | | | |
| 6 | 50 | 330 | | | |

8. CASING, LINER, CURBING, AND SCREEN

| Dia. (in.) | Kind and Weight | From (ft.) | To (ft.) |
|---|---|---|---|
| 10 | P. E. New black steel 35 lbs per ft. | Surface | 29 |
| 6 | New black steel PE ~~19,45~~ 18,97 lbs per ft. ASTM - A53 Grade B | 0 | 66 |

9. GROUT OR OTHER SEALING MATERIAL

| Kind | From (ft.) | To (ft.) |
|---|---|---|
| Cement & water | Surface | 50 |

10. FORMATIONS

| Kind | From (ft.) | To (ft.) |
|---|---|---|
| Clay | Surface | 29 |
| Linerock | 29 | 190 |
| Red Scale | 190 | 280 |
| White Sandstone | 280 | 330 |

Well construction completed on 3-18 1970

Well is terminated 13 inches ☒ above ☐ below final grade

Well disinfected upon completion ☒ Yes ☐ No

Well sealed watertight upon completion ☒ Yes ☐ No

11. MISCELLANEOUS DATA

Yield test: Hrs. at GPM

Pump tested data attached

Depth from surface to normal water level 73 ft.

Depth to water level when pumping ft.

Water sample sent to to be retested when final pumps are installed laboratory on: 19

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, type of casing joints, method of finishing the well, amount of cement used in grouting, blasting, sub surface pumprooms, access pits, etc., should be given on reverse side.

SIGNATURE

Norman Hagen Registered Well Driller

COMPLETE MAIL ADDRESS

R. # 1 Box 105, Oxford, Wis.

9522

Please do not write in space below

774060 plot

| COLIFORM TEST RESULT | GAS — 24 HRS. | GAS — 48 HRS. | CONFIRMED | REMARKS |
|---|---|---|---|---|
| High Capacity Water Supply Approved 10/22/69 File Madison | | | cc: M.E. Ostrom 8/13/70 | |

REV. 11-68

APR 7 1970 MAY 19 197

Pw-C DN-988

# WELL CONSTRUCTOR'S REPORT

Wel-6

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
Box 450
Madison, Wisconsin

WHITE COPY – DIVISION'S COPY
GREEN COPY – DRILLER'S COPY
YELLOW COPY – OWNER'S COPY

Well # 6 DN-988

| COUNTY | CHECK ONE | NAME |
|---|---|---|
| Dane | ☐ Town ☐ Village ☒ City | ~~Madison~~ BLOOMING GROVE |

LOCATION (Number and Street or ¼ section, section, township and range. Also give subdivision name, lot and block numbers when available.)

✓in portions of ~~Sec 25 & 36~~ T7N R10E SE,SE,SE,NW,SW,SE,SE / Sec 25

OWNER AT TIME OF DRILLING

Yahara Hills Golf Course

OWNER'S COMPLETE MAIL ADDRESS

Madison, Wis. Perm # 77023, Dane Co. Misc. #14

Distance in feet from well to nearest: (Record answer in appropriate block)

| BUILDING | SANITARY SEWER C. I. | SANITARY SEWER TILE | FLOOR DRAIN C. I. | FLOOR DRAIN TILE | FOUNDATION DRAIN SEWER CONNECTED | FOUNDATION DRAIN INDEPENDENT | WASTE WATER DRAIN C. I. | WASTE WATER DRAIN TILE |
|---|---|---|---|---|---|---|---|---|
| There | was | nothing | else | | in at the time the well | | | |

| CLEAR WATER DRAIN C. I. | CLEAR WATER DRAIN TILE | SEPTIC TANK | PRIVY | SEEPAGE PIT | ABSORPTION FIELD | BARN | SILO | ABANDONED WELL | SINK HOLE |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | was drilled | | | | |

OTHER POLLUTION SOURCES (Give description such as dump, quarry, drainage well, stream, pond, lake, etc.)

none

Well is intended to supply water for:

sanitary & drinking purposes

## DRILLHOLE

| Dia. (in.) | From (ft.) | To (ft.) | Dia. (in.) | From (ft.) | To (ft.) |
|---|---|---|---|---|---|
| 18 | Surface | ~~50~~ 49 | 10 | 750 | 890 |
| 12 | ~~50~~ 60 | 750 | 17½ | 29 | 60 |

## CASING, LINER, CURBING, AND SCREEN

| Dia. (in.) | Kind and Weight | From (ft.) | To (ft.) |
|---|---|---|---|
| 18 | new black steel P. E. 70.59 lbs per ft. | Surface | 29 |
| 12 | new black steel P. E. 49.56 lbs per ft. ASTM – A53 Grade B | 0 | 65 |

## GROUT OR OTHER SEALING MATERIAL

| Kind | From (ft.) | To (ft.) |
|---|---|---|
| cement & water | Surface | 50 |

## 10. FORMATIONS

| Kind | From (ft.) | To (ft.) |
|---|---|---|
| Clay | Surface | 29 |
| Limestone | 29 | 200 |
| Red Schale | 200 | 285 |
| White sandstone | 285 | 370 |
| Yellow sandstone | 370 | 420 |
| White sandstone | 420 | 890 |

Well construction completed on 3-18 19 70

Well is terminated 13 inches ☒ above ☐ below final grade

Well disinfected upon completion ☒ Yes ☐ No

Well sealed watertight upon completion ☒ Yes ☐ No

## 11. MISCELLANEOUS DATA

Yield test: Hrs. at GPM

Pump test data attached

Depth from surface to normal water level 44 ft.

Depth to water level when pumping ft.

Water sample sent to to be retested when final pumps are installed laboratory on: 19

In your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, type of casing joints, method of finishing the well, amount of cement used in grouting, blasting, subsurface pumprooms, access pits, etc., should be given on reverse side.

| SIGNATURE | | COMPLETE MAIL ADDRESS |
|---|---|---|
| Warren Eaton | Registered Well Driller | R. # 1, Box 105, Oxford, Wis. |

9325 Please do not write in space below 774062 plat

| COLIFORM TEST RESULT | GAS – 24 HRS. | GAS – 48 HRS. | CONFIRMED | REMARKS |
|---|---|---|---|---|
| High Capacity Water Supply Approved 10/22/69 File Madison | | | | cc: M.E. Ostrom 8/13/70 |

Rev. 11-68

PW-D

DN-985

# WELL CONSTRUCTOR'S REPORT

Wel–6

7 1970,

WHITE COPY – DIVISION'S COPY
GREEN COPY – DRILLER'S COPY
YELLOW COPY – OWNER'S COPY

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
Box 450
Madison, Wisconsin

Well # 3

DN-985

1. COUNTY: Dane

CHECK ONE: ☐ Town ☐ Village ☒ City

NAME: ~~Madison~~ Blooming Grove

MAY 19 1970

2. LOCATION (Number and Street or ¼ section, section, township and range. Also give subdivision name, lot and block numbers when available.)

✓ Located in portions of Sec. 25 & ~~36~~ T7N R10E

3. OWNER AT TIME OF DRILLING: Yahara Hills Golf Course

NW,NE,NW,NE,SE,SE,SE, sec 25

4. OWNER'S COMPLETE MAIL ADDRESS: Madison, Wis.

Perm # 77020, Dane Co. Misc. # 14

5. Distance in feet from well to nearest: (Record answer in appropriate block)

| BUILDING | SANITARY SEWER C. I. | SANITARY SEWER TILE | FLOOR DRAIN C. I. | FLOOR DRAIN TILE | FOUNDATION DRAIN SEWER CONNECTED | FOUNDATION DRAIN INDEPENDENT | WASTE WATER DRAIN C. I. | WASTE WATER DRAIN TILE |
|---|---|---|---|---|---|---|---|---|
| There was nothing there at time wells wer drilled | | | | | | | | |

| CLEAR WATER DRAIN C. I. | CLEAR WATER DRAIN TILE | SEPTIC TANK | PRIVY | SEEPAGE PIT | ABSORPTION FIELD | BARN | SILO | ABANDONED WELL | SINK HOLE |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

OTHER POLLUTION SOURCES (Give description such as dump, quarry, drainage well, stream, pond, lake, etc.)

none

6. Well is intended to supply water for:

sanitary & drinking purposes

7. DRILLHOLE

| Dia. (in.) | From (ft.) | To (ft.) | Dia. (in.) | From (ft.) | To (ft.) |
|---|---|---|---|---|---|
| 10 | Surface | 50 | | | |
| 6 | 50 | 360 | | | |

8. CASING, LINER, CURBING, AND SCREEN

| Dia. (in.) | Kind and Weight | From (ft.) | To (ft.) |
|---|---|---|---|
| 10 | P.E. New black steel 35 lbs per ft. | Surface | 48 |
| 6 | New black steel PE ~~19.45~~ 18.97 lbs per ft. ASTM – D53 Grade B | 0 | 73 |

9. GROUT OR OTHER SEALING MATERIAL

| Kind | From (ft.) | To (ft.) |
|---|---|---|
| Cement & Water | Surface | 50 |

10. FORMATIONS

| Kind | From (ft.) | To (ft.) |
|---|---|---|
| Clay | Surface | 55 |
| Limerock | 55 | 185 |
| Red Schale | 185 | 330 |
| White Sandstone | 330 | 360 |

Well construction completed on 3-18 1970

Well is terminated 13 inches ☒ above ☐ below final grade

Well disinfected upon completion ☒ Yes ☐ No

Well sealed watertight upon completion ☒ Yes ☐ No

11. MISCELLANEOUS DATA

Yield test: Pump test data attached Hrs. GPM

Depth from surface to normal water level 48 ft.

Depth to water level when pumping ft.

Water sample sent to to be retested when final pumps are installed laboratory on: 19

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, type of casing joints, method of finishing the well, amount of cement used in grouting, blasting, subsurface pumprooms, access pits, etc., should be given on reverse side.

SIGNATURE: Marvin Hansen Registered Well Driller

COMPLETE MAIL ADDRESS: R. # 1, Box 105, Oxford, Wis.

9327

Please do not write in space below 100' 902' 775103 plot

| COLIFORM TEST RESULT | GAS – 24 HRS. | GAS – 48 HRS. | CONFIRMED | REMARKS |
|---|---|---|---|---|
| High Capacity Water Supply File Madison | Approved 10/22/69 | | cc: M. E. Ostrom 5/13/70 | |

RE... 11–69

PW-E

DN-986

7 1970

MAY 19 70

# WELL CONSTRUCTOR'S REPORT

Wel–6

WHITE COPY – DIVISION'S COPY
GREEN COPY – DRILLER'S COPY
YELLOW COPY – OWNER'S COPY

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
Box 450
Madison, Wisconsin

Well # 4

DN-986

COUNTY: Dand

CHECK ONE: ☐ Town ☐ Village ☒ City

NAME: ~~Madison~~ BLOOMING GROVE

LOCATION (Number and Street or ¼ section, section, township and range. Also give subdivision name, lot and block numbers when available.)

✓ in portions of Sec. 25 & ~~36~~ T7N R10E NE,NW,NW,NE,SE,SE,SE, Sec. 25

OWNER AT TIME OF DRILLING: Yahara Hills Golf Course

OWNER'S COMPLETE MAIL ADDRESS: Madison, Wisc. Perm # 77021 ; Dane Co. Misc. # 14

Distance in feet from well to nearest: (Record answer in appropriate block)

| BUILDING | SANITARY SEWER C. I. | SANITARY SEWER TILE | FLOOR DRAIN C. I. | FLOOR DRAIN TILE | FOUNDATION DRAIN SEWER CONNECTED | FOUNDATION DRAIN INDEPENDENT | WASTE WATER DRAIN C. I. | WASTE WATER DRAIN TILE |
|---|---|---|---|---|---|---|---|---|
| There was nothing esle here at time wells were dri led | | | | | | | | |

| CLEAR WATER DRAIN C. I. | CLEAR WATER DRAIN TILE | SEPTIC TANK | PRIVY | SEEPAGE PIT | ABSORPTION FIELD | BARN | SILO | ABANDONED WELL | SINK HOLE |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

OTHER POLLUTION SOURCES (Give description such as dump, quarry, drainage well, stream, pond, lake, etc.)

none

Well is intended to supply water for:

sanitary & drinking purposes

## DRILLHOLE

| Dia. (in.) | From (ft.) | To (ft.) | Dia. (in.) | From (ft.) | To (ft.) |
|---|---|---|---|---|---|
| 10 | Surface | 50 | | | |
| 6 | 50 | 455 | | | |

## CASING, LINER, CURBING, AND SCREEN

| Dia. (in.) | Kind and Weight | From (ft.) | To (ft.) |
|---|---|---|---|
| 10 | P.E. New black steel 35 lbs per ft. | Surface | 34 |
| 6 | New black steel PE ~~19.45~~ 18.97 lbs per ft. ASTM – A53 Grade B | 0 | 57 |

## GROUT OR OTHER SEALING MATERIAL

| Kind | From (ft.) | To (ft.) |
|---|---|---|
| Cement & water | Surface | 50 |

## 10. FORMATIONS

| Kind | From (ft.) | To (ft.) |
|---|---|---|
| Clay | Surface | 29 |
| lime stone | 29 | 265 |
| red schale | 265 | 345 |
| white sandstone | 345 | 455 |

Well construction completed on 3-18 1970

Well is terminated 13 inches ☒ above ☐ below final grade

Well disinfected upon completion ☒ Yes ☐ No

Well sealed watertight upon completion ☒ Yes ☐ No

## MISCELLANEOUS DATA

Yield test: Hrs. at GPM

Pump test data attached

Depth from surface to normal water level 40 ft.

Depth to water level when pumping ft.

Water sample sent to to be retested when final pumps are installed laboratory on: 19

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, type of casing joints, method of finishing the well, amount of cement used in grouting, blasting, subsurface pumprooms, access pits, etc., should be given on reverse side.

SIGNATURE: Hansen Hagen Registered Well Driller

COMPLETE MAIL ADDRESS: R. # 1, Box 105, Oxford, Wis.

93126

Please do not write in space below

774063 plot

| UNIFORM TEST RESULT | GAS – 24 HRS. | GAS – 48 HRS. | CONFIRMED | REMARKS |
|---|---|---|---|---|
| High Capacity Water Supply Approved 10/22/69 File Madison | | | | cc: M.E. Ostrom 8/18/70 |

# Well Construction Report
## *WISCONSIN UNIQUE WELL NUMBER* YZ391

Drinking Water and Groundwater - DG/5
Department of Natural Resources, Box 7921
Madison WI 53707

Form 3300-077A

| | |
|---|---|
| Property Owner: DANE COUNTY DEPT OF PUBLIC WORKS | Phone # |
| Mailing Address: 1919 ALLIANT ENERGY CENTER WAY | |
| City: MADISON | State: WI / Zip Code: 53713 |

| County | Co. Permit # | Notification # | Completed |
|---|---|---|---|
| Dane | 00136 | 7335913201 | 08-20-2018 |

| Well Constructor (Business Name) | Lic. # | Facility ID # (Public Wells) |
|---|---|---|
| SAM'S WELL DRILLING INC | 370 | |

Address: PO BOX 150 N9935 PLEASANT RD RANDOLPH WI 53956

Well Plan Approval #

Approval Date (mm-dd-yyyy)

| Hicap Permanent Well # | Common Well # | Specific Capacity |
|---|---|---|
| | B | 0.1 |

**3. Well serves** 1 # of INDUSTRY

Heat Exchange____# of drillholes

Hicap Well ? No
Hicap Property ? No
Hicap Potable ? No

**1. Well Location**

Town of BLOOMING GROVE

Fire # (if avail.): 7102

Street Address or Road Name and Number: US HWY 12 & 18

| Subdivision Name | Lot # | Block # |
|---|---|---|
| | | |

| Latitude / Longitude in Decimal Degree (DD) | Method Code |
|---|---|
| 43.0428 °N -89.2519 °W | GPS008 |

| NW or Govt Lot # | NE | Section | Township | Range |
|---|---|---|---|---|
| | | 25 | 7 N | 10 E |

**2. Well Type** New Well

of previous unique well # constructed in

Reason for replaced or reconstructed well ?

Construction Type: Drilled

**4. Potential Contamination Sources - ON REVERSE SIDE**

**5. Drillhole Dimensions and Construction Method**

| Dia. (in.) | From (ft.) | To (ft.) |
|---|---|---|
| 8.75 | Surface | 123 |
| 6 | 123 | 540 |

| Upper Enlarged Drillhole | | Lower Open Bedrock |
|---|---|---|
| Yes | Rotary - Mud Circulation ..... | No |
| No | Rotary - Air ..... | Yes |
| No | Rotary - Air & Foam ..... | No |
| No | Drill-Through Casing Hammer | |
| No | Reverse Rotary | |
| No | Cable-tool Bit ____in. dia... | No |
| No | Dual Rotary ..... | No |
| Yes | Temp. Outer Casing 10in. dia | |
| Yes | Removed? 3depth ft. (If NO explain on back side) | |

**8. Geology**

| Geology Codes | | | | 8. Geology Type, Caving/Noncaving, Color, Hardness, etc... | From (ft.) | To (ft.) |
|---|---|---|---|---|---|---|
| | | X | | X-SAND & CLAY | Surface | 11 |
| | | C | | C-CLAY | 11 | 35 |
| | | Z | S | Z-CLAY & GRAVEL S-SANDY | 35 | 87 |
| | | L | H | L-LIMESTONE/DOLOMITE H-SHALEY | 87 | 109 |
| | | L | | L-LIMESTONE/DOLOMITE | 109 | 342 |
| | | N | | N-SANDSTONE | 342 | 387 |
| | | L | | L-LIMESTONE/DOLOMITE | 387 | 540 |

**6. Casing, Liner, Screen**

| Dia. (in.) | Material, Weight, Specification Manufacturer & Method of Assembly | From (ft.) | To (ft.) |
|---|---|---|---|
| 6 | STD BLK, PIPE, .280 WALL, P.E., A53B TEXAS TUBULAR | Surface | 123 |
| Dia. (in.) | Screen type, material & slot size | From (ft.) | To (ft.) |
| | | | |

**7. Grout or Other Sealing Material**

Method BRADENHEAD

| Kind of Sealing Material | From (ft.) | To (ft.) | # Sacks Cement |
|---|---|---|---|
| NEAT CEMENT GROUT | Surface | 123 | 35 S |

**9. Static Water Level**

23 ft. below ground surface

**10. Pump Test**

Pumping level 300 ft. below surface

Pumping at 15 GP M for 1 Hrs.

Pumping Method ? Airlift

**11. Well Is**

72 in. above grade

Developed ? Yes
Disinfected ? Yes
Capped ? Yes

**12.** Notified Owner of need to fill & seal ? No

Filled & Sealed Well(s) as needed? No

| 13. Constructor / Supervisory Driller | Lic # | Date Signed |
|---|---|---|
| JVG | 6026 | 08-23-2018 |
| **Drill Rig Operator** | **Lic or Reg #** | **Date Signed** |
| JS | 7377 | 08-20-2018 |

**4a. Potential Contamination Sources** Is the well located in floodplain ? No

| Type | Qualifier | Distance | Type | Qualifier | Distance |
|---|---|---|---|---|---|
| Sewer - Collector - Storm | = | 10 | Other Contamination Sources | = | 55 |

Comment:

Water Quality Text:

Water Quantity Text:

Difficulty Text:

| Variance or Exception Type | Date | Reason | Granted |
|---|---|---|---|
| Separation Distance Variance | 08/14/2018 | < REQUIRED 100' FROM A STORMWATER INFILTRATION BASIN | Y |

Created On: 08-23-2018 Created by: swdlabs Updated On: 12-11-2019 Updated by: PARCEL_MATCH_LL_OK

# APPENDIX E

## WETLAND DELINEATION REPORTS

TRC Environmental Corporation, Wetland and Waterway Delineation Report for Yahara Hills Golf Course (12/8/2021)

Heartland Ecological Group, Wetland Determination Summary – Dane County Landfill Site No. 3 at Yahara Hills Golf Course (5/23/2022)

## Yahara Hills Golf Course

6701 US-12
Madison, WI 53718

# Wetland and Waterway Delineation Report

Date: December 8, 2021

TRC Project No. 275981.00004

**Prepared For:**

Dane County, Waste & Renewables
7102 U.S. Hwy 12 & 18
Madison, WI 53718

**Prepared By:**

Amanda Larsen and Ron Londré
WDNR Assured Wetland Delineators
TRC Environmental Corporation
6737 W Washington St., Suite 2100
West Allis, WI 53214

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## TABLES



## APPENDICES

# 1.0 Introduction

On behalf of Dane County, Waste & Renewables, TRC Environmental Corporation (TRC) conducted a wetland and waterway delineation within a designated Study Area at Yahara Hills Golf Course (Figure 1, Appendix A). The Study Area was an approximately 157 acres portion of the Yahara Hills Golf Course, located in Section 25, Township 07 North, Range 10 East in the City of Madison, Dane County, Wisconsin.

Landowner Information:
City of Madison Parks – Yahara Hills Golf Course
4422 Brandt Road
Madison, WI 53718

The purpose of this wetland and waterway delineation was to determine the current location and extent of wetlands and waterways within a designated Study Area for the purpose of future land use changes. Our study is presented here in terms of methodology, results, and conclusions.

The wetland and waterway delineation field investigation was conducted by TRC scientists Amanda Larsen and Ron Londré on November 9, 2021. Amanda Larsen and Ron Londré were lead investigators and the authors of this report.

## 1.1 Statement of Qualifications

TRC has extensive experience managing and conducting wetland delineations across the United States. TRC's biologists and ecologists have been trained to properly and consistently apply the methods set forth in the 1987 Corps of Engineers Wetland Delineation Manual and applicable regional supplements. They have direct experience identifying and documenting indicators of hydrophytic vegetation, wetland hydrology, and hydric soil and are experienced in dealing with naturally problematic and disturbed conditions.

TRC's large natural resources staff have the capability to coordinate wetland survey teams to meet fast-track project schedules and satisfy the challenges of complex or controversial projects.

**Ms. Amanda Larsen,** WDNR Assured Wetland Delineator and Senior Biologist with TRC and has over ten years of experience working on a variety of natural resource projects throughout the United States. She specializes in conducting wetland delineations and assessments, biological surveys, water monitoring, habitat restoration, and invasive species control. Ms. Larsen has a B.S. degree in Conservation and Environmental Science from UW-Milwaukee with a focus on water resources. She has taken the following technical trainings related to wetland delineation: Problematic Wetland Delineation (2018) provided by the Wetland Training Institute; Advanced Wetland Delineation (2019), Hydric Soils (2017), Basic Wetland Delineation (2013), provided by UW-La Crosse; and Significant Nexus Determination (2014) provided by the Swamp School. She also attends the Annual UW La Crosse one-day Critical Methods in wetland delineation class. Ms. Larsen is a part of the Wetland Delineation Professional Assurance Initiative of the Wisconsin Department of Natural Resources (WDNR). This means her work is assured for purposes of State of Wisconsin wetland delineations.

**Mr. Ron Londré, PWS,** WDNR Assured Wetland Delineator, is a Senior Ecologist at TRC with over 14 years of professional experience in wetland ecology. He is certified by the Society of Wetland Scientists

Professional Certification Program as a Professional Wetland Scientist (PWS # 2436) and is certified by the Ecological Society of America as a Senior Ecologist. His academic studies, from which he earned M.S. and B.S. Degrees in Biological Science, focused on plant community ecology and restoration ecology. Mr. Londré has completed the following wetland delineation technical training workshops provided by UW-La Crosse: Advanced Wetland Delineation; Basic Wetland Delineation; Critical Methods in Wetland Delineation; Hydric Soils; and Grasses, Sedges, and Rushes. Additionally, he has completed the Regional Supplement Seminar and Field Practicum training and Advanced Hydrology for Jurisdictional Determinations provided by the Wetland Training Institute and the Wetland Delineation Training Workshop provided by the University of Wisconsin-Milwaukee. Mr. Londré is a part of the Wetland Delineation Professional Assurance Initiative of the Wisconsin Department of Natural Resources (WDNR). This means his work is assured for purposes of State of Wisconsin wetland delineations.

### 1.2 Agency Regulatory Authority

The wetlands and/or waterways identified in this report may be subject to federal regulation under the jurisdiction of the U.S. Army Corps of Engineers (USACE), state regulation under the jurisdiction of Wisconsin Department of Natural Resources (WDNR), and local jurisdiction under county, town, city, or village.

## 2.0 Methods

This wetland and waterway delineation was conducted in accordance with the guidelines of the 1987 Corps of Engineers Wetland Delineation Manual (Environmental Laboratory, 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0, 2012) and in general accordance with Wisconsin Department of Natural Resources guidelines. National Wetland Indicator status and taxonomic nomenclature is referenced from 2020 Corps of Engineers National Wetland Plant List Version 3.5. National Wetland Indicator status is based on the Northcentral and Northeast Region, Northern Great Lakes sub-region. Indicators of hydric soil are based on the Field Indicators of Hydric Soils in the United States guide Version 8.2 (USDA NRCS 2018). This report has also been prepared in accordance with the guidelines set forth in the "Guidance for Submittal of Delineation Reports to the St. Paul District Corps of Engineers and the Wisconsin Department of Natural Resources" document issued March 4, 2015.

### 2.1 Off-Site Review

Prior to conducting fieldwork, several maps were reviewed including the United States Geological Survey (USGS) 7.5' Quadrangle Map, Natural Resource Conservation Service (NRCS) Soil Survey Map, Wisconsin Wetland Inventory (WWI) Map, and aerial imagery. These sources were used to identify areas likely to contain wetlands and waterways.

Precipitation data from approximately 90 days prior to the field investigation were obtained from a weather station near the Study Area and compared with 30-year average precipitation data obtained from a NRCS WETS Table for the County where the Study Area was located to determine if antecedent hydrologic conditions at the time of the site visit were normal, wetter, or drier than the normal range.

## 2.2 On-Site Field Investigation

Areas having wetland indicators within the Study Area were evaluated in the field by TRC wetland scientists Amanda Larsen and Ron Londré on November 9, 2021. Sample points were located in areas exhibiting wetland and upland characteristics to document the presence and/or absence of wetlands and to provide support for the delineated wetland boundaries. At each sample point, data were collected to document the vegetation and hydrophytic vegetation indicators, soil profile and hydric soil indicators, and wetland hydrology indicators.

Plant species were identified at each sample point and their wetland indicator status; obligate wetland (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), or upland (UPL); was determined by referencing the 2020 Corps of Engineers National Wetland Plant List Version 3.5; Northcentral and Northeast Region, Northern Great Lakes sub-region. Soil pits were dug to the depth needed to document a hydric soil indicator or confirm the absence of indicators. Soil color was determined using a Munsell soil color chart. The sample point plots and soil pits were evaluated for presence of wetland hydrology indicators.

The wetland boundaries were delineated using a hand-held GPS unit with sub-meter accuracy. Wetland boundaries were generally determined by distinct to subtle differences in the abundance of hydrophytic vegetation and non-hydrophytic vegetation, presence versus absence of hydric soil indicators, and presence versus absence of wetland hydrology indicators.

# 3.0 Results

## 3.1 Off-Site Review

The 2-Foot Contour Map (Appendix A, Figure 2) shows elevations ranging from 872 to 924 above sea level. Based on the Contour Map , site topography is sloped, and surface water would flow from higher elevations in the south and west to lower elevations to the north.

According to the NRCS Soil Survey map (Appendix A, Figure 3) nine mapped soil units are located within the Study Area. The soils mapped within the Study Area are listed on Table 1 below.

**Table 1 Mapped Soils**

| Map Unit Symbol | Soil Series Name | Drainage Class | Hydric Rating | % of Study Area |
|---|---|---|---|---|
| DnB | Dodge silt loam, 2 to 6 percent slopes | Well drained | 0 | 39.6 |
| DnC2 | Dodge silt loam, 6 to 12 percent slopes, eroded | Well drained | 0 | 0.3 |
| MdC2 | McHenry silt loam, 6 to 12 percent slopes, eroded | Well drained | 0 | 12.0 |
| Os | Orion silt loam, wet | Poorly drained | 100 | 6.0 |
| RaA | Radford silt loam, 0 to 3 percent slopes | Well drained | 10 | 2.0 |
| SaA | Sable silty clay loam, 0 to 2 percent slopes | Somewhat poorly drained | 85 | 5.0 |

**Table 1 Mapped Soils**

| | | | | |
|---|---|---|---|---|
| ScB | St. Charles silt loam, 2 to 6 percent slopes | Well drained | 3 | 6.2 |
| VwA | Virgil silt loam, gravelly substratum, 0 to 3 percent slopes | Somewhat poorly drained | 10 | 28.0 |
| Wa | Wacousta silty clay loam, 0 to 2 percent slopes | Very poorly drained | 100 | 0.9 |

The Wisconsin Wetland Inventory (WWI) map (Appendix A, Figure 4) depicts three wetlands within the Study Area. Two of the wetlands depicted are shown as symbols which indicate a wetland too small to delineate. The third wetland is mapped as an open waterbody, subclass unknown, with standing water, palustrine that has been excavated (W0Hx).

A review of aerial imagery from 2000, 2005, 2010, 2014, and 2020 (Appendix A, Figures 5-9) shows the Study Area as a maintained golf course with no noticeable changes between 2000 and 2020. The golf course continues south and west of the Study Area, a paved two-lane road boarder the Study Area to the east and a divided highway borders the Study Area to the north.

Prior to conducting the field visit, antecedent precipitation data were analyzed. Data were obtained from the same weather station and WETS station (UW Arboretum - Madison, WI). The precipitation data for the 90-day period prior to the field visit (Appendix B, Table 2) were entered into a WETS analysis worksheet (Appendix B, Table 3) to weight the information from each preceding month to analyze hydrologic conditions. Based on this analysis, the antecedent hydrologic conditions were considered to be above a normal range, suggesting that climatic/hydrologic conditions were not normal for this time of year. The most recent rainfall event prior to the site visit was 0.15 inches, which occurred on November 8, 2021. Precipitation for the 14 days prior to the site visit was 0.65 inches.

## 3.2 On-Site Field Investigation

### *3.2.1 Site Description*

The Study Area is an active golf course. The majority of the course is maintained through frequent mowing. Areas that are unmanaged separate managed areas and were observed to be primarily old field and upland woodland, as well as some wetland. The site generally had hilly topography with the highest elevations to the south and west, and generally sloped down to lower elevations in the north and northeast. It is assumed that there is an active, functioning drain tile system throughout much of the golf course. This was communicated to TRC by City of Madison Parks Department staff and there were drain tiles observed at the pond where it is expected the drain tiles would discharge to.

Vegetation managed through mowing is considered to be disturbed (atypical) and circumstances would not be normal for any data collected in areas were vegetation was mowed.

### 3.2.2 Uplands

Upland plant communities observed in the Study Area included old field, shrub dominated upland, and upland woodland. Sample point SP-12 was located in an upland area where there was a mapped wetland indicator soil based on review of the DNR Surface Water Data Viewer. The remaining upland sample points discussed below were paired with wetland sample points to document the delineated wetland boundaries.

### 3.2.3 Wetlands

Five wetlands (W-1 through W-5) were delineated. The delineated wetland boundaries and sample points are shown on a map (Exhibit A) in Appendix C. Data, including photographs, were collected and recorded on Wetland Determination Data Forms at 17 sample points to document wetland and upland locations (Appendix D). The five delineated wetlands are summarized below in Table 4.

### 3.2.4 Other Aquatic Resources

One pond (P-1) totaling 2.02 acres was delineated within the Study Area and is shown on the wetland delineation map (Appendix D, Exhibit A). Photographs of pond P-1, as well as additional site photographs, can be found in Appendix E.

### 3.2.5 Professional Opinion On Wetland Susceptibility Per NR 151

Table 5 in Appendix F lists a professional opinion on wetland susceptibility, based on a request by the WDNR, to do so per revised NR 151 guidance (Guidance #3800-2015-02). Please note that the final determination of wetland susceptibility rests with the WDNR.

**Table 4 Delineated Wetlands Summary**

| Wetland ID, Sampling Points, & Size (Acres) | Wetland Type | Hydrology Indicators | Dominant Plant Species (stratum not listed indicates no species were present at sample point(s) for that stratum) | Hydric Soil Indicator(s) | Comments |
|---|---|---|---|---|---|
| **W-1**<br>Wetland<br>SP-02, SP-04, SP-06, SP-11<br>Upland<br>SP-01, SP-03, SP-05, SP-10<br>3.66-ac | Fresh (wet) Meadow / Shrub-Carr / Floodplain Forest | B8 – Sparsely Vegetated Concave Surface<br>B10 – Drainage Patterns<br>D2 - Geomorphic Position<br>D5 - Positive FAC-Neutral Test | Tree<br>*Quercus bicolor* (swamp white oak)<br><br>Sapling/Shrub<br>*Fraxinus pennsylvanica* (green ash)<br>*Cornus racemosa* (grey dogwood)<br><br>Herbaceous<br>*Phalaris arundinacea* (reed canary grass) | A11 - Depleted Below Dark Surface<br>F3 - Depleted Matrix | Wetland W-1 is located in a depressional swale that extends out of the Study Area to the north and east. The boundary of W-1 was based on changes in topography, abundance of hydrophytic vegetation, and hydric soils. |
| **W-2**<br>Wetland<br>SP-09<br>Upland<br>SP-07<br>0.08-ac | Floodplain Forest | D2 - Geomorphic Position<br>D5 - Positive FAC-Neutral Test | Tree<br>*Fraxinus pennsylvanica*<br><br>Herbaceous<br>*Phalaris arundinacea*<br>*Carex lacustris* (lakebank sedge)<br><br>Woody Vine<br>*Vitis riparia* (riverbank grape) | A11 - Depleted Below Dark Surface<br>F6 – Redox Dark Surface | Wetland W-2 is located within a swale and extends out of the Study Area to the north. The boundary of W-2 was based on changes in topography, abundance of hydrophytic vegetation, and hydric soils. |
| **W-3**<br>Wetland<br>SP-08<br>Upland<br>SP-07<br>0.01-ac | Fresh (wet) Meadow | D2 - Geomorphic Position<br>D5 - Positive FAC-Neutral Test | Tree<br>*Acer negundo* (boxelder)<br><br>Sapling/Shrub<br>*Acer negundo*<br>*Rhamnus cathartica* (common buckthorn)<br><br>Herbaceous<br>*Phalaris arundinacea* | A12 – Thick Dark Surface<br>F6 – Redox Dark Surface | Wetland W-3 is located within a swale and extends out of the Study Area to the north and west. The boundary of W-3 was based on changes in topography, abundance of hydrophytic vegetation, and hydric soils. |
| **W-4**<br>Wetland<br>SP-13<br>Upland<br>SP-14<br>0.18-ac | Fresh (wet) Meadow | D2 - Geomorphic Position<br>D5 - Positive FAC-Neutral Test | Tree<br>*Acer saccharinum* (silver maple)<br>*Juglans nigra* (black walnut)<br><br>Herbaceous<br>*Phalaris arundinacea* | A11 - Depleted Below Dark Surface<br>F3 - Depleted Matrix<br>F6 – Redox Dark Surface | Wetland W-4 is an isolated wetland contained within a shallow depression and does not extend out of the Study Area. The boundary of wetland W-4 was based on slight changes in topography, abundance of hydrophytic vegetation, and hydric soils. |
| **W-5**<br><br>Wetland<br>SP-15, SP-17<br>Upland<br>SP-16<br><br>0.11-ac | Fresh (wet) Meadow / Shrub-Carr | D2 - Geomorphic Position<br>D5 - Positive FAC-Neutral Test | Sapling/Shrub<br>*Salix interior* (sandbar willow)<br><br>Herbaceous<br>*Phalaris arundinacea*<br>*Agrostis stolonifera* (spreading bentgrass) | F6 – Redox Dark Surface | Wetland W-5 is located around the edge of pond P-1, which is an excavated feature and has a slight berm around the perimeter which prevents W-5 from expanding further away from the edge of P-1. Fill associated with the pond prevented digging below 5-6 inches, therefore determination of a water table within 12 inches was not possible. The boundary of wetland W-5 was based on the toe of the berm. |

## 4.0 Conclusions

Based on the wetland delineation completed by TRC, five wetlands (W-1, W-2, W-3, W-4 and W-5) were delineated totaling 4.04 acres of wetland within the 157-acre Study Area. One other aquatic resource, pond P-1, totaling 2.02 acres was also delineated within the Study Area.

Wetlands and other aquatic resources delineated and identified in this report are a professional finding based on current regulatory guidelines published by the USACE and WDNR at the time the resources were delineated. Unknown and future conditions that affect observations of field indicators or change in interpretation of regulatory policy or methods may modify future findings.

The ultimate authority to determine the location of the wetland boundary and jurisdictional authority over the wetlands and other aquatic resources identified in this report resides with the USACE and WDNR. Decisions made by staff of these regulatory agencies may result in modifications to the location of the wetland or other aquatic resource boundaries shown in this report. In addition, the USACE and WDNR have jurisdictional authority to determine which features are exempt from regulation or non-jurisdictional. If the client proposes to modify a potentially exempt or non-jurisdictional feature, a WDNR Artificial Determination Exemption and USACE Approved Jurisdictional Determination (AJD) would be needed. Furthermore, municipalities, townships and counties may have local zoning authority over certain areas or types of wetlands and waterways. The determination that a wetland or waterway is subject to regulatory jurisdiction is made independently by the agencies.

Any activity in a delineated wetland or below the Ordinary High-Water Mark of other aquatic resources may require USACE and WDNR permits, and local government permits. If the Client proceeds to change, modify or utilize the property in question without obtaining authorization from the appropriate regulatory agency, it will be done at the Client's own risk and TRC Environmental Corporation shall not be responsible or liable for any resulting damages.

## 5.0 References


Charts, Munsell Soil Color. 1994. "Munsell color." Macbeth Division of Kollmorgen Instruments Corporation, New Windsor, NY 12553.

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Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

Natural Resources Conservation Service (NRCS). 2015. Hydrology Tools for Wetland Identification and Analysis, Chapter 19. In: National Engineering Handbook, Part 650 Engineering Field Handbook, U.S. Department of Agriculture, Washington D.C.

U.S. Army Corps of Engineers 2020. National Wetland Plant List, version 3.5 (Web address: http://wetland-plants.usace.army.mil/ ) U.S. Army Corps of Engineers, Engineer Research and Development Center Cold Regions Research and Engineering Laboratory, Hanover, NH

U.S. Army Corps of Engineers. 2015. St. Paul District Regulatory. Special Public Notice. Issued: March 4, 2015. Guidance for Submittal of Delineation Reports to the St. Paul District Army Corps of Engineers and the Wisconsin Department of Natural Resources.

U.S. Army Corps of Engineers. 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0),* ed. J.S. Wakeley, R. W. Lichvar, C.V. Noble, and J.F. Berkowitz. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

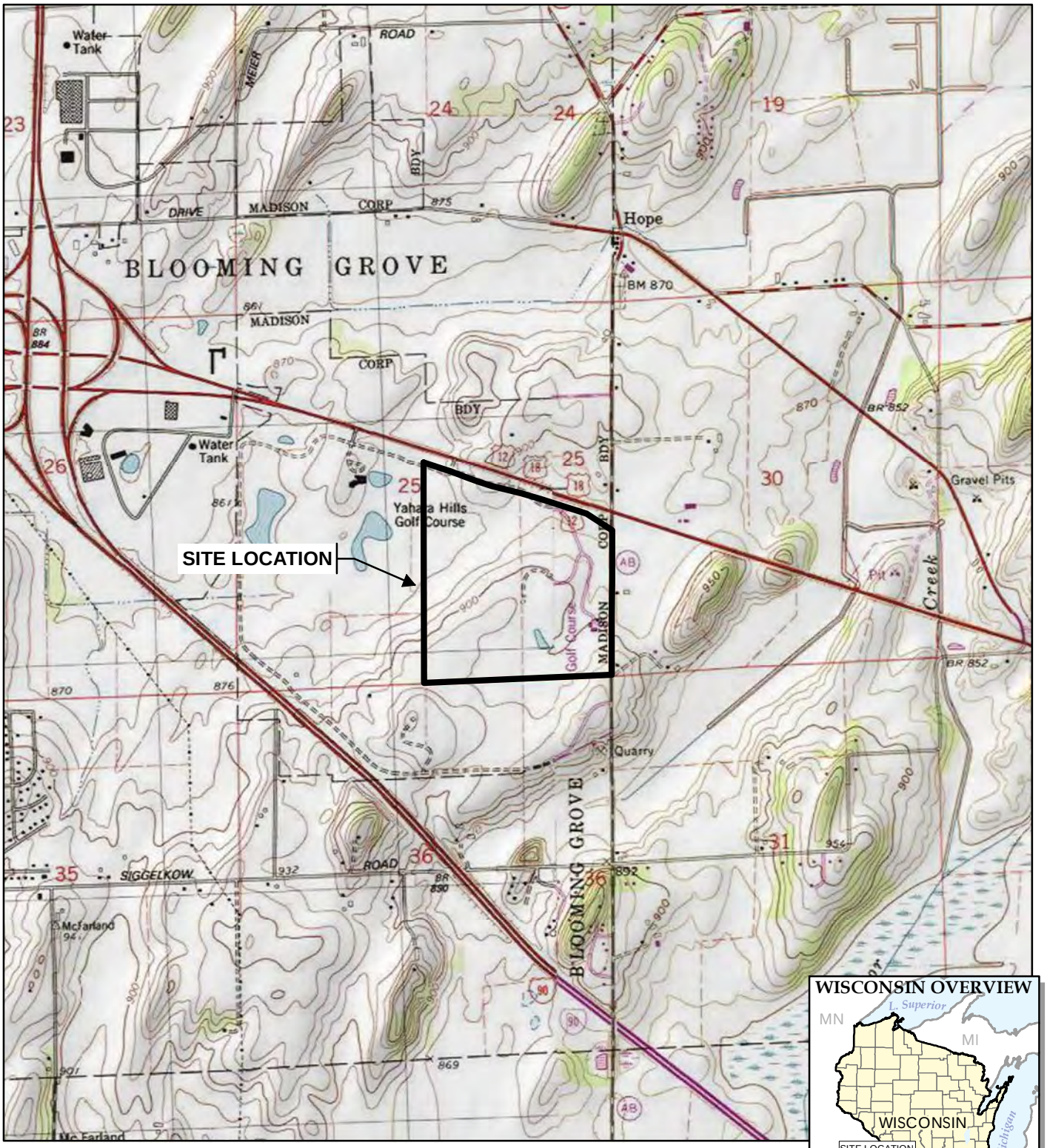
United States Department of Agriculture *(USDA)*, Natural Resources Conservation Service *(NRCS)*. 2018. Field Indicators of Hydric Soils in the United States, Version 8.2. L.M. Vasilas, G.W. Hurt, and J.F. Berkowitz (eds.). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils.

USDA Natural Resources Conservation Service Web Soil Survey (Web Address: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx )

USDA NRCS Climate Analysis by County Web Site (WETS). (Web Address: http://www.wcc.nrcs.usda.gov/climate/wetlands.html )

Wisconsin Department of Natural Resources, 2016. Surface Water Data Viewer: http://dnrmaps.wi.gov/sl/?Viewer=SWDV.

# Appendix A: Figures




BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES.

N

1 " = 2,000 '
1:24,000

0 2,000 4,000
FEET

TRC
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TRC - GIS

PROJECT:
**DANE COUNTY WASTE & RENEWABLES DEPARTMENT**
**YAHARA HILLS GOLF COURSE DELINEATION**
**MADISON, DANE COUNTY, WISCONSIN**

TITLE:
**SITE LOCATION MAP**

| | |
|---|---|
| DRAWN BY: | R. SUEMNICHT |
| CHECKED BY: | A. LARSEN |
| APPROVED BY: | R. LONDRE |
| DATE: | DECEMBER 2021 |
| PROJ. NO.: | 275981 |
| FILE: | 275981-001slm.mxd |

**FIGURE 1**

T:\1-PROJECTS\Dane_County_Public_Works\275981_Yahara_Hills_Golf_Course\275981-001slm.mxd -- Saved By: RSUEMNICHT on 12/7/2021, 14:55:03 PM


## LEGEND

- 2' MINOR CONTOUR
- 10' MAJOR CONTOUR
- STUDY AREA

## NOTES

1. BASE MAP IMAGERY FROM DANE COUNTY, 2020.
2. CONTOURS FROM DANE COUNTY.

0 175 350 Feet

1 " = 350 '

1:4,200

PROJECT:

**DANE COUNTY WASTE & RENEWABLES DEPARTMENT**
**YAHARA HILLS GOLF COURSE DELINEATION**
**MADISON, DANE COUNTY, WISCONSIN**

TITLE:

**CONTOUR MAP**

| | | | |
|---|---|---|---|
| DRAWN BY: | R. SUEMNICHT | PROJ. NO.: | 275981 |
| CHECKED BY: | A. LARSEN | | |
| APPROVED BY: | R. LONDRE | | **FIGURE 2** |
| DATE: | DECEMBER 2021 | | |

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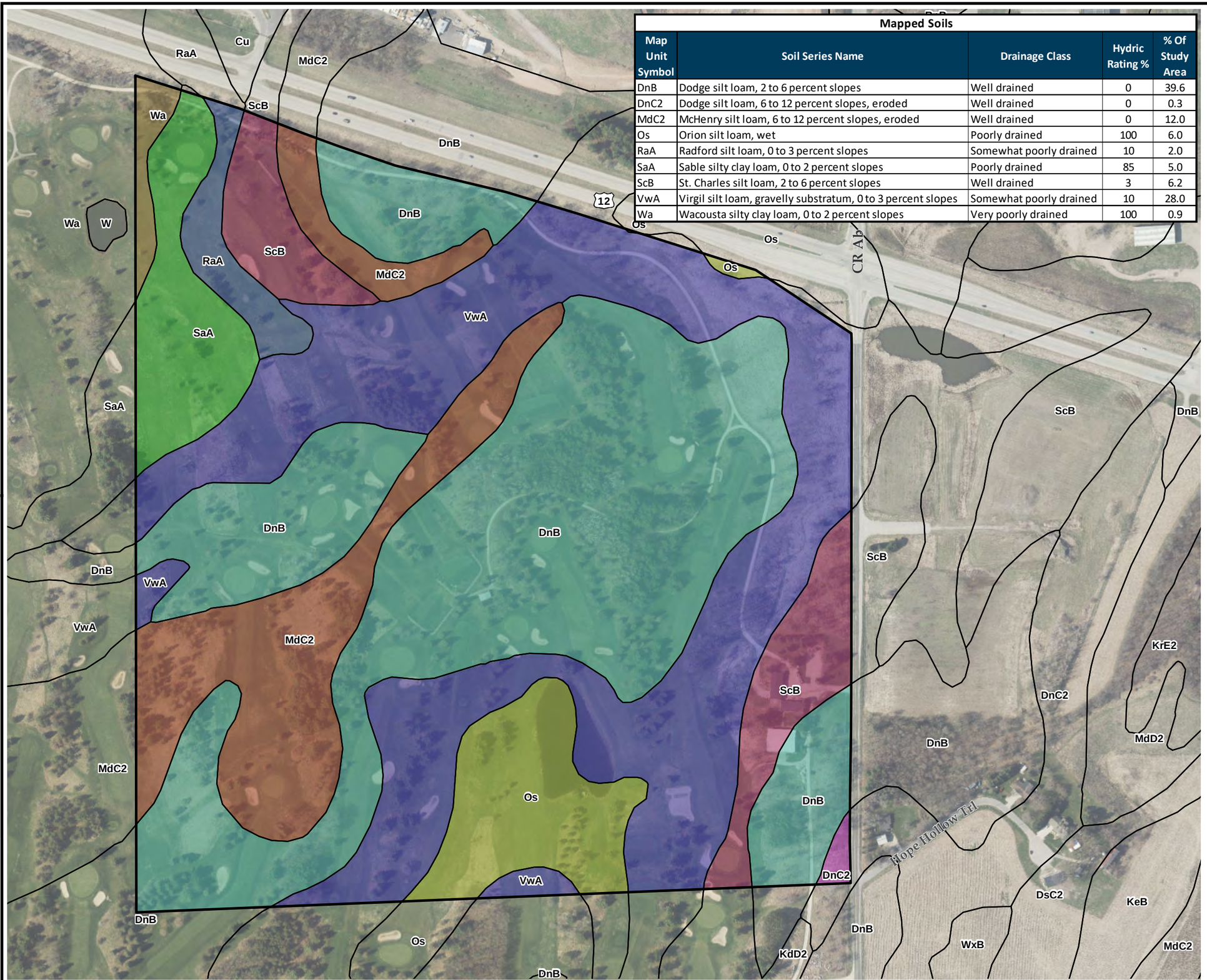
FILE NO.: 275981-002.mxd

Plot Date: 12/7/2021, 14:55:47 PM by RSUEMNICHT – LAYOUT: ANSI B (11"x17")
Path: T:\1-PROJECTS\Dane_County_Public_Works\275981_Yahara_Hills_Golf_Course\275981-002.mxd
Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet (Foot US)
Map Rotation: 0
TRC - GIS




**Mapped Soils**

| Map Unit Symbol | Soil Series Name | Drainage Class | Hydric Rating % | % Of Study Area |
|---|---|---|---|---|
| DnB | Dodge silt loam, 2 to 6 percent slopes | Well drained | 0 | 39.6 |
| DnC2 | Dodge silt loam, 6 to 12 percent slopes, eroded | Well drained | 0 | 0.3 |
| MdC2 | McHenry silt loam, 6 to 12 percent slopes, eroded | Well drained | 0 | 12.0 |
| Os | Orion silt loam, wet | Poorly drained | 100 | 6.0 |
| RaA | Radford silt loam, 0 to 3 percent slopes | Somewhat poorly drained | 10 | 2.0 |
| SaA | Sable silty clay loam, 0 to 2 percent slopes | Poorly drained | 85 | 5.0 |
| ScB | St. Charles silt loam, 2 to 6 percent slopes | Well drained | 3 | 6.2 |
| VwA | Virgil silt loam, gravelly substratum, 0 to 3 percent slopes | Somewhat poorly drained | 10 | 28.0 |
| Wa | Wacousta silty clay loam, 0 to 2 percent slopes | Very poorly drained | 100 | 0.9 |

## LEGEND

STUDY AREA

SOIL CLASSIFICATION

- DODGE SILT LOAM, 2 TO 6 PERCENT SLOPES
- DODGE SILT LOAM, 6 TO 12 PERCENT SLOPES, ERODED
- MCHENRY SILT LOAM, 6 TO 12 PERCENT SLOPES, ERODED
- ORION SILT LOAM, WET
- RADFORD SILT LOAM, 0 TO 3 PERCENT SLOPES
- SABLE SILTY CLAY LOAM, 0 TO 2 PERCENT SLOPES
- ST. CHARLES SILT LOAM, 2 TO 6 PERCENT SLOPES
- VIRGIL SILT LOAM, GRAVELLY SUBSTRATUM, 0 TO 3 PERCENT SLOPES
- WACOUSTA SILTY CLAY LOAM, 0 TO 2 PERCENT SLOPES

## NOTES

1. BASE MAP IMAGERY FROM DANE COUNTY, 2020.
2. SOILS DATA ACQUIRED FROM USDA/NRCS SSURGO DATABASE.

0 175 350 Feet

1 " = 350 '

1:4,200

PROJECT:

**DANE COUNTY WASTE & RENEWABLES DEPARTMENT**
**YAHARA HILLS GOLF COURSE DELINEATION**
**MADISON, DANE COUNTY, WISCONSIN**

TITLE:

**NRCS SOILS MAP**

| | | | |
|---|---|---|---|
| DRAWN BY: | R. SUEMNICHT | PROJ. NO.: | 275981 |
| CHECKED BY: | A. LARSEN | | |
| APPROVED BY: | R. LONDRE | | |
| DATE: | DECEMBER 2021 | | |

**FIGURE 3**

TRC
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FILE NO.: 275981-003.mxd

TRC - GIS
Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet (Foot US)
Map Rotation: 0
Plot Date: 12/7/2021, 14:56:29 PM by RSUEMNICHT – LAYOUT: ANSI B(11"x17")
Path: T:\1-PROJECTS\Dane_County_Public_Works\275981_Yahara_Hills_Golf_Course\275981-003.mxd


## LEGEND

- EXCAVATED POND
- WETLAND TOO SMALL TO DELINEATE
- WWI WETLAND
- NHD WATERBODY
- STUDY AREA

## NOTES

1. BASE MAP IMAGERY FROM DANE COUNTY, 2020.
2. WETLAND DATA FROM WISCONSIN DNR, WISCONSIN WETLAND INVENTORY (WWI).
3. WATERBODY DATA FROM USGS, NATIONAL HYDROGRAPHY DATASET (NHD).

0 175 350 Feet

1 " = 350 '

1:4,200

PROJECT:

**DANE COUNTY WASTE & RENEWABLES DEPARTMENT**
**YAHARA HILLS GOLF COURSE DELINEATION**
**MADISON, DANE COUNTY, WISCONSIN**

TITLE:

**WISCONSIN WETLAND INVENTORY MAP**

| | | | |
|---|---|---|---|
| DRAWN BY: | R. SUEMNICHT | PROJ. NO.: | 275981 |
| CHECKED BY: | A. LARSEN | | |
| APPROVED BY: | R. LONDRE | | **FIGURE 4** |
| DATE: | DECEMBER 2021 | | |

TRC
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FILE NO.: 275981-004.mxd

Plot Date: 12/7/2021, 14:57:11 PM by RSUEMNICHT -- LAYOUT: ANSI B(11"x17")
Path: T:\1-PROJECTS\Dane_County_Public_Works\275981_Yahara_Hills_Golf_Course\275981-004.mxd
Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet (Foot US)
Map Rotation: 0
TRC - GIS


## LEGEND

STUDY AREA

## NOTES

1. BASE MAP IMAGERY FROM DANE COUNTY, 2000.

N

0 175 350
Feet

1 " = 350 '
1:4,200

PROJECT:
**DANE COUNTY WASTE & RENEWABLES DEPARTMENT**
**YAHARA HILLS GOLF COURSE DELINEATION**
**MADISON, DANE COUNTY, WISCONSIN**

TITLE:
**2000 AERIAL IMAGERY**

| | | | |
|---|---|---|---|
| DRAWN BY: | R. SUEMNICHT | PROJ. NO.: | 275981 |
| CHECKED BY: | A. LARSEN | | |
| APPROVED BY: | R. LONDRE | | **FIGURE 5** |
| DATE: | DECEMBER 2021 | | |

TRC
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FILE NO.: 275981-005.mxd

TRC - GIS
Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet (Foot US)
Map Rotation: 0
Plot Date: 12/7/2021, 14:57:47 PM by RSUEMNICHT – LAYOUT: ANSI B(11"x17")
Path: T:\1-PROJECTS\Dane_County_Public_Works\275981_Yahara_Hills_Golf_Course\275981-005.mxd


## LEGEND

STUDY AREA

## NOTES

1. BASE MAP IMAGERY FROM DANE COUNTY, 2005.

N

0 175 350
Feet

1 " = 350 '
1:4,200

PROJECT:
**DANE COUNTY WASTE & RENEWABLES DEPARTMENT**
**YAHARA HILLS GOLF COURSE DELINEATION**
**MADISON, DANE COUNTY, WISCONSIN**

TITLE:
**2005 AERIAL IMAGERY**

| | | | |
|---|---|---|---|
| DRAWN BY: | R. SUEMNICHT | PROJ. NO.: | 275981 |
| CHECKED BY: | A. LARSEN | | |
| APPROVED BY: | R. LONDRE | | **FIGURE 6** |
| DATE: | DECEMBER 2021 | | |

TRC
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FILE NO.: 275981-006.mxd

Plot Date: 12/7/2021, 14:58:20 PM by RSUEMNICHT – LAYOUT: ANSI B(11"x17")
Path: T:\1-PROJECTS\Dane_County_Public_Works\275981_Yahara_Hills_Golf_Course\275981-006.mxd
Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet (Foot US)
Map Rotation: 0
TRC - GIS


## LEGEND

STUDY AREA

## NOTES

1. BASE MAP IMAGERY FROM DANE COUNTY, 2010.

0 175 350 Feet

1 " = 350 '

1:4,200

PROJECT:

**DANE COUNTY WASTE & RENEWABLES DEPARTMENT**
**YAHARA HILLS GOLF COURSE DELINEATION**
**MADISON, DANE COUNTY, WISCONSIN**

TITLE:

**2010 AERIAL IMAGERY**

| | | | |
|---|---|---|---|
| DRAWN BY: | R. SUEMNICHT | PROJ. NO.: | 275981 |
| CHECKED BY: | A. LARSEN | | |
| APPROVED BY: | R. LONDRE | | **FIGURE 7** |
| DATE: | DECEMBER 2021 | | |

TRC

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FILE NO.: 275981-007.mxd

Plot Date: 12/7/2021, 14:58:53 PM by RSUEMNICHT -- LAYOUT: ANSI B(11"x17")
Path: T:\1-PROJECTS\Dane_County_Public_Works\275981_Yahara_Hills_Golf_Course\275981-007.mxd
Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet (Foot US)
Map Rotation: 0

TRC - GIS


## LEGEND

STUDY AREA

## NOTES

1. BASE MAP IMAGERY FROM DANE COUNTY, 2014.

N

0 175 350
Feet

1 " = 350 '
1:4,200

PROJECT:
**DANE COUNTY WASTE & RENEWABLES DEPARTMENT**
**YAHARA HILLS GOLF COURSE DELINEATION**
**MADISON, DANE COUNTY, WISCONSIN**

TITLE:
**2014 AERIAL IMAGERY**

| | | | |
|---|---|---|---|
| DRAWN BY: | R. SUEMNICHT | PROJ. NO.: | 275981 |
| CHECKED BY: | A. LARSEN | | |
| APPROVED BY: | R. LONDRE | | |
| DATE: | DECEMBER 2021 | | |

**FIGURE 8**

TRC
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FILE NO.: 275981-008.mxd

Plot Date: 12/7/2021, 14:59:30 PM by RSUEMNICHT – LAYOUT: ANSI B(11"x17")
Path: T:\1-PROJECTS\Dane_County_Public_Works\275981_Yahara_Hills_Golf_Course\275981-008.mxd
Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet (Foot US)
Map Rotation: 0
TRC - GIS


## LEGEND

STUDY AREA

## NOTES

1. BASE MAP IMAGERY FROM DANE COUNTY, 2020.

N

0 175 350
Feet

1 " = 350 '
1:4,200

PROJECT:
**DANE COUNTY WASTE & RENEWABLES DEPARTMENT**
**YAHARA HILLS GOLF COURSE DELINEATION**
**MADISON, DANE COUNTY, WISCONSIN**

TITLE:
**2020 AERIAL IMAGERY**

| | | | |
|---|---|---|---|
| DRAWN BY: | R. SUEMNICHT | PROJ. NO.: | 275981 |
| CHECKED BY: | A. LARSEN | | |
| APPROVED BY: | R. LONDRE | | |
| DATE: | DECEMBER 2021 | | |

**FIGURE 9**

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FILE NO.: 275981-009.mxd

Plot Date: 12/7/2021, 15:00:09 PM by RSUEMNICHT - LAYOUT: ANSI B(11"x17")
Path: T:\1-PROJECTS\Dane_County_Public_Works\275981_Yahara_Hills_Golf_Course\275981-009.mxd
Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet (Foot US)
Map Rotation: 0
TRC - GIS

# Appendix B:
# Antecedent Precipitation Data / WETS Analysis

| Table 2. Antecedent Precipitation Data | | | | | |
|---|---|---|---|---|---|
| August 1, 2021 - October 31, 2021 | | | | | |
| Precipitation Data Source Location<br>UW Arboretum - Madison, WI USC00470273 | | | | | |
| **3rd Month Prior** | | **2nd Month Prior** | | **1st Month Prior** | |
| **Date** | **PPT** | **Date** | **PPT** | **Date** | **PPT** |
| 8/1/2021 | 0.01 | 9/1/2021 | 0.00 | 10/1/2021 | 0.00 |
| 8/2/2021 | 0.00 | 9/2/2021 | 0.00 | 10/2/2021 | 0.00 |
| 8/3/2021 | 0.00 | 9/3/2021 | 0.00 | 10/3/2021 | 0.05 |
| 8/4/2021 | 0.00 | 9/4/2021 | 0.20 | 10/4/2021 | 0.29 |
| 8/5/2021 | 0.00 | 9/5/2021 | 0.00 | 10/5/2021 | 0.04 |
| 8/6/2021 | 0.09 | 9/6/2021 | 0.00 | 10/6/2021 | 0.00 |
| 8/7/2021 | 0.06 | 9/7/2021 | 0.00 | 10/7/2021 | 0.16 |
| 8/8/2021 | 1.40 | 9/8/2021 | 0.15 | 10/8/2021 | 1.27 |
| 8/9/2021 | 0.79 | 9/9/2021 | 0.00 | 10/9/2021 | 0.02 |
| 8/10/2021 | 0.37 | 9/10/2021 | 0.00 | 10/10/2021 | 0.00 |
| 8/11/2021 | 0.47 | 9/11/2021 | 0.00 | 10/11/2021 | 0.11 |
| 8/12/2021 | 0.02 | 9/12/2021 | 0.00 | 10/12/2021 | 0.35 |
| 8/13/2021 | 0.00 | 9/13/2021 | 2.11 | 10/13/2021 | 0.00 |
| 8/14/2021 | 0.00 | 9/14/2021 | 0.10 | 10/14/2021 | 0.20 |
| 8/15/2021 | 0.00 | 9/15/2021 | 0.00 | 10/15/2021 | 0.01 |
| 8/16/2021 | 0.00 | 9/16/2021 | 0.00 | 10/16/2021 | 0.01 |
| 8/17/2021 | 0.00 | 9/17/2021 | 0.00 | 10/17/2021 | 0.00 |
| 8/18/2021 | 0.00 | 9/18/2021 | 0.00 | 10/18/2021 | 0.00 |
| 8/19/2021 | 0.00 | 9/19/2021 | 0.00 | 10/19/2021 | 0.00 |
| 8/20/2021 | 0.00 | 9/20/2021 | 0.00 | 10/20/2021 | T |
| 8/21/2021 | 0.40 | 9/21/2021 | 0.65 | 10/21/2021 | 0.10 |
| 8/22/2021 | 0.02 | 9/22/2021 | 0.00 | 10/22/2021 | 0.09 |
| 8/23/2021 | T | 9/23/2021 | 0.00 | 10/23/2021 | 0.00 |
| 8/24/2021 | 0.23 | 9/24/2021 | 0.00 | 10/24/2021 | 0.00 |
| 8/25/2021 | 0.35 | 9/25/2021 | 0.03 | 10/25/2021 | 0.55 |
| 8/26/2021 | 0.00 | 9/26/2021 | 0.00 | 10/26/2021 | 0.03 |
| 8/27/2021 | 0.00 | 9/27/2021 | 0.00 | 10/27/2021 | 0.00 |
| 8/28/2021 | 0.30 | 9/28/2021 | 0.00 | 10/28/2021 | 0.01 |
| 8/29/2021 | 0.00 | 9/29/2021 | 0.00 | 10/29/2021 | 0.31 |
| 8/30/2021 | 0.00 | 9/30/2021 | 0.00 | 10/30/2021 | 0.05 |
| 8/31/2021 | 0.00 | | | 10/31/2021 | 0.00 |
| **Total =** | **4.51** | **Total =** | **3.24** | **Total =** | **3.65** |

PPT - Precipitation in inches

T - Trace

M - Missing

## Table 3. WETS Analysis

Project Site: Yahara Hills Golf Course
Period of interest: August - October, 2021
County: Dane

**Long-term rainfall records (from WETS table)**

| | Month | 3 years in 10 less than | Average | 3 years in 10 greater than |
|---|---|---|---|---|
| 1st month prior: | Oct | 1.72 | 2.73 | 3.29 |
| 2nd month prior: | Sept | 2.42 | 3.72 | 4.48 |
| 3rd month prior: | August | 2.91 | 4.24 | 5.05 |
| | | Sum = | **10.69** | |

**Site determination**

| | Site Rainfall (in) | Condition Dry/Normal*/Wet | Condition** Value | Month Weight | Product |
|---|---|---|---|---|---|
| | 3.65 | Wet | 3 | 3 | 9 |
| | 3.24 | Normal | 2 | 2 | 4 |
| | 4.51 | Normal | 2 | 1 | 2 |
| Sum = | **11.40** | | | Sum*** = | **15** |

*Normal precipitation with 30% to 70% probability of occurrence

Determination: **Wet**

**Condition value:

Dry = 1
Normal = 2
Wet = 3

***If sum is:

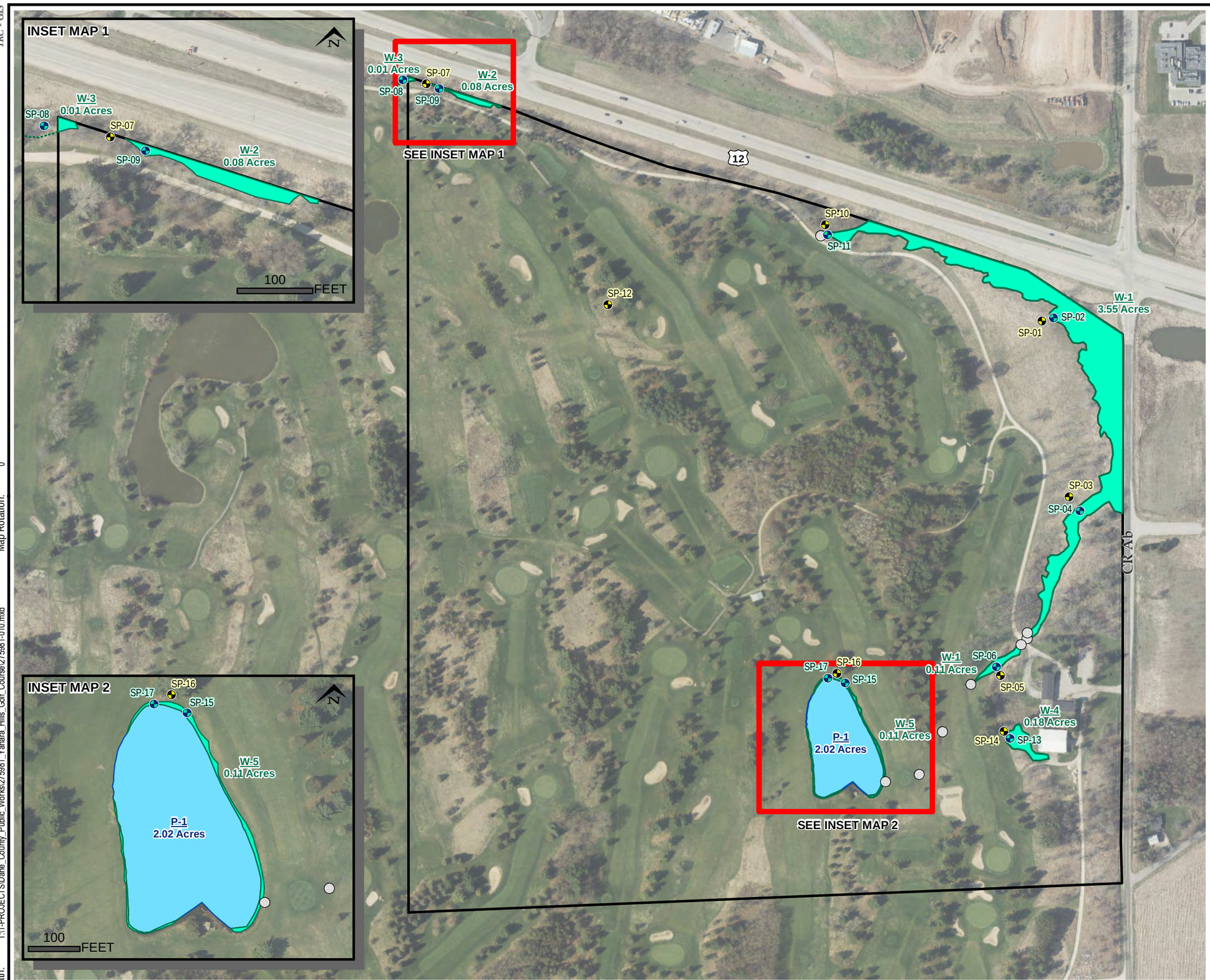
| | |
|---|---|
| 6 to 9 | then period has been drier than normal |
| 10 to 14 | then period has been normal |
| 15 to 18 | then period has been wetter than normal |

Precipitation data source: UW Arboretum - Madison, WI USC00470273

WETS Station: UW Arboretum - Madison, WI (1981 - 2010)

Reference: Donald E. Woodward, ed. 1997. *Hydrology Tools for Wetland Determination* , Chapter 19. Engineering Field Handbook. U.S. Department of Agriculture, Natural Resources Conservation Service, Fort Worth, TX.

# Appendix C:
# Wetland and Waterway Delineation Map




## LEGEND

- WETLAND SAMPLE LOCATION
- UPLAND SAMPLE LOCATION
- CULVERT
- OFFSITE WETLAND BOUNDARY
- WETLAND
- POND
- STUDY AREA

## NOTES

1. BASE MAP IMAGERY FROM DANE COUNTY, 2020.

N

0 175 350
Feet

1 " = 350 '
1:4,200

PROJECT:
**DANE COUNTY WASTE & RENEWABLES DEPARTMENT**
**YAHARA HILLS GOLF COURSE DELINEATION**
**MADISON, DANE COUNTY, WISCONSIN**

TITLE:
# WETLAND AND WATERWAY DELINEATION MAP

| | | | |
|---|---|---|---|
| DRAWN BY: | R. SUEMNICHT | PROJ. NO.: | 275981 |
| CHECKED BY: | A. LARSEN | | |
| APPROVED BY: | R. LONDRE | | **EXHIBIT A** |
| DATE: | DECEMBER 2021 | | |

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FILE NO.: 275981-010.mxd

Plot Date: 12/7/2021, 15:00:44 PM by RSUEMNICHT – LAYOUT: ANSI B(11"x17")
Path: T:\1-PROJECTS\Dane_County_Public_Works\275981_Yahara_Hills_Golf_Course\275981-010.mxd
Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet (Foot US)
Map Rotation: 0
TRC - GIS

# Appendix D:
# Wetland Determination Data Forms

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

**Project/Site:** Yahara Hills Golf Course **City/County:** Madison, Dane **Sampling Date:** 2021-Nov-09
**Applicant/Owner:** Dane County Waste & Renewables **State:** Wisconsin **Sampling Point:** SP-01
**Investigator(s):** Ron Londre **Section, Township, Range:** 25-T7N-R10E
**Landform (hillslope, terrace, etc.):** Back slope **Local relief (concave, convex, none):** Convex **Slope (%):** 3-6
**Subregion (LRR or MLRA):** LRR K **Lat:** 43.04013 **Long:** -89.2481 **Datum:** WGS84
**Soil Map Unit Name:** Dodge silt loam, 2 to 6 percent slopes **WWI classification:** None
**Are climatic/hydrologic conditions on the site typical for this time of year?** Yes ____ No ✓ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ____ No ✓ | | |
| Hydric Soil Present? | Yes ✓ No ____ | **Is the Sampled Area within a Wetland?** | **Yes ____ No ✓** |
| Wetland Hydrology Present? | Yes ____ No ✓ | **If yes, optional Wetland Site ID:** | |

**Remarks: (Explain alternative procedures here or in a separate report)**
Based on the absence of two of three parameters, this area is an upland.

### HYDROLOGY

**Wetland Hydrology Indicators:**

**Primary Indicators (minimum of one is required; check all that apply)**

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

**Secondary Indicators (minimum of two required)**

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ____ No ✓ | Depth (inches): | |
| Water Table Present? | Yes ____ No ✓ | Depth (inches): | **Wetland Hydrology Present?** Yes ____ No ✓ |
| Saturation Present? (includes capillary fringe) | Yes ____ No ✓ | Depth (inches): | |

**Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:**
Topo maps, soils map, WWI map, aerial imagery

**Remarks:**
The criterion for wetland hydrology is not met. Based on WETS analysis, antecedent hydrologic conditions are wetter than normal.

VEGETATION -- Use scientific names of plants.

Sampling Point: SP-01

| Tree Stratum (Plot size: 30' r) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 0 | = Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 15' r)** | | | |
| 1. *Fraxinus pennsylvanica* | 5 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 5 | = Total Cover | |
| **Herb Stratum (Plot size: 5' r)** | | | |
| 1. *Poa pratensis* | 90 | Yes | FACU |
| 2. *Cirsium arvense* | 30 | Yes | FACU |
| 3. *Phalaris arundinacea* | 10 | No | FACW |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| 12. | | | |
| | 130 | = Total Cover | |
| **Woody Vine Stratum (Plot size: 30' r)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0 | = Total Cover | |

**Dominance Test worksheet:**

| | | |
|---|---|---|
| Number of Dominant Species That Are OBL, FACW, or FAC: | 1 | (A) |
| Total Number of Dominant Species Across All Strata: | 3 | (B) |
| Percent of Dominant Species That Are OBL, FACW, or FAC: | 33.3 | (A/B) |

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply By: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 15 | x 2 = | 30 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 120 | x 4 = | 480 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals | 135 | (A) | 510 (B) |
| Prevalence Index = B/A = | 3.8 | | |

**Hydrophytic Vegetation Indicators:**

____ 1- Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is > 50%

____ 3 - Prevalence Index is ≤ 3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** Yes ____ No ✓

**Remarks: (Include photo numbers here or on a separate sheet.)**

The criterion for hydrophytic vegetation is not met. Fallow field.

SOIL

Sampling Point: SP-01

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0 - 22 | 10YR 4/1 | 90 | 10YR 4/4 | 10 | C | M | Silt Loam | |
| 22 - 26 | 10YR 5/1 | 80 | 10YR 4/6 | 20 | C | M | Silt Loam | |

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

**Hydric Soil Indicators:**

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR R, MLRA 149B)**
___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
___ Loamy Mucky Mineral (F1) **(LRR K, L)**
___ Loamy Gleyed Matrix (F2)
_✓_ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
___ Coast Prairie Redox (A16) **(LRR K, L, R)**
___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
___ Dark Surface (S7) **(LRR K, L)**
___ Polyvalue Below Surface (S8) **(LRR K, L)**
___ Thin Dark Surface (S9) **(LRR K, L)**
___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: None
Depth (inches): NA

**Hydric Soil Present?** Yes _✓_ No ____

**Remarks:**

The criterion for hydric soil is met.

**Photo of Sample Plot**

Southwest

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

**Project/Site:** Yahara Hills Golf Course **City/County:** Madison, Dane **Sampling Date:** 2021-Nov-09
**Applicant/Owner:** Dane County Waste & Renewables **State:** Wisconsin **Sampling Point:** SP-02
**Investigator(s):** Ron Londre **Section, Township, Range:** 25-T7N-R10E
**Landform (hillslope, terrace, etc.):** Foot slope **Local relief (concave, convex, none):** Concave **Slope (%):** 1-3
**Subregion (LRR or MLRA):** LRR K **Lat:** 43.04016 **Long:** -89.24794 **Datum:** WGS84
**Soil Map Unit Name:** Virgil silt loam, gravelly substratum, 0 to 3 percent slopes **WWI classification:** None
**Are climatic/hydrologic conditions on the site typical for this time of year?** Yes ____ No ✓ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ✓ No ____ | | |
| Hydric Soil Present? | Yes ✓ No ____ | **Is the Sampled Area within a Wetland?** | **Yes ✓ No ____** |
| Wetland Hydrology Present? | Yes ✓ No ____ | **If yes, optional Wetland Site ID:** | W-01 |

**Remarks: (Explain alternative procedures here or in a separate report)**
Based on the presence of all three parameters, this area is a wetland. Wetland ID: W-01

### HYDROLOGY

**Wetland Hydrology Indicators:**

**Primary Indicators (minimum of one is required; check all that apply)**

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

**Secondary Indicators (minimum of two required)**

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
✓ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
✓ FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ____ No ✓ | Depth (inches): | |
| Water Table Present? | Yes ____ No ✓ | Depth (inches): | **Wetland Hydrology Present?** Yes ✓ No ____ |
| Saturation Present? (includes capillary fringe) | Yes ____ No ✓ | Depth (inches): | |

**Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:**
Topo maps, soils map, WWI map, aerial imagery

**Remarks:**
The criterion for wetland hydrology is met. Based on WETS analysis, antecedent hydrologic conditions are wetter than normal.

VEGETATION -- Use scientific names of plants.

Sampling Point: SP-02

| Tree Stratum (Plot size: 30' r) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 0 | = Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 15' r)** | | | |
| 1. *Fraxinus pennsylvanica* | 5 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 5 | = Total Cover | |
| **Herb Stratum (Plot size: 5' r)** | | | |
| 1. *Phalaris arundinacea* | 100 | Yes | FACW |
| 2. *Symphyotrichum lateriflorum* | 5 | No | FAC |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| 12. | | | |
| | 105 | = Total Cover | |
| **Woody Vine Stratum (Plot size: 30' r)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0 | = Total Cover | |

**Dominance Test worksheet:**

| | | |
|---|---|---|
| Number of Dominant Species That Are OBL, FACW, or FAC: | 2 | (A) |
| Total Number of Dominant Species Across All Strata: | 2 | (B) |
| Percent of Dominant Species That Are OBL, FACW, or FAC: | 100 | (A/B) |

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply By: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 105 | x 2 = | 210 |
| FAC species | 5 | x 3 = | 15 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals | 110 | (A) | 225 (B) |
| Prevalence Index = B/A = | 2 | | |

**Hydrophytic Vegetation Indicators:**

✓ 1- Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤ 3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** Yes ✓ No ____

**Remarks: (Include photo numbers here or on a separate sheet.)**

The criterion for hydrophytic vegetation is met. Fresh (wet) Meadow plant community.

SOIL

Sampling Point: SP-02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0 - 15 | 10YR 4/2 | 95 | 10YR 4/6 | 5 | C | M | Silt Loam | |
| 15 - 24 | 10YR 4/1 | 80 | 10YR 4/6 | 20 | C | M | Silt Loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

**Hydric Soil Indicators:**

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR R, MLRA 149B)**
___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
___ Loamy Mucky Mineral (F1) **(LRR K, L)**
___ Loamy Gleyed Matrix (F2)
_✓_ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
___ Coast Prairie Redox (A16) **(LRR K, L, R)**
___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
___ Dark Surface (S7) **(LRR K, L)**
___ Polyvalue Below Surface (S8) **(LRR K, L)**
___ Thin Dark Surface (S9) **(LRR K, L)**
___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: None
Depth (inches): NA

**Hydric Soil Present?** Yes _✓_ No ____

**Remarks:**

The criterion for hydric soil is met.

**Photo of Sample Plot**

Northeast

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

**Project/Site:** Yahara Hills Golf Course **City/County:** Madison, Dane **Sampling Date:** 2021-Nov-09
**Applicant/Owner:** Dane County Waste & Renewables **State:** Wisconsin **Sampling Point:** SP-03
**Investigator(s):** Ron Londre **Section, Township, Range:** 25-T7N-R10E
**Landform (hillslope, terrace, etc.):** Back slope **Local relief (concave, convex, none):** Convex **Slope (%):** 3-6
**Subregion (LRR or MLRA):** LRR K **Lat:** 43.03834 **Long:** -89.24775 **Datum:** WGS84
**Soil Map Unit Name:** Virgil silt loam, gravelly substratum, 0 to 3 percent slopes **WWI classification:** None
**Are climatic/hydrologic conditions on the site typical for this time of year?** Yes ____ No ✓ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ____ No ✓ | | |
| Hydric Soil Present? | Yes ____ No ✓ | **Is the Sampled Area within a Wetland?** | **Yes ____ No ✓** |
| Wetland Hydrology Present? | Yes ____ No ✓ | **If yes, optional Wetland Site ID:** | |

**Remarks: (Explain alternative procedures here or in a separate report)**
Based on the absence of all three parameters, this area is an upland.

### HYDROLOGY

**Wetland Hydrology Indicators:**

**Primary Indicators (minimum of one is required; check all that apply)**

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

**Secondary Indicators (minimum of two required)**

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ____ No ✓ | Depth (inches): | |
| Water Table Present? | Yes ____ No ✓ | Depth (inches): | **Wetland Hydrology Present?** Yes ____ No ✓ |
| Saturation Present? (includes capillary fringe) | Yes ____ No ✓ | Depth (inches): | |

**Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:**
Topo maps, soils map, WWI map, aerial imagery

**Remarks:**
The criterion for wetland hydrology is not met. Based on WETS analysis, antecedent hydrologic conditions are wetter than normal.

VEGETATION -- Use scientific names of plants.

Sampling Point: SP-03

| Tree Stratum (Plot size: 30' r) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Fraxinus pennsylvanica* | 15 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 15 | = Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 15' r)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 0 | = Total Cover | |
| **Herb Stratum (Plot size: 5' r)** | | | |
| 1. *Poa pratensis* | 90 | Yes | FACU |
| 2. *Securigera varia* | 50 | Yes | UPL |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| 12. | | | |
| | 140 | = Total Cover | |
| **Woody Vine Stratum (Plot size: 30' r)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0 | = Total Cover | |

**Dominance Test worksheet:**

| | | |
|---|---|---|
| Number of Dominant Species That Are OBL, FACW, or FAC: | 1 | (A) |
| Total Number of Dominant Species Across All Strata: | 3 | (B) |
| Percent of Dominant Species That Are OBL, FACW, or FAC: | 33.3 | (A/B) |

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply By: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 15 | x 2 = | 30 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 90 | x 4 = | 360 |
| UPL species | 50 | x 5 = | 250 |
| Column Totals | 155 | (A) | 640 (B) |
| Prevalence Index = B/A = | 4.1 | | |

**Hydrophytic Vegetation Indicators:**

_____ 1- Rapid Test for Hydrophytic Vegetation

_____ 2 - Dominance Test is > 50%

_____ 3 - Prevalence Index is ≤ 3.0[1]

_____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

_____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** Yes _____ No ✓

**Remarks: (Include photo numbers here or on a separate sheet.)**

The criterion for hydrophytic vegetation is not met. Fallow field.

SOIL

Sampling Point: SP-03

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0 - 15 | 10YR 3/2 | 100 | | | | | Silt Loam | |
| 15 - 24 | 10YR 4/3 | 100 | | | | | Silty Clay Loam | |

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

**Hydric Soil Indicators:**

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR R, MLRA 149B)**
___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
___ Loamy Mucky Mineral (F1) **(LRR K, L)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
___ Coast Prairie Redox (A16) **(LRR K, L, R)**
___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
___ Dark Surface (S7) **(LRR K, L)**
___ Polyvalue Below Surface (S8) **(LRR K, L)**
___ Thin Dark Surface (S9) **(LRR K, L)**
___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: None
Depth (inches): NA

**Hydric Soil Present?** Yes ____ No ✓

**Remarks:**

The criterion for hydric soil is not met.

**Photo of Sample Plot**

Northwest

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

**Project/Site:** Yahara Hills Golf Course **City/County:** Madison, Dane **Sampling Date:** 2021-Nov-09
**Applicant/Owner:** Dane County Waste & Renewables **State:** Wisconsin **Sampling Point:** SP-04
**Investigator(s):** Ron Londre **Section, Township, Range:** 25-T7N-R10E
**Landform (hillslope, terrace, etc.):** Foot slope **Local relief (concave, convex, none):** Concave **Slope (%):** 1-3
**Subregion (LRR or MLRA):** LRR K **Lat:** 43.0382 **Long:** -89.2476 **Datum:** WGS84
**Soil Map Unit Name:** Virgil silt loam, gravelly substratum, 0 to 3 percent slopes **WWI classification:** None
**Are climatic/hydrologic conditions on the site typical for this time of year?** Yes ____ No ✓ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ✓ No ____ | | |
| Hydric Soil Present? | Yes ✓ No ____ | **Is the Sampled Area within a Wetland?** | **Yes ✓ No ____** |
| Wetland Hydrology Present? | Yes ✓ No ____ | **If yes, optional Wetland Site ID:** | W-01 |

**Remarks: (Explain alternative procedures here or in a separate report)**
Based on the presence of all three parameters, this area is a wetland. Wetland ID: W-01

### HYDROLOGY

**Wetland Hydrology Indicators:**

**Primary Indicators (minimum of one is required; check all that apply)**

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

**Secondary Indicators (minimum of two required)**

___ Surface Soil Cracks (B6)
✓ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
✓ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
✓ FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ____ No ✓ | Depth (inches): | |
| Water Table Present? | Yes ____ No ✓ | Depth (inches): | **Wetland Hydrology Present?** Yes ✓ No ____ |
| Saturation Present? (includes capillary fringe) | Yes ____ No ✓ | Depth (inches): | |

**Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:**
Topo maps, soils map, WWI map, aerial imagery

**Remarks:**
The criterion for wetland hydrology is met. Based on WETS analysis, antecedent hydrologic conditions are wetter than normal.

VEGETATION -- Use scientific names of plants.

Sampling Point: SP-04

| Tree Stratum (Plot size: 30' r) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 0 | = Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 15' r)** | | | |
| 1. *Fraxinus pennsylvanica* | 3 | No | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 3 | = Total Cover | |
| **Herb Stratum (Plot size: 5' r)** | | | |
| 1. *Phalaris arundinacea* | 100 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| 12. | | | |
| | 100 | = Total Cover | |
| **Woody Vine Stratum (Plot size: 30' r)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0 | = Total Cover | |

**Dominance Test worksheet:**

| | | |
|---|---|---|
| Number of Dominant Species That Are OBL, FACW, or FAC: | 1 | (A) |
| Total Number of Dominant Species Across All Strata: | 1 | (B) |
| Percent of Dominant Species That Are OBL, FACW, or FAC: | 100 | (A/B) |

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply By: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 103 | x 2 = | 206 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals | 103 | (A) | 206 (B) |
| Prevalence Index = B/A = | 2 | | |

**Hydrophytic Vegetation Indicators:**

✓ 1- Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤ 3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** Yes ✓ No ____

**Remarks: (Include photo numbers here or on a separate sheet.)**

The criterion for hydrophytic vegetation is met. Fresh (wet) Meadow plant community.

SOIL

Sampling Point: SP-04

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0 - 3 | 10YR 2/2 | 100 | | | | | Silt Loam | |
| 3 - 15 | 10YR 4/2 | 75 | 10YR 4/6 | 25 | C | M | Silty Clay Loam | |
| 15 - 24 | 10YR 5/1 | 80 | 10YR 5/6 | 20 | C | M | Clay Loam | |

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

**Hydric Soil Indicators:**

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
_✓_ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR R, MLRA 149B)**
___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
___ Loamy Mucky Mineral (F1) **(LRR K, L)**
___ Loamy Gleyed Matrix (F2)
_✓_ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
___ Coast Prairie Redox (A16) **(LRR K, L, R)**
___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
___ Dark Surface (S7) **(LRR K, L)**
___ Polyvalue Below Surface (S8) **(LRR K, L)**
___ Thin Dark Surface (S9) **(LRR K, L)**
___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: None
Depth (inches): NA

**Hydric Soil Present?** Yes _✓_ No ____

**Remarks:**

The criterion for hydric soil is met.

**Photo of Sample Plot**

Northeast

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

**Project/Site:** Yahara Hills Golf Course **City/County:** Madison, Dane **Sampling Date:** 2021-Nov-09
**Applicant/Owner:** Dane County Waste & Renewables **State:** Wisconsin **Sampling Point:** SP-05
**Investigator(s):** Ron Londre **Section, Township, Range:** 25-T7N-R10E
**Landform (hillslope, terrace, etc.):** Back slope **Local relief (concave, convex, none):** Convex **Slope (%):** 6-9
**Subregion (LRR or MLRA):** LRR K **Lat:** 43.03653 **Long:** -89.24872 **Datum:** WGS84
**Soil Map Unit Name:** Virgil silt loam, gravelly substratum, 0 to 3 percent slopes **WWI classification:** None
**Are climatic/hydrologic conditions on the site typical for this time of year?** Yes ____ No ✓ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ____ No ✓ | | |
| Hydric Soil Present? | Yes ____ No ✓ | **Is the Sampled Area within a Wetland?** | **Yes ____ No ✓** |
| Wetland Hydrology Present? | Yes ____ No ✓ | **If yes, optional Wetland Site ID:** | |

**Remarks: (Explain alternative procedures here or in a separate report)**
Based on the absence of all three parameters, this area is an upland.

### HYDROLOGY

**Wetland Hydrology Indicators:**

**Primary Indicators (minimum of one is required; check all that apply)**

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

**Secondary Indicators (minimum of two required)**

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ____ No ✓ | Depth (inches): | |
| Water Table Present? | Yes ____ No ✓ | Depth (inches): | **Wetland Hydrology Present?** Yes ____ No ✓ |
| Saturation Present? (includes capillary fringe) | Yes ____ No ✓ | Depth (inches): | |

**Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:**
Topo maps, soils map, WWI map, aerial imagery

**Remarks:**
The criterion for wetland hydrology is not met. Based on WETS analysis, antecedent hydrologic conditions are wetter than normal.

VEGETATION -- Use scientific names of plants.

Sampling Point: SP-05

| Tree Stratum (Plot size: 30' r) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Tilia americana* | 5 | Yes | FACU |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 5 | = Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 15' r)** | | | |
| 1. *Fraxinus pennsylvanica* | 30 | Yes | FACW |
| 2. *Lonicera tatarica* | 10 | Yes | FACU |
| 3. *Cornus racemosa* | 5 | No | FAC |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 45 | = Total Cover | |
| **Herb Stratum (Plot size: 5' r)** | | | |
| 1. *Solidago altissima* | 40 | Yes | FACU |
| 2. *Phalaris arundinacea* | 20 | Yes | FACW |
| 3. *Alliaria petiolata* | 15 | No | FACU |
| 4. *Symphyotrichum pilosum* | 10 | No | FACU |
| 5. *Nepeta cataria* | 5 | No | FACU |
| 6. *Rubus alumnus* | 5 | No | FACU |
| 7. *Arctium minus* | 5 | No | FACU |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| 12. | | | |
| | 100 | = Total Cover | |
| **Woody Vine Stratum (Plot size: 30' r)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0 | = Total Cover | |

**Dominance Test worksheet:**

| | | |
|---|---|---|
| Number of Dominant Species That Are OBL, FACW, or FAC: | 2 | (A) |
| Total Number of Dominant Species Across All Strata: | 5 | (B) |
| Percent of Dominant Species That Are OBL, FACW, or FAC: | 40 | (A/B) |

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply By: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 50 | x 2 = | 100 |
| FAC species | 5 | x 3 = | 15 |
| FACU species | 95 | x 4 = | 380 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals | 150 | (A) | 495 (B) |

Prevalence Index = B/A = 3.3

**Hydrophytic Vegetation Indicators:**

____ 1- Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is > 50%

____ 3 - Prevalence Index is ≤ 3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** Yes ____ No ✓

**Remarks: (Include photo numbers here or on a separate sheet.)**

The criterion for hydrophytic vegetation is not met. Upland shrub dominated plant community.

SOIL

Sampling Point: SP-05

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0 - 13 | 10YR 2/2 | 100 | | | | | Silty Clay Loam | |
| 13 - 24 | 10YR 4/4 | 98 | 10YR 4/4 | 2 | C | M | Clay Loam | |

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

**Hydric Soil Indicators:**

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR R, MLRA 149B)**
___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
___ Loamy Mucky Mineral (F1) **(LRR K, L)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
___ Coast Prairie Redox (A16) **(LRR K, L, R)**
___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
___ Dark Surface (S7) **(LRR K, L)**
___ Polyvalue Below Surface (S8) **(LRR K, L)**
___ Thin Dark Surface (S9) **(LRR K, L)**
___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: None
Depth (inches): NA

**Hydric Soil Present?** Yes ____ No ✓

**Remarks:**

The criterion for hydric soil is not met.

**Photo of Sample Plot**

Southeast

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

**Project/Site:** Yahara Hills Golf Course **City/County:** Madison, Dane **Sampling Date:** 2021-Nov-09
**Applicant/Owner:** Dane County Waste & Renewables **State:** Wisconsin **Sampling Point:** SP-06
**Investigator(s):** Ron Londre **Section, Township, Range:** 25-T7N-R10E
**Landform (hillslope, terrace, etc.):** Toe slope **Local relief (concave, convex, none):** Concave **Slope (%):** 1-3
**Subregion (LRR or MLRA):** LRR K **Lat:** 43.03662 **Long:** -89.24878 **Datum:** WGS84
**Soil Map Unit Name:** Virgil silt loam, gravelly substratum, 0 to 3 percent slopes **WWI classification:** None
**Are climatic/hydrologic conditions on the site typical for this time of year?** Yes ____ No ✓ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ✓ No ____ | | |
| Hydric Soil Present? | Yes ✓ No ____ | **Is the Sampled Area within a Wetland?** | **Yes ✓ No ____** |
| Wetland Hydrology Present? | Yes ✓ No ____ | **If yes, optional Wetland Site ID:** | W-01 |

**Remarks: (Explain alternative procedures here or in a separate report)**
Based on the presence of all three parameters, this area is a wetland. Wetland ID: W-01

### HYDROLOGY

**Wetland Hydrology Indicators:**

**Primary Indicators (minimum of one is required; check all that apply)**

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

**Secondary Indicators (minimum of two required)**

___ Surface Soil Cracks (B6)
✓ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
✓ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
✓ FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ____ No ✓ | Depth (inches): | |
| Water Table Present? | Yes ____ No ✓ | Depth (inches): | **Wetland Hydrology Present?** Yes ✓ No ____ |
| Saturation Present? (includes capillary fringe) | Yes ____ No ✓ | Depth (inches): | |

**Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:**
Topo maps, soils map, WWI map, aerial imagery

**Remarks:**
The criterion for wetland hydrology is met. Based on WETS analysis, antecedent hydrologic conditions are wetter than normal.

VEGETATION -- Use scientific names of plants.

Sampling Point: SP-06

| Tree Stratum (Plot size: 30' r) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 0 | = Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 15' r)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 0 | = Total Cover | |
| **Herb Stratum (Plot size: 5' r)** | | | |
| 1. *Phalaris arundinacea* | 100 | Yes | FACW |
| 2. *Typha X glauca* | 10 | No | OBL |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| 12. | | | |
| | 110 | = Total Cover | |
| **Woody Vine Stratum (Plot size: 30' r)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0 | = Total Cover | |

**Dominance Test worksheet:**

| | | |
|---|---|---|
| Number of Dominant Species That Are OBL, FACW, or FAC: | 1 | (A) |
| Total Number of Dominant Species Across All Strata: | 1 | (B) |
| Percent of Dominant Species That Are OBL, FACW, or FAC: | 100 | (A/B) |

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply By: | |
|---|---|---|---|
| OBL species | 10 | x 1 = | 10 |
| FACW species | 100 | x 2 = | 200 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals | 110 | (A) | 210 (B) |
| Prevalence Index = B/A = | 1.9 | | |

**Hydrophytic Vegetation Indicators:**

✓ 1- Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤ 3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** Yes ✓ No ____

**Remarks: (Include photo numbers here or on a separate sheet.)**

The criterion for hydrophytic vegetation is met. Fresh (wet) Meadow plant community.

SOIL

Sampling Point: SP-06

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0 - 3 | 10YR 2/2 | 100 | | | | | Loam | |
| 3 - 10 | 10YR 4/2 | 70 | 7.5YR 4/6 | 30 | C | M | Clay Loam | |
| 10 - 20 | 10YR 4/1 | 80 | 10YR 5/6 | 20 | C | M | Clay Loam | |

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

**Hydric Soil Indicators:**

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
_✓_ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR R, MLRA 149B)**
___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
___ Loamy Mucky Mineral (F1) **(LRR K, L)**
___ Loamy Gleyed Matrix (F2)
_✓_ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
___ Coast Prairie Redox (A16) **(LRR K, L, R)**
___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
___ Dark Surface (S7) **(LRR K, L)**
___ Polyvalue Below Surface (S8) **(LRR K, L)**
___ Thin Dark Surface (S9) **(LRR K, L)**
___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: None
Depth (inches): NA

**Hydric Soil Present?** Yes _✓_ No ____

**Remarks:**

The criterion for hydric soil is met.

Photo of Sample Plot

West

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

**Project/Site:** Yahara Hills Golf Course **City/County:** Madison, Dane **Sampling Date:** 2021-Nov-09
**Applicant/Owner:** Dane County Waste & Renewables **State:** Wisconsin **Sampling Point:** SP-07
**Investigator(s):** Ron Londre **Section, Township, Range:** 25-T7N-R10E
**Landform (hillslope, terrace, etc.):** Toe slope, ditch **Local relief (concave, convex, none):** Concave **Slope (%):** 3-6
**Subregion (LRR or MLRA):** LRR K **Lat:** 43.04259 **Long:** -89.2566 **Datum:** WGS84
**Soil Map Unit Name:** Wacousta silty clay loam, 0 to 2 percent slopes **WWI classification:** None
**Are climatic/hydrologic conditions on the site typical for this time of year?** Yes ____ No ✓ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ____ No ✓ | | |
| Hydric Soil Present? | Yes ✓ No ____ | **Is the Sampled Area within a Wetland?** | **Yes ____ No ✓** |
| Wetland Hydrology Present? | Yes ____ No ✓ | **If yes, optional Wetland Site ID:** | |

**Remarks: (Explain alternative procedures here or in a separate report)**
Based on the absence of two of three parameters, this area is an upland.

### HYDROLOGY

**Wetland Hydrology Indicators:**

**Primary Indicators (minimum of one is required; check all that apply)**

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

**Secondary Indicators (minimum of two required)**

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ____ No ✓ | Depth (inches): | |
| Water Table Present? | Yes ____ No ✓ | Depth (inches): | **Wetland Hydrology Present?** Yes ____ No ✓ |
| Saturation Present? (includes capillary fringe) | Yes ____ No ✓ | Depth (inches): | |

**Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:**
Topo maps, soils map, WWI map, aerial imagery

**Remarks:**
The criterion for wetland hydrology is not met. Based on WETS analysis, antecedent hydrologic conditions are wetter than normal.

VEGETATION -- Use scientific names of plants.

Sampling Point: SP-07

| Tree Stratum (Plot size: 30' r) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Fraxinus pennsylvanica* | 50 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 50 | = Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 15' r)** | | | |
| 1. *Lonicera tatarica* | 40 | Yes | FACU |
| 2. *Sambucus racemosa* | 5 | No | FACU |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 45 | = Total Cover | |
| **Herb Stratum (Plot size: 5' r)** | | | |
| 1. *Glechoma hederacea* | 80 | Yes | FACU |
| 2. *Poa pratensis* | 25 | Yes | FACU |
| 3. *Solidago altissima* | 10 | No | FACU |
| 4. *Symphyotrichum pilosum* | 5 | No | FACU |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| 12. | | | |
| | 120 | = Total Cover | |
| **Woody Vine Stratum (Plot size: 30' r)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0 | = Total Cover | |

**Dominance Test worksheet:**

| | | |
|---|---|---|
| Number of Dominant Species That Are OBL, FACW, or FAC: | 1 | (A) |
| Total Number of Dominant Species Across All Strata: | 4 | (B) |
| Percent of Dominant Species That Are OBL, FACW, or FAC: | 25 | (A/B) |

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply By: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 50 | x 2 = | 100 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 165 | x 4 = | 660 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals | 215 | (A) | 760 (B) |
| Prevalence Index = B/A = | 3.5 | | |

**Hydrophytic Vegetation Indicators:**

____ 1- Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is > 50%

____ 3 - Prevalence Index is ≤ 3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** Yes ____ No ✓

**Remarks: (Include photo numbers here or on a separate sheet.)**

The criterion for hydrophytic vegetation is not met. Upland woodland.

SOIL

Sampling Point: SP-07

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0 - 11 | 10YR 2/1 | 100 | | | | | Clay Loam | |
| 11 - 24 | 10YR 5/2 | 98 | 10YR 5/6 | 2 | C | M | Clay | |

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

**Hydric Soil Indicators:**

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
_✓_ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR R, MLRA 149B)**
___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
___ Loamy Mucky Mineral (F1) **(LRR K, L)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
___ Coast Prairie Redox (A16) **(LRR K, L, R)**
___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
___ Dark Surface (S7) **(LRR K, L)**
___ Polyvalue Below Surface (S8) **(LRR K, L)**
___ Thin Dark Surface (S9) **(LRR K, L)**
___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: None
Depth (inches): NA

**Hydric Soil Present?** Yes _✓_ No ____

**Remarks:**

The criterion for hydric soil is met.

Photo of Sample Plot

Southeast

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

**Project/Site:** Yahara Hills Golf Course **City/County:** Madison, Dane **Sampling Date:** 2021-Nov-09
**Applicant/Owner:** Dane County Waste & Renewables **State:** Wisconsin **Sampling Point:** SP-08
**Investigator(s):** Amanda Larsen **Section, Township, Range:** 25-T7N-R10E
**Landform (hillslope, terrace, etc.):** Swale **Local relief (concave, convex, none):** Flat **Slope (%):** 0-1
**Subregion (LRR or MLRA):** LRR K **Lat:** 43.04264 **Long:** -89.25693 **Datum:** WGS84
**Soil Map Unit Name:** Wacousta silty clay loam, 0 to 2 percent slopes **WWI classification:** None
**Are climatic/hydrologic conditions on the site typical for this time of year?** Yes ____ No ✓ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ✓ No ____ | | |
| Hydric Soil Present? | Yes ✓ No ____ | **Is the Sampled Area within a Wetland?** | **Yes ✓ No ____** |
| Wetland Hydrology Present? | Yes ✓ No ____ | **If yes, optional Wetland Site ID:** | W-3 |

**Remarks: (Explain alternative procedures here or in a separate report)**
Based on the presence of all three parameters, this area is a wetland. Wetland ID: W-3

### HYDROLOGY

**Wetland Hydrology Indicators:**

**Primary Indicators (minimum of one is required; check all that apply)**

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

**Secondary Indicators (minimum of two required)**

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
✓ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
✓ FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ____ No ✓ | Depth (inches): | |
| Water Table Present? | Yes ____ No ✓ | Depth (inches): | **Wetland Hydrology Present?** Yes ✓ No ____ |
| Saturation Present? (includes capillary fringe) | Yes ____ No ✓ | Depth (inches): | |

**Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:**
Topo maps, soils map, WWI map, aerial imagery

**Remarks:**
The criterion for wetland hydrology is met. Based on WETS analysis, antecedent hydrologic conditions are wetter than normal.

VEGETATION -- Use scientific names of plants.

Sampling Point: SP-08

| Tree Stratum (Plot size: 30' r) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Acer negundo* | 10 | Yes | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 10 | = Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 15' r)** | | | |
| 1. *Acer negundo* | 5 | Yes | FAC |
| 2. *Rhamnus cathartica* | 5 | Yes | FAC |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 10 | = Total Cover | |
| **Herb Stratum (Plot size: 5' r)** | | | |
| 1. *Phalaris arundinacea* | 100 | Yes | FACW |
| 2. *Solanum dulcamara* | 10 | No | FAC |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| 12. | | | |
| | 110 | = Total Cover | |
| **Woody Vine Stratum (Plot size: 30' r)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0 | = Total Cover | |

**Dominance Test worksheet:**

| | | |
|---|---|---|
| Number of Dominant Species That Are OBL, FACW, or FAC: | 4 | (A) |
| Total Number of Dominant Species Across All Strata: | 4 | (B) |
| Percent of Dominant Species That Are OBL, FACW, or FAC: | 100 | (A/B) |

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply By: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 100 | x 2 = | 200 |
| FAC species | 30 | x 3 = | 90 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals | 130 | (A) | 290 (B) |

Prevalence Index = B/A = 2.2

**Hydrophytic Vegetation Indicators:**

____ 1- Rapid Test for Hydrophytic Vegetation

_✓_ 2 - Dominance Test is >50%

_✓_ 3 - Prevalence Index is ≤ 3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** Yes _✓_ No ____

**Remarks: (Include photo numbers here or on a separate sheet.)**

The criterion for hydrophytic vegetation is met. Fresh (wet) Meadow plant community.

SOIL

Sampling Point: SP-08

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0 - 10 | 10YR 3/1 | 80 | 10YR 5/8 | 20 | C | M | Clay Loam | |
| 10 - 15 | 10YR 2/1 | 85 | 10YR 5/8 | 15 | C | M | Loam | |
| 15 - 24 | 10YR 5/1 | 60 | | | | | Clay | Mixed |
| 15 - 24 | 5G 6/1 | 40 | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

**Hydric Soil Indicators:**

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
_✓_ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR R, MLRA 149B)**
___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
___ Loamy Mucky Mineral (F1) **(LRR K, L)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
_✓_ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
___ Coast Prairie Redox (A16) **(LRR K, L, R)**
___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
___ Dark Surface (S7) **(LRR K, L)**
___ Polyvalue Below Surface (S8) **(LRR K, L)**
___ Thin Dark Surface (S9) **(LRR K, L)**
___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: None
Depth (inches): NA

**Hydric Soil Present?** Yes _✓_ No ____

**Remarks:**

The criterion for hydric soil is met.

Photo of Sample Plot

West

East

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

**Project/Site:** Yahara Hills Golf Course **City/County:** Madison, Dane **Sampling Date:** 2021-Nov-09
**Applicant/Owner:** Dane County Waste & Renewables **State:** Wisconsin **Sampling Point:** SP-09
**Investigator(s):** Ron Londre, Amanda Larsen **Section, Township, Range:** 25-T7N-R10E
**Landform (hillslope, terrace, etc.):** Toe slope, ditch **Local relief (concave, convex, none):** Concave **Slope (%):** 1-3
**Subregion (LRR or MLRA):** LRR K **Lat:** 43.04254 **Long:** -89.25643 **Datum:** WGS84
**Soil Map Unit Name:** Wacousta silty clay loam, 0 to 2 percent slopes **WWI classification:** None
**Are climatic/hydrologic conditions on the site typical for this time of year?** Yes ____ No ✓ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ✓ No ____ | | |
| Hydric Soil Present? | Yes ✓ No ____ | **Is the Sampled Area within a Wetland?** | **Yes ✓ No ____** |
| Wetland Hydrology Present? | Yes ✓ No ____ | **If yes, optional Wetland Site ID:** | W-02 |

**Remarks: (Explain alternative procedures here or in a separate report)**
Based on the presence of all three parameters, this area is a wetland. Wetland ID: W-02

### HYDROLOGY

**Wetland Hydrology Indicators:**

**Primary Indicators (minimum of one is required; check all that apply)**

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

**Secondary Indicators (minimum of two required)**

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
✓ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
✓ FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ____ No ✓ | Depth (inches): | |
| Water Table Present? | Yes ____ No ✓ | Depth (inches): | **Wetland Hydrology Present?** Yes ✓ No ____ |
| Saturation Present? (includes capillary fringe) | Yes ____ No ✓ | Depth (inches): | |

**Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:**
Topo maps, soils map, WWI map, aerial imagery

**Remarks:**
The criterion for wetland hydrology is met. Based on WETS analysis, antecedent hydrologic conditions are wetter than normal.

VEGETATION -- Use scientific names of plants.

Sampling Point: SP-09

| Tree Stratum (Plot size: 30' r) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Fraxinus pennsylvanica* | 40 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 40 | = Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 15' r)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 0 | = Total Cover | |
| **Herb Stratum (Plot size: 5' r)** | | | |
| 1. *Phalaris arundinacea* | 70 | Yes | FACW |
| 2. *Carex lacustris* | 40 | Yes | OBL |
| 3. *Cirsium arvense* | 5 | No | FACU |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| 12. | | | |
| | 115 | = Total Cover | |
| **Woody Vine Stratum (Plot size: 30' r)** | | | |
| 1. *Vitis riparia* | 15 | Yes | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 15 | = Total Cover | |

**Dominance Test worksheet:**

| | | |
|---|---|---|
| Number of Dominant Species That Are OBL, FACW, or FAC: | 4 | (A) |
| Total Number of Dominant Species Across All Strata: | 4 | (B) |
| Percent of Dominant Species That Are OBL, FACW, or FAC: | 100 | (A/B) |

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply By: | |
|---|---|---|---|
| OBL species | 40 | x 1 = | 40 |
| FACW species | 110 | x 2 = | 220 |
| FAC species | 15 | x 3 = | 45 |
| FACU species | 5 | x 4 = | 20 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals | 170 | (A) | 325 (B) |
| Prevalence Index = B/A = | 1.9 | | |

**Hydrophytic Vegetation Indicators:**

____ 1- Rapid Test for Hydrophytic Vegetation

_✓_ 2 - Dominance Test is >50%

_✓_ 3 - Prevalence Index is ≤ 3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** Yes _✓_ No ____

**Remarks: (Include photo numbers here or on a separate sheet.)**

The criterion for hydrophytic vegetation is met. Floodplain Forest plant community.

SOIL

Sampling Point: SP-09

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0 - 9 | 10YR 3/1 | 90 | 10YR 5/8 | 10 | C | M | Loam | |
| 9 - 12 | 10YR 2/1 | 95 | 10YR 5/8 | 5 | C | M | Clay Loam | |
| 12 - 24 | 10YR 4/1 | 90 | 10YR 6/6 | 10 | C | M | Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

**Hydric Soil Indicators:**

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
_✓_ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR R, MLRA 149B)**
___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
___ Loamy Mucky Mineral (F1) **(LRR K, L)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
_✓_ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
___ Coast Prairie Redox (A16) **(LRR K, L, R)**
___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
___ Dark Surface (S7) **(LRR K, L)**
___ Polyvalue Below Surface (S8) **(LRR K, L)**
___ Thin Dark Surface (S9) **(LRR K, L)**
___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: None
Depth (inches): NA

**Hydric Soil Present?** Yes _✓_ No ____

**Remarks:**

The criterion for hydric soil is met.

Photo of Sample Plot

East

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

**Project/Site:** Yahara Hills Golf Course **City/County:** Madison, Dane **Sampling Date:** 2021-Nov-09
**Applicant/Owner:** Dane County Waste & Renewables **State:** Wisconsin **Sampling Point:** SP-10
**Investigator(s):** Amanda Larsen, Amanda Larsen **Section, Township, Range:** 25-T7N-R10E
**Landform (hillslope, terrace, etc.):** Shoulder slope **Local relief (concave, convex, none):** Convex **Slope (%):** 3-6
**Subregion (LRR or MLRA):** LRR K **Lat:** 43.04112 **Long:** -89.25109 **Datum:** WGS84
**Soil Map Unit Name:** Virgil silt loam, gravelly substratum, 0 to 3 percent slopes **WWI classification:** None
**Are climatic/hydrologic conditions on the site typical for this time of year?** Yes ____ No ✓ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ✓ No ____ | | |
| Hydric Soil Present? | Yes ____ No ✓ | **Is the Sampled Area within a Wetland?** | **Yes ____ No ✓** |
| Wetland Hydrology Present? | Yes ____ No ✓ | **If yes, optional Wetland Site ID:** | |

**Remarks: (Explain alternative procedures here or in a separate report)**
Based on the absence of the wetland hydrology and hydric soil parameters, this area is an upland.

### HYDROLOGY

**Wetland Hydrology Indicators:**

**Primary Indicators (minimum of one is required; check all that apply)**

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

**Secondary Indicators (minimum of two required)**

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ____ No ✓ | Depth (inches): | |
| Water Table Present? | Yes ____ No ✓ | Depth (inches): | **Wetland Hydrology Present?** Yes ____ No ✓ |
| Saturation Present? (includes capillary fringe) | Yes ____ No ✓ | Depth (inches): | |

**Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:**
Topo maps, soils map, WWI map, aerial imagery

**Remarks:**
The criterion for wetland hydrology is not met. Based on WETS analysis, antecedent hydrologic conditions are wetter than normal.

VEGETATION -- Use scientific names of plants.

Sampling Point: SP-10

| Tree Stratum (Plot size: 30' r) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Acer negundo* | 20 | Yes | FAC |
| 2. *Quercus bicolor* | 5 | Yes | FACW |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 25 | = Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 15' r)** | | | |
| 1. *Lonicera tatarica* | 20 | Yes | FACU |
| 2. *Acer negundo* | 5 | Yes | FAC |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 25 | = Total Cover | |
| **Herb Stratum (Plot size: 5' r)** | | | |
| 1. *Rhamnus cathartica* | 10 | Yes | FAC |
| 2. *Solanum dulcamara* | 5 | Yes | FAC |
| 3. *Geum canadense* | 5 | Yes | FAC |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| 12. | | | |
| | 20 | = Total Cover | |
| **Woody Vine Stratum (Plot size: 30' r)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0 | = Total Cover | |

**Dominance Test worksheet:**

| | | |
|---|---|---|
| Number of Dominant Species That Are OBL, FACW, or FAC: | 6 | (A) |
| Total Number of Dominant Species Across All Strata: | 7 | (B) |
| Percent of Dominant Species That Are OBL, FACW, or FAC: | 85.7 | (A/B) |

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply By: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 5 | x 2 = | 10 |
| FAC species | 45 | x 3 = | 135 |
| FACU species | 20 | x 4 = | 80 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals | 70 | (A) | 225 (B) |
| Prevalence Index = B/A = | 3.2 | | |

**Hydrophytic Vegetation Indicators:**

____ 1- Rapid Test for Hydrophytic Vegetation

_✓_ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤ 3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** Yes _✓_ No ____

**Remarks: (Include photo numbers here or on a separate sheet.)**

The criterion for hydrophytic vegetation is met. Upland woodland.

SOIL

Sampling Point: SP-10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0 - 15 | 10YR 3/2 | 100 | | | | | Loam | |
| 15 - 24 | 2.5Y 4/3 | 95 | 10YR 6/6 | 5 | C | M | Loam | |

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

**Hydric Soil Indicators:**

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR R, MLRA 149B)**
___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
___ Loamy Mucky Mineral (F1) **(LRR K, L)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
___ Coast Prairie Redox (A16) **(LRR K, L, R)**
___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
___ Dark Surface (S7) **(LRR K, L)**
___ Polyvalue Below Surface (S8) **(LRR K, L)**
___ Thin Dark Surface (S9) **(LRR K, L)**
___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: None
Depth (inches): NA

**Hydric Soil Present?** Yes ____ No ✓

**Remarks:**

The criterion for hydric soil is not met.

**Photo of Sample Plot**

North

West

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

**Project/Site:** Yahara Hills Golf Course **City/County:** Madison, Dane **Sampling Date:** 2021-Nov-09
**Applicant/Owner:** Dane County Waste & Renewables **State:** Wisconsin **Sampling Point:** SP-11
**Investigator(s):** Ron Londre **Section, Township, Range:** 25-T7N-R10E
**Landform (hillslope, terrace, etc.):** Toe slope **Local relief (concave, convex, none):** Concave **Slope (%):** 1-3
**Subregion (LRR or MLRA):** LRR K **Lat:** 43.04102 **Long:** -89.25106 **Datum:** WGS84
**Soil Map Unit Name:** Virgil silt loam, gravelly substratum, 0 to 3 percent slopes **WWI classification:** None
**Are climatic/hydrologic conditions on the site typical for this time of year?** Yes ____ No ✓ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ✓ No ____ | | |
| Hydric Soil Present? | Yes ✓ No ____ | **Is the Sampled Area within a Wetland?** | **Yes ✓ No ____** |
| Wetland Hydrology Present? | Yes ✓ No ____ | **If yes, optional Wetland Site ID:** | W-01 |

**Remarks: (Explain alternative procedures here or in a separate report)**
Based on the presence of all three parameters, this area is a wetland. Wetland ID: W-01

### HYDROLOGY

**Wetland Hydrology Indicators:**

**Primary Indicators (minimum of one is required; check all that apply)**

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
✓ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

**Secondary Indicators (minimum of two required)**

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
✓ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
✓ FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ____ No ✓ | Depth (inches): | |
| Water Table Present? | Yes ____ No ✓ | Depth (inches): | **Wetland Hydrology Present?** Yes ✓ No ____ |
| Saturation Present? (includes capillary fringe) | Yes ____ No ✓ | Depth (inches): | |

**Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:**
Topo maps, soils map, WWI map, aerial imagery

**Remarks:**
The criterion for wetland hydrology is met. Based on WETS analysis, antecedent hydrologic conditions are wetter than normal.

VEGETATION -- Use scientific names of plants.

Sampling Point: SP-11

| Tree Stratum (Plot size: 30' r) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Quercus bicolor* | 50 | Yes | FACW |
| 2. *Acer negundo* | 5 | No | FAC |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 55 | = Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 15' r)** | | | |
| 1. *Cornus racemosa* | 5 | Yes | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 5 | = Total Cover | |
| **Herb Stratum (Plot size: 5' r)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| 12. | | | |
| | 0 | = Total Cover | |
| **Woody Vine Stratum (Plot size: 30' r)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0 | = Total Cover | |

**Dominance Test worksheet:**

| | | |
|---|---|---|
| Number of Dominant Species That Are OBL, FACW, or FAC: | 2 | (A) |
| Total Number of Dominant Species Across All Strata: | 2 | (B) |
| Percent of Dominant Species That Are OBL, FACW, or FAC: | 100 | (A/B) |

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply By: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 50 | x 2 = | 100 |
| FAC species | 10 | x 3 = | 30 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals | 60 | (A) | 130 (B) |

Prevalence Index = B/A = 2.2

**Hydrophytic Vegetation Indicators:**

____ 1- Rapid Test for Hydrophytic Vegetation

_✓_ 2 - Dominance Test is >50%

_✓_ 3 - Prevalence Index is ≤ 3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** Yes _✓_ No ____

**Remarks: (Include photo numbers here or on a separate sheet.)**

The criterion for hydrophytic vegetation is met. Floodplain Forest plant community.

SOIL

Sampling Point: SP-11

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0 - 13 | 10YR 4/1 | 90 | 7.5YR 4/6 | 10 | C | M | Silty Clay Loam | |
| 13 - 24 | 10YR 5/1 | 90 | 10YR 5/6 | 10 | C | M | Silty Clay Loam | |

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

**Hydric Soil Indicators:**

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR R, MLRA 149B)**
___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
___ Loamy Mucky Mineral (F1) **(LRR K, L)**
___ Loamy Gleyed Matrix (F2)
_✓_ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
___ Coast Prairie Redox (A16) **(LRR K, L, R)**
___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
___ Dark Surface (S7) **(LRR K, L)**
___ Polyvalue Below Surface (S8) **(LRR K, L)**
___ Thin Dark Surface (S9) **(LRR K, L)**
___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: None
Depth (inches): NA

**Hydric Soil Present?** Yes _✓_ No ____

**Remarks:**

The criterion for hydric soil is met.

Photo of Sample Plot

East

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

**Project/Site:** Yahara Hills Golf Course **City/County:** Madison, Dane **Sampling Date:** 2021-Nov-09
**Applicant/Owner:** Dane County Waste & Renewables **State:** Wisconsin **Sampling Point:** SP-12
**Investigator(s):** Ron Londre **Section, Township, Range:** 25-T7N-R10E
**Landform (hillslope, terrace, etc.):** Back slope **Local relief (concave, convex, none):** Convex **Slope (%):** 3-6
**Subregion (LRR or MLRA):** LRR K **Lat:** 43.04033 **Long:** -89.25411 **Datum:** WGS84
**Soil Map Unit Name:** St. Charles silt loam, 2 to 6 percent slopes **WWI classification:** None
**Are climatic/hydrologic conditions on the site typical for this time of year?** Yes ____ No ✓ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ____ No ✓ | | |
| Hydric Soil Present? | Yes ____ No ✓ | **Is the Sampled Area within a Wetland?** | **Yes ____ No ✓** |
| Wetland Hydrology Present? | Yes ____ No ✓ | **If yes, optional Wetland Site ID:** | |

**Remarks: (Explain alternative procedures here or in a separate report)**
Based on the absence of all three parameters, this area is an upland.

### HYDROLOGY

**Wetland Hydrology Indicators:**

**Primary Indicators (minimum of one is required; check all that apply)**

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

**Secondary Indicators (minimum of two required)**

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ____ No ✓ | Depth (inches): | |
| Water Table Present? | Yes ____ No ✓ | Depth (inches): | **Wetland Hydrology Present?** Yes ____ No ✓ |
| Saturation Present? (includes capillary fringe) | Yes ____ No ✓ | Depth (inches): | |

**Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:**
Topo maps, soils map, WWI map, aerial imagery

**Remarks:**
The criterion for wetland hydrology is not met. Based on WETS analysis, antecedent hydrologic conditions are wetter than normal.

VEGETATION -- Use scientific names of plants.

Sampling Point: SP-12

| Tree Stratum (Plot size: 30' r) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 0 | = Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 15' r)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 0 | = Total Cover | |
| **Herb Stratum (Plot size: 5' r)** | | | |
| 1. *Poa pratensis* | 70 | Yes | FACU |
| 2. *Festuca rubra* | 15 | No | FACU |
| 3. *Glechoma hederacea* | 15 | No | FACU |
| 4. *Cirsium arvense* | 5 | No | FACU |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| 12. | | | |
| | 105 | = Total Cover | |
| **Woody Vine Stratum (Plot size: 30' r)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0 | = Total Cover | |

**Dominance Test worksheet:**

| | | |
|---|---|---|
| Number of Dominant Species That Are OBL, FACW, or FAC: | 0 | (A) |
| Total Number of Dominant Species Across All Strata: | 1 | (B) |
| Percent of Dominant Species That Are OBL, FACW, or FAC: | 0 | (A/B) |

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply By: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 105 | x 4 = | 420 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals | 105 | (A) | 420 (B) |
| Prevalence Index = B/A = | 4 | | |

**Hydrophytic Vegetation Indicators:**

____ 1- Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is > 50%

____ 3 - Prevalence Index is ≤ 3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** Yes ____ No ✓

**Remarks: (Include photo numbers here or on a separate sheet.)**

The criterion for hydrophytic vegetation is not met. Deep rough.

SOIL

Sampling Point: SP-12

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0 - 13 | 10YR 4/3 | 100 | | | | | Silty Clay Loam | |
| 13 - 24 | 10YR 5/3 | 95 | 10YR 4/6 | 5 | C | M | Silty Clay Loam | |

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

**Hydric Soil Indicators:**

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR R, MLRA 149B)**
___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
___ Loamy Mucky Mineral (F1) **(LRR K, L)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
___ Coast Prairie Redox (A16) **(LRR K, L, R)**
___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
___ Dark Surface (S7) **(LRR K, L)**
___ Polyvalue Below Surface (S8) **(LRR K, L)**
___ Thin Dark Surface (S9) **(LRR K, L)**
___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: None
Depth (inches): NA

**Hydric Soil Present?** Yes ____ No ✓

**Remarks:**

The criterion for hydric soil is not met.

Photo of Sample Plot

North

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

**Project/Site:** Yahara Hills Golf Course **City/County:** Madison, Dane **Sampling Date:** 2021-Nov-09
**Applicant/Owner:** Dane County Waste & Renewables **State:** Wisconsin **Sampling Point:** SP-13
**Investigator(s):** Amanda Larsen **Section, Township, Range:** 25-T7N-R10E
**Landform (hillslope, terrace, etc.):** Depression **Local relief (concave, convex, none):** Flat **Slope (%):** 1-3
**Subregion (LRR or MLRA):** LRR K **Lat:** 43.03589 **Long:** -89.2486 **Datum:** WGS84
**Soil Map Unit Name:** Virgil silt loam, gravelly substratum, 0 to 3 percent slopes **WWI classification:** None
**Are climatic/hydrologic conditions on the site typical for this time of year?** Yes ____ No ✓ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ✓ No ____ | | |
| Hydric Soil Present? | Yes ✓ No ____ | **Is the Sampled Area within a Wetland?** | **Yes ✓ No ____** |
| Wetland Hydrology Present? | Yes ✓ No ____ | **If yes, optional Wetland Site ID:** | W-4 |

**Remarks: (Explain alternative procedures here or in a separate report)**
Based on the presence of all three parameters, this area is a wetland. Wetland ID: W-4

### HYDROLOGY

**Wetland Hydrology Indicators:**

**Primary Indicators (minimum of one is required; check all that apply)**

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

**Secondary Indicators (minimum of two required)**

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
✓ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
✓ FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ____ No ✓ | Depth (inches): | |
| Water Table Present? | Yes ____ No ✓ | Depth (inches): | **Wetland Hydrology Present?** Yes ✓ No ____ |
| Saturation Present? (includes capillary fringe) | Yes ____ No ✓ | Depth (inches): | |

**Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:**
Topo maps, soils map, WWI map, aerial imagery

**Remarks:**
The criterion for wetland hydrology is met. Based on WETS analysis, antecedent hydrologic conditions are wetter than normal.

VEGETATION -- Use scientific names of plants.

Sampling Point: SP-13

| Tree Stratum (Plot size: 30' r) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Acer saccharinum* | 5 | Yes | FACW |
| 2. *Juglans nigra* | 3 | Yes | FACU |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 8 | = Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 15' r)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 0 | = Total Cover | |
| **Herb Stratum (Plot size: 5' r)** | | | |
| 1. *Phalaris arundinacea* | 100 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| 12. | | | |
| | 100 | = Total Cover | |
| **Woody Vine Stratum (Plot size: 30' r)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0 | = Total Cover | |

**Dominance Test worksheet:**

| | | |
|---|---|---|
| Number of Dominant Species That Are OBL, FACW, or FAC: | 2 | (A) |
| Total Number of Dominant Species Across All Strata: | 3 | (B) |
| Percent of Dominant Species That Are OBL, FACW, or FAC: | 66.7 | (A/B) |

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply By: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 105 | x 2 = | 210 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 3 | x 4 = | 12 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals | 108 | (A) | 222 (B) |
| Prevalence Index = B/A = | 2.1 | | |

**Hydrophytic Vegetation Indicators:**

____ 1- Rapid Test for Hydrophytic Vegetation

_✓_ 2 - Dominance Test is >50%

_✓_ 3 - Prevalence Index is ≤ 3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** Yes _✓_ No ____

**Remarks: (Include photo numbers here or on a separate sheet.)**

The criterion for hydrophytic vegetation is met. Fresh (wet) Meadow plant community.

SOIL

Sampling Point: SP-13

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0 - 4 | 10YR 3/2 | 90 | 10YR 5/8 | 10 | C | M | Loam | |
| 4 - 14 | 10YR 4/1 | 85 | 10YR 5/8 | 15 | C | M | Silty Clay Loam | |
| 14 - 24 | 10YR 4/3 | 100 | | | | | Clay | |

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

**Hydric Soil Indicators:**

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
_✓_ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR R, MLRA 149B)**
___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
___ Loamy Mucky Mineral (F1) **(LRR K, L)**
___ Loamy Gleyed Matrix (F2)
_✓_ Depleted Matrix (F3)
_✓_ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
___ Coast Prairie Redox (A16) **(LRR K, L, R)**
___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
___ Dark Surface (S7) **(LRR K, L)**
___ Polyvalue Below Surface (S8) **(LRR K, L)**
___ Thin Dark Surface (S9) **(LRR K, L)**
___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: None
Depth (inches): NA

**Hydric Soil Present?** Yes _✓_ No ____

**Remarks:**

The criterion for hydric soil is met.

**Photo of Sample Plot**

Southeast

Northeast

Southwest

North

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

**Project/Site:** Yahara Hills Golf Course **City/County:** Madison, Dane **Sampling Date:** 2021-Nov-09
**Applicant/Owner:** Dane County Waste & Renewables **State:** Wisconsin **Sampling Point:** SP-14
**Investigator(s):** Amanda Larsen **Section, Township, Range:** 25-T7N-R10E
**Landform (hillslope, terrace, etc.):** Hillslope **Local relief (concave, convex, none):** Flat **Slope (%):** 2-5
**Subregion (LRR or MLRA):** LRR K **Lat:** 43.03596 **Long:** -89.24868 **Datum:** WGS84
**Soil Map Unit Name:** Virgil silt loam, gravelly substratum, 0 to 3 percent slopes **WWI classification:** None
**Are climatic/hydrologic conditions on the site typical for this time of year?** Yes ____ No ✓ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ____ No ✓ | | |
| Hydric Soil Present? | Yes ____ No ✓ | **Is the Sampled Area within a Wetland?** | **Yes ____ No ✓** |
| Wetland Hydrology Present? | Yes ____ No ✓ | **If yes, optional Wetland Site ID:** | |

**Remarks: (Explain alternative procedures here or in a separate report)**
Based on the absence of all three parameters, this area is an upland.

### HYDROLOGY

**Wetland Hydrology Indicators:**

**Primary Indicators (minimum of one is required; check all that apply)**

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

**Secondary Indicators (minimum of two required)**

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ____ No ✓ | Depth (inches): | |
| Water Table Present? | Yes ____ No ✓ | Depth (inches): | **Wetland Hydrology Present?** Yes ____ No ✓ |
| Saturation Present? (includes capillary fringe) | Yes ____ No ✓ | Depth (inches): | |

**Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:**
Topo maps, soils map, WWI map, aerial imagery

**Remarks:**
The criterion for wetland hydrology is not met. Based on WETS analysis, antecedent hydrologic conditions are wetter than normal.

VEGETATION -- Use scientific names of plants.

Sampling Point: SP-14

| Tree Stratum (Plot size: 30' r) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Acer saccharinum* | 15 | Yes | FACW |
| 2. *Juglans nigra* | 10 | Yes | FACU |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 25 | = Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 15' r)** | | | |
| 1. *Rubus idaeus* | 20 | Yes | FACU |
| 2. *Juglans nigra* | 5 | Yes | FACU |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 25 | = Total Cover | |
| **Herb Stratum (Plot size: 5' r)** | | | |
| 1. *Glechoma hederacea* | 60 | Yes | FACU |
| 2. *Phalaris arundinacea* | 20 | Yes | FACW |
| 3. *Arctium minus* | 15 | No | FACU |
| 4. *Pastinaca sativa* | 10 | No | UPL |
| 5. *Elymus repens* | 10 | No | FACU |
| 6. *Cirsium discolor* | 5 | No | UPL |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| 12. | | | |
| | 120 | = Total Cover | |
| **Woody Vine Stratum (Plot size: 30' r)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0 | = Total Cover | |

**Dominance Test worksheet:**

| | | |
|---|---|---|
| Number of Dominant Species That Are OBL, FACW, or FAC: | 2 | (A) |
| Total Number of Dominant Species Across All Strata: | 6 | (B) |
| Percent of Dominant Species That Are OBL, FACW, or FAC: | 33.3 | (A/B) |

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply By: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 35 | x 2 = | 70 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 120 | x 4 = | 480 |
| UPL species | 15 | x 5 = | 75 |
| Column Totals | 170 | (A) | 625 (B) |

Prevalence Index = B/A = 3.7

**Hydrophytic Vegetation Indicators:**

____ 1- Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is > 50%

____ 3 - Prevalence Index is ≤ 3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** Yes ____ No ✓

**Remarks: (Include photo numbers here or on a separate sheet.)**

The criterion for hydrophytic vegetation is not met. Fallow field.

SOIL

Sampling Point: SP-14

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0 - 11 | 10YR 3/3 | 100 | | | | | Loam | |
| 11 - 24 | 10YR 5/4 | 100 | | | | | Clay | |

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

**Hydric Soil Indicators:**

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR R, MLRA 149B)**
___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
___ Loamy Mucky Mineral (F1) **(LRR K, L)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
___ Coast Prairie Redox (A16) **(LRR K, L, R)**
___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
___ Dark Surface (S7) **(LRR K, L)**
___ Polyvalue Below Surface (S8) **(LRR K, L)**
___ Thin Dark Surface (S9) **(LRR K, L)**
___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: None
Depth (inches): NA

**Hydric Soil Present?** Yes ____ No ✓

**Remarks:**

The criterion for hydric soil is not met.

Photo of Sample Plot

East

North

West

Southeast

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

**Project/Site:** Yahara Hills Golf Course **City/County:** Madison, Dane **Sampling Date:** 2021-Nov-09
**Applicant/Owner:** Dane County Waste & Renewables **State:** Wisconsin **Sampling Point:** SP-15
**Investigator(s):** Amanda Larsen **Section, Township, Range:** 25-T7N-R10E
**Landform (hillslope, terrace, etc.):** Toe slope **Local relief (concave, convex, none):** Concave **Slope (%):** 1-3
**Subregion (LRR or MLRA):** LRR K **Lat:** 43.03647 **Long:** -89.25088 **Datum:** WGS84
**Soil Map Unit Name:** Virgil silt loam, gravelly substratum, 0 to 3 percent slopes **WWI classification:** W0Hx
**Are climatic/hydrologic conditions on the site typical for this time of year?** Yes ____ No ✓ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ✓ No ____ | | |
| Hydric Soil Present? | Yes ✓ No ____ | **Is the Sampled Area within a Wetland?** | **Yes ✓ No ____** |
| Wetland Hydrology Present? | Yes ✓ No ____ | **If yes, optional Wetland Site ID:** | W-5 |

**Remarks: (Explain alternative procedures here or in a separate report)**
Based on the presence of all three parameters, this area is a wetland. Wetland fringe on pond edge. Wetland ID: W-5

### HYDROLOGY

**Wetland Hydrology Indicators:**

**Primary Indicators (minimum of one is required; check all that apply)**

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

**Secondary Indicators (minimum of two required)**

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
✓ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
✓ FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ____ No ✓ | Depth (inches): | |
| Water Table Present? | Yes ____ No ✓ | Depth (inches): | |
| Saturation Present? (includes capillary fringe) | Yes ✓ No ____ | Depth (inches): | 0 |

**Wetland Hydrology Present?** Yes ✓ No ____

**Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:**
Topo maps, soils map, WWI map, aerial imagery

**Remarks:**
The criterion for wetland hydrology is met. Based on WETS analysis, antecedent hydrologic conditions are wetter than normal. Soil is episaturated.

VEGETATION -- Use scientific names of plants.

Sampling Point: SP-15

| Tree Stratum (Plot size: 5' x 40') | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 0 | = Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 5' x 40')** | | | |
| 1. *Salix interior* | 15 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 15 | = Total Cover | |
| **Herb Stratum (Plot size: 5'x 40')** | | | |
| 1. *Phalaris arundinacea* | 60 | Yes | FACW |
| 2. *Agrostis stolonifera* | 30 | Yes | FACW |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| 12. | | | |
| | 90 | = Total Cover | |
| **Woody Vine Stratum (Plot size: 5' x 40')** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0 | = Total Cover | |

**Dominance Test worksheet:**

| | | |
|---|---|---|
| Number of Dominant Species That Are OBL, FACW, or FAC: | 3 | (A) |
| Total Number of Dominant Species Across All Strata: | 3 | (B) |
| Percent of Dominant Species That Are OBL, FACW, or FAC: | 100 | (A/B) |

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply By: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 105 | x 2 = | 210 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals | 105 | (A) | 210 (B) |
| Prevalence Index = B/A = | 2 | | |

**Hydrophytic Vegetation Indicators:**

✓ 1- Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤ 3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** Yes ✓ No ____

**Remarks: (Include photo numbers here or on a separate sheet.)**

The criterion for hydrophytic vegetation is met. Fresh (wet) Meadow plant community.

SOIL

Sampling Point: SP-15

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0 - 6 | 10YR 3/2 | 95 | 10YR 5/8 | 5 | C | M | Loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
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| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

**Hydric Soil Indicators:**

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR R, MLRA 149B)**
___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
___ Loamy Mucky Mineral (F1) **(LRR K, L)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
✓ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
___ Coast Prairie Redox (A16) **(LRR K, L, R)**
___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
___ Dark Surface (S7) **(LRR K, L)**
___ Polyvalue Below Surface (S8) **(LRR K, L)**
___ Thin Dark Surface (S9) **(LRR K, L)**
___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: None
Depth (inches): NA

**Hydric Soil Present?** Yes ✓ No ____

**Remarks:**

The criterion for hydric soil is met. Refusal on rocks at 6 inches.

Photo of Sample Plot

South

East

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

**Project/Site:** Yahara Hills Golf Course **City/County:** Madison, Dane **Sampling Date:** 2021-Nov-09
**Applicant/Owner:** Dane County Waste & Renewables **State:** Wisconsin **Sampling Point:** SP-16
**Investigator(s):** Amanda Larsen **Section, Township, Range:** 25-T7N-R10E
**Landform (hillslope, terrace, etc.):** Shoulder slope **Local relief (concave, convex, none):** Convex **Slope (%):** 3-6
**Subregion (LRR or MLRA):** LRR K **Lat:** 43.03657 **Long:** -89.25099 **Datum:** WGS84
**Soil Map Unit Name:** Virgil silt loam, gravelly substratum, 0 to 3 percent slopes **WWI classification:** W0Hx
**Are climatic/hydrologic conditions on the site typical for this time of year?** Yes ____ No ✓ (If no, explain in Remarks.)
Are Vegetation ✓, Soil ___, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✓
Are Vegetation ___, Soil ___, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ____ No ✓ | | |
| Hydric Soil Present? | Yes ____ No ✓ | **Is the Sampled Area within a Wetland?** | **Yes ____ No ✓** |
| Wetland Hydrology Present? | Yes ____ No ✓ | **If yes, optional Wetland Site ID:** | |

**Remarks: (Explain alternative procedures here or in a separate report)**
Based on the absence of all three parameters, this area is an upland. Circumstances are not normal due to mowing of vegetation.

### HYDROLOGY

**Wetland Hydrology Indicators:**

**Primary Indicators (minimum of one is required; check all that apply)**

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

**Secondary Indicators (minimum of two required)**

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ____ No ✓ | Depth (inches): | |
| Water Table Present? | Yes ____ No ✓ | Depth (inches): | **Wetland Hydrology Present?** Yes ____ No ✓ |
| Saturation Present? (includes capillary fringe) | Yes ____ No ✓ | Depth (inches): | |

**Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:**
Topo maps, soils map, WWI map, aerial imagery

**Remarks:**
The criterion for wetland hydrology is not met. Based on WETS analysis, antecedent hydrologic conditions are wetter than normal.

VEGETATION -- Use scientific names of plants.

Sampling Point: SP-16

| Tree Stratum (Plot size: 30' r) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Pinus strobus* | 30 | Yes | FACU |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 30 | = Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 15' r)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 0 | = Total Cover | |
| **Herb Stratum (Plot size: 5' r)** | | | |
| 1. *Poa compressa* | 80 | Yes | FACU |
| 2. *Poa pratensis* | 30 | Yes | FACU |
| 3. *Taraxacum officinale* | 15 | No | FACU |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| 12. | | | |
| | 125 | = Total Cover | |
| **Woody Vine Stratum (Plot size: 30' r)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0 | = Total Cover | |

**Dominance Test worksheet:**

| | | |
|---|---|---|
| Number of Dominant Species That Are OBL, FACW, or FAC: | 0 | (A) |
| Total Number of Dominant Species Across All Strata: | 3 | (B) |
| Percent of Dominant Species That Are OBL, FACW, or FAC: | 0 | (A/B) |

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply By: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 155 | x 4 = | 620 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals | 155 | (A) | 620 (B) |
| Prevalence Index = B/A = | 4 | | |

**Hydrophytic Vegetation Indicators:**

_____ 1- Rapid Test for Hydrophytic Vegetation

_____ 2 - Dominance Test is > 50%

_____ 3 - Prevalence Index is ≤ 3.0[1]

_____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

_____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** Yes _____ No ✓

**Remarks: (Include photo numbers here or on a separate sheet.)**

The criterion for hydrophytic vegetation is not met. Vegetation significantly disturbed as a result of mowing. Planted turf grass area.

SOIL

Sampling Point: SP-16

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0 - 5 | 10YR 3/1 | 100 | | | | | Loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

**Hydric Soil Indicators:**

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR R, MLRA 149B)**
___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
___ Loamy Mucky Mineral (F1) **(LRR K, L)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
___ Coast Prairie Redox (A16) **(LRR K, L, R)**
___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
___ Dark Surface (S7) **(LRR K, L)**
___ Polyvalue Below Surface (S8) **(LRR K, L)**
___ Thin Dark Surface (S9) **(LRR K, L)**
___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: None
Depth (inches): NA

**Hydric Soil Present?** Yes ____ No ✓

**Remarks:**

The criterion for hydric soil is not met. Refusal on fill at 5 inches.

Photo of Sample Plot

East

West

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

**Project/Site:** Yahara Hills Golf Course **City/County:** Madison, Dane **Sampling Date:** 2021-Nov-09
**Applicant/Owner:** Dane County Waste & Renewables **State:** Wisconsin **Sampling Point:** SP-17
**Investigator(s):** Amanda Larsen **Section, Township, Range:** 25-T7N-R10E
**Landform (hillslope, terrace, etc.):** Toe slope **Local relief (concave, convex, none):** Concave **Slope (%):** 1-3
**Subregion (LRR or MLRA):** LRR K **Lat:** 43.03652 **Long:** -89.25112 **Datum:** WGS84
**Soil Map Unit Name:** Virgil silt loam, gravelly substratum, 0 to 3 percent slopes **WWI classification:** W0Hx
**Are climatic/hydrologic conditions on the site typical for this time of year?** Yes ____ No ✓ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ✓ No ____ | | |
| Hydric Soil Present? | Yes ✓ No ____ | **Is the Sampled Area within a Wetland?** | **Yes ✓ No ____** |
| Wetland Hydrology Present? | Yes ✓ No ____ | **If yes, optional Wetland Site ID:** | W-5 |

**Remarks: (Explain alternative procedures here or in a separate report)**
Based on the presence of all three parameters, this area is a wetland. Wetland ID: W-5

### HYDROLOGY

**Wetland Hydrology Indicators:**

**Primary Indicators (minimum of one is required; check all that apply)**

___ Surface Water (A1)
___ High Water Table (A2)
✓ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

**Secondary Indicators (minimum of two required)**

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
✓ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
✓ FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ____ No ✓ | Depth (inches): | |
| Water Table Present? | Yes ____ No ✓ | Depth (inches): | |
| Saturation Present? (includes capillary fringe) | Yes ✓ No ____ | Depth (inches): | 0 |

**Wetland Hydrology Present?** Yes ✓ No ____

**Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:**
Topo maps, soils map, WWI map, aerial imagery

**Remarks:**
The criterion for wetland hydrology is met. Based on WETS analysis, antecedent hydrologic conditions are wetter than normal. Soil is episaturated. 0-6 inches saturated.

VEGETATION -- Use scientific names of plants.

Sampling Point: SP-17

| Tree Stratum (Plot size: 5' x 40') | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 0 | = Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 5' x 40')** | | | |
| 1. *Salix interior* | 40 | Yes | FACW |
| 2. *Rhamnus cathartica* | 5 | No | FAC |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 45 | = Total Cover | |
| **Herb Stratum (Plot size: 5' x 40')** | | | |
| 1. *Phalaris arundinacea* | 45 | Yes | FACW |
| 2. *Arctium minus* | 5 | No | FACU |
| 3. *Dipsacus fullonum* | 3 | No | FACU |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| 12. | | | |
| | 53 | = Total Cover | |
| **Woody Vine Stratum (Plot size: 5' x 40')** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0 | = Total Cover | |

**Dominance Test worksheet:**

| | | |
|---|---|---|
| Number of Dominant Species That Are OBL, FACW, or FAC: | 2 | (A) |
| Total Number of Dominant Species Across All Strata: | 2 | (B) |
| Percent of Dominant Species That Are OBL, FACW, or FAC: | 100 | (A/B) |

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply By: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 85 | x 2 = | 170 |
| FAC species | 5 | x 3 = | 15 |
| FACU species | 8 | x 4 = | 32 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals | 98 | (A) | 217 (B) |
| Prevalence Index = B/A = | 2.2 | | |

**Hydrophytic Vegetation Indicators:**

✓ 1- Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤ 3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** Yes ✓ No ____

**Remarks: (Include photo numbers here or on a separate sheet.)**

The criterion for hydrophytic vegetation is met. Shrub-Carr plant community.

SOIL

Sampling Point: SP-17

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0 - 6 | 10YR 3/2 | 95 | 10YR 5/8 | 5 | C | M | Loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

**Hydric Soil Indicators:**

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR R, MLRA 149B)**
___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
___ Loamy Mucky Mineral (F1) **(LRR K, L)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
✓ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
___ Coast Prairie Redox (A16) **(LRR K, L, R)**
___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
___ Dark Surface (S7) **(LRR K, L)**
___ Polyvalue Below Surface (S8) **(LRR K, L)**
___ Thin Dark Surface (S9) **(LRR K, L)**
___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: None
Depth (inches): NA

**Hydric Soil Present?** Yes ✓ No ____

**Remarks:**

The criterion for hydric soil is met. Refusal on rocks at 6 inches.

**Photo of Sample Plot**

Southwest

Northeast

# Appendix E:
# Site Photographs

## Site Photographs

| Project Name | Site Location | Project No. |
|---|---|---|
| Yahara Hills Golf Course | Madison, WI | 257981 |

| Photo No. | Date |
|---|---|
| 1 | 11/9/2021 |

Description

Pond P-1, facing north-west

| Photo No. | Date |
|---|---|
| 2 | 11/9/2021 |

Description

Pond P-1 facing southeast

## Site Photographs

| Project Name | Site Location | Project No. |
|---|---|---|
| Yahara Hills Golf Course | Madison, WI | 257981 |

| Photo No. | Date |
|---|---|
| 3 | 11/9/2021 |

Description

Pond P-1, facing west

| Photo No. | Date |
|---|---|
| 4 | 11/9/2021 |

Description

Proof of growing season, *Arctium minus* (lesser burdock) and *Phalaris arundinacea* (reed canary grass)

# Site Photographs

| Project Name | Site Location | Project No. |
|---|---|---|
| Yahara Hills Golf Course | Madison, WI | 257981 |

| Photo No. | Date |
|---|---|
| 5 | 11/9/2021 |

Description

Proof of growing season, *Solanum dulcamara* (nightshade) and *Phalaris arundinacea*

| Photo No. | Date |
|---|---|
| 6 | 11/9/2021 |

Description

Proof of growing season, *Securigera varia* (purple crown vetch) and *Phalaris arundinacea* (reed canary grass)

## Site Photographs

| Project Name | Site Location | Project No. |
|---|---|---|
| Yahara Hills Golf Course | Madison, WI | 257981 |

| Photo No. | Date |
|---|---|
| 7 | 11/9/2021 |

Description

Proof of growing season, *Poa spp.* (bluegrass species) and *Cirsium discolor* (field thistle)

# Appendix F:
# Professional Opinion on Wetland Susceptibility

**Table 5: Opinion of Susceptibility for NR 151 Setback Purposes**

Note: Final authority on NR 151 protective areas rests with WDNR, but the following is TRC's opinion of each wetland's NR 151 protective area category.

| Wetland # | Least Susceptible | Moderately Susceptible | Highly Susceptible |
|---|---|---|---|
| W-1 (FWM) | X | | |
| W-1 (SC/FF) | | X | |
| W-2 | X | | |
| W-3 | X | | |
| W-4 | X | | |
| W-5 | X | | |
| | | | |

**Definitions of Susceptibility Per WDNR Administrative Code:**

Least Susceptible: Degraded wetlands dominated by invasive species (≥ 90%) such as reed canary grass. Protective area = 10% of avg wetland width, but no less than 10' or more than 30'.

Moderately Susceptible: Fens, sedge meadows, bogs, low prairies, conifer swamps, shrub swamps, other forested wetlands, fresh wet meadows, shallow marshes, deep marshes and seasonally flooded basins. Protective area = 50'.

Highly Susceptible: Outstanding/exceptional resource waters, wetlands in areas of special natural resource interest as specificed in s. NR 103.04. Protective area = 75'.

Heartland
ECOLOGICAL GROUP INC
506 Springdale Street, Mount Horeb, WI 53572

May 23, 2022

Ms. Teri Daigle
Tetra Tech
8413 Excelsior Drive, Suite 160
Madison, WI 53717

RE: Wetland Determination Summary – Dane County Landfill Site No. 3 at Yahara Golf Course, City of Madison, Dane County, Wisconsin

Dear Ms. Daigle:

Heartland Ecological Group, Inc. ("Heartland") completed an assured wetland determination within a portion of the proposed Dane County Landfill Site No. 3 at the Yahara Hills Golf Course on April 25, 2022 at the request of Tetra Tech. Fieldwork was completed by Jeff Kraemer, an assured delineator qualified via the Wisconsin Department of Natural Resources (WDNR) Wetland Delineation Assurance Program (Attachment 5, Delineator Qualifications). The 72.70-acre site (the "Study Area") lies southeast of the intersection of I39/I90 and US 12/18 in the southeast portion of the Yahara Hills Golf Course. The Study Area is in Sections 25 and 36, Township 7N, Range 10E, City of Madison, Dane County, Wisconsin (Attachment 1, Figure 1). The purpose of the wetland delineation was to determine the location and extent of wetlands within the Study Area. There were no wetlands identified within the Study Area (Attachment 1, Figure 6).

## Methods

Wetland determinations were based upon the criteria and methods described in the USACE Wetlands Delineation Manual, T.R. Y-87-1 ("1987 Corps Manual") and the applicable Regional Supplement to the Corps of Engineers Wetland Delineation Manual. In addition, the Guidance for Submittal of Delineation Reports to the St. Paul District USACE and the WDNR (WDNR, 2015) was followed in completing the wetland delineation and report.

Determinations and delineations utilized available resources including the U.S. Geological Survey's (USGS) *WI 7.5 Minute Series (Topographic) Map* (Attachment 1, Figure 2), the Natural Resource Conservation Service's (NRCS) Soil Survey Geographic Database (SSURGO), U.S. Department of Agriculture's (USDA) *Web Soil Survey* (Attachment 1, Figure 3), the Wisconsin Department of Natural Resources' *Surface Water Data Viewer's* wetland indicator data layer (Attachment 1, Figure 4), the WDNR's *Wisconsin Wetland Inventory* data layer (Attachment 1, Figure 5), and aerial imagery available through the USDA Farm Service Agency's (FSA) National Agriculture Imagery Program (NAIP), Google Earth™, and Dane County's interactive mapping. The USGS *National Hydrography Dataset* is included on Attachment 1, Figures 2 and 5.

Wetland determinations were completed on-site at sample points, often along transects if wetlands were determined to be present, using the three (3) criteria (vegetation, soil, and hydrology) approach per the 1987 Corps Manual and the Regional Supplement. Procedures in these sources were followed to demonstrate that, under normal circumstances, wetlands

were present or not present based on a predominance of hydrophytic vegetation, hydric soils, and wetland hydrology.

The growing season was determined to be underway due to the presence of emerging reed canary grass (*Phalaris arundinacea*), brome grass (*Bromus inermis*), and burdock (*Arctium minus*). Leaves were present on honey suckle shrubs *(Lonicera x bella*). Sample point placement(s) for the wetland determination(s) were based on topography and the presence of potentially hydric soils as indicated by NRCS-mapped soil units and the WDNR's SWDV.

Recent weather conditions influence the visibility or presence of certain wetland hydrology indicators and an assessment of recent precipitation patterns can assist in determining if climatic/hydrologic conditions were typical when the field investigation was completed. Therefore, a review of the antecedent precipitation in the 90 days leading up to the field investigation was completed. Using an Antecedent Precipitation Tool (APT) analysis developed by the USACE, the amount of precipitation over the preceding 90 days was compared to averages and standard deviation thresholds over the past 30 years to generally represent if conditions encountered during the investigation were normal, wet, or dry. Recent precipitation events in the days prior to the investigation were also considered while interpreting wetland hydrology indicators. In addition, the Palmer Drought Severity Index was checked for long-term drought or moist conditions (NOAA, 2018).

The sample point locations were recorded with a Global Positioning System (GPS) capable of sub-meter accuracy. Flagging was not used. The GPS data was used to map the sample points using ESRI ArcGIS Pro™ 2.9.2 Geographical Information System (GIS) software.

## Results

According to the APT analysis using the previous 90 days of precipitation data, conditions encountered at the time of the fieldwork were expected to be wetter than normal for the time of year (Attachment 2, APT Analysis). Site conditions observed during the field investigation were confirmed to be normal to wetter than normal given the time of year.

The topography within the Study Area was rolling, with various hills, depressions, and slopes and a topographic high of approximately 935 feet mean sea level (msl) in the east-central portion of the site, and a topographic low of approximately 901 feet msl near the northcentral portion of the site (Attachment 1, Figures 2 and 6). Land uses within the Study Area consist of active golf course and surrounding areas are primarily agricultural row cropping with residential, pasture, and woodland areas also present.

Soils mapped by the NRCS Soil Survey within the Study Area and their hydric status are summarized in Table 1 and illustrated on Figure 3. Those areas of the Study Area with hydric or potentially hydric soils mapped by the NRCS were the primary focus of the field wetland determination. The Wisconsin Wetland Inventory (WWI) mapping (Attachment 1, Figure 5) or the WDNR Wetland Indicator mapping does not identify wetlands or potential within the Study Area.

Table 1. Summary of NRCS Mapped Soils within the Study Area

| Soil symbol: Soil Unit Name | Soil Unit Component | Soil Unit Component Percentage | Landform | Hydric status |
|---|---|---|---|---|
| DnB: Dodge silt loam, 2 to 6 percent slopes | Dodge | 80-95 | Drumlins | No |
| | St. Charles | 3-10 | Drumlins | No |
| | Mayville | 2-7 | Drumlins | No |
| | Lamartine | 0-3 | Drumlins | No |
| DnC2: Dodge silt loam, 6 to 12 percent slopes, eroded | Dodge-Eroded | 80-90 | Drumlins | No |
| | St. Charles-Eroded | 7-13 | Till plains | No |
| | McHenry-Eroded | 3-7 | Moraines | No |
| KdD2: Kidder loam, 12 to 20 percent slopes, eroded | Kidder-Eroded | 90-100 | Moraines | No |
| | Casco-Eroded | 0-5 | Moraines | No |
| | McHenry | 0-5 | Moraines | No |
| MdC2: McHenry silt loam, 6 to 12 percent slopes, eroded | McHenry-Eroded | 85-95 | Moraines | No |
| | Kendall | 2-7 | Drainageways | No |
| | Kidder-Eroded | 3-8 | Moraines | No |
| Os: Orion silt loam, wet | Orion variant-Wet | 85-95 | Flood plains | Yes |
| | Otter | 2-6 | Flood plains | Yes |
| | Wacousta | 2-5 | Flood plains | Yes |
| | Sable | 1-4 | Flood plains | Yes |
| ScB: St. Charles silt loam, 2 to 6 percent slopes | St. Charles | 80-90 | Till plains | No |
| | St. Charles-Moderately well drained | 5-10 | Till plains | No |
| | Virgil | 3-5 | Till plains | No |
| | Pella | 2-5 | Drainageways | Yes |
| VwA: Virgil silt loam, gravelly substratum, 0 to 3 percent slopes | Virgil-Gravelly substratum | 85-95 | Drainageways on outwash plains | No |
| | Drummer-Drained | 2-6 | Depressions on outwash plains | Yes |
| | Sebewa | 2-5 | Depressions on outwash plains | Yes |

| Soil symbol: Soil Unit Name | Soil Unit Component | Soil Unit Component Percentage | Landform | Hydric status |
|---|---|---|---|---|
| | Sable | 1-4 | Depressions on outwash plains | Yes |
| WxB: Whalan silt loam, 2 to 6 percent slopes | Whalan | 100 | Hills | No |

Wetland determination data sheets (Attachment 3) were completed at one (1) sample where potential wetlands may be present based on the desktop review and field reconnaissance. Attachment 4 provides photographs, typically at the sample point locations and other representative locations of the Study Area. The sample point locations are shown on Figure 6.

Vegetation at the sample point location was comprised of shrub-scrub community at the edge of maintained fairway turf. Dominate species included smooth brome grass Kentucky blue grass (*Poa pratensis*, FACU), honey locust (*Gleditsia triacanthos*, FAC) and red pine (*Pinus resinosa*, FACU). Therefore, the hydrophytic vegetation criteria was not satisfied. No field indicators of hydric soils or indicators of wetland hydrology were observed.

Based on the results of the wetland determination, no wetlands are present within the limits of the Study Area.

Heartland recommends that all applicable regulatory agency reviews and permits are obtained prior to beginning work within the Study Area. Heartland can assist with evaluating the need for additional environmental reviews, surveys, or regulatory agency coordination in consideration of the proposed activity and land use as requested but is outside of the scope of the wetland determination.

Experienced and qualified professionals completed the wetland determination using standard practices and professional judgment. Wetland determinations may be affected by conditions present within the Study Area at the time of the fieldwork. All final decisions on wetlands are made by the USACE, the WDNR, and/or sometimes a local unit of government. Wetland determination reviews by regulatory agencies may result in modifications to the findings presented to the Client. These modifications may result from varying conditions between the time the wetland determination was completed and the time of the review. Factors that may influence the findings may include but not limited to precipitation patterns, drainage modifications, changes or modification to vegetation, and the time of year.

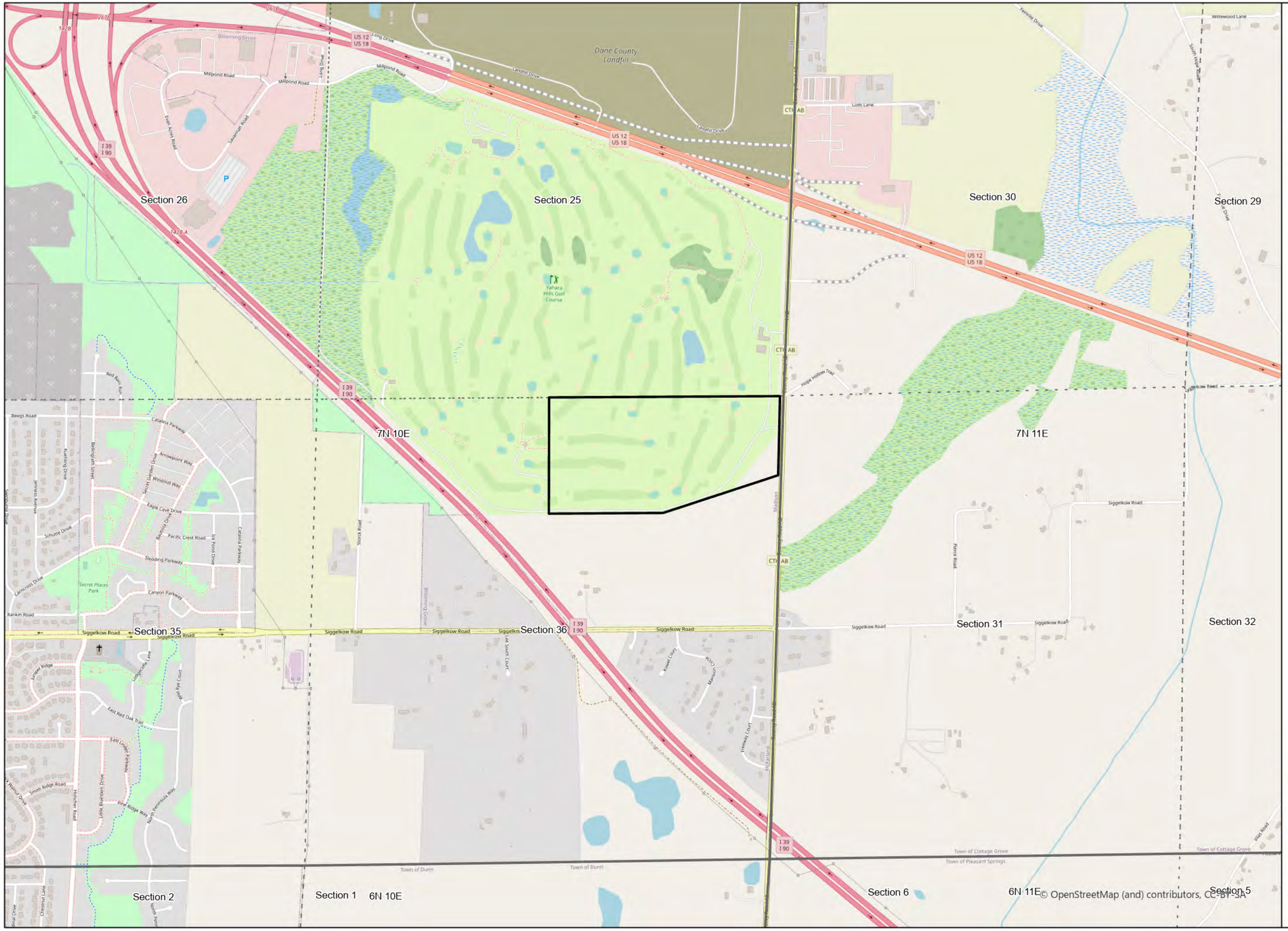
Please feel free to contact me if you have any questions regarding this wetland determination.

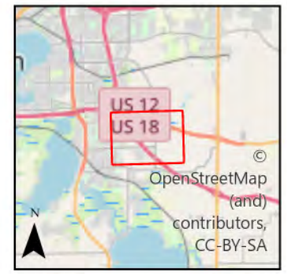
Regards,

Jeff Kraemer, Principal
Heartland Ecological Group, Inc.
jeff@heartlandecological.com
608.490.2450 Ext. 2

Attachments:
1 – Figures 1-6
2 – APT Analysis
3 – Wetland Determination Data Sheets
4 – Site Photographs
5 – Delineator Qualifications

# Attachment 1 | Figures




Study Area (72.70 ac)

Township

Section

0 510 1,020 Ft

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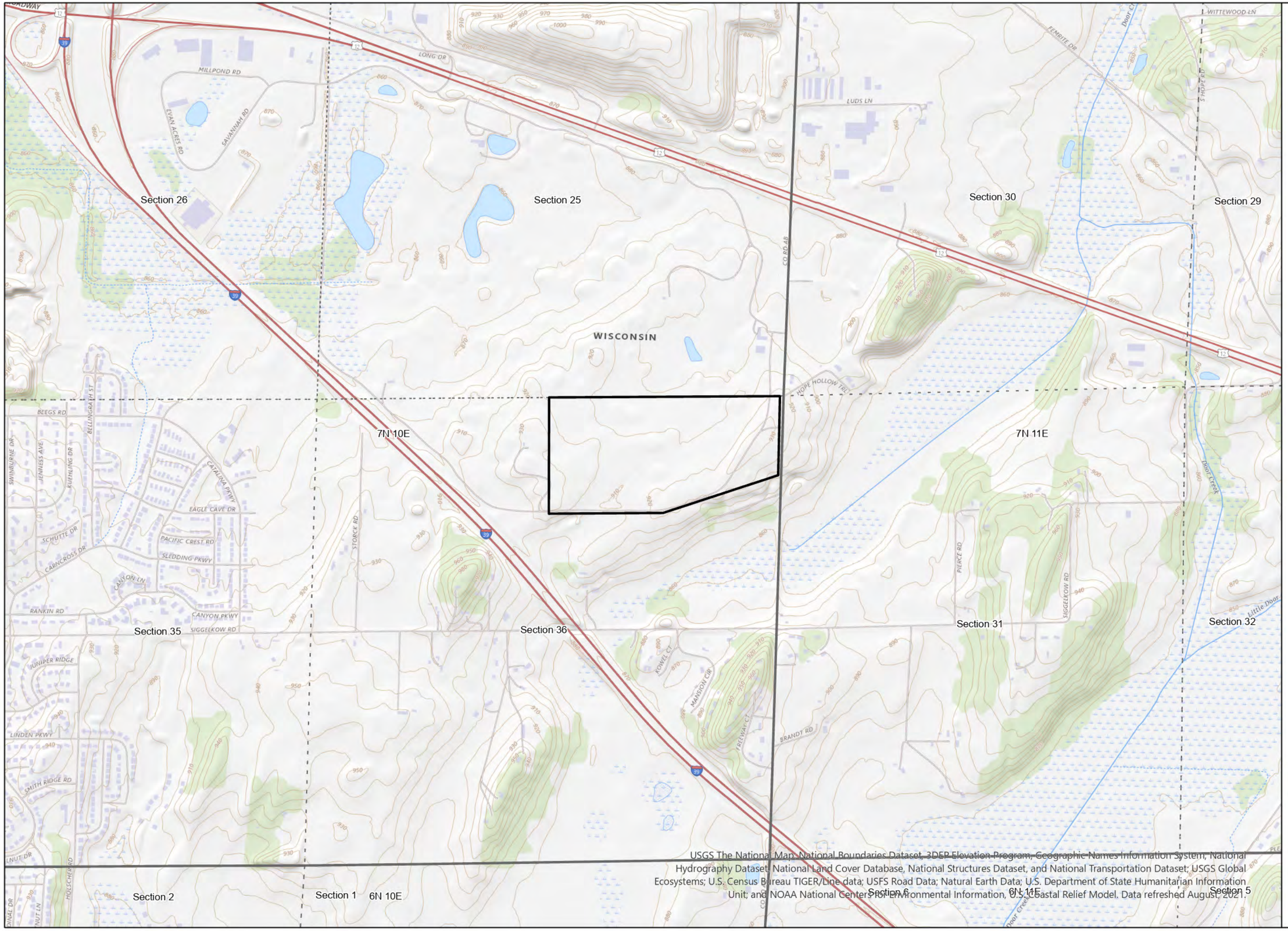
**Figure 1. Project Location**

Yahara Hills Golf Course
Project #20220702
T7N, R10E, S25 & 36
C Madison, Dane Co

OpenStreetMap
ESRI




USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed August, 2021.

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Figure 2. USGS Topography
Yahara Hills Golf Course
Project #20220702
T7N, R10E, S25 & 36
C Madison, Dane Co

USGSTopo
USGS



Study Area (72.70 ac)

## NRCS Soil Survey Data

- Hydric (100%)
- Predominantly Hydric (85-99%)
- Partially Hydric (16-84%)
- Predominantly Non-Hydric (1-15%)
- Non-Hydric (0%)

0 100 200 Ft

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Figure 3. NRCS Hydric Soils

Yahara Hills Golf Course
Project #20220702
T7N, R10E, S25 & 36
C Madison, Dane Co

2020 NAIP
NRCS



Study Area (72.70 ac)

SWDV Wetland Indicators

0 100 200 Ft

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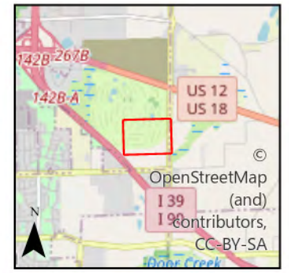
Figure 4. SWDV Wetland Indicators

Yahara Hills Golf Course
Project #20220702
T7N, R10E, S25 & 36
C Madison, Dane Co

2020 NAIP
WDNR


Study Area (72.70 ac)
WWI Wetland Polygons
WWI Wetland Points (No Features in Map Extent)
NHD Waterway (No Features in Map Extent)
NHD Waterbody

0 100 200 Ft

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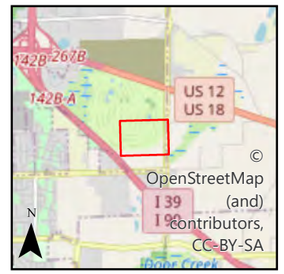
Figure 5. Wisconsin Wetland Inventory
Yahara Hills Golf Course
Project #20220702
T7N, R10E, S25 & 36
C Madison, Dane Co

2020 NAIP
WDNR, USGS


Study Area (72.70 ac)

Dane Co 1' Contours

Field Delineated Wetlands (No Wetlands Identified)

## Sample Points

Upland

0 100 200 Ft

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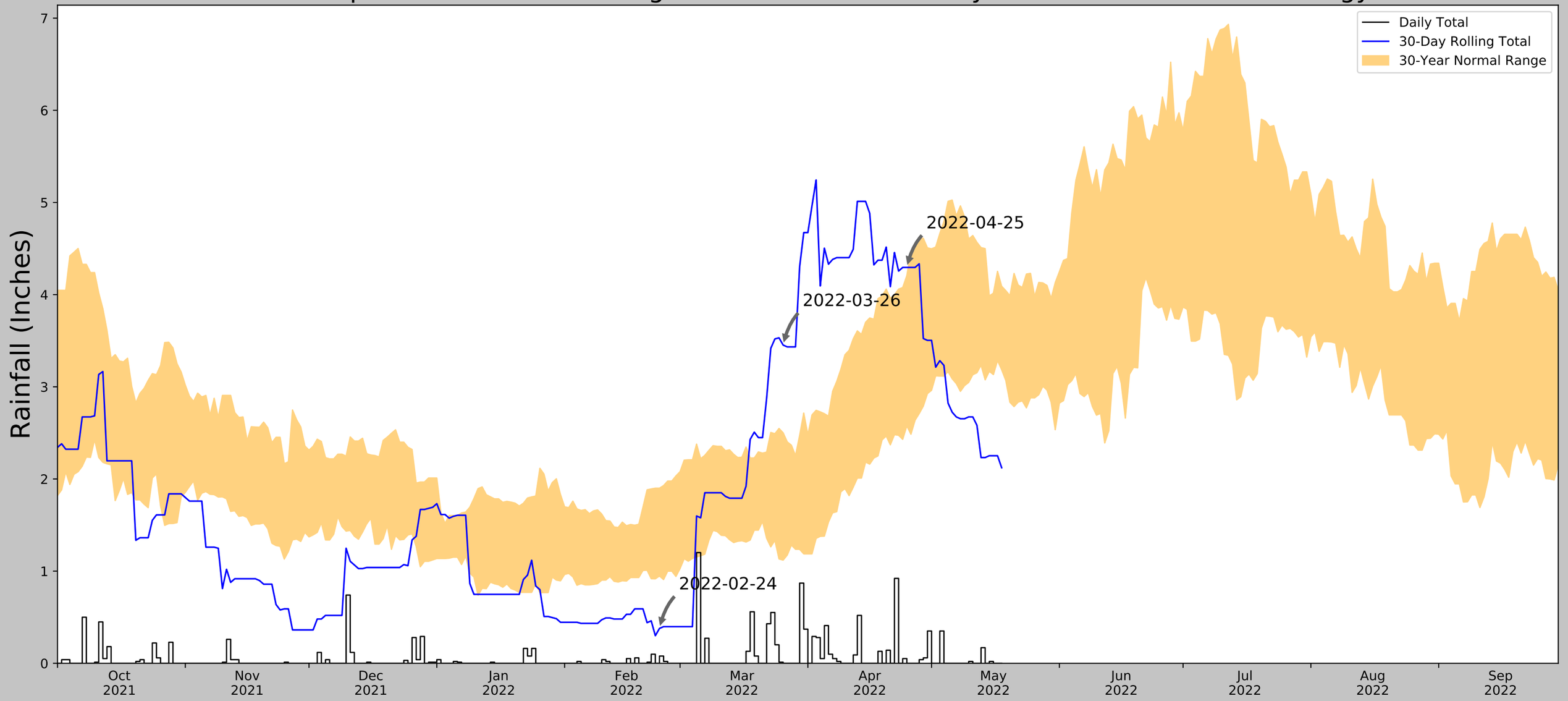
Figure 6. Field Delineated Wetlands

Yahara Hills Golf Course
Project #20220702
T7N, R10E, S25 & 36
C Madison, Dane Co

2020 NAIP
Dane Co, HEG

# Attachment 2 | APT Analysis

# Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network




| | |
|---|---|
| Coordinates | 43.041246, -89.260944 |
| Observation Date | 2022-04-25 |
| Elevation (ft) | 875.92 |
| Drought Index (PDSI) | Moderate drought |
| WebWIMP $H_2O$ Balance | Wet Season |

| 30 Days Ending | $30^{th}$ %ile (in) | $70^{th}$ %ile (in) | Observed (in) | Wetness Condition | Condition Value | Month Weight | Product |
|---|---|---|---|---|---|---|---|
| 2022-04-25 | 2.575984 | 4.206693 | 4.295276 | Wet | 3 | 3 | 9 |
| 2022-03-26 | 1.119291 | 2.501181 | 3.452756 | Wet | 3 | 2 | 6 |
| 2022-02-24 | 0.94685 | 1.9 | 0.377953 | Dry | 1 | 1 | 1 |
| Result | | | | | | | Wetter than Normal - 16 |

Figure and tables made by the
**Antecedent Precipitation Tool**
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

| Weather Station Name | Coordinates | Elevation (ft) | Distance (mi) | Elevation Δ | Weighted Δ | Days (Normal) | Days (Antecedent) |
|---|---|---|---|---|---|---|---|
| MADISON DANE RGNL AP | 43.1406, -89.3453 | 866.142 | 8.077 | 9.778 | 3.714 | 11353 | 90 |

# Attachment 3 | Wetland Determination Data Sheets

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Dane County Landfill Site No. 3 City/County: Madison, Dane Sampling Date: 4/25/22

Applicant/Owner: Dane County State: WI Sampling Point: P1

Investigator(s): Jeff Kraemer, Heartland Section, Township, Range: S25/36, T7N, R10E

Landform (hillside, terrace, etc.): foothill Local relief (concave, convex, none): concave Slope %: 3

Subregion (LRR or MLRA): LRR K Lat: Long: Datum:

Soil Map Unit Name: Orion Silt Loam (Os) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ____ | No X | **Is the Sampled Area** |
| Hydric Soil Present? | Yes ____ | No X | **within a Wetland?** **Yes** ____ **No** X |
| Wetland Hydrology Present? | Yes ____ | No X | If yes, optional Wetland Site ID: |

Remarks: (Explain alternative procedures here or in a separate report.)
Based on WETS analysis conditions at the time of the investigation were wetter than normal. Observed conditions were confirmed wet to normal fo the time of year. Sample point located on low portion of project area, within relatively unmanaged vegetation. No wetalnd indicators or mapped wetlands are present in the project area. No observed portions of the Study Area supported wetland indicators based on the field assessment.

### HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ____ | No X | Depth (inches): ____ |
| Water Table Present? | Yes ____ | No X | Depth (inches): ____ |
| Saturation Present? (includes capillary fringe) | Yes ____ | No X | Depth (inches): ____ |

**Wetland Hydrology Present?** **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No hydrology indicators observed.

**VEGETATION** – Use scientific names of plants. Sampling Point: P1

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Pinus resinosa* | 30 | Yes | FACU |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 30 | =Total Cover | |
| **Sapling/Shrub Stratum** (Plot size: ) | | | |
| 1. | | | |
| 2. | | | |
| 3. *Gleditsia triacanthos* | 20 | Yes | FAC |
| 4. *Prunus serotina* | 5 | No | FACU |
| 5. *Lonicera X bella* | 5 | No | FACU |
| 6. | | | |
| 7. | | | |
| | 30 | =Total Cover | |
| **Herb Stratum** (Plot size: ) | | | |
| 1. *Poa pratensis* | 60 | Yes | FACU |
| 2. *Pastinaca sativa* | 15 | No | UPL |
| 3. *Cirsium arvense* | 3 | No | FACU |
| 4. *Taraxacum officinale* | 3 | No | FACU |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| 12. | | | |
| | 81 | =Total Cover | |
| **Woody Vine Stratum** (Plot size: ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | | =Total Cover | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 20 | x 3 = | 60 |
| FACU species | 106 | x 4 = | 424 |
| UPL species | 15 | x 5 = | 75 |
| Column Totals: | 141 (A) | | 559 (B) |

Prevalence Index = B/A = 3.96

**Hydrophytic Vegetation Indicators:**

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)
Shrub-scrub, unmanaged rough

## SOIL

Sampling Point: P1

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-12 | 10YR 3/3 | 100 | | | | | Loamy/Clayey | SiCL |
| 12-16 | 10YR 3/1 | 85 | | | | | Loamy/Clayey | SiCL |
| | 10YR 3/3 | 15 | | | | | | |
| 16-24 | 10YR 3/1 | 85 | | | | | Loamy/Clayey | SiCL |
| | 10YR 4/2 | 10 | | | | | | |
| | 10YR 2/1 | 5 | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

**Indicators for Problematic Hydric Soils[3]:**

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** **Yes** ___ **No** X

Remarks:

Mixed matrix present below surface. Likely historic grading/filling assocated with golf course land use.

# Attachment 4 | Site Photographs


Photo #1 RCG Emergence in off-site wetland


Photo #2 Honey suckle leaf out


Photo #3 Woodland opening in SE part of site


Photo #4 Woodland opening in SE part of site


Photo #5 Woodland opening in SE part of site


Photo #6 Old field in SE part of site


Photo #7 Typical pine/spruce area between fairways (east-central)


Photo #8 Typical pine/spruce area between fairways (east-central)


Photo #9 Service road on SE-S part of site


Photo #10 Typical pine/spruce planting b/n fairways (south-southeast)


Photo #11 Typical fairway (southcentral)


Photo #12 Typical fairway (southcentral)


Photo #13 Typical fairway (southcentral)


Photo #14 Pine/spruce/locust planting b/n fairways (central)


Photo #15 Pine/spruce/locust planting b/n fairways (central)


Photo #16 Fairway at edge of pine/spruce planting (central)


Photo #17 Pine/spruce planting b/n fairways (central)


Photo #18 Pine/spruce planting b/n fairways (northcentral)


Photo #19 Typical fairway (northcentral)


Photo #20 Honey locust thicket (northwest)


Photo #21 Honey locust thicket (northwest)


Photo #22 Honey locust thicket (northwest)


Photo #23 Honey locust thicket (northwest)


Photo #24 P1


Photo #25 P1


Photo #26 P1


Photo #27 P1


Photo #28 P1


Photo #29 Pine woodland (northcentral)


Photo #30 Pine woodland (northcentral)


Photo #31 Pine woodland (northcentral)


Photo #32 Pine woodland (northcentral)

# Attachment 5 | Delineator Qualifications

# Jeff Kraemer

Principal Scientist
506 Springdale Street
Mount Horeb, WI 53572
jeff@heartlandecological.com
(608) 490-2450


Jeff is the founder of Heartland Ecological Group, Inc. With over 18 years of experience as an environmental consultant, ecological and regulatory policy practitioner, and managing business leader, Jeff provides proven value to clients with his vast experience guiding often complex projects through environmental regulatory and technical challenges applied throughout a diversity of industry sectors. Jeff is recognized by the Wisconsin Department of Natural Resources Wetland Delineation Assurance Program and is the longest standing assured wetland delineator in the state of Wisconsin.

Jeff is a recognized expert in the field of wetland ecology and delineation; wetland restoration and mitigation banking; and regulatory policy and permitting associated with wetlands and waterways. His experience includes: Wetland Determination, Delineation & Functional Assessment; Wetland Restoration, Mitigation, Banking & Monitoring; Botanical / Biological Surveys & Natural Resource Inventories; Rare Species Surveys, Conservation Plans & Monitoring; Habitat Restoration, Wildlife Surveys, SCAT surveys, Environmental Assessments; Local, state, federal permit applications; Expert Witness testimony; and Regulatory permit compliance.

## Education

MS, Biological Sciences (Emphasis in Wetland Ecology), University of Wisconsin – Milwaukee, WI, 2003

BS, Biological Sciences (Emphasis in Aquatic Biology) University of Wisconsin – La Crosse, WI, 1999

Regional Supplement Field Practicum
Wetland Training Institute (WTI)
Portage, WI, 2017

Basic and Advanced Wetland Delineation Training, Continuing Education and Extension, UW-La Crosse, WI, 2001

Identification of Sedges Workshop,
UW-Milwaukee, Saukville, WI, 2001

Vegetation of Wisconsin Workshop,
UW-Milwaukee, Saukville, WI 2000

Environmental Corridor Delineation Workshop,
Southeastern Wisconsin Regional Planning Commission (SEWRPC), 2004

Wetland Soils and Hydrology Workshop,
Wetland Training Institute, Toledo, OH, 2003

Critical Methods in Wetland Delineation
University of Wisconsin - La Crosse Continuing Education and Extension
Madison, WI, 2006 - 2018

Federal Wetland Regulatory Policy Course
Wetlands Training Institute (WTI)
Cottage Grove, WI, 2010

## Registrations

Professionally Assured Wetland Delineator,
Wisconsin Department of Natural Resources
(2005-Present)

Wetland Professional in Training (WPIT),
Society of Wetland Scientists Certification Programs

# APPENDIX F

## FAA CORRESPONDENCE

WDNR, Notification Email of Little Wheel Field Airport Closed (12/6/2021)

Tetra Tech, Airport Setbacks and Concurrence – Proposed Dane County Landfill Site No. 3 (6/22/2022)

Tetra Tech, Notice of a Proposed Landfill – Dane County Landfill Site No. 3 (6/22/2022)

UPS Delivery Receipt for FAA (6/23/2022)

UPS Delivery Receipt for Quale Airport (6/23/2022)

FAA, Acknowledgement Email of Receipt of the Airport Setbacks and Concurrence Letter (8/10/2022)

Richard Quale, Notification Email of Quale Airport Closed (8/29/2022)

**From:** Sullivan, Tyler J - DNR
**To:** Welch, John
**Cc:** Powers, Betsy; Rathsack, Allison; Cooper, Carolyn E - DNR; Bekta, Ann M - DNR
**Subject:** FW: Dane County Landfill
**Date:** Monday, December 6, 2021 1:26:50 PM
**Attachments:** image002.png

---



Good Afternoon John,

Just an FYI, I received this email from Jodi Coon (of the Little Wheel Field Airport). Per her email, I won't send her any more information that the department is required to send to local airstrip owners during the feasibility process.

Thanks,
Tyler

**We are committed to service excellence.**
Visit our survey at http://dnr.wi.gov/customersurvey to evaluate how I did.

Tyler Sullivan
Phone: (608) 516-3962
tyler.sullivan@wisconsin.gov

---

**From:** Jodi Coon <bjcoon1984@gmail.com>
**Sent:** Monday, December 6, 2021 11:06 AM
**To:** Sullivan, Tyler J - DNR <tyler.sullivan@wisconsin.gov>
**Subject:** Dane County Landfill



Tyler,
On November 22, 2021 I received a packet of information from you regarding the Dane County Landfill Site. I am writing to you to see if I received this information because my land is located on highway 12/18 in the Town of Cottage Grove or is it because my land is/was an airstrip? I inherited this land from my dad, who passed away back in 2017, so in 2018 or 2019, we had the airstrip

plowed up and removed from the books as an active airstrip.  Wondering if I can be removed from your notification list regarding the landfill or do I still need to receive this information because I have land near the landfill.

My packet comes to Little Wheel Field Airport, Jodi Coon, 2024 Meadow Drive, Stoughton, WI 53589.

Thank you,
Jodi Coon

TETRA TECH

6/22/2022

Bobb Beauchamp
Federal Aviation Administration
Chicago Airports District Office
2300 East Devon Avenue
Des Plaines, IL 60018

Re: Airport Setbacks and Concurrence
Dane County Proposed Landfill Site No. 3
Madison, Wisconsin

Dear Mr. Beauchamp:

On behalf of Dane County Department of Waste and Renewables (Dane County), Tetra Tech is completing permitting documents for the proposed Dane County Landfill Site No. 3. This new municipal solid waste landfill will be located on land currently owned by the City of Madison in the SE ¼ of Section 25 and N ½ of NE ¼ of Section 36, T7N, R10E, City of Madison, Dane County, Wisconsin. The land is currently within a portion of the Yahara Hills Golf Course and pending purchase by Dane County. The proposed landfill boundary and surrounding areas are shown on the attached Site Location Map (Figure 1). This letter is being provided to notify and confirm the findings as they relate to Wisconsin Administration Code, the Code of Federal Regulations, and the Federal Aviation Administration (FAA) requirements.

Wisconsin Administrative Code, 500.03(4), and the Code of Federal Regulations, 40 CFR Part 258.10(d)(1), define an airport as a "public-use airport open to the public without prior permission and without restrictions within the physical capacities of available airport facilities." Based on our review, there are no airport runways designed and used by turbojet aircraft located within 10,000-feet or designed and used by piston-type aircraft within 5,000-feet of the proposed landfill site, per NR 504.04(3)(e) and 40 CFR Part 258.10(a).

Based on Wisconsin Airport Directory & Pilot's Guide prepared by the Wisconsin Department of Transportation (WisDOT), Bureau of Aeronautics, there are two airports within 6-miles of the proposed landfill. The Blackhawk Airfield (Airport Code: 87Y) in Cottage Grove, WI is a privately owned and publicly used airport located approximately 5.25-miles from the proposed landfill. The Quale Airport (Airport Code: 87WI) in Cottage Grove, WI is a privately owned and privately used airport located approximately 3-miles from the proposed landfill and has a turf runway. The Dane County Regional Airport (Airport Code: MSN) is also a public airport located in Madison, WI and is approximately 7-miles from the proposed landfill. One other private airport was found during an online search of nearby airports; however, the Little Wheel Field (Airport Code: 59WI) in Cottage Grove, WI is no longer an active airstrip. Email correspondence on December 6, 2021 from the current owner, Jodi Coon, documents this airport is no longer active (Attachment 1). An Airport Location Map indicating the proposed landfill boundary and the 5,000-foot, 10,000-foot, and 6-mile radius from the landfill boundary is attached (Figure 2).

In accordance with the NR 504.04(3)(e), owners or operators proposing to site a new or expand an existing municipal solid waste landfill within a 5-mile radius of any airport runway end used by turbojet or piston type

Cornerstone – A Tetra Tech Company
8413 Excelsior Drive, Suite 160, Madison, WI 53717
Tel 877.294.9070 Fax 877.845.1456 tetratech.com

aircraft must notify the owner or operator of the affected airport and the FAA. Based on our review, there is one airport (Quale Airport) within 5 miles of the proposed landfill. The owner and manager of Quale Airport, Richard Quale, will be notified of the proposed landfill in a separate letter. This letter acts as notification to the FAA under NR 504.04(3)(e).

A review of Advisory Circular 150/5200-34A found the 6-mile limit listed may apply in this case. The proposed Dane County Landfill Site No. 3 will be a new municipal solid waste landfill, built after April 5, 2000, located within 6-miles of the Blackhawk Airfield (approximately 5.25-miles). **Please indicate whether the Blackhawk Airfield meets the criteria listed in Section 9 of the Circular.** Note, the current municipal solid waste landfill (Dane County Rodefeld No. 2 Landfill) is located approximately 1,000-feet north of the proposed landfill. The Dane County Rodefeld No. 2 Landfill is located approximately 5-miles from the Blackhawk Airfield. It is believed that there will be no significant change in aviation safety conditions between what currently exists and what is being proposed.

We are requesting that you review the information provided, confirm our findings, and provide a response as soon as possible. If you have any questions or require additional information, please feel free to contact me at teri.daigle@tetratech.com or (630) 410-7231.

Sincerely,

**CORNERSTONE ENVIRONMENTAL GROUP, LLC – A TETRA TECH COMPANY**

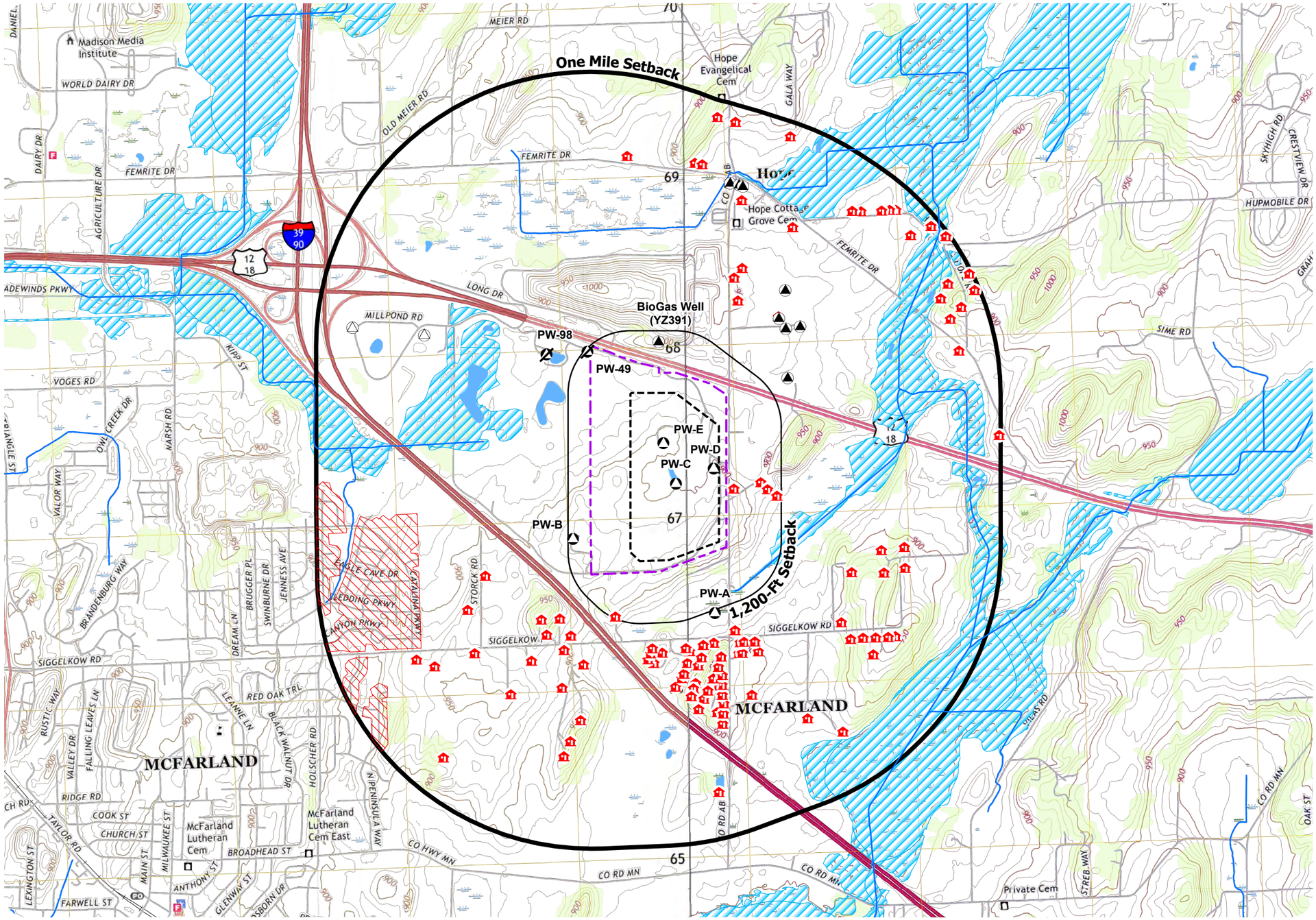
Teri Daigle
Project Manager

Enclosures: Figure 1 - Site Location Map
Figure 2 - Airport Location Map
Attachment 1 - Email Correspondence from Jodi Coon RE: Little Wheel Field Airport (12/6/2021)

Cc: John Welch, Dane County (electronic copy)
Allison Rathsack, Dane County (electronic copy)
Roxanne Wienkes, Dane County (electronic copy)
John Oswald, Tetra Tech (electronic copy)

X:\PROJECTS\DANE COUNTY\4221302 - INITIAL GREENFIELD PERMITTING\FAA\FAA NOTIFICATION LETTER 6-22-2022.DOCX

# Figures




## Legend

- Proposed Landfill Limits of Disturbance
- Proposed Landfill Limits of Waste
- Setback 1-Mile from Limits of Disturbance
- Setback 1,200-ft from Limits of Waste
- Stream
- Waterbody
- FEMA 100-Year Floodplain
- Assumed Offsite Private Well, Approximate Location
- Known Offsite Private Well, Approximate Location
- Known Yahara Hills Private Well, Approximate Location
- Abandoned Private Well
- Residence and Assumed Offsite Private Well, Approximate
- Residential Developement on City Water Supply


NOTES:
1. Streams, Waterbodies and Floodplains are from WDNR Surface Water Data Viewer.

BASEMAP SOURCE:
USGS Topographic Quadrangles 7.5 Minute
Series: Madison East, WI (2022)
Series: Cottage Grove, WI (2022)

Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
Datum: North American 1983

N

0 1000 2000 4000
FEET
1" = 2,000'

| REV | DATE | DESCRIPTION | DES BY | DWN BY | CHK BY | APP BY |
|---|---|---|---|---|---|---|

DATE OF ISSUE 3/17/2022
DESIGNED BY SSW
DRAWN BY SSW
CHECKED BY TD
APPROVED BY JO

TETRA TECH

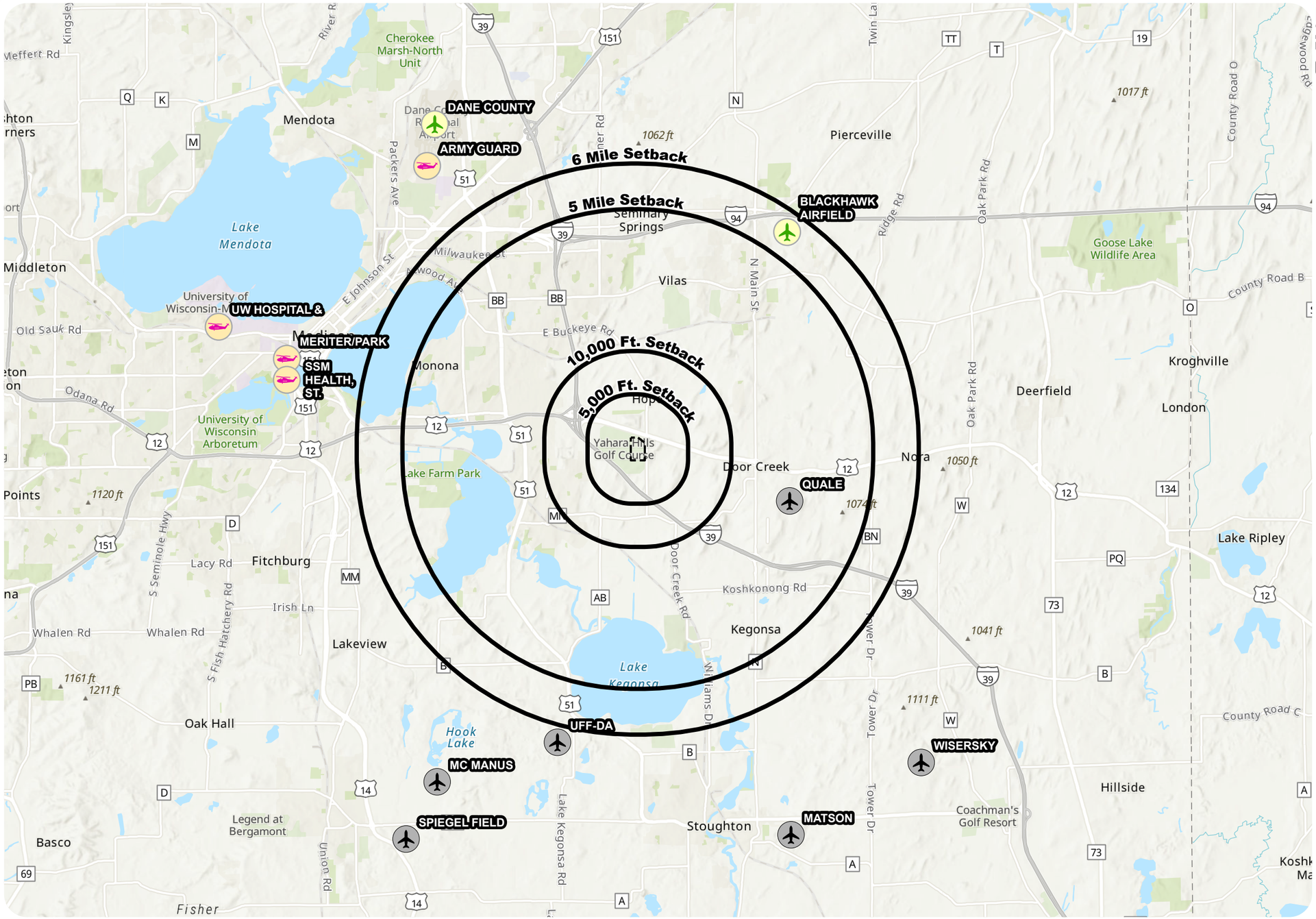
PREPARED BY: TETRATECH



Dane County Waste & Renewables Department
City of Madison, Dane County, Wisconsin
Proposed Dane County Landfill Site No. 3
**INITIAL SITE INSPECTION**
# SITE LOCATION MAP

FIGURE NO. **1**
PROJECT NO. 4221302

X:\PROJECTS\DANE COUNTY\4221302 - INITIAL GREENFIELD PERMITTING_GIS\DCI_01-IISI-Site Location.aprx




## Legend

- Proposed Landfill Limits of Waste
- Setback
- Airport (Public)
- Airport (Private)
- Heliport


NOTES:

1. Airport locations obtained from the Wisconsin Airport Directory & Pilot's Guide prepared by the Wisconsin Department of Transportation (WisDOT), Bureau of Aeronautics and Google Earth.
2. Basemap provided by USGS & ESRI.

Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
Datum: North American 1983

N

0 1 3 5

Miles

1" = 12,000'

| REV | DATE | DESCRIPTION | DES BY | DWN BY | CHK BY | APP BY |
|---|---|---|---|---|---|---|

DATE OF ISSUE 6/22/2022
DESIGNED BY SSW
DRAWN BY SSW
CHECKED BY TD
APPROVED BY TD

TETRA TECH

PREPARED BY: TETRATECH



Dane County Waste & Renewables Department
City of Madison, Dane County, Wisconsin
Proposed Dane County Landfill Site No. 3

**FAA NOTIFICATION**

# AIRPORT LOCATION MAP

FIGURE NO. **2**

PROJECT NO. 4221302

X:\PROJECTS\DANE COUNTY\422130\2 - INITIAL GREENFIELD PERMITTING\ GIS \SROCI_01-ISR-Figures.aprx

# Attachment 1

TETRA TECH

6/22/2022

Richard Quale
Quale Airport
3114 North Star Road
Cottage Grove, WI 53527

Re: Notice of a Proposed Landfill
Dane County Landfill Site No. 3
Madison, Wisconsin

Dear Mr. Quale:

On behalf of Dane County Department of Waste and Renewables (Dane County), Tetra Tech is completing permitting documents for the proposed Dane County Landfill Site No. 3. This new municipal solid waste landfill will be located on land currently owned by the City of Madison in the SE ¼ of Section 25 and N ½ of NE ¼ of Section 36, T7N, R10E, City of Madison, Dane County, Wisconsin. The land is currently within a portion of the Yahara Hills Golf Course, located at 6701 US Highway 12&18, and pending purchase by Dane County. The proposed landfill boundary and surrounding areas are shown on the attached map (Figure 1).

The Wisconsin Department of Natural Resources, the approving state agency for the proposed landfill, requires Dane County to notify all airports with a runway end used by turbojet or piston type aircraft within 5-miles of the proposed landfill site. The Quale Airport is located approximately 3 miles east/southeast of the proposed landfill, as shown on the enclosed Airport Location Map (Figure 1). Please consider this letter your formal notification under NR 504.04(3)(e) and 40 CFR Part 258.10(b).

If you have any questions or require additional information, please feel free to contact me at teri.daigle@tetratech.com or (630) 410-7231.

Sincerely,

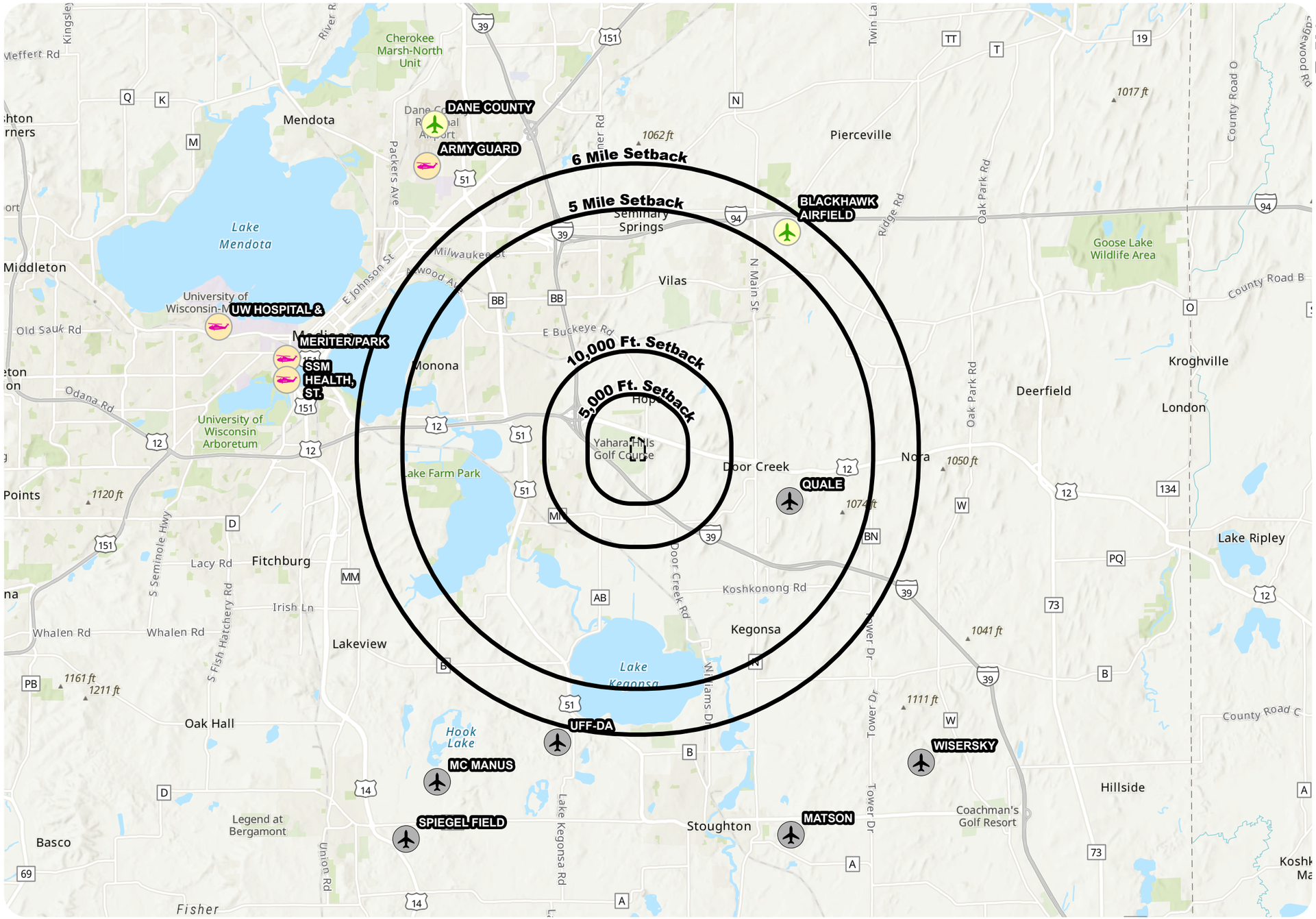
**CORNERSTONE ENVIRONMENTAL GROUP, LLC – A TETRA TECH COMPANY**

Teri Daigle
Project Manager

Enclosure: Figure 1 - Airport Location Map

Cc: John Welch, Dane County
Allison Rathsack, Dane County
John Oswald, Tetra Tech
Roxanne Wienkes, Dane County

Cornerstone – A Tetra Tech Company
8413 Excelsior Drive, Suite 160, Madison, WI 53717
Tel 877.294.9070 Fax 877.845.1456 tetratech.com




## Legend

- Proposed Landfill Limits of Waste
- Setback
- Airport (Public)
- Airport (Private)
- Heliport


NOTES:

1. Airport locations obtained from the Wisconsin Airport Directory & Pilot's Guide prepared by the Wisconsin Department of Transportation (WisDOT), Bureau of Aeronautics and Google Earth.
2. Basemap provided by USGS & ESRI.

Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
Datum: North American 1983

N

0 1 3 5

Miles

1" = 12,000'

| REV | DATE | DESCRIPTION | DES BY | DWN BY | CHK BY | APP BY |
|---|---|---|---|---|---|---|

DATE OF ISSUE 6/22/2022
DESIGNED BY SSW
DRAWN BY SSW
CHECKED BY TD
APPROVED BY TD

TETRA TECH

PREPARED BY: TETRATECH



Dane County Waste & Renewables Department
City of Madison, Dane County, Wisconsin
Proposed Dane County Landfill Site No. 3

**FAA NOTIFICATION**

# AIRPORT LOCATION MAP

FIGURE NO. **1**

PROJECT NO. 4221302

X:\PROJECTS\DANE COUNTY\422130Z - INITIAL GREENFIELD PERMITTING_GIS\ISRO\CI_01-ISR-Figures.aprx

**From:** Turgeson, Kay
**To:** Daigle, Teri
**Subject:** FW: UPS Delivery Notification, Tracking Number 1ZX6773A0399035396
**Date:** Thursday, June 23, 2022 10:43:00 AM

---

FAA Notification Letter Delivered

**Kay Turgeson**
Cell **+1** (608) 279-2966 | Business **+1 (630) 410-7202** kay.turgeson@tetratech.com

**While we are operating remotely in response to COVID-19, Tetra Tech teams remain fully connected and hard at work servicing our clients and ongoing projects. We also would like to wish health and wellness to you and your family.**



---

**From:** UPS <pkginfo@ups.com>
**Sent:** Thursday, June 23, 2022 10:21 AM
**To:** Turgeson, Kay <Kay.Turgeson@tetratech.com>
**Subject:** UPS Delivery Notification, Tracking Number 1ZX6773A0399035396

**Hello, your package has been delivered.**
**Delivery Date:** Thursday, 06/23/2022
**Delivery Time:** 10:18 AM
**Signed by:** BRAD

## CORNERSTONE ENVIROMENTAL GROUP

| | |
|---|---|
| **Tracking Number:** | 1ZX6773A0399035396 |
| **Ship To:** | FEDERAL AVIATION ADMINISTRATION<br>2300 EAST DEVON AVENUE<br>DES PLAINES, IL 60018<br>US |
| **Number of Packages:** | 1 |
| **UPS Service:** | UPS Ground |
| **Package Weight:** | 1.0 LBS |
| **Reference Number:** | PN: 209-4221302 TASK 003 |
| **Reference Number:** | FAA NOTIFICATION LETTER |

# Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

**Tracking Number**

1ZX6773A0399035396

**Weight**

1.00 LBS

**Service**

UPS Ground

**Shipped / Billed On**

06/22/2022

**Delivered On**

06/23/2022 10:18 A.M.

**Delivered To**

2300 E DEVON AVE
DES PLAINES, IL, 60018, US

**Received By**

BRAD

**Reference Number(s)**

FAA NOTIFICATION LETTER, PN: 209-4221302 TASK 003

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 06/23/2022 12:02 P.M. EST

**From:** UPS
**To:** Turgeson, Kay
**Subject:** UPS Delivery Notification, Tracking Number 1ZX6773A0396324187
**Date:** Thursday, June 23, 2022 3:35:32 PM

## Hello, your package has been delivered.

**Delivery Date:** Thursday, 06/23/2022

**Delivery Time:** 3:33 PM

Set Delivery Instructions | Manage Preferences | View My Packages

## CORNERSTONE ENVIROMENTAL GROUP

| | |
|---|---|
| **Tracking Number:** | 1ZX6773A0396324187 |
| **Ship To:** | QUALE AIRPORT<br>3114 NORTH STAR ROAD<br>COTTAGE GROVE, WI 53527<br>US |
| **Number of Packages:** | 1 |
| **UPS Service:** | UPS Ground |
| **Package Weight:** | 1.0 LBS |
| **Reference Number:** | PN: 209-4221302 TASK 003 |
| **Reference Number:** | QUALE AIRPORT OWNER NOTIFY LTR |

Download the UPS mobile app

# Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

**Tracking Number**

1ZX6773A0396324187

**Weight**

1.00 LBS

**Service**

UPS Ground

**Shipped / Billed On**

06/22/2022

**Delivered On**

06/23/2022 3:33 P.M.

**Delivered To**

3114 N STAR RD
COTTAGE GROVE, WI, 53527, US

**Received By**

DRIVER RELEASE

**Left At**

Rear Door

**Reference Number(s)**

QUALE AIRPORT OWNER NOTIFY LTR, PN: 209-4221302 TASK 003

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 06/24/2022 11:26 A.M. EST

## Daigle, Teri

**From:** Beauchamp, Bobb (FAA) <Bobb.Beauchamp@faa.gov>
**Sent:** August 10, 2022 2:36 PM
**To:** Daigle, Teri
**Subject:** RE: Airport Locations, Setbacks and Concurrence Request for [redacted] proposed expansion

I have received this and the Dane Co Site No 3 submission. Our office has been a little backed-up while we work to fill our other EPS position, but I'll try to get you're a response in a few weeks to these.

---

**From:** Daigle, Teri <Teri.Daigle@tetratech.com>
**Sent:** Tuesday, August 09, 2022 1:13 PM
**To:** Beauchamp, Bobb (FAA) <Bobb.Beauchamp@faa.gov>
**Subject:** FW: Airport Locations, Setbacks and Concurrence Request for [redacted] proposed expansion

Mr. Beauchamp,

Please confirm receipt of my email on 5/25/2022 regarding the FAA notification of a proposed landfill expansion in [redacted], Wisconsin. Contact me with any questions.

Thanks,

**Teri Daigle** | Project Manager | Tetra Tech | Solid Waste East
Direct (630) 410-7231 | Mobile (904) 710-0230 | teri.daigle@tetratech.com



---

**From:** Daigle, Teri
**Sent:** May 25, 2022 1:59 PM
**To:** Bobb.Beauchamp@faa.gov
**Cc:** Fletcher, George <GEORGE.FLETCHER@tetratech.com>
**Subject:** Airport Locations, Setbacks and Concurrence Request for [redacted] proposed expansion

Mr. Beauchamp,

Please find attached a letter requesting your review of airport locations and setback distances for the proposed expansion at the [redacted], Wisconsin. The proposed expansion will include additional cells adjacent to an existing landfill. We did not find any public or private airports within 6-miles of the proposed expansion and would like the FAA to confirm that is accurate. Please let us know if you require any additional information or if you'd like a hard copy mailed to you.

Kind regards,

**Teri Daigle** | Project Manager | Tetra Tech | Solid Waste East
Pronouns: she, her, hers
Office (877) 294-9070 | Direct (630) 410-7231 | Mobile (904) 710-0230 | Fax (877) 845-1456 | teri.daigle@tetratech.com

**Tetra Tech** | *Leading with Science®*
8413 Excelsior Drive, Suite 160 | Madison, WI 53717 | tetratech.com | tetratech.com/waste

## Daigle, Teri

**From:** Richard Quale <rbquale@att.net>
**Sent:** August 29, 2022 4:15 PM
**To:** Daigle, Teri
**Subject:** airport

> You don't often get email from rbquale@att.net. Learn why this is important

Hi Teri,

This email is to state that the landing strip 87WI located on the farm owned by me at 3114 North Star Rd, Cottage Grove, WI, 53527, has been closed since 1 July, 2021. FYI, the landing strip known as Little Wheel, located one mile north of my farm is also out of service. I do not know if it has been officially closed. It is now a cornfield.

Please confirm receipt. Thank you.

Richard B. Quale

# APPENDIX G

## USDA SOIL DESCRIPTIONS

Dodge silt loam, DnB

Virgil silt loam, VwA

Orion silt load, Os

McHenry silt loam, MdC2

St. Charles silt loam, ScB

Kidder loam, KdD2

# Dane County, Wisconsin

## DnB—Dodge silt loam, 2 to 6 percent slopes

### Map Unit Setting

*National map unit symbol:* 2szfp
*Elevation:* 830 to 1,090 feet
*Mean annual precipitation:* 31 to 35 inches
*Mean annual air temperature:* 45 to 48 degrees F
*Frost-free period:* 127 to 181 days
*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Dodge and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Dodge

#### Setting

*Landform:* Drumlins
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Convex
*Across-slope shape:* Convex
*Parent material:* Loess over calcareous loamy till

#### Typical profile

*Ap - 0 to 6 inches:* silt loam
*BE - 6 to 9 inches:* silt loam
*Bt1 - 9 to 29 inches:* silty clay loam
*2Bt2 - 29 to 40 inches:* clay loam
*2C - 40 to 79 inches:* gravelly sandy loam

#### Properties and qualities

*Slope:* 2 to 6 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Well drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.57 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 40 percent
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Available water supply, 0 to 60 inches:* High (about 9.9 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 2e

*Hydrologic Soil Group:* C
*Forage suitability group:* High AWC, adequately drained (G095BY008WI)
*Other vegetative classification:* High AWC, adequately drained (G095BY008WI)
*Hydric soil rating:* No

**Minor Components**

**St. charles**
*Percent of map unit:* 8 percent
*Landform:* Drumlins
*Hydric soil rating:* No

**Mayville**
*Percent of map unit:* 5 percent
*Landform:* Drumlins
*Hydric soil rating:* No

**Lamartine**
*Percent of map unit:* 2 percent
*Landform:* Drumlins
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Concave
*Across-slope shape:* Linear
*Hydric soil rating:* No

# Data Source Information

Soil Survey Area: Dane County, Wisconsin
Survey Area Data: Version 20, Sep 7, 2021

# Dane County, Wisconsin

## VwA—Virgil silt loam, gravelly substratum, 0 to 3 percent slopes

### Map Unit Setting

*National map unit symbol:* 2wsqx
*Elevation:* 750 to 1,150 feet
*Mean annual precipitation:* 31 to 35 inches
*Mean annual air temperature:* 45 to 48 degrees F
*Frost-free period:* 110 to 171 days
*Farmland classification:* Prime farmland if drained

### Map Unit Composition

*Virgil, gravelly substratum, and similar soils:* 90 percent
*Minor components:* 10 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Virgil, Gravelly Substratum

#### Setting

*Landform:* Drainageways on outwash plains
*Landform position (three-dimensional):* Dip, talf
*Down-slope shape:* Concave
*Across-slope shape:* Linear
*Parent material:* Loess over calcareous, stratified sandy and gravelly outwash

#### Typical profile

*Ap - 0 to 9 inches:* silt loam
*E - 9 to 13 inches:* silt loam
*Bt - 13 to 44 inches:* silty clay loam
*2BC - 44 to 49 inches:* sandy loam
*2C - 49 to 79 inches:* stratified gravel to sand

#### Properties and qualities

*Slope:* 0 to 3 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Somewhat poorly drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)
*Depth to water table:* About 0 to 24 inches
*Frequency of flooding:* None
*Frequency of ponding:* Occasional
*Calcium carbonate, maximum content:* 20 percent
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Available water supply, 0 to 60 inches:* High (about 9.8 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2w
*Hydrologic Soil Group:* B/D
*Forage suitability group:* High AWC, high water table (G095BY007WI)
*Other vegetative classification:* High AWC, high water table (G095BY007WI)
*Hydric soil rating:* No

**Minor Components**

**Drummer, drained**
*Percent of map unit:* 4 percent
*Landform:* Depressions on outwash plains
*Landform position (three-dimensional):* Dip, talf
*Down-slope shape:* Concave
*Across-slope shape:* Concave, linear
*Hydric soil rating:* Yes

**Sebewa**
*Percent of map unit:* 4 percent
*Landform:* Depressions on outwash plains
*Landform position (three-dimensional):* Dip, talf
*Down-slope shape:* Concave
*Across-slope shape:* Concave, linear
*Hydric soil rating:* Yes

**Sable**
*Percent of map unit:* 2 percent
*Landform:* Depressions on outwash plains
*Landform position (three-dimensional):* Dip, talf
*Down-slope shape:* Concave
*Across-slope shape:* Concave, linear
*Hydric soil rating:* Yes

# Data Source Information

Soil Survey Area: Dane County, Wisconsin
Survey Area Data: Version 20, Sep 7, 2021

# Dane County, Wisconsin

## Os—Orion silt loam, wet

### Map Unit Setting

*National map unit symbol:* t942
*Elevation:* 680 to 1,500 feet
*Mean annual precipitation:* 28 to 33 inches
*Mean annual air temperature:* 46 to 52 degrees F
*Frost-free period:* 135 to 160 days
*Farmland classification:* Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season

### Map Unit Composition

*Orion variant, wet, and similar soils:* 90 percent
*Minor components:* 10 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Orion Variant, Wet

#### Setting

*Landform:* Flood plains
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Silty alluvium

#### Typical profile

*H1 - 0 to 4 inches:* silt loam
*H2 - 4 to 44 inches:* silt loam
*H3 - 44 to 60 inches:* silt loam

#### Properties and qualities

*Slope:* 0 to 2 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Poorly drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 1.98 in/hr)
*Depth to water table:* About 0 inches
*Frequency of flooding:* NoneFrequent
*Frequency of ponding:* Frequent
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Available water supply, 0 to 60 inches:* High (about 11.8 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 4w
*Hydrologic Soil Group:* B/D

*Forage suitability group:* High AWC, high water table (G095BY007WI)
*Other vegetative classification:* High AWC, high water table (G095BY007WI)
*Hydric soil rating:* Yes

**Minor Components**

**Otter**
*Percent of map unit:* 4 percent
*Landform:* Flood plains
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* Yes

**Wacousta**
*Percent of map unit:* 3 percent
*Landform:* Flood plains
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* Yes

**Sable**
*Percent of map unit:* 3 percent
*Landform:* Flood plains
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* Yes

# Data Source Information

Soil Survey Area: Dane County, Wisconsin
Survey Area Data: Version 20, Sep 7, 2021

# Dane County, Wisconsin

## MdC2—McHenry silt loam, 6 to 12 percent slopes, eroded

### Map Unit Setting

*National map unit symbol:* 2tjyt
*Elevation:* 750 to 1,540 feet
*Mean annual precipitation:* 31 to 37 inches
*Mean annual air temperature:* 45 to 48 degrees F
*Frost-free period:* 110 to 174 days
*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Mchenry, eroded, and similar soils:* 90 percent
*Minor components:* 10 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Mchenry, Eroded

#### Setting

*Landform:* Moraines
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Parent material:* Loess over loamy till

#### Typical profile

*Ap - 0 to 6 inches:* silt loam
*Bt1 - 6 to 22 inches:* silty clay loam
*2Bt2 - 22 to 31 inches:* loam
*2Bt3 - 31 to 36 inches:* fine sandy loam
*2C - 36 to 79 inches:* gravelly sandy loam

#### Properties and qualities

*Slope:* 6 to 12 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Well drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 30 percent
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Available water supply, 0 to 60 inches:* Moderate (about 9.0 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e
*Hydrologic Soil Group:* B
*Forage suitability group:* High AWC, adequately drained (G095BY008WI)
*Other vegetative classification:* High AWC, adequately drained (G095BY008WI)
*Hydric soil rating:* No

**Minor Components**

**Kendall**
*Percent of map unit:* 5 percent
*Landform:* Drainageways
*Landform position (two-dimensional):* Footslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Concave
*Across-slope shape:* Linear
*Hydric soil rating:* No

**Kidder, eroded**
*Percent of map unit:* 5 percent
*Landform:* Moraines
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Other vegetative classification:* Mod AWC, adequately drained (G095BY005WI)
*Hydric soil rating:* No

# Data Source Information

Soil Survey Area: Dane County, Wisconsin
Survey Area Data: Version 20, Sep 7, 2021

# Dane County, Wisconsin

## ScB—St. Charles silt loam, 2 to 6 percent slopes

### Map Unit Setting

*National map unit symbol:* 2szdy
*Elevation:* 630 to 1,240 feet
*Mean annual precipitation:* 29 to 37 inches
*Mean annual air temperature:* 45 to 48 degrees F
*Frost-free period:* 127 to 178 days
*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*St. charles and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of St. Charles

#### Setting

*Landform:* Till plains
*Landform position (two-dimensional):* Summit
*Landform position (three-dimensional):* Crest
*Down-slope shape:* Convex
*Across-slope shape:* Linear
*Parent material:* Loess over glacial loamy till

#### Typical profile

*Ap - 0 to 9 inches:* silt loam
*Bt1 - 9 to 48 inches:* silt loam
*2Bt2 - 48 to 54 inches:* sandy loam
*2C - 54 to 79 inches:* gravelly sandy loam

#### Properties and qualities

*Slope:* 2 to 6 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Well drained
*Runoff class:* Low
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)
*Depth to water table:* About 40 to 60 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 20 percent
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Available water supply, 0 to 60 inches:* High (about 11.7 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 2e

*Hydrologic Soil Group:* B
*Hydric soil rating:* No

**Minor Components**

**St. charles, moderately well drained**
*Percent of map unit:* 8 percent
*Landform:* Till plains
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Hydric soil rating:* No

**Virgil**
*Percent of map unit:* 4 percent
*Landform:* Till plains
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Concave
*Across-slope shape:* Linear
*Hydric soil rating:* No

**Pella**
*Percent of map unit:* 3 percent
*Landform:* Drainageways
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Hydric soil rating:* Yes

# Data Source Information

Soil Survey Area: Dane County, Wisconsin
Survey Area Data: Version 20, Sep 7, 2021

# Dane County, Wisconsin

## KdD2—Kidder loam, 12 to 20 percent slopes, eroded

### Map Unit Setting

*National map unit symbol:* 2tjyd
*Elevation:* 680 to 1,200 feet
*Mean annual precipitation:* 31 to 37 inches
*Mean annual air temperature:* 45 to 50 degrees F
*Frost-free period:* 127 to 173 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Kidder, eroded, and similar soils:* 95 percent
*Minor components:* 5 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Kidder, Eroded

#### Setting

*Landform:* Moraines
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Concave
*Parent material:* Loamy till

#### Typical profile

*Ap - 0 to 8 inches:* loam
*Bt - 8 to 31 inches:* sandy clay loam
*C - 31 to 79 inches:* gravelly sandy loam

#### Properties and qualities

*Slope:* 12 to 20 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Well drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 35 percent
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Available water supply, 0 to 60 inches:* Moderate (about 8.2 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 4e
*Hydrologic Soil Group:* B

*Forage suitability group:* Mod AWC, adequately drained (G095BY005WI)
*Other vegetative classification:* Mod AWC, adequately drained (G095BY005WI)
*Hydric soil rating:* No

**Minor Components**

**Casco, eroded**
*Percent of map unit:* 3 percent
*Landform:* Moraines
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Concave
*Hydric soil rating:* No

**Mchenry**
*Percent of map unit:* 2 percent
*Landform:* Moraines
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Concave
*Hydric soil rating:* No

# Data Source Information

Soil Survey Area: Dane County, Wisconsin
Survey Area Data: Version 20, Sep 7, 2021

Attachment D – Permitting Timeline and Ancillary Work

# Proposed Dane County Landfill Site No. 3 Development Timeline

Dane County Department of Waste & Renewables
Allison Rathsack

| TASK | START | END | Jun-22 | Jul-22 | Aug-22 | Sep-22 | Oct-22 | Nov-22 | Dec-22 | Jan-23 | Feb-23 | Mar-23 | Apr-23 | May-23 | Jun-23 | Jul-23 | Aug-23 | Sep-23 | Oct-23 | Nov-23 | Dec-23 | Jan-24 | Feb-24 | Mar-24 | Apr-24 | May-24 | Jun-24 | Jul-24 | Aug-24 | Sep-24 | Oct-24 | Nov-24 | Dec-24 | Jan-25 | Feb-25 | Mar-25 | Apr-25 | May-25 | Jun-25 | Jul-25 | Aug-25 | Sep-25 | Oct-25 | Nov-25 | Dec-25 | Jan-26 | Feb-26 | Mar-26 | Apr-26 | May-26 | Jun-26 | Jul-26 | Aug-26 | Sep-26 | Oct-26 | Nov-26 | Dec-26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **REAL ESTATE CLOSING** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Due diligence period | Jun-22 | Sep-22 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Closing (within 90 days of due diligence) | Sep-22 | Dec-22 | | | | | | | • | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **RECREATION & OTHER SITE ACTIVITIES** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Up to 36 holes of golf | Jun-22 | Nov-24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Up to 27 holes of golf | Dec-24 | Nov-25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | • | | | | | | | | | | | | | | | | | | | | | | | |
| Up to 18 holes of golf | Dec-25 | Nov-42 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | • | | | | | | | | | | |
| WisDOT AB interchange work | Sep-22 | Sep-23 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **CITY PERMITTING** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Conditional use permits & local approvals - Landfill | Jul-23 | Oct-23 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **LANDFILL PERMITTING & CONSTRUCTION** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Initial Site Report preparation, submittal, and response | Jul-22 | Dec-22 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Geotechnical Investigation | Dec-22 | Mar-23 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Environmental monitoring | Apr-23 | Sep-23 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Local approval and negotiated agreement process** | **Jun-23** | **Jun-24** | | | | | | | | | | | | | • | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Local approval applications | Jul-23 | Oct-23 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Borrow source permitting | Aug-23 | Sep-23 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Preparation and submittal of Feasibility Report to DNR | Apr-23 | Nov-23 | | | | | | | | | | | | | | | | | | • | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Feasibility Report completeness review and determination (anticipate 1 addendum) | Nov-23 | Feb-24 | | | | | | | | | | | | | | | | | | | | | • | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Environmental impact statement (if necessary) | Mar-24 | May-24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Public comment period** | **Jun-24** | **Jul-24** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Public hearing (if necessary)** | **Aug-24** | **Dec-24** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Feasibility Report determination (anticipate 1 addendum for additional information) | Jan-25 | Jul-25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | • | | | | | | | | | | | | | | | |
| Plan of Operation preparation and submittal | Aug-25 | Feb-26 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Plan of Operation review and approval | Mar-26 | Jul-26 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | • | | |
| Construction plan set development | Aug-26 | Dec-26 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Request for Bids for contractors | Jan-27 | Apr-27 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Start construction (at the earliest) | May-27 | May-28 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Notes:

1) Timeline for all items are estimated and provided for informational purposes only. Dane County may proceed with these steps more quickly or slower than indicated.

2) Public comment and engagement opportunities highlighted in **BOLD**

Attachment E - Geotechnical Exploration Work, dated May 20, 2022

TETRA TECH

May 20, 2022

Ms. Carolyn Cooper
Wisconsin Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg, WI 53711

**Re: Preliminary Geotechnical Investigation**
**Proposed Dane County Landfill Site No. 3**
**Yahara Hills Golf Course – Madison WI**
**FID No. 113450480**

Dear Ms. Cooper:

On behalf of Dane County Department of Waste and Renewables (Dane County), Cornerstone Environmental Group, LLC, a Tetra Tech Company (Tetra Tech) is submitting documentation to the Wisconsin Department of Natural Resources (WDNR) for a preliminary geotechnical investigation conducted at the Yahara Hills Golf Course in Madison, Wisconsin during February and March 2022. Dane County is referring to this site as the proposed Dane County Landfill Site No. 3. A total of 17 borings were drilled during the investigation at 11 locations. A list of the borings drilled are as follows: B-1, B-2, B-2A, B-3, B-5, B-5A, B-6, B-6A, B-7, B-8, B-9, B-10, B-11, MW-1, MW-2, MW-3, and MW-4. Four of the borings (MW-1, MW-2, MW-3, and MW-4) were converted to groundwater monitoring wells with the remaining borings abandoned after completion. Three of the borings (B-2A, B-5A, and B-6A were drilled to obtain additional rock core information. Furthermore, three of the borings B-1, B-2, and B-3 were drilled initially in three of the monitoring well locations and abandoned. The monitoring wells (MW-1, MW-2, and MW-3) were subsequently drilled and installed adjacent to these three borings. The boring and well locations are shown on attached Figure 1. The monitoring wells and borings were completed as part of a due diligence effort for a potential landfill greenfield site property purchase.

The monitoring wells (MW-1. MW-2, MW-3, and MW-4) were constructed of 2-inch PVC and installed in unconsolidated soils or weathered bedrock as water table observation wells. Following construction each well was developed. The borings were terminated within unconsolidated soils or weathered bedrock except for B-2, B-2A, B-5A, and B-6A which were advanced into the bedrock surface and rock cored. The wells and borings were drilled, constructed and/or abandoned by Soils and Engineering Services, Inc. of Madison, Wisconsin under the direction of Tetra Tech between February 1, 2022 and March 2, 2022.

The well and boring drilling, well development and boring abandonment work was performed in accordance with the Wisconsin Administrative Code NR 141 and NR 507, under the direction of a Wisconsin Professional Geologist and documented by Tetra Tech on the WDNR forms listed below and attached.

Cornerstone – A Tetra Tech Company
8413 Excelsior Drive, Suite 160, Madison, WI 53717
Tel 877.294.9070 Fax 877.845.1456 tetratech.com

TETRA TECH

- A Soil Boring Information Log (WDNR Form 4400-122) has been prepared for each borehole and is included as Attachment A.
- A Monitoring Well Construction Log (WDNR Form 4400-113A) has been prepared for each well and is included as Attachment B.
- A Monitoring Well Development Log (WDNR Form 4400-113B) has been prepared for each well and is included as Attachment C.
- A Well/Drillhole/Borehole Filling and Sealing Report (WDNR Form 3300-005) has been prepared for each abandoned borehole and is included as Attachment D.
- A Well Information Form (WDNR Form 4400-089) for the wells is included as Attachment E.
- The well development and drilling water laboratory analytical results are provided in Attachment F.

Upon your review of this letter, please contact John Oswald at john.oswald@tetratech.com or (630) 410-7224 with any questions.

Sincerely,

**CORNERSTONE ENVIRONMENTAL GROUP, LLC – A TETRA TECH COMPANY**

John Oswald, P.G.
Central Region Area Manger

Luke Specketer, P.G.
Project Geologist

Enclosures: Attachment A - WDNR Soil Boring Information Logs
Attachment B - WDNR Monitoring Well Construction Logs
Attachment C - WDNR Monitoring Well Development Logs
Attachment D - WDNR Well/Drillhole/Borehole Filling and Sealing Logs
Attachment E - WDNR Well Information Form
Attachment F – Laboratory Analytical Results – Drilling Water and Well Development Data

Figure 1 – Boring and Well Location Map

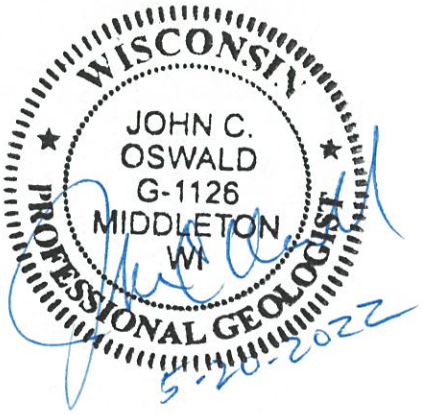
cc: Robert Regan – Dane County – electronic copy
Alison Rathsack – Dane County – electronic copy
John Welch – Dane County – electronic copy
Roxanne Wienkes – Dane County – electronic copy
Teri Daigle – Tetra Tech – electronic copy

Cornerstone – A Tetra Tech Company
8413 Excelsior Drive, Suite 160, Madison, WI 53717
Tel 877.294.9070 Fax 877.845.1456 tetratech.com

TETRA TECH

**CERTIFICATION**

I, John C. Oswald, hereby certify that I am a licensed professional geologist in the State of Wisconsin in accordance with the requirements of ch. GHSS 2, Wis. Adm. Code; that the preparation of this document has not involved any unprofessional conduct as detailed in ch. GHSS 5, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 500 to 538, Wis. Adm. Code.




John C. Oswald
Signature

Central Region Area Manager/Sr. Geologist

Cornerstone – A Tetra Tech Company
8413 Excelsior Drive, Suite 160, Madison, WI 53717
Tel 877.294.9070 Fax 877.845.1456 tetratech.com

TETRA TECH

**Figure 1**

**Boring and Well Location Map**

Cornerstone – A Tetra Tech Company
8413 Excelsior Drive, Suite 160, Madison, WI 53717
Tel 877.294.9070 Fax 877.845.1456 tetratech.com

## LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- PROPOSED 15-YEAR SOLID WASTE BOUNDARY
- PROPOSED 100-YEAR SOLID WASTE BOUNDARY
- 900 — EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- 910 — PROPOSED 10' BASE GRADE CONTOUR
- PROPOSED 2' BASE GRADE CONTOUR
- 850 — APPROXIMATE BEDROCK CONTOUR (INFERRED)
- PW–A — EXISTING PRIVATE WELL
- M22 — EXISTING MONITORING WELL
- M17AR — EXISTING PIEZOMETER
- PB–5 — EXISTING SEH BORING LOCATION
- MW–5 — EXISTING SEH MONITORING WELL LOCATION
- B–4 — EXISTING 2022 BORING LOCATION
- MW–4 — EXISTING 2022 MONITORING WELL LOCATION

## NOTES:

1. TOPOGRAPHIC SURVEY OF THE DEVELOPMENT AREA TAKEN FROM THE WISCONSIN VIEW PORTAL LIDAR DATA, YEAR OF ACQUISITION: 2017. TOPOGRAPHIC SURVEY DATA PROVIDED BY STATE CARTOGRAPHER'S OFFICE.
2. SITE LOCATED IN THE FOLLOWING PARCELS IN DANE COUNTY:
   - NW 1/4 , NW 1/4, T7N, R10E, SECTION 25 CITY OF MADISON
   - SE 1/4, SE 1/4, SECTION 25, T7N, R10E, CITY OF MADISON
   - SW 1/4, SE 1/4 SECTION 25, T7N, R10E, CITY OF MADISON
   - BLOOMING GROVE ASSESSORS PLAN NO. 10, CITY OF MADISON
   - NW 1/4 SECTION 26, T7N, R10E, CITY OF MADISON
   - N 1/2, NE 1/4, T7N, R10E, CITY OF MADISON
3. HORIZONTAL DATUM IS REFERENCED TO WISCONSIN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM (NAD 83), US SURVEY FEET.
4. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM 1988. CONTOUR INTERVAL IS TWO FEET.
5. SEH BORING AND MONITORING WELL LOCATIONS TAKEN FROM FIGURES 1/4 AND 3/4 OF THE CTB AB INTERCHANGE, BY SEH, DATED MAY 19, 2021. LOCATIONS OF WELLS ARE APPROXIMATE.

N

0 200 400

SCALE IN FEET



| REV | DATE | DESCRIPTION | DWN BY | DES BY | CHK BY | APP BY |
|---|---|---|---|---|---|---|
| | | | | | | |

DATE OF ISSUE APR. 2022 | DRAWN BY RBN | DESIGNED BY RBN | CHECKED BY LS | APPROVED BY JCO

TETRA TECH

ALL PROFESSIONAL ENGINEERING WORK IS PERFORMED BY DULY LICENSED PROFESSIONAL ENGINEERS UNDER THE APPROPRIATE STATE REGISTERED PROFESSIONAL ENTITY.

DANE COUNTY DEPARTMENT OF WASTE & RENEWABLES
PROPOSED DANE COUNTY SITE NO. 3
MADISON, WISCONSIN

**PRELIMARY GEOTECHNICAL INVESTIGATION**
**BORING & WELL LOCATION MAP (PHASE 1)**

FIGURE NO. **1**

PROJECT NO. 42111146



1" 1/2" 0" 1"

TETRA TECH

**Attachment A**

WDNR Soil Boring Information Logs

Cornerstone – A Tetra Tech Company
8413 Excelsior Drive, Suite 160, Madison, WI 53717
Tel 877.294.9070 Fax 877.845.1456 tetratech.com

State of Wisconsin
Department of Natural Resources

# SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☒
Remediation/Redevelopment ☐ Other ☐



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| Dane County Landfill Site No. 3 | N/A | B-1 |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| Scott Klumb<br>Soils and Engineering Services | 2/1/2022 | 2/1/2022 | HSA 2.25 ID |

| WI Unique Well No. | DNR Well ID No. | Common Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| | | | 863.7 Feet MSL | 875.0 Feet MSL | 6.0 inches |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☒
State Plane 379,854 N, 2,168,432 E S / C / N
NE 1/4 of SE 1/4 of Section 25, T 7 N, R 10 E
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N Feet ☐ S ☐ E Feet ☐ W

| Facility ID | County | County Code | Civil Town/City/ or Village |
|---|---|---|---|
| 113450480 | Dane | 13 | Madison |

| Sample Number and Type | Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 SS | 18 16 | 4 4 5 | 1–5 | Silt (ML), few clay, trace subangular gravel, dark yellowish brown (10YR 4/6), non-plastic, dry, very stiff (loess/lacustrine) | ML | | | | 3.5 | | | | | |
| 2 SS | 24 22 | 4 6 7 8 | 8–9 | Lean Clay (CL), few silt, dark yellowish brown (10YR 4/6), highly plastic, moist, very stiff (loess/lacustrine) | CL | | | | 3.25 | | | | | Wet soil noticed at 8.5 feet |
| | | | 10–12 | Sand with silt and gravel (SP-SM), brown (10YR 5/3), fine to medium grained, wet, medium dense (outwash) | SP-SM | | ▼ | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

| Signature | Firm | Tel: |
|---|---|---|
| Logan Dwyer | Tetra Tech<br>8413 Excelsior Dr Suite 160 Madison, WI 53714 | Fax: |

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number B-1 Use only as an attachment to Form 4400-122. 

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Soil Properties: Moisture Content | Soil Properties: Liquid Limit | Soil Properties: Plasticity Index | Soil Properties: P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 13 | Sand with silt and gravel (SP-SM), brown (10YR 5/3), fine to medium grained, wet, medium dense (outwash) *(continued)* | | | | | | | | | | |
| 3 SS | 24 18 | 4 6 7 9 | 14 | yellowish brown (10YR 5/4) | | | | | | 14.3 | | | 7.9 | Lab classified as SP-SM Screen zone bag sample S7 - 14-16ft |
| | | | 15 | | | | | | | | | | | |
| | | | 16 | | | | | | | | | | | |
| | | | 17 | | | | | | | | | | | |
| | | | 18 | | | | | | | | | | | |
| 4 SS | 24 20 | 7 8 8 8 | 19 | fine sand, coarse sand seem 19.2-19.5ft, very loose | | | | | | | | | | |
| | | | 20 | | | | | | | | | | | |
| | | | 21 | | SP-SM | | | | | | | | | |
| | | | 22 | | | | | | | | | | | |
| | | | 23 | | | | | | | | | | | |
| 5 SS | 24 13 | 10 10 10 13 | 24 | few subangular gravel, yellowish brown (10YR 5/6), medium | | | | | | | | | | |
| | | | 25 | | | | | | | | | | | |
| | | | 26 | | | | | | | | | | | |
| | | | 27 | | | | | | | | | | | |
| | | | 28 | | | | | | | | | | | |
| 6 SS | 24 19 | 11 17 17 14 | 29 | | | | | | | | | | | |
| | | | 30 | Silt (ML), trace fine sand, yellowish brown (10YR 5/4), non-plastic, moist, soft (glacio-lacustrine) | ML | | | | 0.5 | | | | | |
| | | | 31 | | | | | | | | | | | |
| | | | 32 | | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number B-1 Use only as an attachment to Form 4400-122. 

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 33 | Silt (ML), trace fine sand, yellowish brown (10YR 5/4), non-plastic, moist, soft (glacio-lacustrine) *(continued)* | ML | | | | | | | | | |
| 7 SS | 24 12 | 8 13 19 22 | 34 | Poorly graded fine sand (SP), few silt, yellowish brown (10YR 5/6), wet, dense (outwash) | | | | | | | | | | |
| | | | 35 | | | | | | | | | | | |
| | | | 36 | | | | | | | | | | | |
| | | | 37 | | | | | | | | | | | |
| | | | 38 | | | | | | | | | | | |
| 8 SS | 24 19 | 16 19 22 29 | 39 | some silt | SP | | | | | | | | | |
| | | | 40 | trace silt | | | | | | | | | | |
| | | | 41 | | | | | | | | | | | |
| | | | 42 | | | | | | | | | | | Driller encountered cobbles and gravel while drilling |
| | | | 43 | | | | | | | | | | | |
| 9 SS | 24 14 | 16 18 21 22 | 44 | Well graded sand (SW), few dolomite fragments, few silt, yellowish brown (10YR 5/4), medium and coarse sand, wet, dense (outwash) | | | | | | | | | | |
| | | | 45 | | | | | | | | | | | |
| | | | 46 | | | | | | | | | | | |
| | | | 47 | | SW | | | | | | | | | |
| | | | 48 | | | | | | | | | | | |
| 10 SS | 17 15 | 37 48 15 | 49 | | | | | | | | | | | |
| | | | 50 | Highly Weathered Dolomite, some dolomite fragments, few coarse sand, light yellowish brown (10YR 6/4), wet (formation indeterminable due to limited sample) | | | | | | | | | | |
| | | | 51 | | | | | | | | | | | |
| | | | 52 | | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number B-1 Use only as an attachment to Form 4400-122. Page 4 of 4

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 53 | | | | | | | | | | | |
| 11 SS | 24 18 | 26 23 27 28 | 54 | Well graded sand (SW), few subangular gravel, trace silt, yellowish brown (10YR 5/6), coarse and medium sand, very dense, wet (outwash) | SW | | | | | | | | | |
| | | | 55 | | | | | | | | | | | |
| | | | 56 | | | | | | | | | | | |
| | | | 57 | | | | | | | | | | | |
| | | | 58 | | | | | | | | | | | |
| | | | 59 | | | | | | | | | | | |
| | | | 60 | End of boring 60' (bottom elevation 815ft MSL) | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

# SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☒
Remediation/Redevelopment ☐ Other ☐



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| Dane County Landfill Site No. 3 | N/A | MW-1 |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| Scott Klumb<br>Soils and Engineering Services | 2/18/2022 | 2/21/2022 | HSA 4.25 ID |

| WI Unique Well No. | DNR Well ID No. | Common Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| WA434 | 101 | MW-1 | 863.6 Feet MSL | 875.5 Feet MSL | 8.0 inches |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☒
State Plane 379,849 N, 2,168,438 E S / C / N
NE 1/4 of SE 1/4 of Section 25, T 7 N, R 10 E
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N ☐ E Feet ☐ S Feet ☐ W

| Facility ID | County | County Code | Civil Town/City/ or Village |
|---|---|---|---|
| 113450480 | Dane | 13 | Madison |

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 2 | See boring log "B-1" for soil descriptions | | | | | | | | | | |
| | | | 4 | | ML | | | | | | | | | |
| | | | 6 | | | | | | | | | | | |
| | | | 8 | | CL | | | | | | | | | |
| | | | 10 | | | | | | | | | | | |
| | | | 12 | | | | | | | | | | | |
| | | | 14 | | | | | | | 14.3 | NV | NP | 7.9 | Lab classified as SP-SM Screen zone bag sample S7 - 14-16ft from boring B-1 |
| | | | 16 | | SP-SM | | | | | | | | | |
| | | | 18 | | | | | | | | | | | |
| | | | 20 | | | | | | | | | | | |
| | | | 22 | | | | | | | | | | | |
| | | | | End of boing 23 feet - well set at 22 feet (borehole bottom elevation 852.5ft MSL) | | | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

| Signature | Firm | Tel: |
|---|---|---|
| Logan Dwyer | Tetra Tech<br>8413 Excelsior Dr Suite 160 Madison, WI 53714 | Fax: |

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

# SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☒
Remediation/Redevelopment ☐ Other ☐



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| Dane County Landfill Site No. 3 | N/A | B-2 |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| Scott Klumb<br>Soils and Engineering Services | 2/18/2022 | 2/21/2022 | HSA 4.25 ID |

| WI Unique Well No. | DNR Well ID No. | Common Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| | | | 887.8 Feet MSL | 892.3 Feet MSL | 8.0 inches |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☒
State Plane 378,836 N, 2,169,372 E S / C / N
SE 1/4 of SE 1/4 of Section 25, T 7 N, R 10 E
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N ☐ E Feet ☐ S Feet ☐ W

| Facility ID | County | County Code | Civil Town/City/ or Village |
|---|---|---|---|
| 113450480 | Dane | 13 | Madison |

| Sample Number and Type | Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 SS | 24 14 | 3 5 12 10 | 1 2 3 4 5 | Silty sand with gravel (SM), very pale brown (10YR 7/3), coarse to medium to fine grained, moist, medium dense (till) | | | ▼ | | | | | | | |
| ST | 14 | | 6 | | SM | | | | | | | | | Shelby tube ST-3 - 5.5-6.67ft |
| 2 SS | 24 24 | 14 17 17 18 | 7 8 9 10 11 12 | some medium sand, few coarse sand, dense | | | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

| Signature | Firm | Tel: |
|---|---|---|
| Logan Dwyer | Tetra Tech<br>8413 Excelsior Dr Suite 160 Madison, WI 53714 | Fax: |

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number B-2 Use only as an attachment to Form 4400-122. 

| Sample Number and Type | Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 SS | 24 9 | 31 31 19 25 | 13–18 | trace coarse sand, trace medium sand, some cobbles, dry, very dense | SM | | | | | | | | | Driller indicated hard drilling and cobbles present 17-18ft |
| 4 SS | 1 1 | 60 | 18–19 | (Weathered Dolomite bedrock), dolomite fragments, few silt, yellowish brown (10YR 5/4), wet (Galena-Platteville Fm) | | | | | | | | | | |
| 1 RC | 120 60 | | 23–24 | As a result of the poor recovery a second core was performed adjacent to the original borehole at Boring B-2A. Refer to Boring B-2A for detailed bedrock description. | | | | | | | | | | HQ rock core run 1: RQD= 16% (very poor) Recovery 50% FF= Indeterminable due to disaggregated sample |
| | | | 24–27 | Dolomite, highly fractured, near vertical, silty layers present, trace clay layers, light gray (GLEY1 7/N), (Galena-Platteville Fm) | | | | | | | | | | |
| | | | 29–32 | Limited recovery - highly fractured, gray (5Y 5/1) | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number B-2 Use only as an attachment to Form 4400-122. 

| Sample | | | | | | | | | Soil Properties | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number and Type | Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
| | | | 33 | | | | | | | | | | | |
| | | | 34 | End of boring 34 feet (bottom elevation 858.3ft MSL) | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

# SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☒
Remediation/Redevelopment ☐ Other ☐



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| Dane County Landfill Site No. 3 | N/A | B-2A |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| Scott Klumb<br>Soils and Engineering Services | 2/28/2022 | 3/1/2022 | HSA 4.25 ID |

| WI Unique Well No. | DNR Well ID No. | Common Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| | | | 886.3 Feet MSL | 892.3 Feet MSL | 8.0 inches |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☒
State Plane 378,839 N, 2,169,372 E S/C/N
SE 1/4 of SE 1/4 of Section 25, T 7 N, R 10 E
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N Feet ☐ S ☐ E Feet ☐ W

| Facility ID | County | County Code | Civil Town/City/ or Village |
|---|---|---|---|
| 113450480 | Dane | 13 | Madison |

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12 | Blind drill to 19 feet - see boring log "B-2" for soil descriptions | SM | | ▼ | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

| Signature | Firm | Tel: |
|---|---|---|
| Lucas Specketer | Tetra Tech<br>8413 Excelsior Dr Suite 160 Madison, WI 53714 | Fax: |

State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number B-2A Use only as an attachment to Form 4400-122. 

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Soil Properties: Moisture Content | Soil Properties: Liquid Limit | Soil Properties: Plasticity Index | Soil Properties: P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 13 | Blind drill to 19 feet - see boring log "B-2" for soil descriptions *(continued)* | | | | | | | | | | |
| | | | 14 | | | | | | | | | | | |
| | | | 15 | | SM | | | | | | | | | Weathered bedrock noticed by driller @ 14.5 feet |
| | | | 16 | | | | | | | | | | | |
| | | | 17 | | | | | | | | | | | |
| | | | 18 | | | | | | | | | | | |
| | | | 19 | | GM | | | | | | | | | |
| 1 RC | 84 81 | | 20 | Fractured dolomite, light gray (GLEY1 7/N) (Galena-Platteville Fm) | | | | | | | | | | HQ rock core run 1: RQD= 75% (good); recovery 96% FF= 3.1 |
| | | | 21 | | | | | | | | | | | |
| | | | 22 | | | | | | | | | | | |
| | | | 23 | | | | | | | | | | | |
| | | | 24 | Weathered dolomite, light gray (GLEY1 7/N), interbedded sandy clay (glauconite) (Galena-Platteville Fm) | | | | | | | | | | |
| | | | 25 | | | | | | | | | | | |
| 2 RC | 60 54 | | 26 | Highly fractured dolomite, light gray (GLEY1 7/N), some blue green clay interbedding (glauconite), iron concentration at 28 feet with pyrite (Galena-Platteville Fm) | | | | | | | | | | HQ rock core run 2: RQD= 37% (poor); recovery 90% FF= Indeterminable due to disaggregated sample |
| | | | 27 | | | | | | | | | | | |
| | | | 28 | | | | | | | | | | | |
| | | | 29 | | | | | | | | | | | |
| | | | 30 | | | | | | | | | | | |
| 3 RC | 60 49 | | 31 | | | | | | | | | | | |
| | | | 32 | | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number B-2A Use only as an attachment to Form 4400-122. 

| Sample | | | | | | | | | Soil Properties | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number and Type | Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
| | | | 33 | Highly fractured gray dolomite, light gray (GLEY1 7/N), interbedded with blue-green limestone (vertical fractures) (Galena-Platteville Fm) *(continued)* | | | | | | | | | | HQ rock core run 3: RQD= 55% (fair); recovery 82% FF= 4.2 |
| | | | 34 | | | | | | | | | | | |
| | | | 35 | | | | | | | | | | | |
| | | | 36 | Highly fractured dolomite, light gray (10YR 7/1) (Galena-Platteville Fm) | | | | | | | | | | |
| | | | | End of boring 36 feet (bottom elevation 856.3ft MSL) | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

# SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☒
Remediation/Redevelopment ☐ Other ☐



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| Dane County Landfill Site No. 3 | N/A | MW-2 |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| Scott Klumb<br>Soils and Engineering Services | 2/21/2022 | 2/21/2022 | HSA 4.25 ID |

| WI Unique Well No. | DNR Well ID No. | Common Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| WA433 | 102 | MW-2 | 886.5 Feet MSL | 892.3 Feet MSL | 8.0 inches |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☒
State Plane 378,836 N, 2,169,374 E S / C / N
SE 1/4 of SE 1/4 of Section 25, T 7 N, R 10 E
Lat ___ ° ___ ' ___ "
Long ___ ° ___ ' ___ "
Local Grid Location ☐ N Feet ☐ S ☐ E Feet ☐ W

| Facility ID | County | County Code | Civil Town/City/ or Village |
|---|---|---|---|
| 113450480 | Dane | 13 | Madison |

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1–14 | See boring log "B-2" for soil descriptions | SM | | | | | 15.4 | NV | NP | 19.7 | Lab classified as SM Screen zone bag sample S11 - 5.5-6.67ft from boring B-2 |
| | | | | End of boring 14 feet - well set at 13 feet (borehole bottom elevation 878.3ft MSL) | | | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

| Signature | Firm | Tel: |
|---|---|---|
| Logan Dwyer | Tetra Tech<br>8413 Excelsior Dr Suite 160 Madison, WI 53714 | Fax: |

State of Wisconsin
Department of Natural Resources

# SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☒
Remediation/Redevelopment ☐ Other ☐



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| Dane County Landfill Site No. 3 | N/A | B-3 |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| Scott Klumb<br>Soils and Engineering Services | 2/16/2022 | 2/16/2022 | HSA 2.25 ID |

| WI Unique Well No. | DNR Well ID No. | Common Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| | | | 875.0 Feet MSL | 895.9 Feet MSL | 6.0 inches |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☒
State Plane 378,225 N, 2,166,911 E S/C/N
SE 1/4 of SW 1/4 of Section 25, T 7 N, R 10 E
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N Feet ☐ S ☐ E Feet ☐ W

| Facility ID | County | County Code | Civil Town/City/ or Village |
|---|---|---|---|
| 113450480 | Dane | 13 | Madison |

| Sample Number and Type | Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 SS | 24 21 | 7 10 11 12 | 1–4 | Silty sand (SM), trace angular gravel, yellowish red (5YR 4/6), dry, medium dense (till) | SM | | | | | | | | | |
| 2 SS | 24 24 | 14 12 12 12 | 8–9 | few coarse sand, few angular gravel | | | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

| Signature | Firm | Tel: |
|---|---|---|
| Logan Dwyer | Tetra Tech<br>8413 Excelsior Dr Suite 160 Madison, WI 53714 | Fax: |

State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number B-3 Use only as an attachment to Form 4400-122. 

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 13 | Silty sand (SM), trace angular gravel, yellowish red (5YR 4/6), dry, medium dense (till) *(continued)* | | | | | | | | | | |
| 3 SS | 24 24 | 5 6 8 8 | 14 | few clay, moist | | | | | | | | | | Moist soil noticed at 13.5 feet |
| | | | 15 | | | | | | | | | | | |
| | | | 16 | | | | | | | | | | | |
| | | | 17 | | | | | | | | | | | |
| | | | 18 | | SM | | | | | | | | | |
| 4 SS | 24 22 | 7 7 10 11 | 19 | fine to medium grained, reddish brown (5YR 5/4) | | | | | | 10.4 | NV | NP | 26.4 | Lab classified as SM |
| | | | 20 | | | | | | | | | | | |
| | | | 21 | | | | ▼ | | | | | | | |
| | | | 22 | | | | | | | | | | | |
| | | | 23 | | | | | | | | | | | |
| 5 SS | 24 24 | 10 17 17 20 | 24 | Sandy lean clay (CL), little angular gravel, yellowish brown to dark brown (10YR 5/4 to 3/3), medium-plastic, hard, moist (glacio-lacustrine) | | | | | 4 | 10 | 25 | 13 | 59.2 | Lab classified as CL |
| | | | 25 | | | | | | | | | | | |
| | | | 26 | | CL | | | | | | | | | |
| | | | 27 | | | | | | | | | | | |
| | | | 28 | | | | | | | | | | | |
| 6 SS | 24 16 24 | 7 9 10 13 | 29 | little silt, wet, stiff<br>Silty sand with gravel (SM), light brown (7.5YR 5/4), fine grained, angular gravel, wet, medium dense (outwash) | | | | | 2 | 8.6 | NV | NP | 31.4 | Bag sample S10 - 28-30ft from boring MW-3 |
| | | | 30 | | SM | | | | | | | | | |
| | | | 31 | | | | | | | | | | | |
| | | | 32 | | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number B-3 Use only as an attachment to Form 4400-122. Page 3 of 3

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 33 | | SM | | | | | | | | | |
| 7 SS | 9 9 | 72 28 | 34 | Poorly graded fine sand (SP), white (GLEY1 8/N), wet, very dense (outwash) | SP | | | | | | | | | |
| | | | 35 | | | | | | | | | | | |
| | | | 36 | | | | | | | | | | | |
| | | | 37 | End of boring 37 feet - bedrock - split spoon refusal (bottom elevation 858.9ft MSL) | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

# SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☒
Remediation/Redevelopment ☐ Other ☐



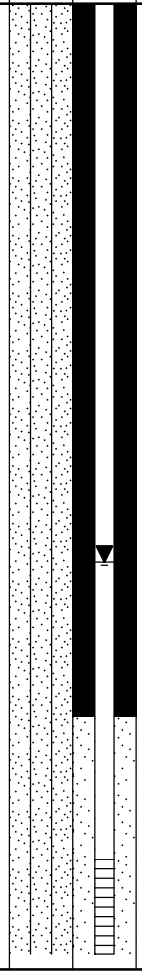
| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| Dane County Landfill Site No. 3 | N/A | MW-3 |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| Scott Klumb<br>Soils and Engineering Services | 2/17/2022 | 2/17/2022 | HSA 4.25 ID |

| WI Unique Well No. | DNR Well ID No. | Common Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| WA432 | 103 | MW-3 | 884.2 Feet MSL | 896.0 Feet MSL | 8.0 inches |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☒
State Plane 378,218 N, 2,166,911 E S/C/N
SE 1/4 of SW 1/4 of Section 25, T 7 N, R 10 E
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N Feet ☐ S ☐ E Feet ☐ W

| Facility ID | County | County Code | Civil Town/City/ or Village |
|---|---|---|---|
| 113450480 | Dane | 13 | Madison |

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1.5<br>3.0<br>4.5<br>6.0<br>7.5<br>9.0<br>10.5<br>12.0<br>13.5<br>15.0<br>16.5<br>18.0<br>19.5 | See boring log "B-3" for soil descriptions | SM |  | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

| Signature | Firm | Tel: |
|---|---|---|
| Logan Dwyer | Tetra Tech<br>8413 Excelsior Dr Suite 160 Madison, WI 53714 | Fax: |

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number MW-3 Use only as an attachment to Form 4400-122. Page 2 of 2

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 21.0 | See boring log "B-3" for soil descriptions *(continued)* | SM | | | | | | | | | |
| | | | 22.5 | | | | | | | | | | | |
| | | | 24.0 | | | | | | | | | | | |
| | | | 25.5 | | CL | | | | | | | | | |
| | | | 27.0 | | | | | | | | | | | |
| | | | 28.5 | | SM | | | | | 8.6 | NV | NP | 31.4 | Lab classified as SM Bag sample S10 - 28-30ft |
| | | | 30.0 | End of boirng 30 feet - well set at 28 feet (borehole bottom 866ft MSL) | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

# SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☒
Remediation/Redevelopment ☐ Other ☐



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| Dane County Landfill Site No. 3 | N/A | MW-4 |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| Scott Klumb<br>Soils and Engineering Services | 2/16/2022 | 2/17/2022 | HSA 4.25 ID |

| WI Unique Well No. | DNR Well ID No. | Common Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| WA431 | 104 | MW-4 | 895.7 Feet MSL | 911.7 Feet MSL | 8.0 inches |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☒
State Plane 377,202 N, 2,168,283 E S / C / N
NW 1/4 of NE 1/4 of Section 36, T 7 N, R 10 E
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N ☐ E Feet ☐ S Feet ☐ W

| Facility ID | County | County Code | Civil Town/City/ or Village |
|---|---|---|---|
| 113450480 | Dane | 13 | Madison |

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 SS | 24 14 | 3 3 4 5 | 1–5 | Lean clay with sand (CL), little sand, few silt, trace subangular gravel, brown (7.5YR 4/3), medium-plastic, moist, stiff (glacio-lacustrine) | CL | | | | 2.75 | | | | | |
| 2 SS | 24 24 | 2 2 2 2 | 8–9 | medium stiff | | | | | 1 | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

| Signature | Firm | Tel: |
|---|---|---|
| Logan Dwyer | Tetra Tech<br>8413 Excelsior Dr Suite 160 Madison, WI 53714 | Fax: |

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number MW-4 Use only as an attachment to Form 4400-122. Page 2 of 2

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 13 | | CL | | | | | | | | | |
| 3 SS | 7 7 | 83 17 | 13 | Highly Weathered Dolomite, fine grained, pale yellow (2.5YR 8/3), angular rock fragments, dry, very dense | | | | | | | | | | |
| | | | 14 | | | | | | | | | | | |
| | | | 15 | | | | | | | | | | | |
| | | | 16 | | | | | | | | | | | |
| | | | 17 | | | | | | | | | | | |
| 4 SS | 5 5 | 100 | 18 | glauconite pockets, brownish yellow (10YR 6/6) | | | | | | | | | | Water noticed in samples @ 18 feet |
| | | | 19 | | | | | | | | | | | |
| | | | 20 | | | | | | | | | | | |
| | | | 21 | Dolomite rock fragments, brownish yellow (10YR 6/6) | | | | | | 8.6 | | NP | 16.4 | Lab classified as GM Screen zone MW-4 - Bag sample S6 - 21-23ft |
| | | | 22 | | | | | | | | | | | |
| 5 SS | 2 2 | 60 | 23 | | | | | | | | | | | |
| | | | 24 | | | | | | | | | | | |
| | | | 25 | | | | | | | | | | | |
| | | | 26 | | | | | | | | | | | |
| | | | 27 | | | | | | | | | | | |
| 6 SS | 1 1 | 60 | 28 | Highly Weathered Rock, very pale brown (10YR 7/3), medium to coarse to fine grained sand, some silt, wet, very dense | | | | | | 9.5 | | NP | 24 | Lab classified as SM Bag sample S8 - 29-31ft (from auger flights) |
| | | | 29 | | | | | | | | | | | |
| | | | 30 | | | | | | | | | | | |
| | | | 31 | End of boring 31 feet - well set at 28ft (borehole bottom 880.7ft MSL) | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

# SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☒
Remediation/Redevelopment ☐ Other ☐



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| Dane County Landfill Site No. 3 | N/A | B-5 |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| Scott Klumb<br>Soils and Engineering Services | 2/22/2022 | 2/22/2022 | HSA 2.25 ID |

| WI Unique Well No. | DNR Well ID No. | Common Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| | | | 874.6 Feet MSL | 883.1 Feet MSL | 6.0 inches |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☒
State Plane 379,624 N, 2,169,376 E S / C / N
NE 1/4 of SE 1/4 of Section 25, T 7 N, R 10 E
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N ☐ E Feet ☐ S Feet ☐ W

| Facility ID | County | County Code | Civil Town/City/ or Village |
|---|---|---|---|
| 113450480 | Dane | 13 | Madison |

| Sample Number and Type | Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 SS | 24 6 | 2 2 4 5 | 1 2 3 4 5 | Silty sand (SM), trace gravel, dark yellowish brown (10YR 4/6), non-plastic, soft, moist (till) | | | | | 0.25 | | | | | |
| ST | 18 21 | | 6 7 | | SM | | | | | 9.7 | NV | NP | 31.0 | Shelby tube ST-4 - 5.5-7', Lab classified as SM KV= 1.21E-06 |
| 2 SS | 24 12 | 3 2 2 1 | 8 9 10 11 12 | trace clay, medium-plastic, wet | | | ▼ | | 0.25 | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

| Signature | Firm | Tel: |
|---|---|---|
| Logan Dwyer | Tetra Tech<br>8413 Excelsior Dr Suite 160 Madison, WI 53714 | Fax: |

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number B-5 Use only as an attachment to Form 4400-122. 

| Sample Number and Type | Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 SS | 24 4 | 1 3 3 3 | 13–18 | very soft | SM | | | | 0.1 | | | | | |
| 4 SS | 1 1 | 60 | 18–19 | Weathered Dolomite, light gray (10YR 7/1) (Galena-Platteville Fm) | | | | | | | | | | Driller indicated hard drilling |
| 5 SS | 1 1 | 60 | 21 | End of boring 21.1 - drilling refusal - bedrock (bottom elevation 862.0ft MSL) | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

# SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☒
Remediation/Redevelopment ☐ Other ☐



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| Dane County Landfill Site No. 3 | N/A | B-5A |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| Scott Klumb<br>Soils and Engineering Services | 3/2/2022 | 3/2/2022 | HSA 4.25 ID |

| WI Unique Well No. | DNR Well ID No. | Common Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| | | | 874.1 Feet MSL | 883.1 Feet MSL | 8.0 inches |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☒
State Plane 379,624 N, 2,169,378 E S / C / N
NE 1/4 of SE 1/4 of Section 25, T 7 N, R 10 E
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N ☐ E Feet ☐ S Feet ☐ W

| Facility ID | County | County Code | Civil Town/City/ or Village |
|---|---|---|---|
| 113450480 | Dane | 13 | Madison |

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12 | Blind drill to 19 feet - see boring log "B-5" for soil descriptions | SM | | ▼ | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

| Signature | Firm | Tel: |
|---|---|---|
| Lucas Spocketer | Tetra Tech<br>8413 Excelsior Dr Suite 160 Madison, WI 53714 | Fax: |

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number B-5A Use only as an attachment to Form 4400-122. 

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 13 | Blind drill to 19 feet - see boring log "B-5" for soil descriptions *(continued)* | | | | | | | | | | |
| | | | 14 | | | | | | | | | | | |
| | | | 15 | | SM | | | | | | | | | |
| | | | 16 | | | | | | | | | | | |
| | | | 17 | | | | | | | | | | | |
| | | | 18 | | | | | | | | | | | |
| | | | 19 | | | | | | | | | | | |
| 1 RC | 84 84 | | 20 | Gray (10YR 6/1) fossiliferous dolomite, few horizontal fractures (Galena-Platteville Fm) Light gray (10YR 7/2) Gray (10YR 6/1) | | | | | | | | | | HQ rock core run 1: RQD= 82% (good); recovery 100% FF= 2.3 |
| | | | 21 | | | | | | | | | | | |
| | | | 22 | Light gray (10YR 7/2) | | | | | | | | | | |
| | | | 23 | | | | | | | | | | | |
| | | | 24 | | | | | | | | | | | |
| | | | 25 | Gray (10YR 6/1) and light gray (10YR 7/2), small silt seam <1", more vertical fractures 25.5-26' | | | | | | | | | | |
| 2 RC | 120 120 | | 26 | Light gray (10YR 7/2) Gray (10YR 6/1) | | | | | | | | | | HQ rock core run 2: RQD= 85% (good); recovery 100% FF= 3.4 |
| | | | 27 | | | | | | | | | | | |
| | | | 28 | Light gray (10YR 7/2) Gray (10YR 6/1) | | | | | | | | | | |
| | | | 29 | | | | | | | | | | | |
| | | | 30 | | | | | | | | | | | |
| | | | 31 | Light gray (10YR 7/2) Gray (10YR 6/1) | | | | | | | | | | |
| | | | 32 | | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number B-5A Use only as an attachment to Form 4400-122. 

| Sample | | | | | | | | | Soil Properties | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number and Type | Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
| | | | 33 | | | | | | | | | | | |
| | | | 34 | | | | | | | | | | | |
| | | | 35 | | | | | | | | | | | |
| | | | 36 | End of boring 36 feet (bottom elevation 847.1ft MSL) | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

# SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☒
Remediation/Redevelopment ☐ Other ☐



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| Dane County Landfill Site No. 3 | N/A | B-6 |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| Scott Klumb<br>Soils and Engineering Services | 2/2/2022 | 2/2/2022 | HSA 2.25 ID |

| WI Unique Well No. | DNR Well ID No. | Common Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| | | | Feet MSL | 882.3 Feet MSL | 6.0 inches |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☒
State Plane 379,082 N, 2,167,735 E S / C / N
SW 1/4 of SE 1/4 of Section 25, T 7 N, R 10 E
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N ☐ E Feet ☐ S Feet ☐ W

| Facility ID | County | County Code | Civil Town/City/ or Village |
|---|---|---|---|
| 113450480 | Dane | 13 | Madison |

| Sample Number and Type | Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 SS | 24<br>24 | 12<br>12<br>16<br>18 | 1–5 | Silty sand (SM), little subangular gravel, yellowish red (5YR 5/6), fine grained sand, dry, medium dense (till) | SM | | | | | | | | | |
| 2 SS | 24<br>24 | 14<br>16<br>23<br>21 | 6–9 | few subangular gravel, moist, dense | | | | | | 8.6 | 14 | 2 | 49.3 | Lab classified as SM |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Logan Dwyer Firm Tetra Tech
8413 Excelsior Dr Suite 160 Madison, WI 53714
Tel:
Fax:

State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number B-6 Use only as an attachment to Form 4400-122. Page 2 of 2

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 13 | | SM | | | | | | | | | |
| 3 SS | 24 24 | 14 21 35 43 | 14 | Poorly graded fine sand, few coarse sand, few silt, very pale brown (10YR 7/3), dry, very dense (outwash) | | | | | | | | | | |
| | | | 15 | | | | | | | | | | | |
| | | | 16 | | SP | | | | | | | | | |
| | | | 17 | | | | | | | | | | | |
| | | | 18 | | | | | | | | | | | |
| 4 SS | 1 0 | 60 | | End of boring 18.6 ft - drilling refusal - bedrock (bottom elevation 863.7ft MSL) | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

# SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☒
Remediation/Redevelopment ☐ Other ☐



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| Dane County Landfill Site No. 3 | N/A | B-6A |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| Scott Klumb<br>Soils and Engineering Services | 2/28/2022 | 2/28/2022 | HSA 4.25 ID |

| WI Unique Well No. | DNR Well ID No. | Common Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| | | | Feet MSL | 882.3 Feet MSL | 8.0 inches |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☒
State Plane 379,080 N, 2,167,735 E S / C / N
SW 1/4 of SE 1/4 of Section 25, T 7 N, R 10 E
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N ☐ E Feet ☐ S Feet ☐ W

| Facility ID | County | County Code | Civil Town/City/ or Village |
|---|---|---|---|
| 113450480 | Dane | 13 | Madison |

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | Blind drill to 25.4 feet - see boring log "B-6" for soil descriptions | SM | | | | | | | | | |
| | | | 2 | | | | | | | | | | | |
| | | | 3 | | | | | | | | | | | |
| | | | 4 | | | | | | | | | | | |
| | | | 5 | | | | | | | | | | | |
| | | | 6 | | | | | | | | | | | |
| | | | 7 | | | | | | | | | | | |
| | | | 8 | | | | | | | | | | | |
| | | | 9 | | | | | | | | | | | |
| | | | 10 | | | | | | | | | | | |
| | | | 11 | | | | | | | | | | | |
| | | | 12 | | | | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

| Signature | Firm | Tel: |
|---|---|---|
| Logan Dwyer | Tetra Tech<br>8413 Excelsior Dr Suite 160 Madison, WI 53714 | Fax: |

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State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number B-6A Use only as an attachment to Form 4400-122. 

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 13 | Blind drill to 25.4 feet - see boring log "B-6" for soil descriptions *(continued)* | SM | | | | | | | | | |
| | | | 14 | | | | | | | | | | | |
| | | | 15 | | | | | | | | | | | |
| | | | 16 | | SP | | | | | | | | | |
| | | | 17 | | | | | | | | | | | |
| | | | 18 | | | | | | | | | | | |
| | | | 19 | Highly weathered dolomite (Galena-Platteville Fm) | | | | | | | | | | |
| | | | 20 | Drilled until competent rock reached for rock core | | | | | | | | | | |
| | | | 21 | | | | | | | | | | | |
| | | | 22 | | | | | | | | | | | |
| | | | 23 | | | | | | | | | | | |
| 1 SS | 1 0 | 60 | 24 | | | | | | | | | | | |
| | | | 25 | | | | | | | | | | | |
| 1 RC | 120 49 | | 26 | Highly weathered dolomite, near vertical fractures, pale brown (10YR 6/3) (Galena-Platteville Fm) | | | | | | | | | | HQ rock core run 1: RQD = 15% (very poor); recovery 41% FF= Indeterminable due to disaggregated sample |
| | | | 27 | | | | | | | | | | | |
| | | | 28 | | | | | | | | | | | |
| | | | 29 | | | | | | | | | | | |
| | | | 30 | | | | | | | | | | | |
| | | | 31 | | | | | | | | | | | |
| | | | 32 | | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number B-6A Use only as an attachment to Form 4400-122. Page 3 of 3

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Soil Properties: Moisture Content | Soil Properties: Liquid Limit | Soil Properties: Plasticity Index | Soil Properties: P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 33 | | | | | | | | | | | |
| | | | 34 | | | | | | | | | | | |
| | | | 35 | | | | | | | | | | | |
| 2 SS | 2.5 2.25 | 100 | | split spoon attempted given the highly weathered bedrock | | | | | | | | | | |
| | | | | End of boring 35.5 feet (bottom elevation 846.75ft MSL) | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

# SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☒
Remediation/Redevelopment ☐ Other ☐



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| Dane County Landfill Site No. 3 | N/A | B-7 |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| Scott Klumb<br>Soils and Engineering Services | 2/2/2022 | 2/2/2022 | HSA 2.25 ID |

| WI Unique Well No. | DNR Well ID No. | Common Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| | | | 882.8 Feet MSL | 901.3 Feet MSL | 6.0 inches |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☒
State Plane 378,831 N, 2,168,301 E S / C / N
SW 1/4 of SE 1/4 of Section 25, T 7 N, R 10 E
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N ☐ E Feet ☐ S Feet ☐ W

| Facility ID | County | County Code | Civil Town/City/ or Village |
|---|---|---|---|
| 113450480 | Dane | 13 | Madison |

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | (Fill) silt, 2 feet of fill is based on topographic variations from 1961(pre golf course construction) to 2017 | | | | | | | | | | |
| 1 SS | 24 18 | 5 2 3 8 | 2 3 4 5 | Lean clay (CL), some sand, very dark grayish brown (10YR 3/2), highly plastic, fine to medium to coarse sand, moist, medium stiff (loess) | CL | | | | 0.75 | | | | | |
| | | | 6 7 8 | Silty sand (SM), little gravel, brown (7.5YR 5/4), fine grained, moist, loose (till) | | | | | | | | | | |
| 2 SS | 24 24 | 3 5 6 7 | 9 10 11 12 | some silt, yellowish red (5YR 4/6), medium dense | SM | | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

| Signature | Firm | Tel: |
|---|---|---|
| Logan Dwyer | Tetra Tech<br>8413 Excelsior Dr Suite 160 Madison, WI 53714 | Fax: |

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State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number B-7 Use only as an attachment to Form 4400-122. 

| Sample Number and Type | Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 SS | 24 24 | 12 13 14 14 | 13–15 | trace gravel, few silt, strong brown (7.5YR 5/6) | | | | | | | | | | |
| 4 SS | 7 24 24 | 15 21 26 26 | 18–20 | trace coarse and medium sand, yellowish brown (10YR 5/4), wet, dense | SM | | ▼ | | | | | | | ST attempt - no recovery |
| 5 SS | 24 24 | 17 35 40 41 | 23–25 | few cobbles, few coarse sand, yellowish brown (10YR 5/6), very dense | | | | | | | | | | |
| 6 SS | 18 18 | 19 50 72 | 28–29 | | | | | | | 10.6 | NV | NP | 37.7 | Lab classified as SM |
| | | | 30–32 | Silt (ML), few coarse sand, few clay, trace oxidized iron, very dark grayish brown (10YR 3/2), low-plastic, moist, hard (glacio-lacustrine) | ML | | | | 4 | | | | | |

State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number B-7 Use only as an attachment to Form 4400-122. Page 3 of 3

| Sample Number and Type | Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 33 | Silt (ML), few coarse sand, few clay, trace oxidized iron, very dark grayish brown (10YR 3/2), low-plastic, moist, hard (glacio-lacustrine) *(continued)* | | | | | | | | | | |
| 7 SS | 18 18 | 26 50 33 | 34 | little gravel, very pale brown (10YR 7/3), dry | | | | | 4 | 8.5 | 18 | 1 | 64 | Lab Classified as ML |
| | | | 35 | | ML | | | | | | | | | |
| | | | 36 | | | | | | | | | | | |
| | | | 37 | | | | | | | | | | | |
| | | | 38 | | | | | | | | | | | |
| 8 SS | 2.5 2.5 | 100 | 39 | Weathered dolomite fragments (formation indeterminable due to limited sample) | | | | | | | | | | Driller indicated dense drilling from 38-41.5 feet |
| | | | 40 | | | | | | | | | | | |
| | | | 41 | | | | | | | | | | | |
| | | | 42 | | | | | | | | | | | |
| | | | 43 | | | | | | | | | | | |
| | | | | End of boring 43.5 feet - drilling refusal - bedrock (bottom elevation 857.8ft MSL) | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

# SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☒
Remediation/Redevelopment ☐ Other ☐



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| Dane County Landfill Site No. 3 | N/A | B-8 |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| Scott Klumb<br>Soils and Engineering Services | 2/2/2022 | 2/2/2022 | HSA 2.25 ID |

| WI Unique Well No. | DNR Well ID No. | Common Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| | | | 893.2 Feet MSL | 901.7 Feet MSL | 6.0 inches |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☒
State Plane 377,946 N, 2,168,041 E S / C / N
SW 1/4 of SE 1/4 of Section 25, T 7 N, R 10 E
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N ☐ E Feet ☐ S Feet ☐ W

| Facility ID | County | County Code | Civil Town/City/ or Village |
|---|---|---|---|
| 113450480 | Dane | 13 | Madison |

| Sample Number and Type | Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 SS | 24 18 | 1 3 4 3 | 1–4 | Lean Clay (CL), grayish brown (10YR 5/2), highly plastic, moist, medium stiff (loess) | CL | | | | 1 | | | | | |
| 2 SS | 24 24 | 0 0 0 1 | 8–9 | Sandy clay (CL), reddish brown (5YR 5/4), highly plastic, wet, very soft (glacio-lacustrine) | CL | | ▼ | | 0.2 | | | | | Wet beginning at at 8.5 feet |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

| Signature | Firm | Tel: |
|---|---|---|
| Logan Dwyer | Tetra Tech<br>8413 Excelsior Dr Suite 160 Madison, WI 53714 | Fax: |

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number B-8 Use only as an attachment to Form 4400-122. Page 2 of 2

| Sample Number and Type | Sample Length Att. & Recovered (in) | Sample Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Soil Properties: Moisture Content | Soil Properties: Liquid Limit | Soil Properties: Plasticity Index | Soil Properties: P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 13 | Sandy clay (CL), reddish brown (5YR 5/4), highly plastic, wet, very soft (glacio-lacustrine) *(continued)* | CL | | | | | | | | | |
| 3 SS | 24 24 | 2 6 12 10 | 14 | | | | | | | | | | | |
| ST | 6 | | 15 | Silty sand (SM), trace gravel, yellowish brown (10YR 5/6), non-plastic, moist, very stiff (till) | | | | | 4 | 12.8 | NV | NP | | Drilled to 15.5 ft for ST attempt - Shelby tube ST-2 - 15'1"-15'7", Lab Classified as SM KV= 6.50E-06 |
| | | | 16 | | | | | | | | | | | |
| | | | 17 | | | | | | | | | | | |
| | | | 18 | | | | | | | | | | | |
| 4 SS | 24 23 | 10 11 7 8 | 19 | reddish yellow (7.5YR 6/6), fine to medium sand, wet, medium dense | SM | | | | | | | | | |
| | | | 20 | Few subangular gravel, moist | | | | | | | | | | |
| | | | 21 | | | | | | | | | | | |
| | | | 22 | | | | | | | | | | | |
| | | | 23 | | | | | | | | | | | |
| 5 SS | 24 24 | 14 15 20 26 | 24 | Sand with silt (SP-SM), strong brown (7.5YR 5/6), fine to medium grained, dense, wet (till) | SP-SM | | | | | 12.2 | NV | NP | 6.8 | Lab classified as SP-SM |
| | | | 25 | Weathered sandstone bedrock (bedrock formation indeterminable due to limited sample) | | | | | | | | | | |
| | | | 26 | | | | | | | | | | | |
| | | | 27 | | | | | | | | | | | |
| | | | 28 | | | | | | | | | | | |
| 6 SS | 3 3 | 100 | 29 | few sandstone fragments, light greenish gray (GLEY1 7/10Y) glauconite | | | | | | | | | | |
| | | | 30 | End of boring 30 feet - drilling refusal - bedrock (bottom elevation 871.7ft MSL) | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

# SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☒
Remediation/Redevelopment ☐ Other ☐



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| Dane County Landfill Site No. 3 | N/A | B-9 |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| Scott Klumb<br>Soils and Engineering Services | 2/16/2022 | 2/16/2022 | HSA 2.25 ID |

| WI Unique Well No. | DNR Well ID No. | Common Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| | | | Feet MSL | 901.7 Feet MSL | 6.0 inches |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☒
State Plane 377,612 N, 2,166,186 E S / C / N
NE 1/4 of NW 1/4 of Section 36, T 7 N, R 10 E
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N ☐ E Feet ☐ S Feet ☐ W

| Facility ID | County | County Code | Civil Town/City/ or Village |
|---|---|---|---|
| 113450480 | Dane | 13 | Madison |

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 SS | 24<br>21 | 9<br>10<br>10<br>14 | 1–4 | Silty sand with gravel (SM), trace clay, strong brown (7.5YR 5/6), moist (till)<br>dry, trace cobbles, medium dense | SM | | | | | | | | | |
| 2 SS | 24<br>20 | 6<br>15<br>17<br>20 | 8–9 | yellowish red (5YR 5/6), dense | | | | | | 15.2 | NV | NP | 30 | Lab classified as SM |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Logan Dwyer Firm Tetra Tech
8413 Excelsior Dr Suite 160 Madison, WI 53714
Tel:
Fax:

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number B-9 Use only as an attachment to Form 4400-122. Page 2 of 2

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 13 | | SM | | | | | | | | | |
| 3 SS | 4 4 | 80 | 13 | Weathered sandstone, strong brown (7.5YR 5/6), (bedrock formation indeterminable due to limited sample) | | | | | | | | | | |
| | | | 14 | | | | | | | | | | | |
| | | | 15 | | | | | | | | | | | |
| | | | 16 | | | | | | | | | | | |
| | | | 17 | | | | | | | | | | | |
| 4 SS | 7 7 | 15 60 | 18 | Weathered dolomite fragments (formation indeterminable due to limited sample) | | | | | | | | | | |
| | | | 19 | | | | | | | | | | | |
| | | | 20 | | | | | | | | | | | |
| 4 SS | 1 0 | 60 | 21 | no sample recovery | | | | | | | | | | |
| | | | 22 | | | | | | | | | | | |
| | | | | End of boring 22.9 feet - drilling refusal - bedrock (bottom elevation 878.8ft MSL) | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

# SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☒
Remediation/Redevelopment ☐ Other ☐



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| Dane County Landfill Site No. 3 | N/A | B-10 |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| Scott Klumb<br>Soils and Engineering Services | 2/22/2022 | 2/22/2022 | HSA 2.25 ID |

| WI Unique Well No. | DNR Well ID No. | Common Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| | | | 875.9 Feet MSL | 916.9 Feet MSL | 6.0 inches |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☒
State Plane 377,667 N, 2,169,421 E S / C / N
NE 1/4 of NE 1/4 of Section 36, T 7 N, R 10 E
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N Feet ☐ S ☐ E Feet ☐ W

| Facility ID | County | County Code | Civil Town/City/ or Village |
|---|---|---|---|
| 113450480 | Dane | 13 | Madison |

| Sample Number and Type | Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 SS | 24 18 | 3 4 6 7 | 1–8 | Silty sand (SM), few gravel, yellowish brown (10YR 5/6), dry, loose (till) | SM | | | | | | | | | |
| 2 SS | 15 15 | 12 32 56 | 9–12 | Silty sand (SM), little gravel, yellowish red (5YR 5/6), dry, dense (till) | SM | | | | | | | | | Driller indicated hard drilling @ 11.5 feet |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Logan Dwyer Firm Tetra Tech
8413 Excelsior Dr Suite 160 Madison, WI 53714
Tel:
Fax:

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number B-10 Use only as an attachment to Form 4400-122. 

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Soil Properties: Moisture Content | Soil Properties: Liquid Limit | Soil Properties: Plasticity Index | Soil Properties: P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 13 | Highly weathered dolomite bedrock, silt with rock fragments, brownish yellow (10YR 6/6), dry (Galena-Platteville Fm) *(continued)* | | | | | | | | | | |
| 3 SS | 1 1 | 60 | 14 | | | | | | | | | | | |
| | | | 15 | | | | | | | | | | | |
| | | | 16 | | | | | | | | | | | |
| | | | 17 | | | | | | | | | | | |
| | | | 18 | | | | | | | | | | | Driller indicated softer drilling 17-18 feet, and harder drilling @ 18 feet |
| 4 SS | 1 1 | 60 | 19 | | | | | | | | | | | |
| | | | 20 | | | | | | | | | | | |
| | | | 21 | | | | | | | | | | | |
| | | | 22 | | | | | | | | | | | |
| | | | 23 | | | | | | | | | | | |
| 5 SS | 1 1 | 60 | 24 | | | | | | | | | | | |
| | | | 25 | | | | | | | | | | | |
| | | | 26 | | | | | | | | | | | |
| | | | 27 | | | | | | | | | | | |
| | | | 28 | | | | | | | | | | | |
| 6 SS | 2 2 | 75 | 29 | Highly weathered shaly dolomite bedrock, gray (5Y 5/1), (Galena-Platteville Fm) | | | | | | | | | | |
| | | | 30 | | | | | | | | | | | |
| | | | 31 | | | | | | | | | | | |
| | | | 32 | | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number B-10 Use only as an attachment to Form 4400-122. 

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 33 | Highly weathered shaly dolomite bedrock, gray (5Y 5/1), (Galena-Platteville Fm) *(continued)* | | | | | | | | | | Driller indicated easier drilling @ 32.5 feet |
| 7 SS | 4 4 | 100 | 34 | Weathered Sandstone, white (GLEY 1 8/N) (St. Peter Fm) | | | | | | | | | | |
| | | | 35 | | | | | | | | | | | |
| | | | 36 | | | | | | | | | | | |
| | | | 37 | | | | | | | | | | | |
| | | | 38 | | | | | | | | | | | |
| 8 SS | 3.5 3.5 | 100 | 39 | brownish yellow (10YR 6/8) | | | | | | | | | | |
| | | | 40 | | | | | | | | | | | |
| | | | 41 | | | | ▼ | | | 8.6 | 23 | 15 | 22.7 | Bag sample S9 - 41-43ft from auger flights |
| | | | 42 | | | | | | | | | | | |
| | | | 43 | | | | | | | | | | | |
| 9 SS | 2 2 | 100 | 44 | sandstone and dolomite fragments, few sand, white (GLEY1 8/N), wet | | | | | | | | | | Driller indicated hard drilling @ 43.5 feet |
| | | | 45 | | | | | | | | | | | |
| | | | 46 | | | | | | | | | | | |
| | | | 47 | | | | | | | | | | | |
| | | | 48 | | | | | | | | | | | |
| 10 SS | 3 3 | 100 | 49 | Highly Weathered Dolomite, dolomite fragments, light brownish gray (10YR 6/2) (bedrock formation indeterminable due to limited sample) | | | | | | | | | | |
| | | | 50 | | | | | | | | | | | |
| | | | 51 | | | | | | | | | | | |
| | | | 52 | | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number B-10 Use only as an attachment to Form 4400-122. Page 4 of 4

| Sample | | | | | | | | | Soil Properties | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number and Type | Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
| | | | 53 | glauconite and dolomite fragments | | | | | | | | | | |
| 11 SS | 1 1 | 60 | | white (GLEY1 8/N) | | | | | | | | | | |
| | | | | End of boring 53.6 feet (bottom elevation 863.3ft MSL) | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

# SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☒
Remediation/Redevelopment ☐ Other ☐



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| Dane County Landfill Site No. 3 | N/A | B-11 |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| Scott Klumb<br>Soils and Engineering Services | 3/1/2022 | 3/1/2022 | HSA 4.25 ID |

| WI Unique Well No. | DNR Well ID No. | Common Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| | | | 888.6 Feet MSL | 904.6 Feet MSL | 8.0 inches |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☒
State Plane 378,106 N, 2,169,439 E S / C / N
SE 1/4 of SE 1/4 of Section 25, T 7 N, R 10 E
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N ☐ E Feet ☐ S Feet ☐ W

| Facility ID | County | County Code | Civil Town/City/ or Village |
|---|---|---|---|
| 113450480 | Dane | 13 | Madison |

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | Topsoil (loess) | | | | | | | | | | |
| | | | 2 | Lean clay with some silt (CL), dark yellowish brown (10YR 4/4), highly plastic, moist, very stiff (lacustrine) | CL | | | | | | | | | |
| 1 SS | 18 18 | 5 9 19 | 3 4 | | | | | | 2.75 | 12.6 | NV | NP | 59.4 | Lab classified as CL/CL-ML |
| | | | 5 6 7 8 | Poorly cemented weathered sandstone, yellowish brown (10YR 5/8), fine grained, poorly sorted, friable, dry (bedrock formation indeterminable due to limited sample) | | | | | | | | | | |
| 2 SS | 18 18 | 24 54 22 | 9 10 11 12 | very dense | | | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

| Signature | Firm | Tel: |
|---|---|---|
| Lucas Specketer | Tetra Tech<br>8413 Excelsior Dr Suite 160 Madison, WI 53714 | Fax: |

State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number B-11 Use only as an attachment to Form 4400-122. 

| Sample Number and Type | Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 SS | 18 18 | 33 67 | 13–14 | very pale brown (10YR 8/2) | | | ▼ | | | | | | | |
| | | | 15–16 | | | | | | | | | | | |
| | | | 17–18 | | | | | | | | | | | |
| 4 SS | 18 12 | 20 80 | 19–20 | light gray (10YR 7/1), sandstone fragments | | | | | | | | | | |
| | | | 21–23 | | | | | | | | | | | |
| 5 SS | 18 1 | 60 | 24–26 | Silty weathered dolomite, dolomite fragments, white (2.5YR 8/1) | | | | | | | | | | |
| | | | 27–28 | Rock fragments in cuttings - dolomite light gray (2.5YR 7/1) and sandstone | | | | | | | | | | |
| 6 SS 1 RC | 18 0 84 84 | 100 | 29–30 | Dolomite, gray (2.5YR 6/1), some fractures (bedrock formation indeterminable due to limited sample) | | | | | | | | | | HQ rock core run 1: RQD= 68% (Fair); recovery 100% FF: 2.7 |
| | | | 31–32 | highly fractured | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number B-11 Use only as an attachment to Form 4400-122. Page 3 of 3

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 33 | | | | | | | | | | | |
| | | | 34 | few vertical fractures | | | | | | | | | | |
| | | | 35 | | | | | | | | | | | |
| 2 RC | 60 60 | | 36 | fractured | | | | | | | | | | HQ rock core run 2: RQD= 47% (poor); recovery 100% FF= 4.6 |
| | | | 37 | highly fractured, chert at 38.5 feet | | | | | | | | | | |
| | | | 38 | | | | | | | | | | | |
| | | | 39 | Glauconite, blue green, very fractured (bedrock formation indeterminable due to limited sample) | | | | | | | | | | |
| | | | 40 | | | | | | | | | | | |
| | | | 41 | Dolomite, light gray (2.5YR 7/1), some fractures (bedrock formation indeterminable due to limited sample) | | | | | | | | | | |
| | | | | End of boring 41 feet (bottom elevation 863.6ft MSL) | | | | | | | | | | |

TETRA TECH

**Attachment B**

WDNR Monitoring Well Construction Logs

Cornerstone – A Tetra Tech Company
8413 Excelsior Drive, Suite 160, Madison, WI 53717
Tel 877.294.9070 Fax 877.845.1456 tetratech.com

State of Wisconsin
Department of Natural Resources

Route To: Watershed/Wastewater ☐ Waste Management ☒ Remediation/Redevelopment ☐ Other ☐

# MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

| | | |
|---|---|---|
| Facility/Project Name: Dane County Landfill Site No. 3 | Local Grid Location of Well: ____ft. ☐ N. ☐ S. ____ft. ☐ E. ☐ W. | Well Name: MW-1 |
| Facility License, Permit or Monitoring No.: N/A | Local Grid Origin ☐ (estimated: ☐ ) or Well Location ☒ Lat. ° ' " Long. ° ' " or | Wis. Unique Well No.: WA434 / DNR Well Number: 101 |
| Facility ID: 113450480 | St. Plane 379,849 ft. N, 2,168,438 ft. E. S/C/N | Date Well Installed: 02/21/2022 |
| Type of Well: Well Code 11/mw | Section Location of Waste/Source: NE 1/4 of SE 1/4 of Sec. 25, T. 7 N, R. 10 ☒ E ☐ W | Well Installed By: (Person's Name and Firm): Scott Klumb, Soils and Engineering Services |
| Distance from Waste/Source ft. / Enf. Stds. Apply ☐ | Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☒ Not Known | Gov. Lot Number: |

A. Protective pipe, top elevation 878.27 ft. MSL

B. Well casing, top elevation 878.17 ft. MSL

C. Land surface elevation 875.5 ft. MSL

D. Surface seal, bottom 875.5 ft. MSL or 0.0 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☒
SM ☒ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☒ Yes ☐ No

14. Drilling method used: Rotary ☐ 5 0 / Hollow Stem Auger ☒ 4 1 / Other ☐ ____

15. Drilling fluid used: Water ☐ 0 2 / Air ☐ 0 1 / Drilling Mud ☐ 0 3 / None ☒ 9 9

16. Drilling additives used? ☐ Yes ☒ No

Describe ____

17. Source of water (attach analysis, if required):

E. Bentonite seal, top 875.0 ft. MSL or 0.5 ft.

F. Fine sand, top 871.5 ft. MSL or 4.0 ft.

G. Filter pack, top 870.5 ft. MSL or 5.0 ft.

H. Screen joint, top 868.5 ft. MSL or 7.0 ft.

I. Well bottom 853.5 ft. MSL or 22.0 ft.

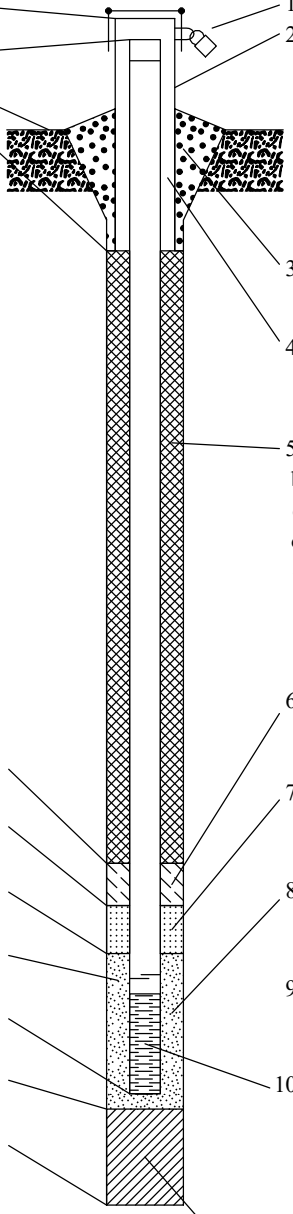
J. Filter pack, bottom 852.5 ft. MSL or 23.0 ft.

K. Borehole, bottom 852.5 ft. MSL or 23.0 ft.

L. Borehole, diameter 8.0 in.

M. O.D. well casing 2.38 in.

N. I.D. well casing 2.00 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 6.0 ft.
c. Material: Steel ☒ 0 4 / Other ☐ ____
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ____

3. Surface seal: Bentonite ☒ 3 0 / Concrete ☐ 0 1 / Other ☐ ____

4. Material between well casing and protective pipe: Bentonite ☐ 3 0 / Red Flint #40 / Other ☒ ____

5. Annular space seal: a. Granular/Chipped Bentonite ☒ 3 3
b. ____Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 3 5
c. ____Lbs/gal mud weight . . . Bentonite slurry ☐ 3 1
d. ____% Bentonite . . . Bentonite-cement grout ☐ 5 0
e. 0.66 $Ft^3$ volume added for any of the above
f. How installed: Tremie ☐ 0 1 / Tremie pumped ☐ 0 2 / Gravity ☒ 0 8

6. Bentonite seal: a. Bentonite granules ☐ 3 3
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 3 2
c. ____ Other ☐ ____

7. Fine sand material: Manufacturer, product name & mesh size
a. Red Flint #15
b. Volume added 0.17 $ft^3$

8. Filter pack material: Manufacturer, product name & mesh size
a. Red Flint #40
b. Volume added 3.21 $ft^3$

9. Well casing: Flush threaded PVC schedule 40 ☒ 2 3 / Flush threaded PVC schedule 80 ☐ 2 4 / Other ☐ ____

10. Screen material: PVC
a. Screen Type: Factory cut ☒ 1 1 / Continuous slot ☐ 0 1 / Other ☐ ____
b. Manufacturer Hole Products - Johnson
c. Slot size: 0.010 in.
d. Slotted length: 15.0 ft.

11. Backfill material (below filter pack): None ☒ 1 4 / Other ☐ ____

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Logan Dwyer

Firm: Tetra Tech, 8413 Excelsior Dr Suite 160 Madison, WI 53714 Tel: Fax:

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

Route To: Watershed/Wastewater ☐ Waste Management ☒ Remediation/Redevelopment ☐ Other ☐

# MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

| | | |
|---|---|---|
| Facility/Project Name: Dane County Landfill Site No. 3 | Local Grid Location of Well: ____ft. ☐ N. ☐ S. ____ft. ☐ E. ☐ W. | Well Name: MW-2 |
| Facility License, Permit or Monitoring No.: N/A | Local Grid Origin ☐ (estimated: ☐ ) or Well Location ☒ Lat. ° ' " Long. ° ' " or | Wis. Unique Well No.: WA433 / DNR Well Number: 102 |
| Facility ID: 113450480 | St. Plane 378,836 ft. N, 2,169,374 ft. E. S/C/N | Date Well Installed: 02/21/2022 |
| Type of Well: Well Code 11/mw | Section Location of Waste/Source: SE 1/4 of SE 1/4 of Sec. 25, T. 7 N, R. 10 ☒ E ☐ W | Well Installed By: (Person's Name and Firm): Scott Klumb, Soils and Engineering Services |
| Distance from Waste/Source ft. / Enf. Stds. Apply ☐ | Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☒ Not Known | Gov. Lot Number: |

A. Protective pipe, top elevation 895.18 ft. MSL

B. Well casing, top elevation 895.14 ft. MSL

C. Land surface elevation 892.3 ft. MSL

D. Surface seal, bottom 892.3 ft. MSL or 0.0 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☒ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☒ Yes ☐ No

14. Drilling method used: Rotary ☐ 5 0 / Hollow Stem Auger ☒ 4 1 / Other ☐ ____

15. Drilling fluid used: Water ☐ 0 2 / Air ☐ 0 1 / Drilling Mud ☐ 0 3 / None ☒ 9 9

16. Drilling additives used? ☐ Yes ☒ No

Describe ____

17. Source of water (attach analysis, if required):

E. Bentonite seal, top 891.8 ft. MSL or 0.5 ft.

F. Fine sand, top 889.8 ft. MSL or 2.5 ft.

G. Filter pack, top 889.8 ft. MSL or 2.5 ft.

H. Screen joint, top 889.3 ft. MSL or 3.0 ft.

I. Well bottom 879.3 ft. MSL or 13.0 ft.

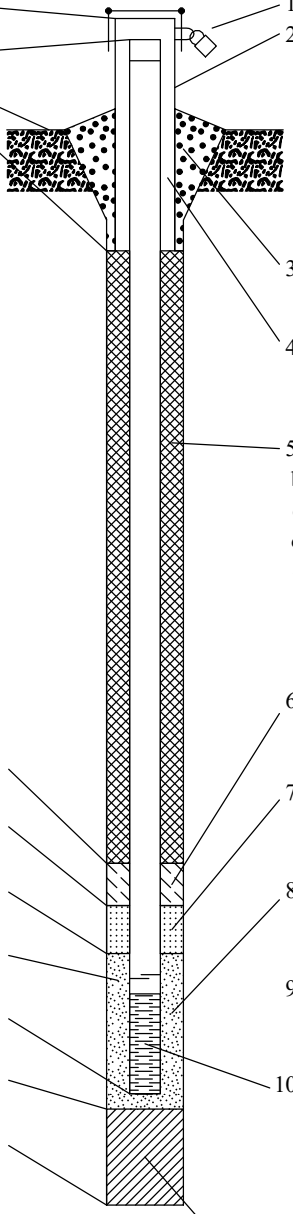
J. Filter pack, bottom 878.3 ft. MSL or 14.0 ft.

K. Borehole, bottom 878.3 ft. MSL or 14.0 ft.

L. Borehole, diameter 8.0 in.

M. O.D. well casing 2.38 in.

N. I.D. well casing 2.00 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 5.0 ft.
c. Material: Steel ☒ 0 4 / Other ☐ ____
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ____

3. Surface seal: Bentonite ☒ 3 0 / Concrete ☐ 0 1 / Other ☐ ____

4. Material between well casing and protective pipe: Bentonite ☐ 3 0 / Red Flint #40 / Other ☒ ____

5. Annular space seal: a. Granular/Chipped Bentonite ☒ 3 3
b. ____Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 3 5
c. ____Lbs/gal mud weight . . . Bentonite slurry ☐ 3 1
d. ____% Bentonite . . . Bentonite-cement grout ☐ 5 0
e. 0.41 $Ft^3$ volume added for any of the above
f. How installed: Tremie ☐ 0 1 / Tremie pumped ☐ 0 2 / Gravity ☒ 0 8

6. Bentonite seal: a. Bentonite granules ☐ 3 3
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 3 2
c. ____ Other ☐ ____

7. Fine sand material: Manufacturer, product name & mesh size
a. Red Flint #15
b. Volume added 0 $ft^3$

8. Filter pack material: Manufacturer, product name & mesh size
a. Red Flint #40
b. Volume added 1.93 $ft^3$

9. Well casing: Flush threaded PVC schedule 40 ☒ 2 3 / Flush threaded PVC schedule 80 ☐ 2 4 / Other ☐ ____

10. Screen material: PVC
a. Screen Type: Factory cut ☒ 1 1 / Continuous slot ☐ 0 1 / Other ☐ ____
b. Manufacturer Hole Products - Johnson
c. Slot size: 0.010 in.
d. Slotted length: 10.0 ft.

11. Backfill material (below filter pack): None ☒ 1 4 / Other ☐ ____

I hereby certify that the information on this form is true and correct to the best of my knowledge.

| Signature | Firm | |
|---|---|---|
| Logan Dwyer | Tetra Tech<br>8413 Excelsior Dr Suite 160 Madison, WI 53714 | Tel:<br>Fax: |

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

Route To: Watershed/Wastewater ☐ Waste Management ☒ Remediation/Redevelopment ☐ Other ☐

**MONITORING WELL CONSTRUCTION**
Form 4400-113A Rev. 7-98

| | | |
|---|---|---|
| Facility/Project Name: Dane County Landfill Site No. 3 | Local Grid Location of Well: ____ft. ☐ N. ☐ S. ____ft. ☐ E. ☐ W. | Well Name: MW-3 |
| Facility License, Permit or Monitoring No.: N/A | Local Grid Origin ☐ (estimated: ☐ ) or Well Location ☒ Lat. ° ' " Long. ° ' " or | Wis. Unique Well No.: WA432 / DNR Well Number: 103 |
| Facility ID: 113450480 | St. Plane 378,218 ft. N, 2,166,911 ft. E. S/C/N | Date Well Installed: 02/17/2022 |
| Type of Well: Well Code 11/mw | Section Location of Waste/Source: SE 1/4 of SW 1/4 of Sec. 25, T. 7 N, R. 10 ☒ E ☐ W | Well Installed By: (Person's Name and Firm): Scott Klumb, Soils and Engineering Services |
| Distance from Waste/Source ft. / Enf. Stds. Apply ☐ | Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☒ Not Known | Gov. Lot Number: |

A. Protective pipe, top elevation 898.68 ft. MSL
B. Well casing, top elevation 898.64 ft. MSL
C. Land surface elevation 896.0 ft. MSL
D. Surface seal, bottom 896.0 ft. MSL or 0.0 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☒ SC ☐ ML ☐ MH ☐ CL ☒ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☒ Yes ☐ No

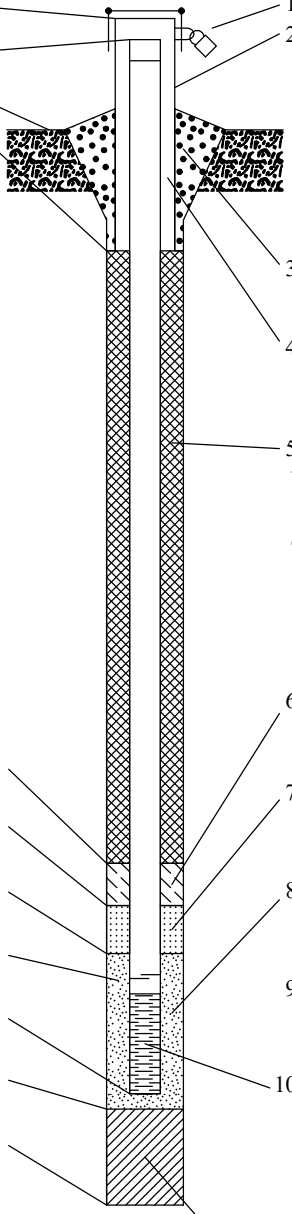
14. Drilling method used: Rotary ☐ 5 0 / Hollow Stem Auger ☒ 4 1 / Other ☐ ____

15. Drilling fluid used: Water ☐ 0 2 / Air ☐ 0 1 / Drilling Mud ☐ 0 3 / None ☒ 9 9

16. Drilling additives used? ☐ Yes ☒ No
Describe ____

17. Source of water (attach analysis, if required):

E. Bentonite seal, top 895.5 ft. MSL or 0.5 ft.
F. Fine sand, top 881.0 ft. MSL or 15.0 ft.
G. Filter pack, top 879.8 ft. MSL or 16.2 ft.
H. Screen joint, top 878.0 ft. MSL or 18.0 ft.
I. Well bottom 868.0 ft. MSL or 28.0 ft.
J. Filter pack, bottom 866.0 ft. MSL or 30.0 ft.
K. Borehole, bottom 866.0 ft. MSL or 30.0 ft.
L. Borehole, diameter 8.0 in.
M. O.D. well casing 2.38 in.
N. I.D. well casing 2.00 in.



1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 7.0 ft.
c. Material: Steel ☒ 0 4 / Other ☐ ____
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ____
3. Surface seal: Bentonite ☒ 3 0 / Concrete ☐ 0 1 / Other ☐ ____
4. Material between well casing and protective pipe: Bentonite ☐ 3 0 / Red Flint #40 / Other ☒ ____
5. Annular space seal: a. Granular/Chipped Bentonite ☒ 3 3
b. ____Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 3 5
c. ____Lbs/gal mud weight . . . Bentonite slurry ☐ 3 1
d. ____% Bentonite . . . Bentonite-cement grout ☐ 5 0
e. 2.48 $Ft^3$ volume added for any of the above
f. How installed: Tremie ☐ 0 1 / Tremie pumped ☐ 0 2 / Gravity ☒ 0 8
6. Bentonite seal: a. Bentonite granules ☐ 3 3
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 3 2
c. ____ Other ☐ ____
7. Fine sand material: Manufacturer, product name & mesh size
a. Red Flint #15
b. Volume added 0.2 $ft^3$
8. Filter pack material: Manufacturer, product name & mesh size
a. Red Flint #40
b. Volume added 2.35 $ft^3$
9. Well casing: Flush threaded PVC schedule 40 ☒ 2 3 / Flush threaded PVC schedule 80 ☐ 2 4 / Other ☐ ____
10. Screen material: PVC
a. Screen Type: Factory cut ☒ 1 1 / Continuous slot ☐ 0 1 / Other ☐ ____
b. Manufacturer Hole Products - Johnson
c. Slot size: 0.010 in.
d. Slotted length: 10.0 ft.
11. Backfill material (below filter pack): None ☒ 1 4 / Other ☐ ____

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Logan Dwyer
Firm: Tetra Tech, 8413 Excelsior Dr Suite 160 Madison, WI 53714
Tel:
Fax:

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

Route To: Watershed/Wastewater ☐ Waste Management ☒ Remediation/Redevelopment ☐ Other ☐

**MONITORING WELL CONSTRUCTION**
Form 4400-113A Rev. 7-98

| | | |
|---|---|---|
| Facility/Project Name: Dane County Landfill Site No. 3 | Local Grid Location of Well: ____ft. ☐ N. ☐ S. ____ft. ☐ E. ☐ W. | Well Name: MW-4 |
| Facility License, Permit or Monitoring No.: N/A | Local Grid Origin ☐ (estimated: ☐ ) or Well Location ☒ Lat. ° ' " Long. ° ' " or | Wis. Unique Well No.: WA431 / DNR Well Number: 104 |
| Facility ID: 113450480 | St. Plane 377,202 ft. N, 2,168,283 ft. E. S/C/N | Date Well Installed: 02/17/2022 |
| Type of Well: Well Code 11/mw | Section Location of Waste/Source: NW 1/4 of NE 1/4 of Sec. 36, T. 7 N, R. 10 ☒ E ☐ W | Well Installed By: (Person's Name and Firm): Scott Klumb, Soils and Engineering Services |
| Distance from Waste/Source ft. / Enf. Stds. Apply ☐ | Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☒ Not Known | Gov. Lot Number: |

A. Protective pipe, top elevation 914.37 ft. MSL
B. Well casing, top elevation 914.34 ft. MSL
C. Land surface elevation 911.7 ft. MSL
D. Surface seal, bottom 911.7 ft. MSL or 0.0 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☒ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☒ Yes ☐ No

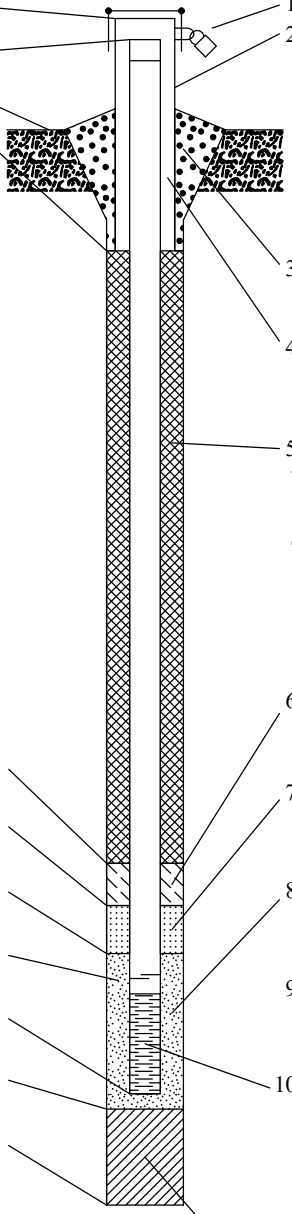
14. Drilling method used: Rotary ☐ 5 0 / Hollow Stem Auger ☒ 4 1 / Other ☐

15. Drilling fluid used: Water ☒ 0 2 / Air ☐ 0 1 / Drilling Mud ☐ 0 3 / None ☐ 9 9

16. Drilling additives used? ☐ Yes ☒ No
Describe

17. Source of water (attach analysis, if required):
City of Madison

E. Bentonite seal, top 911.2 ft. MSL or 0.5 ft.
F. Fine sand, top 896.7 ft. MSL or 15.0 ft.
G. Filter pack, top 895.7 ft. MSL or 16.0 ft.
H. Screen joint, top 893.7 ft. MSL or 18.0 ft.
I. Well bottom 883.7 ft. MSL or 28.0 ft.
J. Filter pack, bottom 880.7 ft. MSL or 31.0 ft.
K. Borehole, bottom 880.7 ft. MSL or 31.0 ft.
L. Borehole, diameter 8.0 in.
M. O.D. well casing 2.38 in.
N. I.D. well casing 2.00 in.



1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 7.0 ft.
c. Material: Steel ☒ 0 4 / Other ☐
d. Additional protection? ☐ Yes ☒ No
If yes, describe:
3. Surface seal: Bentonite ☒ 3 0 / Concrete ☐ 0 1 / Other ☐
4. Material between well casing and protective pipe: Bentonite ☐ 3 0 / Red Flint #40 / Other ☒
5. Annular space seal: a. Granular/Chipped Bentonite ☒ 3 3
b. ____Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 3 5
c. ____Lbs/gal mud weight . . . Bentonite slurry ☐ 3 1
d. ____% Bentonite . . . Bentonite-cement grout ☐ 5 0
e. 2.48 $Ft^3$ volume added for any of the above
f. How installed: Tremie ☐ 0 1 / Tremie pumped ☐ 0 2 / Gravity ☒ 0 8
6. Bentonite seal: a. Bentonite granules ☐ 3 3
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 3 2
c. Other ☐
7. Fine sand material: Manufacturer, product name & mesh size
a. Red Flint #15
b. Volume added 0.17 $ft^3$
8. Filter pack material: Manufacturer, product name & mesh size
a. Red Flint #40
b. Volume added 2.58 $ft^3$
9. Well casing: Flush threaded PVC schedule 40 ☒ 2 3 / Flush threaded PVC schedule 80 ☐ 2 4 / Other ☐
10. Screen material: PVC
a. Screen Type: Factory cut ☒ 1 1 / Continuous slot ☐ 0 1 / Other ☐
b. Manufacturer Hole Products - Johnson
c. Slot size: 0.010 in.
d. Slotted length: 10.0 ft.
11. Backfill material (below filter pack): None ☒ 1 4 / Other ☐

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Logan Dwyer
Firm: Tetra Tech, 8413 Excelsior Dr Suite 160 Madison, WI 53714
Tel:
Fax:

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

TETRA TECH

**Attachment C**

WDNR Monitoring Well Development Logs

Cornerstone – A Tetra Tech Company
8413 Excelsior Drive, Suite 160, Madison, WI 53717
Tel 877.294.9070 Fax 877.845.1456 tetratech.com

State of Wisconsin
Department of Natural Resources

# MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☒
Remediation/Redevelopment ☐ Other ☐

| Facility/Project Name | County | Well Name |
|---|---|---|
| Dane County Landfill Site No. 3 | Dane | MW-1 |

| Facility License, Permit or Monitoring Number | County Code | Wis. Unique Well Number | DNR Well Number |
|---|---|---|---|
| N/A | 13 | WA434 | 101 |

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method:

| | | |
|---|---|---|
| surged with bailer and bailed | ☐ | 4 1 |
| surged with bailer and pumped | ☒ | 6 1 |
| surged with block and bailed | ☐ | 4 2 |
| surged with block and pumped | ☐ | 6 2 |
| surged with block, bailed, and pumped | ☐ | 7 0 |
| compressed air | ☐ | 2 0 |
| bailed only | ☐ | 1 0 |
| pumped only | ☐ | 5 1 |
| pumped slowly | ☐ | 5 0 |
| other _____ | ☐ | |

3. Time spent developing well: 60 min.

4. Depth of well (from top of well casing): 24.7 ft.

5. Inside diameter of well: 2.00 in.

6. Volume of water in filter pack and well casing: 8.1 gal.

7. Volume of water removed from well: 110.0 gal.

8. Volume of water added (if any): 0.0 gal.

9. Source of water added: _____

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

| | | Before Development | After Development |
|---|---|---|---|
| 11. Depth to Water (from top of well casing) | a. | 14.60 ft. | 14.68 ft. |
| Date | b. | 2/23/2022 | 2/24/2022 |
| Time | c. | ☒ a.m. 08:40 ☐ p.m. | ☒ a.m. 10:05 ☐ p.m. |
| 12. Sediment in well bottom | | 0.0 inches | 0.0 inches |
| 13. Water clarity | | Clear ☐ 1 0 Turbid ☒ 1 5 (Describe) Tan/brown | Clear ☒ 2 0 Turbid ☐ 2 5 (Describe) Clear |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | | |
|---|---|---|---|
| 14. Total suspended solids | mg/l | 3.6 | mg/l |
| 15. COD | mg/l | | mg/l |

16. Well developed by: Person's Name and Firm
Jeff Prior
Soils & Engineering Services

17. Additional comments on development:
Purged 10 gallons with bailer, then pumped @ 2.5 gal/min 8:55AM-9:35AM on 2/24/2022

Facility Address or Owner/Responsible Party Address

Name: Robert Regan
Firm: Dane County Dept of Waste & Renewables
Street: 7102 US-12
City/State/Zip: Madison, Wisconsin 53718

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: Logan Dwyer
Print Name: Logan Dwyer
Firm: Tetra Tech

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

# MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☒
Remediation/Redevelopment ☐ Other ☐

| Facility/Project Name | County | Well Name |
|---|---|---|
| Dane County Landfill Site No. 3 | Dane | MW-2 |

| Facility License, Permit or Monitoring Number | County Code | Wis. Unique Well Number | DNR Well Number |
|---|---|---|---|
| N/A | 13 | WA433 | 102 |

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method:

| | | |
|---|---|---|
| surged with bailer and bailed | ☒ | 4 1 |
| surged with bailer and pumped | ☐ | 6 1 |
| surged with block and bailed | ☐ | 4 2 |
| surged with block and pumped | ☐ | 6 2 |
| surged with block, bailed, and pumped | ☐ | 7 0 |
| compressed air | ☐ | 2 0 |
| bailed only | ☐ | 1 0 |
| pumped only | ☐ | 5 1 |
| pumped slowly | ☐ | 5 0 |
| other _____ | ☐ | |

3. Time spent developing well 150 min.

4. Depth of well (from top of well casing) 15.8 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 5.8 gal.

7. Volume of water removed from well 11.0 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added _____

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

| | | Before Development | After Development |
|---|---|---|---|
| 11. Depth to Water (from top of well casing) | a. | 8.63 ft. | 14.80 ft. |
| Date | b. | 2/23/2022 | 2/24/2022 |
| Time | c. | 08:45 ☒ a.m. ☐ p.m. | 11:45 ☒ a.m. ☐ p.m. |
| 12. Sediment in well bottom | | 0.0 inches | 0.0 inches |
| 13. Water clarity | | Clear ☐ 1 0 Turbid ☒ 1 5 (Describe) Tan | Clear ☐ 2 0 Turbid ☒ 2 5 (Describe) Slight, tan |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | | |
|---|---|---|---|
| 14. Total suspended solids | mg/l | 304.0 | mg/l |
| 15. COD | mg/l | 17.1 | mg/l |

16. Well developed by: Person's Name and Firm
Jeff Prior
Soils & Engineering Services

17. Additional comments on development:
Purged dry on 2/23 twice (4 gals @ 14:25 and 1 gal @ 15:00), purged dry on 2/24 twice (4 gals @ 8:45 and 2 gals @ 10:25)

Facility Address or Owner/Responsible Party Address

Name: Robert Regan

Firm: Dane County Dept of Waste & Renewables

Street: 7102 US-12

City/State/Zip: Madison, Wisconsin 53718

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: Logan Dwyer

Print Name: Logan Dwyer

Firm: Tetra Tech

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

# MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☒
Remediation/Redevelopment ☐ Other ☐

| Facility/Project Name | County | Well Name |
|---|---|---|
| Dane County Landfill Site No. 3 | Dane | MW-3 |

| Facility License, Permit or Monitoring Number | County Code | Wis. Unique Well Number | DNR Well Number |
|---|---|---|---|
| N/A | 13 | WA432 | 103 |

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method:

| | | |
|---|---|---|
| surged with bailer and bailed | ☐ | 4 1 |
| surged with bailer and pumped | ☒ | 6 1 |
| surged with block and bailed | ☐ | 4 2 |
| surged with block and pumped | ☐ | 6 2 |
| surged with block, bailed, and pumped | ☐ | 7 0 |
| compressed air | ☐ | 2 0 |
| bailed only | ☐ | 1 0 |
| pumped only | ☐ | 5 1 |
| pumped slowly | ☐ | 5 0 |
| other _____ | ☐ | |

3. Time spent developing well: 60 min.

4. Depth of well (from top of well casing): 30.6 ft.

5. Inside diameter of well: 2.00 in.

6. Volume of water in filter pack and well casing: 8.8 gal.

7. Volume of water removed from well: 145.0 gal.

8. Volume of water added (if any): 0.0 gal.

9. Source of water added: _____

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

| | | Before Development | After Development |
|---|---|---|---|
| 11. Depth to Water (from top of well casing) | a. | 14.41 ft. | 14.95 ft. |
| Date | b. | 2/23/2022 | 2/23/2022 |
| Time | c. | 09:30 ☒ a.m. ☐ p.m. | 12:00 ☐ a.m. ☒ p.m. |
| 12. Sediment in well bottom | | 0.0 inches | 0.0 inches |
| 13. Water clarity | | Clear ☐ 1 0 Turbid ☒ 1 5 (Describe) Tan | Clear ☒ 2 0 Turbid ☐ 2 5 (Describe) Clear |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | | |
|---|---|---|---|
| 14. Total suspended solids | mg/l | 76.2 | mg/l |
| 15. COD | mg/l | | mg/l |

16. Well developed by: Person's Name and Firm
Jeff Prior
Soils & Engineering Services

17. Additional comments on development:
Purged 10 gallons with bailer, then pumped @ 3 gal/min from 10:00AM-10:45AM

Facility Address or Owner/Responsible Party Address

Name: Robert Regan

Firm: Dane County Dept of Waste & Renewables

Street: 7102 US-12

City/State/Zip: Madison, Wisconsin 53718

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: Logan Dwyer

Print Name: Logan Dwyer

Firm: Tetra Tech

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

# MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☒
Remediation/Redevelopment ☐ Other ☐

| Facility/Project Name | County | Well Name |
|---|---|---|
| Dane County Landfill Site No. 3 | Dane | MW-4 |

| Facility License, Permit or Monitoring Number | County Code | Wis. Unique Well Number | DNR Well Number |
|---|---|---|---|
| N/A | 13 | WA431 | 104 |

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method:

| | | |
|---|---|---|
| surged with bailer and bailed | ☐ | 4 1 |
| surged with bailer and pumped | ☒ | 6 1 |
| surged with block and bailed | ☐ | 4 2 |
| surged with block and pumped | ☐ | 6 2 |
| surged with block, bailed, and pumped | ☐ | 7 0 |
| compressed air | ☐ | 2 0 |
| bailed only | ☐ | 1 0 |
| pumped only | ☐ | 5 1 |
| pumped slowly | ☐ | 5 0 |
| other _____ | ☐ | |

3. Time spent developing well 100 min.

4. Depth of well (from top of well casing) 30.6 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 8.0 gal.

7. Volume of water removed from well 147.5 gal.

8. Volume of water added (if any) 125.0 gal.

9. Source of water added City of Madison

10. Analysis performed on water added? ☒ Yes ☐ No
(If yes, attach results)

| | | Before Development | After Development |
|---|---|---|---|
| 11. Depth to Water (from top of well casing) | a. | 18.63 ft. | 18.82 ft. |
| Date | b. | 2/23/2022 | 2/23/2022 |
| Time | c. | 11:25 ☒ a.m. ☐ p.m. | 01:55 ☐ a.m. ☒ p.m. |
| 12. Sediment in well bottom | | 0.0 inches | 0.0 inches |
| 13. Water clarity | | Clear ☐ 1 0 Turbid ☒ 1 5 (Describe) Tan | Clear ☒ 2 0 Turbid ☐ 2 5 (Describe) Clear |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | | |
|---|---|---|---|
| 14. Total suspended solids | mg/l | 620.0 | mg/l |
| 15. COD | mg/l | 19.3 | mg/l |

16. Well developed by: Person's Name and Firm
Jeff Prior
Soils & Engineering Services

17. Additional comments on development:
Purged 10 gallons with bailer, then pumped @ 2.5 gal/min 13:00-13:55

Facility Address or Owner/Responsible Party Address

Name: Robert Regan

Firm: Dane County Dept of Waste & Renewables

Street: 7102 US-12

City/State/Zip: Madison, Wisconsin 53718

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: Logan Dwyer

Print Name: Logan Dwyer

Firm: Tetra Tech

NOTE: See instructions for more information including a list of county codes and well type codes.

TETRA TECH

**Attachment D**

WDNR Well/Drillhole/Borehole Filling and Sealing Logs

Cornerstone – A Tetra Tech Company
8413 Excelsior Drive, Suite 160, Madison, WI 53717
Tel 877.294.9070 Fax 877.845.1456 tetratech.com

State of Wis., Dept. of Natural Resources
dnr.wi.gov

B-1

# Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)



**Notice:** Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis. Stats., and chs. NR 141 and 812, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information.

☐ **Verification Only of Fill and Seal**

**Route to DNR Bureau:**
☐ Drinking Water ☐ Watershed/Wastewater ☐ Remediation/Redevelopment
☑ Waste Management ☐ Other: _____

## 1. Well Location Information

| County | WI Unique Well # of Removed Well | Hicap # |
|---|---|---|
| Dane | ___ ___ ___ ___ ___ | |

Latitude / Longitude (see instructions): 379853.7 N / 2168431.86 W
Format Code: ☐ DD ☐ DDM
Method Code: ☐ GPS008 ☐ SCR002 ☐ OTH001

| ¼ / ¼ NE 1/4 | ¼ SE 1/4 | Section | Township | Range |
|---|---|---|---|---|
| or Gov't Lot # | | 25 | 7 N | 10 ☑ E ☐ W |

Well Street Address: Yahara Hills Golf Course 6701 US-12, Madison, WI 53718

| Well City, Village or Town | Well ZIP Code |
|---|---|
| Madison, WI | 53718 |

| Subdivision Name | Lot # |
|---|---|
| | |

| Reason for Removal from Service | WI Unique Well # of Replacement Well |
|---|---|
| Sample Only | ___ ___ ___ ___ ___ |

## 3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☑ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 2/1/2022

If a Well Construction Report is available, please attach.

Construction Type:
☑ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (specify): _____

Formation Type:
☑ Unconsolidated Formation ☐ Bedrock

| Total Well Depth From Ground Surface (ft.) | Casing Diameter (in.) |
|---|---|
| 60 ft. | |

| Lower Drillhole Diameter (in.) | Casing Depth (ft.) |
|---|---|
| 6 in. | |

Was well annular space grouted? ☐ Yes ☐ No ☐ Unknown

| If yes, to what depth (feet)? | Depth to Water (feet) |
|---|---|
| | 11.3 ft. |

## 2. Facility / Owner Information

Facility Name: Dane County Dept of Waste and Renewables

Facility ID (FID or PWS): 113450480

License/Permit/Monitoring #: N/A

Original Well Owner:

Present Well Owner:

Mailing Address of Present Owner:

| City of Present Owner | State | ZIP Code |
|---|---|---|
| | | |

## 4. Pump, Liner, Screen, Casing & Sealing Material

| | | | |
|---|---|---|---|
| Pump and piping removed? | ☐ Yes | ☐ No | ☑ N/A |
| Liner(s) removed? | ☐ Yes | ☐ No | ☑ N/A |
| Liner(s) perforated? | ☐ Yes | ☐ No | ☑ N/A |
| Screen removed? | ☐ Yes | ☐ No | ☑ N/A |
| Casing left in place? | ☐ Yes | ☐ No | ☑ N/A |
| Was casing cut off below surface? | ☐ Yes | ☐ No | ☑ N/A |
| Did sealing material rise to surface? | ☑ Yes | ☐ No | ☐ N/A |
| Did material settle after 24 hours? | ☐ Yes | ☑ No | ☐ N/A |
| If yes, was hole retopped? | ☐ Yes | ☐ No | ☑ N/A |
| If bentonite chips were used, were they hydrated with water from a known safe source? | ☑ Yes | ☐ No | ☐ N/A |

Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☑ Conductor Pipe-Pumped
☑ Screened & Poured (Bentonite Chips) ☐ Other (Explain): _____

Sealing Materials
☐ Neat Cement Grout ☐ Concrete
☐ Sand-Cement (Concrete) Grout ☑ Bentonite Chips

*For Monitoring Wells and Monitoring Well Boreholes Only:*
☐ Bentonite Chips ☐ Bentonite - Cement Grout
☑ Granular Bentonite ☐ Bentonite - Sand Slurry

## 5. Material Used to Fill Well / Drillhole

| | From (ft.) | To (ft.) | No. Yards, Sacks Sealant or Volume (circle one) | Mix Ratio or Mud Weight |
|---|---|---|---|---|
| 3/8" Bentonite Chips | Surface | 10.7 | 200 lbs | |
| Haliburton Granular Bentonite Slurry | 10.7 | 48 | 55 Gallons | 28lbs/55gal |
| Collapsed Formation - sand and gravel | 48 | 60 | | |

## 6. Comments

Boring B-1

## 7. Supervision of Work

| Name of Person or Firm Doing Filling & Sealing | License # | Date of Filling & Sealing or Verification (mm/dd/yyyy) |
|---|---|---|
| Scott Klumb - SES Madison | | 2/1/2022 |

| Street or Route | Telephone Number |
|---|---|
| 1102 Stewart St. | (608 ) 274-7600 |

| City | State | ZIP Code | Signature of Person Doing Work | Date Signed |
|---|---|---|---|---|
| Madison | WI | 53713 | Logan Dwyer | 4/14/2022 |

**DNR Use Only**

| Date Received | Noted By |
|---|---|
| | |

Comments:

State of Wis., Dept. of Natural Resources
dnr.wi.gov

B-2

# Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)



**Notice:** Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis. Stats., and chs. NR 141 and 812, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information.

☐ **Verification Only of Fill and Seal**

**Route to DNR Bureau:**
☐ Drinking Water ☐ Watershed/Wastewater ☐ Remediation/Redevelopment
☑ Waste Management ☐ Other: _____

## 1. Well Location Information

| County | WI Unique Well # of Removed Well | Hicap # |
|---|---|---|
| Dane | ___ ___ ___ ___ ___ | |

Latitude / Longitude (see instructions): 378835.51 N, 2169372.39 W
Format Code: ☐ DD ☐ DDM
Method Code: ☐ GPS008 ☐ SCR002 ☐ OTH001

¼ / ¼ SE 1/4 | ¼ SE 1/4 | or Gov't Lot # | Section: 25 | Township: 7 N | Range: 10 ☑ E ☐ W

Well Street Address: Yahara Hills Golf Course 6701 US-12, Madison, WI 53718

Well City, Village or Town: Madison, WI
Well ZIP Code: 53718
Subdivision Name:
Lot #:

Reason for Removal from Service: Sample Only
WI Unique Well # of Replacement Well: ___ ___ ___ ___ ___

## 2. Facility / Owner Information

Facility Name: Dane County Dept of Waste and Renewables
Facility ID (FID or PWS): 113450480
License/Permit/Monitoring #: N/A
Original Well Owner:
Present Well Owner:
Mailing Address of Present Owner:
City of Present Owner | State | ZIP Code

## 3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☑ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 2/21/2022
If a Well Construction Report is available, please attach.

Construction Type:
☑ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (specify): _____

Formation Type:
☑ Unconsolidated Formation ☑ Bedrock

| Total Well Depth From Ground Surface (ft.) | Casing Diameter (in.) |
|---|---|
| 34 ft. | |
| **Lower Drillhole Diameter (in.)** | **Casing Depth (ft.)** |
| 3.75 in. | |

Was well annular space grouted? ☐ Yes ☐ No ☐ Unknown

| If yes, to what depth (feet)? | Depth to Water (feet) |
|---|---|
| | 4.52 |

## 4. Pump, Liner, Screen, Casing & Sealing Material

| | | | |
|---|---|---|---|
| Pump and piping removed? | ☐ Yes | ☐ No | ☑ N/A |
| Liner(s) removed? | ☐ Yes | ☐ No | ☑ N/A |
| Liner(s) perforated? | ☐ Yes | ☐ No | ☑ N/A |
| Screen removed? | ☐ Yes | ☐ No | ☑ N/A |
| Casing left in place? | ☐ Yes | ☐ No | ☑ N/A |
| Was casing cut off below surface? | ☐ Yes | ☐ No | ☑ N/A |
| Did sealing material rise to surface? | ☑ Yes | ☐ No | ☐ N/A |
| Did material settle after 24 hours? | ☐ Yes | ☐ No | ☑ N/A |
| If yes, was hole retopped? | ☐ Yes | ☐ No | ☑ N/A |
| If bentonite chips were used, were they hydrated with water from a known safe source? | ☑ Yes | ☐ No | ☐ N/A |

Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☑ Screened & Poured (Bentonite Chips) ☐ Other (Explain): _____

Sealing Materials
☐ Neat Cement Grout ☐ Concrete
☐ Sand-Cement (Concrete) Grout ☑ Bentonite Chips

*For Monitoring Wells and Monitoring Well Boreholes Only:*
☐ Bentonite Chips ☐ Bentonite - Cement Grout
☐ Granular Bentonite ☐ Bentonite - Sand Slurry

## 5. Material Used to Fill Well / Drillhole

| | From (ft.) | To (ft.) | No. Yards, Sacks Sealant or Volume (circle one) | Mix Ratio or Mud Weight |
|---|---|---|---|---|
| 3/8" Bentonite Chips | Surface | 34 | 525 lbs | |
| | | | | |
| | | | | |

## 6. Comments

Boring B-2: 8" hole to bedrock at 24ft, then 3.75" to 34 ft in bedrock - filled with chips to surface

## 7. Supervision of Work

| Name of Person or Firm Doing Filling & Sealing | License # | Date of Filling & Sealing or Verification (mm/dd/yyyy) |
|---|---|---|
| Scott Klumb - SES Madison | | 2/21/2022 |

Street or Route: 1102 Stewart St.
Telephone Number: (608 ) 274-7600
City: Madison | State: WI | ZIP Code: 53713
Signature of Person Doing Work: Logan Dwyer
Date Signed: 4/14/2022

**DNR Use Only**
Date Received | Noted By
Comments

State of Wis., Dept. of Natural Resources
dnr.wi.gov

B-2A

# Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)



**Notice:** Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis. Stats., and chs. NR 141 and 812, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information.

☐ **Verification Only of Fill and Seal**

**Route to DNR Bureau:**
☐ Drinking Water ☐ Watershed/Wastewater ☐ Remediation/Redevelopment
☑ Waste Management ☐ Other: _____

## 1. Well Location Information

| County | WI Unique Well # of Removed Well | Hicap # |
|---|---|---|
| Dane | ___ ___ ___ ___ ___ | |

Latitude / Longitude (see instructions): 378835.51 N, 2169372.39 W
Format Code: ☐ DD ☐ DDM
Method Code: ☐ GPS008 ☐ SCR002 ☐ OTH001

| ¼ / ¼ SE 1/4 | ¼ SE 1/4 | Section | Township | Range |
|---|---|---|---|---|
| or Gov't Lot # | | 25 | 7 N | 10 ☑ E ☐ W |

Well Street Address: Yahara Hills Golf Course 6701 US-12, Madison, WI 53718

| Well City, Village or Town | Well ZIP Code |
|---|---|
| Madison, WI | 53718 |

| Subdivision Name | Lot # |
|---|---|
| | |

| Reason for Removal from Service | WI Unique Well # of Replacement Well |
|---|---|
| Sample Only | ___ ___ ___ ___ ___ |

## 3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☑ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 2/28/2022

If a Well Construction Report is available, please attach.

Construction Type:
☑ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (specify): _____

Formation Type:
☑ Unconsolidated Formation ☑ Bedrock

| Total Well Depth From Ground Surface (ft.) | Casing Diameter (in.) |
|---|---|
| 36 ft. | |

| Lower Drillhole Diameter (in.) | Casing Depth (ft.) |
|---|---|
| 3.5 in. | |

Was well annular space grouted? ☐ Yes ☐ No ☐ Unknown

| If yes, to what depth (feet)? | Depth to Water (feet) |
|---|---|
| | 6 ft |

## 2. Facility / Owner Information

Facility Name: Dane County Dept of Waste and Renewables

Facility ID (FID or PWS): 113450480

License/Permit/Monitoring #: N/A

Original Well Owner:

Present Well Owner:

Mailing Address of Present Owner:

| City of Present Owner | State | ZIP Code |
|---|---|---|
| | | |

## 4. Pump, Liner, Screen, Casing & Sealing Material

| | | | |
|---|---|---|---|
| Pump and piping removed? | ☐ Yes | ☐ No | ☑ N/A |
| Liner(s) removed? | ☐ Yes | ☐ No | ☑ N/A |
| Liner(s) perforated? | ☐ Yes | ☐ No | ☑ N/A |
| Screen removed? | ☐ Yes | ☐ No | ☑ N/A |
| Casing left in place? | ☐ Yes | ☐ No | ☑ N/A |
| Was casing cut off below surface? | ☐ Yes | ☐ No | ☑ N/A |
| Did sealing material rise to surface? | ☑ Yes | ☐ No | ☐ N/A |
| Did material settle after 24 hours? | ☐ Yes | ☐ No | ☑ N/A |
| If yes, was hole retopped? | ☐ Yes | ☐ No | ☑ N/A |
| If bentonite chips were used, were they hydrated with water from a known safe source? | ☑ Yes | ☐ No | ☐ N/A |

Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☑ Screened & Poured (Bentonite Chips) ☐ Other (Explain): _____

Sealing Materials
☐ Neat Cement Grout ☐ Concrete
☐ Sand-Cement (Concrete) Grout ☑ Bentonite Chips

*For Monitoring Wells and Monitoring Well Boreholes Only:*
☐ Bentonite Chips ☐ Bentonite - Cement Grout
☐ Granular Bentonite ☐ Bentonite - Sand Slurry

## 5. Material Used to Fill Well / Drillhole

| | From (ft.) | To (ft.) | No. Yards, Sacks Sealant or Volume (circle one) | Mix Ratio or Mud Weight |
|---|---|---|---|---|
| 3/8" Bentonite Chips | Surface | 36 | 550 lbs | |
| | | | | |
| | | | | |

## 6. Comments

Boring B-2A: Poured bentonite chips after augers were pulled

## 7. Supervision of Work

| Name of Person or Firm Doing Filling & Sealing | License # | Date of Filling & Sealing or Verification (mm/dd/yyyy) |
|---|---|---|
| Scott Klumb - SES Madison | | 3/1/2022 |

| Street or Route | Telephone Number |
|---|---|
| 1102 Stewart St. | (608 ) 274-7600 |

| City | State | ZIP Code | Signature of Person Doing Work | Date Signed |
|---|---|---|---|---|
| Madison | WI | 53713 | Lucas Specketer | 4/14/2022 |

**DNR Use Only**

| Date Received | Noted By |
|---|---|
| | |

Comments:

State of Wis., Dept. of Natural Resources
dnr.wi.gov

B-3

# Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)



**Notice:** Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis. Stats., and chs. NR 141 and 812, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information.

☐ **Verification Only of Fill and Seal**

**Route to DNR Bureau:**
☐ Drinking Water ☐ Watershed/Wastewater ☐ Remediation/Redevelopment
☑ Waste Management ☐ Other: _____

## 1. Well Location Information

| County | WI Unique Well # of Removed Well | Hicap # |
|---|---|---|
| Dane | ___ ___ ___ ___ ___ | |

Latitude / Longitude (see instructions): 378224.92 N, 2166911.22 W
Format Code: ☐ DD ☐ DDM
Method Code: ☐ GPS008 ☐ SCR002 ☐ OTH001

| ¼ / ¼ SE 1/4 | ¼ SW 1/4 | Section | Township | Range |
|---|---|---|---|---|
| or Gov't Lot # | | 25 | 7 N | 10 ☑ E ☐ W |

Well Street Address: Yahara Hills Golf Course 6701 US-12, Madison, WI 53718

| Well City, Village or Town | Well ZIP Code |
|---|---|
| Madison, WI | 53718 |

| Subdivision Name | Lot # |
|---|---|
| | |

| Reason for Removal from Service | WI Unique Well # of Replacement Well |
|---|---|
| Sample Only | ___ ___ ___ ___ ___ |

## 3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☑ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 2/16/2022

If a Well Construction Report is available, please attach.

Construction Type:
☑ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (specify): _____

Formation Type:
☑ Unconsolidated Formation ☐ Bedrock

| Total Well Depth From Ground Surface (ft.) | Casing Diameter (in.) |
|---|---|
| 37 ft. | |

| Lower Drillhole Diameter (in.) | Casing Depth (ft.) |
|---|---|
| 6 in. | |

Was well annular space grouted? ☐ Yes ☐ No ☐ Unknown

| If yes, to what depth (feet)? | Depth to Water (feet) |
|---|---|
| | 20.85 ft. |

## 2. Facility / Owner Information

Facility Name: Dane County Dept of Waste and Renewables

Facility ID (FID or PWS): 113450480

License/Permit/Monitoring #: N/A

Original Well Owner:

Present Well Owner:

Mailing Address of Present Owner:

| City of Present Owner | State | ZIP Code |
|---|---|---|
| | | |

## 4. Pump, Liner, Screen, Casing & Sealing Material

| | | | |
|---|---|---|---|
| Pump and piping removed? | ☐ Yes | ☐ No | ☑ N/A |
| Liner(s) removed? | ☐ Yes | ☐ No | ☑ N/A |
| Liner(s) perforated? | ☐ Yes | ☐ No | ☑ N/A |
| Screen removed? | ☐ Yes | ☐ No | ☑ N/A |
| Casing left in place? | ☐ Yes | ☐ No | ☑ N/A |
| Was casing cut off below surface? | ☐ Yes | ☐ No | ☑ N/A |
| Did sealing material rise to surface? | ☑ Yes | ☐ No | ☐ N/A |
| Did material settle after 24 hours? | ☐ Yes | ☐ No | ☑ N/A |
| If yes, was hole retopped? | ☐ Yes | ☐ No | ☑ N/A |
| If bentonite chips were used, were they hydrated with water from a known safe source? | ☐ Yes | ☐ No | ☑ N/A |

Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☑ Screened & Poured (Bentonite Chips) ☐ Other (Explain): _____

Sealing Materials
☐ Neat Cement Grout ☐ Concrete
☐ Sand-Cement (Concrete) Grout ☑ Bentonite Chips

*For Monitoring Wells and Monitoring Well Boreholes Only:*
☐ Bentonite Chips ☐ Bentonite - Cement Grout
☐ Granular Bentonite ☐ Bentonite - Sand Slurry

## 5. Material Used to Fill Well / Drillhole

| Material | From (ft.) | To (ft.) | No. Yards, Sacks Sealant or Volume (circle one) | Mix Ratio or Mud Weight |
|---|---|---|---|---|
| 3/8" Bentonite Chips | Surface | 19 | 175 lbs | |
| Time release coated 3/8" bentonite chips | 19 | 37 | 4 buckets - 160 lbs | |
| | | | | |

## 6. Comments

Boring B-3

## 7. Supervision of Work

| Name of Person or Firm Doing Filling & Sealing | License # | Date of Filling & Sealing or Verification (mm/dd/yyyy) |
|---|---|---|
| Elliot Patterson - SES Madison | | 2/16/2022 |

| Street or Route | Telephone Number |
|---|---|
| 1102 Stewart St. | (608 ) 274-7600 |

| City | State | ZIP Code | Signature of Person Doing Work | Date Signed |
|---|---|---|---|---|
| Madison | WI | 53713 | Logan Dwyer | 4/14/2022 |

**DNR Use Only**

| Date Received | Noted By |
|---|---|
| | |

Comments:

State of Wis., Dept. of Natural Resources
dnr.wi.gov

B-5

# Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)



**Notice:** Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis. Stats., and chs. NR 141 and 812, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information.

☐ **Verification Only of Fill and Seal**

**Route to DNR Bureau:**
☐ Drinking Water ☐ Watershed/Wastewater ☐ Remediation/Redevelopment
☑ Waste Management ☐ Other: _____

## 1. Well Location Information

| County | WI Unique Well # of Removed Well | Hicap # |
|---|---|---|
| Dane | ___ ___ ___ ___ ___ | |

Latitude / Longitude (see instructions): 379624.15 N, 2169376.06 W
Format Code: ☐ DD ☐ DDM
Method Code: ☐ GPS008 ☐ SCR002 ☐ OTH001

¼ / ¼ NE 1/4 | ¼ SE 1/4 | or Gov't Lot # | Section: 25 | Township: 7 N | Range: 10 ☑ E ☐ W

Well Street Address: Yahara Hills Golf Course 6701 US-12, Madison, WI 53718

Well City, Village or Town: Madison, WI
Well ZIP Code: 53718
Subdivision Name:
Lot #:

Reason for Removal from Service: Sample Only
WI Unique Well # of Replacement Well: ___ ___ ___ ___ ___

## 2. Facility / Owner Information

Facility Name: Dane County Dept of Waste and Renewables
Facility ID (FID or PWS): 113450480
License/Permit/Monitoring #: N/A
Original Well Owner:
Present Well Owner:
Mailing Address of Present Owner:
City of Present Owner | State | ZIP Code

## 3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☑ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 2/22/2022
If a Well Construction Report is available, please attach.

Construction Type:
☑ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (specify): _____

Formation Type:
☑ Unconsolidated Formation ☐ Bedrock

Total Well Depth From Ground Surface (ft.): 21 ft. 1 in.
Casing Diameter (in.):
Lower Drillhole Diameter (in.): 6 in.
Casing Depth (ft.):

Was well annular space grouted? ☐ Yes ☐ No ☐ Unknown
If yes, to what depth (feet)?
Depth to Water (feet): 8.5

## 4. Pump, Liner, Screen, Casing & Sealing Material

| | | | |
|---|---|---|---|
| Pump and piping removed? | ☐ Yes | ☐ No | ☑ N/A |
| Liner(s) removed? | ☐ Yes | ☐ No | ☑ N/A |
| Liner(s) perforated? | ☐ Yes | ☐ No | ☑ N/A |
| Screen removed? | ☐ Yes | ☐ No | ☑ N/A |
| Casing left in place? | ☐ Yes | ☐ No | ☑ N/A |
| Was casing cut off below surface? | ☐ Yes | ☐ No | ☑ N/A |
| Did sealing material rise to surface? | ☑ Yes | ☐ No | ☐ N/A |
| Did material settle after 24 hours? | ☐ Yes | ☐ No | ☑ N/A |
| If yes, was hole retopped? | ☐ Yes | ☐ No | ☑ N/A |
| If bentonite chips were used, were they hydrated with water from a known safe source? | ☑ Yes | ☐ No | ☐ N/A |

Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☑ Screened & Poured (Bentonite Chips) ☐ Other (Explain): _____

Sealing Materials
☐ Neat Cement Grout ☐ Concrete
☐ Sand-Cement (Concrete) Grout ☑ Bentonite Chips

*For Monitoring Wells and Monitoring Well Boreholes Only:*
☐ Bentonite Chips ☐ Bentonite - Cement Grout
☐ Granular Bentonite ☐ Bentonite - Sand Slurry

## 5. Material Used to Fill Well / Drillhole

| | From (ft.) | To (ft.) | No. Yards, Sacks Sealant or Volume (circle one) | Mix Ratio or Mud Weight |
|---|---|---|---|---|
| 3/8" Bentonite Chips | Surface | 17 | 200 lbs | |
| Time release coated 3/8" bentonite chips | 17 | 21' 1" | 40 lbs | |
| | | | | |

## 6. Comments

Boring B-5

## 7. Supervision of Work

Name of Person or Firm Doing Filling & Sealing: Elliot Patterson - SES Madison
License #:
Date of Filling & Sealing or Verification (mm/dd/yyyy): 2/22/2022
Street or Route: 1102 Stewart St.
Telephone Number: (608 )274-7600
City: Madison | State: WI | ZIP Code: 53713
Signature of Person Doing Work: Logan Dwyer
Date Signed: 4/14/2022

**DNR Use Only**
Date Received | Noted By
Comments

State of Wis., Dept. of Natural Resources
dnr.wi.gov

B-5A

# Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015) 

**Notice:** Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis. Stats., and chs. NR 141 and 812, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information.

☐ **Verification Only of Fill and Seal**

**Route to DNR Bureau:**
☐ Drinking Water ☐ Watershed/Wastewater ☐ Remediation/Redevelopment
☑ Waste Management ☐ Other: _____

## 1. Well Location Information

| County | WI Unique Well # of Removed Well | Hicap # |
|---|---|---|
| Dane | ___ ___ ___ ___ ___ | |

Latitude / Longitude (see instructions): 379624.15 N, 2169376.06 W
Format Code: ☐ DD ☐ DDM
Method Code: ☐ GPS008 ☐ SCR002 ☐ OTH001

| ¼ / ¼ NE 1/4 | ¼ SE 1/4 | Section | Township | Range |
|---|---|---|---|---|
| or Gov't Lot # | | 25 | 7 N | 10 ☑ E ☐ W |

Well Street Address: Yahara Hills Golf Course 6701 US-12, Madison, WI 53718

| Well City, Village or Town | Well ZIP Code |
|---|---|
| Madison, WI | 53718 |

| Subdivision Name | Lot # |
|---|---|
| | |

| Reason for Removal from Service | WI Unique Well # of Replacement Well |
|---|---|
| Sample Only | ___ ___ ___ ___ ___ |

## 3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☑ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 3/02/2022

If a Well Construction Report is available, please attach.

Construction Type:
☑ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (specify): _____

Formation Type:
☑ Unconsolidated Formation ☑ Bedrock

| Total Well Depth From Ground Surface (ft.) | Casing Diameter (in.) |
|---|---|
| 36 ft. | |

| Lower Drillhole Diameter (in.) | Casing Depth (ft.) |
|---|---|
| 3.5 in. | |

Was well annular space grouted? ☐ Yes ☐ No ☐ Unknown

| If yes, to what depth (feet)? | Depth to Water (feet) |
|---|---|
| | 9 ft. |

## 2. Facility / Owner Information

Facility Name: Dane County Dept of Waste and Renewables

Facility ID (FID or PWS): 113450480

License/Permit/Monitoring #: N/A

Original Well Owner:

Present Well Owner:

Mailing Address of Present Owner:

| City of Present Owner | State | ZIP Code |
|---|---|---|
| | | |

## 4. Pump, Liner, Screen, Casing & Sealing Material

| | | | |
|---|---|---|---|
| Pump and piping removed? | ☐ Yes | ☐ No | ☑ N/A |
| Liner(s) removed? | ☐ Yes | ☐ No | ☑ N/A |
| Liner(s) perforated? | ☐ Yes | ☐ No | ☑ N/A |
| Screen removed? | ☐ Yes | ☐ No | ☑ N/A |
| Casing left in place? | ☐ Yes | ☐ No | ☑ N/A |
| Was casing cut off below surface? | ☐ Yes | ☐ No | ☑ N/A |
| Did sealing material rise to surface? | ☑ Yes | ☐ No | ☐ N/A |
| Did material settle after 24 hours? | ☐ Yes | ☐ No | ☑ N/A |
| If yes, was hole retopped? | ☐ Yes | ☐ No | ☑ N/A |
| If bentonite chips were used, were they hydrated with water from a known safe source? | ☑ Yes | ☐ No | ☐ N/A |

Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☑ Screened & Poured (Bentonite Chips) ☐ Other (Explain): _____

Sealing Materials
☐ Neat Cement Grout ☐ Concrete
☐ Sand-Cement (Concrete) Grout ☑ Bentonite Chips

*For Monitoring Wells and Monitoring Well Boreholes Only:*
☐ Bentonite Chips ☐ Bentonite - Cement Grout
☐ Granular Bentonite ☐ Bentonite - Sand Slurry

## 5. Material Used to Fill Well / Drillhole

| | From (ft.) | To (ft.) | No. Yards, Sacks Sealant or Volume (circle one) | Mix Ratio or Mud Weight |
|---|---|---|---|---|
| 3/8" Bentonite Chips | Surface | 36 | 475 lbs | |
| | | | | |
| | | | | |

## 6. Comments

B-5A: Poured bentonite chips as casing was pulled

## 7. Supervision of Work

| Name of Person or Firm Doing Filling & Sealing | License # | Date of Filling & Sealing or Verification (mm/dd/yyyy) |
|---|---|---|
| Scott Klumb - SES Madison | | 3/02/2022 |

| Street or Route | Telephone Number |
|---|---|
| 1102 Stewart St. | (608 ) 274-7600 |

| City | State | ZIP Code | Signature of Person Doing Work | Date Signed |
|---|---|---|---|---|
| Madison | WI | | Lucas Spocketer | 4/14/2022 |

**DNR Use Only**

| Date Received | Noted By |
|---|---|
| | |

Comments:

State of Wis., Dept. of Natural Resources
dnr.wi.gov

B-6

# Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)



**Notice:** Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis. Stats., and chs. NR 141 and 812, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information.

☐ **Verification Only of Fill and Seal**

**Route to DNR Bureau:**
☐ Drinking Water ☐ Watershed/Wastewater ☐ Remediation/Redevelopment
☑ Waste Management ☐ Other: _____

## 1. Well Location Information

| County | WI Unique Well # of Removed Well | Hicap # |
|---|---|---|
| Dane | ___ ___ ___ ___ ___ | |

Latitude / Longitude (see instructions): 379082.08 N, 2167735.04 W
Format Code: ☐ DD ☐ DDM
Method Code: ☐ GPS008 ☐ SCR002 ☐ OTH001

| ¼ / ¼ SW 1/4 | ¼ SE 1/4 | Section | Township | Range |
|---|---|---|---|---|
| or Gov't Lot # | | 25 | 7 N | 10 ☑ E ☐ W |

Well Street Address: Yahara Hills Golf Course 6701 US-12, Madison, WI 53718

| Well City, Village or Town | Well ZIP Code |
|---|---|
| Madison, WI | 53718 |

| Subdivision Name | Lot # |
|---|---|
| | |

| Reason for Removal from Service | WI Unique Well # of Replacement Well |
|---|---|
| Sample Only | ___ ___ ___ ___ ___ |

## 3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☑ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 2/2/2022

If a Well Construction Report is available, please attach.

Construction Type:
☑ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (specify): _____

Formation Type:
☑ Unconsolidated Formation ☐ Bedrock

| Total Well Depth From Ground Surface (ft.) | Casing Diameter (in.) |
|---|---|
| 18 ft. 7 in. | |

| Lower Drillhole Diameter (in.) | Casing Depth (ft.) |
|---|---|
| 6 in. | |

Was well annular space grouted? ☐ Yes ☐ No ☐ Unknown

| If yes, to what depth (feet)? | Depth to Water (feet) |
|---|---|
| | |

## 2. Facility / Owner Information

Facility Name: Dane County Dept of Waste and Renewables

Facility ID (FID or PWS): 113450480

License/Permit/Monitoring #: N/A

Original Well Owner:

Present Well Owner:

Mailing Address of Present Owner:

| City of Present Owner | State | ZIP Code |
|---|---|---|
| | | |

## 4. Pump, Liner, Screen, Casing & Sealing Material

| | | | |
|---|---|---|---|
| Pump and piping removed? | ☐ Yes | ☐ No | ☑ N/A |
| Liner(s) removed? | ☐ Yes | ☐ No | ☑ N/A |
| Liner(s) perforated? | ☐ Yes | ☐ No | ☑ N/A |
| Screen removed? | ☐ Yes | ☐ No | ☑ N/A |
| Casing left in place? | ☐ Yes | ☐ No | ☑ N/A |
| Was casing cut off below surface? | ☐ Yes | ☐ No | ☑ N/A |
| Did sealing material rise to surface? | ☑ Yes | ☐ No | ☐ N/A |
| Did material settle after 24 hours? | ☐ Yes | ☐ No | ☑ N/A |
| If yes, was hole retopped? | ☐ Yes | ☐ No | ☑ N/A |
| If bentonite chips were used, were they hydrated with water from a known safe source? | ☐ Yes | ☐ No | ☑ N/A |

Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☑ Screened & Poured (Bentonite Chips) ☐ Other (Explain): _____

Sealing Materials
☐ Neat Cement Grout ☐ Concrete
☐ Sand-Cement (Concrete) Grout ☑ Bentonite Chips

*For Monitoring Wells and Monitoring Well Boreholes Only:*
☐ Bentonite Chips ☐ Bentonite - Cement Grout
☐ Granular Bentonite ☐ Bentonite - Sand Slurry

## 5. Material Used to Fill Well / Drillhole

| Material | From (ft.) | To (ft.) | No. Yards, Sacks Sealant or Volume (circle one) | Mix Ratio or Mud Weight |
|---|---|---|---|---|
| 3/8" Bentonite Chips | Surface | 18' 7" | 200 lbs | |
| | | | | |
| | | | | |

## 6. Comments

Boring B-6

## 7. Supervision of Work

| Name of Person or Firm Doing Filling & Sealing | License # | Date of Filling & Sealing or Verification (mm/dd/yyyy) |
|---|---|---|
| Elliot Patterson - SES Madison | | 2/2/2022 |

| Street or Route | Telephone Number |
|---|---|
| 1102 Stewart St. | (608 ) 274-7600 |

| City | State | ZIP Code | Signature of Person Doing Work | Date Signed |
|---|---|---|---|---|
| Madison | WI | 53713 | Logan Dwyer | 4/14/2022 |

**DNR Use Only**

| Date Received | Noted By |
|---|---|
| | |

Comments:

State of Wis., Dept. of Natural Resources
dnr.wi.gov

B-6A

# Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)



**Notice:** Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis. Stats., and chs. NR 141 and 812, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information.

☐ **Verification Only of Fill and Seal**

**Route to DNR Bureau:**
☐ Drinking Water ☐ Watershed/Wastewater ☐ Remediation/Redevelopment
☑ Waste Management ☐ Other: _____

## 1. Well Location Information

| County | WI Unique Well # of Removed Well | Hicap # |
|---|---|---|
| Dane | ___ ___ ___ ___ ___ | |

Latitude / Longitude (see instructions): 379082.08 N, 2167735.04 W
Format Code: ☐ DD ☐ DDM
Method Code: ☐ GPS008 ☐ SCR002 ☐ OTH001

¼ / ¼ SW 1/4 | ¼ SE 1/4 | Section: 25 | Township: 7 N | Range: 10 ☑ E ☐ W
or Gov't Lot #

Well Street Address: Yahara Hills Golf Course 6701 US-12, Madison, WI 53718

| Well City, Village or Town | Well ZIP Code |
|---|---|
| Madison, WI | 53718 |

| Subdivision Name | Lot # |
|---|---|
| | |

| Reason for Removal from Service | WI Unique Well # of Replacement Well |
|---|---|
| Sample Only | ___ ___ ___ ___ ___ |

## 3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☑ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 2/28/2022

If a Well Construction Report is available, please attach.

Construction Type:
☑ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (specify): _____

Formation Type:
☑ Unconsolidated Formation ☑ Bedrock

| Total Well Depth From Ground Surface (ft.) | Casing Diameter (in.) |
|---|---|
| 35.6 ft. | |

| Lower Drillhole Diameter (in.) | Casing Depth (ft.) |
|---|---|
| 3.5 in. | |

Was well annular space grouted? ☐ Yes ☐ No ☐ Unknown

| If yes, to what depth (feet)? | Depth to Water (feet) |
|---|---|
| | NE |

## 2. Facility / Owner Information

Facility Name: Dane County Dept of Waste and Renewables

Facility ID (FID or PWS): 113450480

License/Permit/Monitoring #: N/A

Original Well Owner:

Present Well Owner:

Mailing Address of Present Owner:

| City of Present Owner | State | ZIP Code |
|---|---|---|
| | | |

## 4. Pump, Liner, Screen, Casing & Sealing Material

| | | | |
|---|---|---|---|
| Pump and piping removed? | ☐ Yes | ☐ No | ☑ N/A |
| Liner(s) removed? | ☐ Yes | ☐ No | ☑ N/A |
| Liner(s) perforated? | ☐ Yes | ☐ No | ☑ N/A |
| Screen removed? | ☐ Yes | ☐ No | ☑ N/A |
| Casing left in place? | ☐ Yes | ☐ No | ☑ N/A |
| Was casing cut off below surface? | ☐ Yes | ☐ No | ☑ N/A |
| Did sealing material rise to surface? | ☑ Yes | ☐ No | ☐ N/A |
| Did material settle after 24 hours? | ☐ Yes | ☐ No | ☑ N/A |
| If yes, was hole retopped? | ☐ Yes | ☐ No | ☑ N/A |
| If bentonite chips were used, were they hydrated with water from a known safe source? | ☐ Yes | ☑ No | ☐ N/A |

Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☑ Screened & Poured (Bentonite Chips) ☐ Other (Explain): _____

Sealing Materials
☐ Neat Cement Grout ☐ Concrete
☐ Sand-Cement (Concrete) Grout ☑ Bentonite Chips

*For Monitoring Wells and Monitoring Well Boreholes Only:*
☐ Bentonite Chips ☐ Bentonite - Cement Grout
☐ Granular Bentonite ☐ Bentonite - Sand Slurry

## 5. Material Used to Fill Well / Drillhole

| | From (ft.) | To (ft.) | No. Yards, Sacks Sealant or Volume (circle one) | Mix Ratio or Mud Weight |
|---|---|---|---|---|
| 3/8" Bentonite Chips | Surface | 35.6 | 350 lbs | |
| | | | | |
| | | | | |

## 6. Comments

Boring B-6A: Poured bentonite chips after casing was pulled (confirmed total depth)

## 7. Supervision of Work

| Name of Person or Firm Doing Filling & Sealing | License # | Date of Filling & Sealing or Verification (mm/dd/yyyy) |
|---|---|---|
| Scott Klumb - SES Madison | | 2/28/2022 |

| Street or Route | Telephone Number |
|---|---|
| 1102 Stewart St. | (608) 274-7600 |

| City | State | ZIP Code | Signature of Person Doing Work | Date Signed |
|---|---|---|---|---|
| Madison | WI | 53713 | Lucas Specketer | 4/14/2022 |

**DNR Use Only**

| Date Received | Noted By |
|---|---|
| | |

Comments:

State of Wis., Dept. of Natural Resources
dnr.wi.gov

Boring 7

# Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015) 

**Notice:** Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis. Stats., and chs. NR 141 and 812, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information.

☒ **Verification Only of Fill and Seal**

**Route to DNR Bureau:**
☐ Drinking Water ☐ Watershed/Wastewater ☐ Remediation/Redevelopment
☐ Waste Management ☐ Other: _____

## 1. Well Location Information

| County | WI Unique Well # of Removed Well | Hicap # |
|---|---|---|
| Dane | | |

Latitude / Longitude (see instructions) _____ N _____ W
Format Code: ☐ DD ☐ DDM
Method Code: ☐ GPS008 ☐ SCR002 ☐ OTH001

| ¼ / ¼ | ¼ | Section | Township | Range |
|---|---|---|---|---|
| or Gov't Lot # | | | N | ☐ E ☐ W |

Well Street Address

| Well City, Village or Town | Well ZIP Code |
|---|---|
| Madison | |
| Subdivision Name | Lot # |
| | |

| Reason for Removal from Service | WI Unique Well # of Replacement Well |
|---|---|
| Geotechnical Sampling | |

## 2. Facility / Owner Information

Facility Name: Yahara Hills Golf Course
Facility ID (FID or PWS): 113450480
License/Permit/Monitoring #:
Original ~~Well~~ Owner: City of Madison
Present ~~Well~~ Owner: City of Madison
Mailing Address of Present Owner:

| City of Present Owner | State | ZIP Code |
|---|---|---|
| Madison | WI | |

## 3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☒ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy):
If a Well Construction Report is available, please attach.

Construction Type:
☒ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (specify): _____

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

| Total ~~Well~~ Depth From Ground Surface (ft.) | Casing Diameter (in.) |
|---|---|
| 43.5 | N/A |
| **Lower Drillhole Diameter (in.)** | **Casing Depth (ft.)** |
| 6 | N/A |

Was well annular space grouted? N/A ☐ Yes ☐ No ☐ Unknown

| If yes, to what depth (feet)? | Depth to Water (feet) |
|---|---|
| | 19'10" |

## 4. Pump, Liner, Screen, Casing & Sealing Material

| | | | |
|---|---|---|---|
| Pump and piping removed? | ☐ Yes | ☐ No | ☒ N/A |
| Liner(s) removed? | ☐ Yes | ☐ No | ☒ N/A |
| Liner(s) perforated? | ☐ Yes | ☐ No | ☒ N/A |
| Screen removed? | ☐ Yes | ☐ No | ☒ N/A |
| Casing left in place? | ☐ Yes | ☐ No | ☒ N/A |
| Was casing cut off below surface? | ☐ Yes | ☐ No | ☒ N/A |
| Did sealing material rise to surface? | ☒ Yes | ☐ No | ☐ N/A |
| Did material settle after 24 hours? | ☐ Yes | ☒ No | ☐ N/A |
| If yes, was hole retopped? | ☐ Yes | ☐ No | ☒ N/A |
| If bentonite chips were used, were they hydrated with water from a known safe source? | ☒ Yes | ☐ No | ☐ N/A |

Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☒ Screened & Poured (Bentonite Chips) ☐ Other (Explain): _____

Sealing Materials
☐ Neat Cement Grout ☐ Concrete
☐ Sand-Cement (Concrete) Grout ☒ Bentonite Chips

*For Monitoring Wells and Monitoring Well Boreholes Only:*
☒ Bentonite Chips ☐ Bentonite - Cement Grout
☐ Granular Bentonite ☐ Bentonite - Sand Slurry

## 5. Material Used to Fill Well / Drillhole

| | From (ft.) | To (ft.) | No. Yards, Sacks Sealant or Volume (circle one) | Mix Ratio or Mud Weight |
|---|---|---|---|---|
| Soil | Surface | 1.0 | | |
| Bentonite chips | 1.0 | 43.5 | 12 bags | |
| | | | | |

## 6. Comments

## 7. Supervision of Work

| Name of Person or Firm Doing Filling & Sealing | License # | Date of Filling & Sealing or Verification (mm/dd/yyyy) |
|---|---|---|
| Soils & Engineering Services, Inc. | | 3/24/2022 |

| Street or Route | Telephone Number |
|---|---|
| 1102 Stewart Street | ( 608 ) 274-7600 |

| City | State | ZIP Code | Signature of Person Doing Work | Date Signed |
|---|---|---|---|---|
| Madison | WI | 53713 | Diane E Berthold | 3/24/2022 |

**DNR Use Only**

| Date Received | Noted By |
|---|---|
| | |

Comments:

State of Wis., Dept. of Natural Resources
dnr.wi.gov

Boring 8

# Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015) 

**Notice:** Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis. Stats., and chs. NR 141 and 812, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information.

☒ **Verification Only of Fill and Seal**

**Route to DNR Bureau:**
☐ Drinking Water ☐ Watershed/Wastewater ☐ Remediation/Redevelopment
☐ Waste Management ☐ Other: _____

## 1. Well Location Information

| County | WI Unique Well # of Removed Well | Hicap # |
|---|---|---|
| Dane | | |

Latitude / Longitude (see instructions) _____ N _____ W
Format Code: ☐ DD ☐ DDM
Method Code: ☐ GPS008 ☐ SCR002 ☐ OTH001

| ¼ / ¼ | ¼ | Section | Township | Range |
|---|---|---|---|---|
| or Gov't Lot # | | | N | ☐ E ☐ W |

Well Street Address

| Well City, Village or Town | Well ZIP Code |
|---|---|
| Madison | |
| Subdivision Name | Lot # |

| Reason for Removal from Service | WI Unique Well # of Replacement Well |
|---|---|
| Geotechnical sampling | |

## 2. Facility / Owner Information

Facility Name: Yahara Hills Golf Course
Facility ID (FID or PWS): 113450480
License/Permit/Monitoring #:
Original ~~Well~~ Owner: City of Madison
Present ~~Well~~ Owner: City of Madison
Mailing Address of Present Owner:

| City of Present Owner | State | ZIP Code |
|---|---|---|
| Madison | WI | |

## 3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☒ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy):
If a Well Construction Report is available, please attach.

Construction Type:
☒ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (specify): _____

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

| Total ~~Well~~ Depth From Ground Surface (ft.) | Casing Diameter (in.) |
|---|---|
| 30'-0" | N/A |
| **Lower Drillhole Diameter (in.)** | **Casing Depth (ft.)** |
| 6 | N/A |

Was well annular space grouted? N/A ☐ Yes ☐ No ☐ Unknown

| If yes, to what depth (feet)? | Depth to Water (feet) |
|---|---|
| | 8' 3" |

## 4. Pump, Liner, Screen, Casing & Sealing Material

| | | | |
|---|---|---|---|
| Pump and piping removed? | ☐ Yes | ☐ No | ☒ N/A |
| Liner(s) removed? | ☐ Yes | ☐ No | ☒ N/A |
| Liner(s) perforated? | ☐ Yes | ☐ No | ☒ N/A |
| Screen removed? | ☐ Yes | ☐ No | ☒ N/A |
| Casing left in place? | ☐ Yes | ☐ No | ☒ N/A |
| Was casing cut off below surface? | ☐ Yes | ☐ No | ☒ N/A |
| Did sealing material rise to surface? | ☒ Yes | ☐ No | ☐ N/A |
| Did material settle after 24 hours? | ☐ Yes | ☒ No | ☐ N/A |
| If yes, was hole retopped? | ☐ Yes | ☐ No | ☒ N/A |
| If bentonite chips were used, were they hydrated with water from a known safe source? | ☒ Yes | ☐ No | ☐ N/A |

Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☒ Screened & Poured (Bentonite Chips) ☐ Other (Explain): _____

Sealing Materials
☐ Neat Cement Grout ☐ Concrete
☐ Sand-Cement (Concrete) Grout ☒ Bentonite Chips

*For Monitoring Wells and Monitoring Well Boreholes Only:*
☒ Bentonite Chips ☐ Bentonite - Cement Grout
☐ Granular Bentonite ☐ Bentonite - Sand Slurry

## 5. Material Used to Fill Well / Drillhole

| | From (ft.) | To (ft.) | No. Yards, Sacks Sealant or Volume (circle one) | Mix Ratio or Mud Weight |
|---|---|---|---|---|
| Soil | Surface | 0.5 | | |
| Bentonite chips | 0.5 | 30 | 8 bags | |
| | | | | |

## 6. Comments

## 7. Supervision of Work

| Name of Person or Firm Doing Filling & Sealing | License # | Date of Filling & Sealing or Verification (mm/dd/yyyy) |
|---|---|---|
| Soils & Engineering Services, Inc. | | 3/24/2022 |

| Street or Route | Telephone Number |
|---|---|
| 1102 Stewart Street | (608 ) 274-7600 |

| City | State | ZIP Code | Signature of Person Doing Work | Date Signed |
|---|---|---|---|---|
| Madison | WI | 53713 | Duane E Hawley | 3/24/2022 |

**DNR Use Only**

| Date Received | Noted By |
|---|---|
| | |

Comments:

State of Wis., Dept. of Natural Resources
dnr.wi.gov

B-9

# Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)



**Notice:** Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis. Stats., and chs. NR 141 and 812, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information.

☐ **Verification Only of Fill and Seal**

**Route to DNR Bureau:**
☐ Drinking Water ☐ Watershed/Wastewater ☐ Remediation/Redevelopment
☑ Waste Management ☐ Other: _____

## 1. Well Location Information

| County | WI Unique Well # of Removed Well | Hicap # |
|---|---|---|
| Dane | ___ ___ ___ ___ ___ | |

Latitude / Longitude (see instructions): 377611.69 N, 2166186.48 W
Format Code: ☐ DD ☐ DDM
Method Code: ☐ GPS008 ☐ SCR002 ☐ OTH001

| ¼ / ¼ NE 1/4 | ¼ NW 1/4 | Section | Township | Range |
|---|---|---|---|---|
| or Gov't Lot # | | 36 | 7 N | 10 ☑ E ☐ W |

Well Street Address: Yahara Hills Golf Course 6701 US-12, Madison, WI 53718

| Well City, Village or Town | Well ZIP Code |
|---|---|
| Madison, WI | 53718 |

| Subdivision Name | Lot # |
|---|---|
| | |

| Reason for Removal from Service | WI Unique Well # of Replacement Well |
|---|---|
| Sample Only | ___ ___ ___ ___ ___ |

## 3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☑ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 2/16/2022

If a Well Construction Report is available, please attach.

Construction Type:
☑ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (specify): _____

Formation Type:
☑ Unconsolidated Formation ☐ Bedrock

| Total Well Depth From Ground Surface (ft.) | Casing Diameter (in.) |
|---|---|
| 22.9 ft. | |

| Lower Drillhole Diameter (in.) | Casing Depth (ft.) |
|---|---|
| 6 in. | |

Was well annular space grouted? ☐ Yes ☐ No ☐ Unknown

| If yes, to what depth (feet)? | Depth to Water (feet) |
|---|---|
| | |

## 2. Facility / Owner Information

Facility Name: Dane County Dept of Waste and Renewables

Facility ID (FID or PWS): 113450480

License/Permit/Monitoring #: N/A

Original Well Owner:

Present Well Owner:

Mailing Address of Present Owner:

| City of Present Owner | State | ZIP Code |
|---|---|---|
| | | |

## 4. Pump, Liner, Screen, Casing & Sealing Material

| | | | |
|---|---|---|---|
| Pump and piping removed? | ☐ Yes | ☐ No | ☑ N/A |
| Liner(s) removed? | ☐ Yes | ☐ No | ☑ N/A |
| Liner(s) perforated? | ☐ Yes | ☐ No | ☑ N/A |
| Screen removed? | ☐ Yes | ☐ No | ☑ N/A |
| Casing left in place? | ☐ Yes | ☐ No | ☑ N/A |
| Was casing cut off below surface? | ☐ Yes | ☐ No | ☑ N/A |
| Did sealing material rise to surface? | ☑ Yes | ☐ No | ☐ N/A |
| Did material settle after 24 hours? | ☐ Yes | ☐ No | ☑ N/A |
| If yes, was hole retopped? | ☐ Yes | ☐ No | ☑ N/A |
| If bentonite chips were used, were they hydrated with water from a known safe source? | ☐ Yes | ☐ No | ☑ N/A |

Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☑ Screened & Poured (Bentonite Chips) ☐ Other (Explain): _____

Sealing Materials
☐ Neat Cement Grout ☐ Concrete
☐ Sand-Cement (Concrete) Grout ☑ Bentonite Chips

*For Monitoring Wells and Monitoring Well Boreholes Only:*
☐ Bentonite Chips ☐ Bentonite - Cement Grout
☐ Granular Bentonite ☐ Bentonite - Sand Slurry

## 5. Material Used to Fill Well / Drillhole

| | From (ft.) | To (ft.) | No. Yards, Sacks Sealant or Volume (circle one) | Mix Ratio or Mud Weight |
|---|---|---|---|---|
| 3/8" Bentonite Chips | Surface | 22.9 | 250 lbs | |
| | | | | |
| | | | | |

## 6. Comments

Boring B-9

## 7. Supervision of Work

| Name of Person or Firm Doing Filling & Sealing | License # | Date of Filling & Sealing or Verification (mm/dd/yyyy) |
|---|---|---|
| Elliot Patterson - SES Madison | | 2/16/2022 |

| Street or Route | Telephone Number |
|---|---|
| 1102 Stewart St. | (608 ) 274-7600 |

| City | State | ZIP Code | Signature of Person Doing Work | Date Signed |
|---|---|---|---|---|
| Madison | WI | 53713 | Logan Dwyer | 4/14/2022 |

**DNR Use Only**

| Date Received | Noted By |
|---|---|
| | |

Comments:

State of Wis., Dept. of Natural Resources
dnr.wi.gov

B-10

# Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)



**Notice:** Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis. Stats., and chs. NR 141 and 812, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information.

☐ **Verification Only of Fill and Seal**

**Route to DNR Bureau:**
☐ Drinking Water ☐ Watershed/Wastewater ☐ Remediation/Redevelopment
☑ Waste Management ☐ Other: _____

## 1. Well Location Information

| County | WI Unique Well # of Removed Well | Hicap # |
|---|---|---|
| Dane | ___ ___ ___ ___ ___ | |

Latitude / Longitude (see instructions): 377666.66 N / 2169421.35 W
Format Code: ☐ DD ☐ DDM
Method Code: ☐ GPS008 ☐ SCR002 ☐ OTH001

¼ / ¼ NE 1/4 | ¼ NE 1/4 | or Gov't Lot # | Section: 36 | Township: 7 N | Range: 10 ☑ E ☐ W

Well Street Address: Yahara Hills Golf Course 6701 US-12, Madison, WI 53718

Well City, Village or Town: Madison, WI
Well ZIP Code: 53718
Subdivision Name:
Lot #:

Reason for Removal from Service: Sample Only
WI Unique Well # of Replacement Well: ___ ___ ___ ___ ___

## 2. Facility / Owner Information

Facility Name: Dane County Dept of Waste and Renewables
Facility ID (FID or PWS): 113450480
License/Permit/Monitoring #: N/A
Original Well Owner:
Present Well Owner:
Mailing Address of Present Owner:
City of Present Owner | State | ZIP Code

## 3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☑ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 2/22/2022
If a Well Construction Report is available, please attach.

Construction Type:
☑ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (specify): _____

Formation Type:
☑ Unconsolidated Formation ☐ Bedrock

| Total Well Depth From Ground Surface (ft.) | Casing Diameter (in.) |
|---|---|
| 53 ft. 7 in. | |
| **Lower Drillhole Diameter (in.)** | **Casing Depth (ft.)** |
| 6 in. | |

Was well annular space grouted? ☐ Yes ☐ No ☐ Unknown
If yes, to what depth (feet)?
Depth to Water (feet): 41 ft

## 4. Pump, Liner, Screen, Casing & Sealing Material

| | | | |
|---|---|---|---|
| Pump and piping removed? | ☐ Yes | ☐ No | ☑ N/A |
| Liner(s) removed? | ☐ Yes | ☐ No | ☑ N/A |
| Liner(s) perforated? | ☐ Yes | ☐ No | ☑ N/A |
| Screen removed? | ☐ Yes | ☐ No | ☑ N/A |
| Casing left in place? | ☐ Yes | ☐ No | ☑ N/A |
| Was casing cut off below surface? | ☐ Yes | ☐ No | ☑ N/A |
| Did sealing material rise to surface? | ☑ Yes | ☐ No | ☐ N/A |
| Did material settle after 24 hours? | ☐ Yes | ☐ No | ☑ N/A |
| If yes, was hole retopped? | ☐ Yes | ☐ No | ☑ N/A |
| If bentonite chips were used, were they hydrated with water from a known safe source? | ☑ Yes | ☐ No | ☐ N/A |

Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☑ Screened & Poured (Bentonite Chips) ☐ Other (Explain): _____

Sealing Materials
☐ Neat Cement Grout ☐ Concrete
☐ Sand-Cement (Concrete) Grout ☑ Bentonite Chips

*For Monitoring Wells and Monitoring Well Boreholes Only:*
☐ Bentonite Chips ☐ Bentonite - Cement Grout
☐ Granular Bentonite ☐ Bentonite - Sand Slurry

## 5. Material Used to Fill Well / Drillhole

| Material | From (ft.) | To (ft.) | No. Yards, Sacks Sealant or Volume (circle one) | Mix Ratio or Mud Weight |
|---|---|---|---|---|
| 3/8" Bentonite Chips | Surface | 24 | 300 lbs | |
| Time release coated 3/8" bentonite chips | 24 | 53' 7" | 360 lbs | |
| | | | | |

## 6. Comments

Boring B-10

## 7. Supervision of Work

| Name of Person or Firm Doing Filling & Sealing | License # | Date of Filling & Sealing or Verification (mm/dd/yyyy) |
|---|---|---|
| Elliot Patterson - SES Madison | | 2/22/2022 |

Street or Route: 1102 Stewart St.
Telephone Number: (608 ) 274-7600
City: Madison | State: WI | ZIP Code: 53713
Signature of Person Doing Work: Logan Dwyer
Date Signed: 4/14/2022

**DNR Use Only**
Date Received | Noted By
Comments

State of Wis., Dept. of Natural Resources
dnr.wi.gov

B-11

# Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)



**Notice:** Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis. Stats., and chs. NR 141 and 812, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information.

☐ **Verification Only of Fill and Seal**

**Route to DNR Bureau:**
☐ Drinking Water ☐ Watershed/Wastewater ☐ Remediation/Redevelopment
☑ Waste Management ☐ Other: _____

## 1. Well Location Information

| County | WI Unique Well # of Removed Well | Hicap # |
|---|---|---|
| Dane | ___ ___ ___ ___ ___ | |

Latitude / Longitude (see instructions): 378106.47 N / 2169439.01 W
Format Code: ☐ DD ☐ DDM
Method Code: ☐ GPS008 ☐ SCR002 ☐ OTH001

| ¼ / ¼ SE 1/4 | ¼ SE 1/4 | Section | Township | Range |
|---|---|---|---|---|
| or Gov't Lot # | | 25 | 7 N | 10 ☑ E ☐ W |

Well Street Address: Yahara Hills Golf Course 6701 US-12, Madison, WI 53718

| Well City, Village or Town | Well ZIP Code |
|---|---|
| Madison, WI | 53718 |

| Subdivision Name | Lot # |
|---|---|
| | |

| Reason for Removal from Service | WI Unique Well # of Replacement Well |
|---|---|
| Sample Only | ___ ___ ___ ___ ___ |

## 3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☑ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 3/01/2022

If a Well Construction Report is available, please attach.

Construction Type:
☑ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (specify): _____

Formation Type:
☑ Unconsolidated Formation ☐ Bedrock

| Total Well Depth From Ground Surface (ft.) | Casing Diameter (in.) |
|---|---|
| 41 ft. | |

| Lower Drillhole Diameter (in.) | Casing Depth (ft.) |
|---|---|
| 3.5 in. | |

Was well annular space grouted? ☐ Yes ☐ No ☐ Unknown

| If yes, to what depth (feet)? | Depth to Water (feet) |
|---|---|
| | 16 ft |

## 2. Facility / Owner Information

Facility Name: Dane County Dept of Waste and Renewables

Facility ID (FID or PWS): 113450480

License/Permit/Monitoring #: N/A

Original Well Owner:

Present Well Owner:

Mailing Address of Present Owner:

| City of Present Owner | State | ZIP Code |
|---|---|---|
| | | |

## 4. Pump, Liner, Screen, Casing & Sealing Material

| | | | |
|---|---|---|---|
| Pump and piping removed? | ☐ Yes | ☐ No | ☑ N/A |
| Liner(s) removed? | ☐ Yes | ☐ No | ☑ N/A |
| Liner(s) perforated? | ☐ Yes | ☐ No | ☑ N/A |
| Screen removed? | ☐ Yes | ☐ No | ☑ N/A |
| Casing left in place? | ☐ Yes | ☐ No | ☑ N/A |
| Was casing cut off below surface? | ☐ Yes | ☐ No | ☑ N/A |
| Did sealing material rise to surface? | ☑ Yes | ☐ No | ☐ N/A |
| Did material settle after 24 hours? | ☐ Yes | ☐ No | ☑ N/A |
| If yes, was hole retopped? | ☐ Yes | ☐ No | ☑ N/A |
| If bentonite chips were used, were they hydrated with water from a known safe source? | ☑ Yes | ☐ No | ☐ N/A |

Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☑ Screened & Poured (Bentonite Chips) ☐ Other (Explain): _____

Sealing Materials
☐ Neat Cement Grout ☐ Concrete
☐ Sand-Cement (Concrete) Grout ☑ Bentonite Chips

*For Monitoring Wells and Monitoring Well Boreholes Only:*
☐ Bentonite Chips ☐ Bentonite - Cement Grout
☐ Granular Bentonite ☐ Bentonite - Sand Slurry

## 5. Material Used to Fill Well / Drillhole

| | From (ft.) | To (ft.) | No. Yards, Sacks Sealant or Volume (circle one) | Mix Ratio or Mud Weight |
|---|---|---|---|---|
| 3/8" Bentonite Chips | Surface | 41 | 575 lbs | |
| | | | | |
| | | | | |

## 6. Comments

Boring B-11: Poured bentonite chips as casing was pulled

## 7. Supervision of Work

| Name of Person or Firm Doing Filling & Sealing | License # | Date of Filling & Sealing or Verification (mm/dd/yyyy) |
|---|---|---|
| Scott Klumb - SES Madison | | 3/02/2022 |

| Street or Route | Telephone Number |
|---|---|
| 1102 Stewart St. | (608 ) 274-7600 |

| City | State | ZIP Code | Signature of Person Doing Work | Date Signed |
|---|---|---|---|---|
| Madison | WI | 53713 | Lucas Spocketer | 4/14/2022 |

**DNR Use Only**

| Date Received | Noted By |
|---|---|
| | |

Comments:

TETRA TECH

**Attachment E**

WDNR Well Information Form

Cornerstone – A Tetra Tech Company
8413 Excelsior Drive, Suite 160, Madison, WI 53717
Tel 877.294.9070 Fax 877.845.1456 tetratech.com

State of Wisconsin
Department of Natural Resources
PO Box 7921, Madison WI 53707-7921
dnr.wi.gov

# GROUNDWATER MONITORING WELL AND POINT INFORMATION

Form 4400-089 (R 04/19)



Use the Groundwater Monitoring Well and Point Information Form to record identification, location and construction information for groundwater monitoring wells and any other sample "points," (e.g., gas probes, lysimeters, leachate collection systems, etc.), that are part of the environmental monitoring program. **NOTE:** Not all fields will be applicable to all point types. Only **one** coordinate reference system may be used per site. Allowable coordinate systems are listed below. (Coordinates for each system require a minimum number of digits as described below.) Local grid coordinates cannot be accepted. Identify the Coordinate Reference System, Datum and Method used.

| Facility Name | County | Facility ID No. (FID) | License, Permit or Monitoring No. | Date | Completed By (Name and Firm) |
|---|---|---|---|---|---|
| Dane County Landfill Site No. 3 | Dane | 113450480 | N/A | 03/24/2022 | Logan Dwyer - Tetra Tech |

| DNR Point ID No. | Point Name[1] | WUWN[2] (if app.) | Type | Status | Gradient | *Enf. Stds. Y/N.* | Construction Date | Elevations msl (ft) | | Well Casing | | | Well Screen Length (ft) | Well (Pt) Total Length[5] (ft) | Coordinates[6,7,8,9] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Ground Surface | Well Top (of casing) | Type | Diam[3] (in) | Length[4] (ft) | | | Y / Lat / Northing | X / Long / Easting |
| 101 | MW-1 | WA434 | 11 | A | N | No | 02/21/2022 | 875.5 | 878.17 | P | 2 | 9.67 | 15 | 24.67 | 379,849.08 | 2,168,437.80 |
| 102 | MW-2 | WA433 | 11 | A | N | No | 02/21/2022 | 892.3 | 895.14 | P | 2 | 5.84 | 10 | 15.84 | 378,835.51 | 2,169,372.39 |
| 103 | MW-3 | WA432 | 11 | A | N | No | 02/17/2022 | 896.0 | 898.64 | P | 2 | 20.64 | 10 | 30.64 | 378,217.55 | 2,166,910.70 |
| 104 | MW-4 | WA431 | 11 | A | N | No | 02/17/2022 | 911.7 | 914.34 | P | 2 | 20.64 | 10 | 30.64 | 377,202.31 | 2,168,283.45 |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

[1]Include previous name as well if one exists.

[2]Wisconsin Unique Well Number.

[3]Well Casing Diameter measures inside diameter.

[4]Length of well casing from top of casing to top of screen.

[5]Total length of well from top of casing to bottom of well. *Should equal sum of well casing length and screen length.*

[6]Identify Coordinate Reference System (only one system may be used per site):

- ◯ Lat/Long (Decimal Degrees) WGS84 (min. 8 digits total w/ 6 right of decimal, e.g., -89.123456)

State Plane (min. 2 digits right of decimal)

- ◯ North
- ◯ Central
- ⊗ South
- ◯ Wisc. Transverse Mercator WTM91 (min. 2 digits right of decimal)
- ◯ Local County Coord. Sys. (WISCRS) (min. digits vary by county)

[7]Identify Projection Datum and units*

- ◯ NAD83
- ◯ NAD27
- ◯ NAD83(91)
- ⊗ NAD83(11)
- ◯ Other Describe: _____

Units used for State Plane, WTM or County Coord. Sys:

- ◯ meters
- ◉ feet

*NOTE: A datum and units are not required for Lat/Long

[8]Identify the Method Used to Determine the Coordinates:

- ◯ GPS001-Survey grade
- ⊗ GPS003-Mapping grade/real-time differential correction
- ◯ GPS004-Mapping grade/post processing
- ◯ SRV001-Classical terrestrial surveying techniques
- ◯ OTH001 (Other), Describe:

[9]Y / Lat / Northing describe the vertical axis.

X / Long / Easting describe the horizontal axis.

(include "-" where needed, e.g., -89.123456)

Remarks:
Monitoring wells installed in February 2022 and surveyed on 2/25/2022 by Noah Boeke.

Completion of this form is mandatory under chs. 281, 289 and 292, Wis. Stats., and ss. NR 110.25, NR 507.14 and NR 716.15, Wis. Admin. Code

# INSTRUCTIONS FOR COMPLETING THE GROUNDWATER MONITORING WELL AND POINT INFORMATION FORM (#4400-089)

When completed, this form provides a record of information for each well or sampling point that is part of a facility's environmental monitoring program. It provides the facility or consultant with a means of presenting point information required by the Department in a consistent format. This form should be updated as new points are added to the monitoring program or new information becomes available (e.g., re-surveyed elevation for existing points).

Complete the form with the necessary information as described below:

**Facility Name:** Enter the name of the site or landfill.

**County:** Enter the county the site or landfill is located.

**Facility ID Number (FID):** Enter the 9-digit Facility ID (FID) assigned to the site.

**License/Permit/Monitoring Number:** Enter the number assigned by the Department to the facility. If unknown, leave blank.

**Date:** Enter the date on which the form is completed (mm/dd/yyyy).

**Completed By:** Enter the name and firm of person completing the form.

---

**DNR Point ID Number:** Enter the 3-digit number assigned to the point by the Department, for use by the Department.

**Point Name:** Enter the common name given to the point by the facility or consultant; e.g. MW-2, GP-5. If the point had a previous name, please include and identify as such.

**Wisconsin Unique Well Number (WUWN):** Enter the Wisconsin Unique Well Number assigned to groundwater monitoring and private wells. WUWNs are available from the Department and are to be assigned to all newly installed monitoring and private wells.

**Type:** Enter the Numerical code describing the type of well or sampling point. Point type codes range from 11 to 99. *See list of Point Types beginning on page 4.*

**Status:** Enter the status of the well using the following codes:

| | | |
|---|---|---|
| A | – | **A**ctively monitored point |
| I | – | **I**nactive point (existing point not currently being monitored) |
| P | – | **P**ermanently abandoned point |
| L | - | P**L**anned. |

# INSTRUCTIONS FOR COMPLETING THE GROUNDWATER MONITORING WELL AND POINT INFORMATION FORM (#4400-089)

**Gradient Position:** Enter the location of the well in the groundwater flow system relative to the disposal site, spill, etc. *Use one of the six letters designated below. If gradient position is not known or does not apply to the type of point, leave blank.*

| | | |
|---|---|---|
| U = Up gradient | D = Down gradient | Y = Side-to-down gradient |
| S = Side gradient | X = Side-to-up gradient | N = Not known |

**Enf. Stds. Apply:** Enter "Y" if enforcement standards apply at this well. Enforcement standards apply to any well beyond the **D**esign **M**anagement **Z**one (DMZ) or the property boundary of the facility or to a water supply well. For spills, enforcement standards apply at every point at which groundwater is monitored. (For more information, see s. NR 140.22, Wis. Adm. Code.) *If the application of enforcement standards is not relevant to the type of point entered, leave blank.*

**Construction Date:** Enter the installation date of the point.

**Elevations:**

**Ground Surface:** The elevation, in feet, of the ground surface adjacent to the well using mean sea level (MSL) based on national geodetic vertical survey (i.e., NAVD88).

**Well Top (of casing):** The elevation, of the top of the well casing (not top of protective pipe), in feet using MSL based on national geodetic vertical survey (i.e., NAVD88).

**Well Casing:**

**Type:** The type of pipe used: plastic (P), steel (S), or other (O).

**Diam:** The inside diameter of the pipe used in the well construction, in inches.

**Length:** The length of the well casing from the top of the casing to the top of the screen, measured in feet.

**Well Screen Length:** The length of the screen measured in feet.

**Well (Point) Total Length:** The total length of the well (or point) from the top of the casing to the bottom of the well, measured in feet. *Should equal sum of well casing length and screen length.*

---

**Point Coordinate Reference Systems:** Only one coordinate reference system may be used on the form. Allowable coordinate systems are Lat/Long (in decimal degrees [DD] only), State Plane and Wisconsin Transverse Mercator (WTM91). County coordinate systems (WISCRS) may also be used. Local grid coordinates are *not* accepted. The field named "Y / Lat / Northing" describe the vertical axis and the field "X / Long / Easting" describe the horizontal axis.

# INSTRUCTIONS FOR COMPLETING THE GROUNDWATER MONITORING WELL AND POINT INFORMATION FORM (#4400-089)

Identify the coordinate reference system used:

- Latitude/Longitude WGS84 (Decimal Degrees, minimum 8 digits total w/ 6 right of decimal)
- State Plane (min. 2 digits right of decimal):
  - North
  - Central
  - South
- Wisc. Transverse Mercator (WTM91, min. 2 digits right of decimal)
- Local County Coordinate System (aka Wisconsin Coordinate Reference System (WISCRS), minimum digits vary by county)

Identify the projection datum used (listed below) by checking the appropriate box on the bottom of the form. NOTE: A datum is not required for Lat/Long.

- NAD83
- NAD27
- NAD83(91)
- NAD83(11)
- Other

Identify the units used, meters or feet, for State Plane, WTM or Local County Coordinate System.

Identify the method used to determine the coordinates by checking the appropriate box on the bottom of the form. The options are:

- GPS001-Survey grade GPS
- GPS003-Mapping grade GPS with real-time differential correction
- GPS004-Mapping grade GPS with post processing differential correction
- SRV001-Classical terrestrial surveying techniques
- OTH001 (Other)

**Remarks:** Include any comments applicable to the submittal (e.g., Re-surveyed top of well casing elevation).

List of Point Types

11 (mw) Water table observation well (monitoring well screen intersecting the water table) (non-Subtitle D well)
12 (pz) Piezometer (monitoring well with screen sealed below the water table (non-Subtitle D well)
13 (pw) Private well - potable water supply
14 (ly) Lysimeter
15 (sp) Spring
16 (rp) Resistivity probe
17 (gc) Gradient control
18 (at) Aquifer test well
19 (pn) Private well-non potable
21 (fs) Flow or seep
22 (sw) Surface water
23 (lc) Leachate collection system
24 (lh) Leachate head well
25 (lg) Leachate and gas combo
26 (ew) Groundwater extraction well
27 (he) Horizontal groundwater extraction well

# INSTRUCTIONS FOR COMPLETING THE GROUNDWATER MONITORING WELL AND POINT INFORMATION FORM (#4400-089)

28 (hw) Horizontal monitoring well
29 (ha) Horizontal vapor extraction well
31 (us) Upstream
32 (ms) Mid-site
33 (ds) Downstream
34 (ro) Run-off
35 (im) Impounded
36 (sg) Staff gauge
41 (tr) Treated
42 (pr) Pretreated
45 (pp) Private well primary treatment
46 (ps) Private well secondary treatment
49 (sh) Settlement hub
51 (gp) Gas probe
52 (nl) Non-landfill structure
53 (ge) Gas extraction system
54 (gu) Gas utilization or destruction
55 (gc) Gas condensate
56 (sc) Site conditions collection
57 (sv) Soil venting well (includes both soil vapor extraction and bioventing, includes both extraction and unsaturated zone gas phase injection wells installed in soil or fill, but not refuse)
58 (gm) Gas sample monitoring point
59 (sc) Stone column gas extraction well
61 (ij) Injection well (injection of liquids not gases)
62 (as) In situ air sparging well (injection well to inject gases into the aquifer
63 (uv) Unterdruck Verdampfer Brunnen (UVB) wells (sparging wells where the gases remain in the well and are not injected into the aquifer)
64 (le) Groundwater and light non-aqueous phase liquid (LNAPL) extraction well
65 (de) Groundwater and dense non-aqueous phase liquid (DNAPL) extraction well
66 (ve) Vacuum enhanced groundwater extraction wells
67 (vi) Vacuum enhanced groundwater and LNAPL extraction well
68 (vd) Vacuum enhanced groundwater and DNAPL extraction well
71 (dw) Subtitle D water table observation well (see 11/mw)
72 (dp) Subtitle D piezometer (see 12/pz)
80 (mc) Municipal water supply well: cities, villages, and sanitary districts
81 (oc) Community-other-than-municipal (OTM) water supply well: mobile home parks, apartments, subdivisions, and condominium complexes
85 (nn) Noncommunity-Nontransient water supply well (schools, day care centers, and industries) A Noncommunity water system that regularly serves at least 25 of the same persons over 6 months per year
86 (tn) Noncommunity-Transient water supply well (motels, restaurants, parks, taverns, churches, and campgrounds) A Noncommunity water system that serves at least 25 people at least 60 days of the year
99 (ot) Other

TETRA TECH

**Attachment F**

Laboratory Analytical Results – Well Development and Drilling Water

Cornerstone – A Tetra Tech Company
8413 Excelsior Drive, Suite 160, Madison, WI 53717
Tel 877.294.9070 Fax 877.845.1456 tetratech.com

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

March 07, 2022

John Oswald
TETRATECH - Madison
8413 Excelsior Drive, Suite 16
Madison, WI 53717

RE: Project: DANE CO. LF
Pace Project No.: 40241127

Dear John Oswald:

Enclosed are the analytical results for sample(s) received by the laboratory on February 25, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Green Bay

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Dan Milewsky
dan.milewsky@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Luke Specketer, TETRATECH - Madison

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## CERTIFICATIONS

Project: DANE CO. LF
Pace Project No.: 40241127

**Pace Analytical Services Green Bay**
1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky UST Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334
New York Certification #: 12064
North Dakota Certification #: R-150
Virginia VELAP ID: 460263
South Carolina Certification #: 83006001
Texas Certification #: T104704529-14-1
Wisconsin Certification #: 405132750
Wisconsin DATCP Certification #: 105-444
USDA Soil Permit #: P330-16-00157
Federal Fish & Wildlife Permit #: LE51774A-0

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## SAMPLE SUMMARY

Project: DANE CO. LF
Pace Project No.: 40241127

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|---|---|---|---|---|
| **40241127001** | **MW-1 DEVELOPMENT** | Water | 02/24/22 09:35 | 02/25/22 10:45 |
| **40241127002** | **MW-2 DEVELOPMENT** | Water | 02/24/22 11:15 | 02/25/22 10:45 |
| **40241127003** | **MW-3 DEVELOPMENT** | Water | 02/23/22 10:45 | 02/25/22 10:45 |
| **40241127004** | **MW-4 DEVELOPMENT** | Water | 02/23/22 13:57 | 02/25/22 10:45 |

**Pace Analytical Services, LLC**
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(920)469-2436

## SAMPLE ANALYTE COUNT

Project: DANE CO. LF
Pace Project No.: 40241127

| Lab ID | Sample ID | Method | Analysts | Analytes Reported |
|---|---|---|---|---|
| **40241127001** | **MW-1 DEVELOPMENT** | SM 2540D | SRK | 1 |
| | | EPA 410.4 | TJJ | 1 |
| **40241127002** | **MW-2 DEVELOPMENT** | SM 2540D | SRK | 1 |
| | | EPA 410.4 | TJJ | 1 |
| **40241127003** | **MW-3 DEVELOPMENT** | SM 2540D | SRK | 1 |
| | | EPA 410.4 | TJJ | 1 |
| **40241127004** | **MW-4 DEVELOPMENT** | SM 2540D | SRK | 1 |
| | | EPA 410.4 | TJJ | 1 |

PASI-G = Pace Analytical Services - Green Bay

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## SUMMARY OF DETECTION

Project: DANE CO. LF
Pace Project No.: 40241127

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **40241127001** | **MW-1 DEVELOPMENT** | | | | | |
| SM 2540D | Total Suspended Solids | 3.6 | mg/L | 2.0 | 02/28/22 09:35 | |
| **40241127002** | **MW-2 DEVELOPMENT** | | | | | |
| SM 2540D | Total Suspended Solids | 304 | mg/L | 10.0 | 02/28/22 09:35 | |
| EPA 410.4 | Chemical Oxygen Demand | 17.1J | mg/L | 50.0 | 03/07/22 08:30 | |
| **40241127003** | **MW-3 DEVELOPMENT** | | | | | |
| SM 2540D | Total Suspended Solids | 76.2 | mg/L | 2.0 | 03/02/22 12:22 | |
| **40241127004** | **MW-4 DEVELOPMENT** | | | | | |
| SM 2540D | Total Suspended Solids | 620 | mg/L | 4.0 | 03/02/22 12:22 | |
| EPA 410.4 | Chemical Oxygen Demand | 19.3J | mg/L | 50.0 | 03/07/22 08:30 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## ANALYTICAL RESULTS

Project: DANE CO. LF
Pace Project No.: 40241127

**Sample: MW-1 DEVELOPMENT** **Lab ID: 40241127001** Collected: 02/24/22 09:35 Received: 02/25/22 10:45 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **2540D Total Suspended Solids** | Analytical Method: SM 2540D<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Total Suspended Solids | **3.6** | mg/L | 2.0 | 0.95 | 1 | | 02/28/22 09:35 | | |
| **410.4 COD** | Analytical Method: EPA 410.4 Preparation Method: EPA 410.4<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Chemical Oxygen Demand | **<15.5** | mg/L | 52.6 | 15.5 | 1 | 03/07/22 04:25 | 03/07/22 08:30 | | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## ANALYTICAL RESULTS

Project: DANE CO. LF
Pace Project No.: 40241127

**Sample: MW-2 DEVELOPMENT** **Lab ID: 40241127002** Collected: 02/24/22 11:15 Received: 02/25/22 10:45 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **2540D Total Suspended Solids** | Analytical Method: SM 2540D<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Total Suspended Solids | **304** | mg/L | 10.0 | 4.8 | 1 | | 02/28/22 09:35 | | |
| **410.4 COD** | Analytical Method: EPA 410.4 Preparation Method: EPA 410.4<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Chemical Oxygen Demand | **17.1J** | mg/L | 50.0 | 14.7 | 1 | 03/07/22 04:25 | 03/07/22 08:30 | | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## ANALYTICAL RESULTS

Project: DANE CO. LF
Pace Project No.: 40241127

**Sample: MW-3 DEVELOPMENT** **Lab ID: 40241127003** Collected: 02/23/22 10:45 Received: 02/25/22 10:45 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **2540D Total Suspended Solids** | Analytical Method: SM 2540D<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Total Suspended Solids | **76.2** | mg/L | 2.0 | 0.95 | 1 | | 03/02/22 12:22 | | |
| **410.4 COD** | Analytical Method: EPA 410.4 Preparation Method: EPA 410.4<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Chemical Oxygen Demand | **<14.7** | mg/L | 50.0 | 14.7 | 1 | 03/07/22 04:25 | 03/07/22 08:30 | | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## ANALYTICAL RESULTS

Project: DANE CO. LF
Pace Project No.: 40241127

**Sample: MW-4 DEVELOPMENT** **Lab ID: 40241127004** Collected: 02/23/22 13:57 Received: 02/25/22 10:45 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **2540D Total Suspended Solids** | Analytical Method: SM 2540D<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Total Suspended Solids | **620** | mg/L | 4.0 | 1.9 | 1 | | 03/02/22 12:22 | | |
| **410.4 COD** | Analytical Method: EPA 410.4 Preparation Method: EPA 410.4<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Chemical Oxygen Demand | **19.3J** | mg/L | 50.0 | 14.7 | 1 | 03/07/22 04:25 | 03/07/22 08:30 | | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: DANE CO. LF
Pace Project No.: 40241127

QC Batch: 409139
QC Batch Method: SM 2540D
Analysis Method: SM 2540D
Analysis Description: 2540D Total Suspended Solids
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40241127001, 40241127002

METHOD BLANK: 2358104 Matrix: Water
Associated Lab Samples: 40241127001, 40241127002

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Total Suspended Solids | mg/L | <0.48 | 1.0 | 02/28/22 09:34 | |

LABORATORY CONTROL SAMPLE: 2358105

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Total Suspended Solids | mg/L | 100 | 106 | 106 | 80-120 | |

SAMPLE DUPLICATE: 2358106

| Parameter | Units | 40241122001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Total Suspended Solids | mg/L | 771 | 743 | 4 | 10 | |

SAMPLE DUPLICATE: 2358107

| Parameter | Units | 40241127002 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Total Suspended Solids | mg/L | 304 | 320 | 5 | 10 | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: DANE CO. LF
Pace Project No.: 40241127

QC Batch: 409235
QC Batch Method: SM 2540D
Analysis Method: SM 2540D
Analysis Description: 2540D Total Suspended Solids
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40241127003, 40241127004

METHOD BLANK: 2358396 Matrix: Water
Associated Lab Samples: 40241127003, 40241127004

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Total Suspended Solids | mg/L | <0.48 | 1.0 | 03/02/22 12:21 | |

LABORATORY CONTROL SAMPLE: 2358397

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Total Suspended Solids | mg/L | 100 | 100 | 100 | 80-120 | |

SAMPLE DUPLICATE: 2358398

| Parameter | Units | 40241178002 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Total Suspended Solids | mg/L | 168 | 176 | 5 | 10 | |

SAMPLE DUPLICATE: 2358399

| Parameter | Units | 40241178003 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Total Suspended Solids | mg/L | 92.0 | 96.0 | 4 | 10 | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: DANE CO. LF
Pace Project No.: 40241127

QC Batch: 409624
QC Batch Method: EPA 410.4
Analysis Method: EPA 410.4
Analysis Description: 410.4 COD
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40241127001, 40241127002, 40241127003, 40241127004

METHOD BLANK: 2360713 Matrix: Water
Associated Lab Samples: 40241127001, 40241127002, 40241127003, 40241127004

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Chemical Oxygen Demand | mg/L | <14.7 | 50.0 | 03/07/22 08:28 | |

LABORATORY CONTROL SAMPLE: 2360714

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Chemical Oxygen Demand | mg/L | 500 | 520 | 104 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2360715 2360716

| Parameter | Units | 40241045001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chemical Oxygen Demand | mg/L | <15.5 | 526 | 526 | 550 | 557 | 102 | 104 | 90-110 | 1 | 10 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2360717 2360718

| Parameter | Units | 40241127001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chemical Oxygen Demand | mg/L | <15.5 | 526 | 526 | 545 | 550 | 104 | 104 | 90-110 | 1 | 10 | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

# QUALIFIERS

Project: DANE CO. LF
Pace Project No.: 40241127

**DEFINITIONS**

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: DANE CO. LF
Pace Project No.: 40241127

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **40241127001** | **MW-1 DEVELOPMENT** | SM 2540D | 409139 | | |
| **40241127002** | **MW-2 DEVELOPMENT** | SM 2540D | 409139 | | |
| **40241127003** | **MW-3 DEVELOPMENT** | SM 2540D | 409235 | | |
| **40241127004** | **MW-4 DEVELOPMENT** | SM 2540D | 409235 | | |
| **40241127001** | **MW-1 DEVELOPMENT** | EPA 410.4 | 409624 | EPA 410.4 | 409639 |
| **40241127002** | **MW-2 DEVELOPMENT** | EPA 410.4 | 409624 | EPA 410.4 | 409639 |
| **40241127003** | **MW-3 DEVELOPMENT** | EPA 410.4 | 409624 | EPA 410.4 | 409639 |
| **40241127004** | **MW-4 DEVELOPMENT** | EPA 410.4 | 409624 | EPA 410.4 | 409639 |

# CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here: 402 4/1/27

**ALL SHADED AREAS are for LAB USE ONLY**

| | |
|---|---|
| Company: TetraTech | Billing Information: John Oswald - TetraTech 8413 Excelsior Dr. Suite 160 Madison, WI 53717 |
| Address: 8413 Excelsior Dr. Suite 160 Madison, WI, 53717 | |
| Report To: John.Oswald@Tetratech.com | Email To: John.Oswald@Tetratech.com |
| Copy To: Luke.Speckeler@Tetratech.com | Site Collection Info/Address: |
| Customer Project Name/Number: Dane Co. LF | State: WI County/City: Dane Time Zone Collected: [ ] PT [ ] MT [ ] CT [ ] ET |
| Phone: (608) 515-4111 Email: John.Oswald@tetratech.com | Site/Facility ID #: Compliance Monitoring? [ ] Yes [ ] No |
| Collected By (print): Logan Dwyer | Purchase Order #: Quote #: DW PWS ID #: DW Location Code: |
| Collected By (signature): | Turnaround Date Required: Immediately Packed on Ice: [X] Yes [ ] No |
| Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive: _____ [ ] Hold: _____ | Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply) |
| | Field Filtered (if applicable): [ ] Yes [X] No Analysis: _____ |

Container Preservative Type **: U 2

Lab Project Manager:

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

| Customer Sample ID | Matrix * | Comp / Grab | Collected (or Composite Start) Date | Collected (or Composite Start) Time | Composite End Date | Composite End Time | Res Cl | # of Ctns | Analyses: 1 L UNpreserved TSS | Analyses: 250mL Plastic COD | Lab Profile/Line |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-1 Development | GW | grab | 2/24/22 | 9:35AM | | | | | 1 | 1 | 001 |
| MW-2 Development | GW | grab | 2/24/22 | 11:15AM | | | | | 1 | 1 | 002 |
| MW-3 Development | GW | grab | 2/23/22 | 10:45AM | | | | | 1 | 1 | 003 |
| MW-4 Development | GW | grab | 2/23/22 | 1:57pm | | | | | 1 | 1 | 004 |
| | | | | | | | | | | | |
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| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

Lab Sample Receipt Checklist:

| | |
|---|---|
| Custody Seals Present/Intact | Y N NA |
| Custody Signatures Present | Y N NA |
| Collector Signature Present | Y N NA |
| Bottles Intact | Y N NA |
| Correct Bottles | Y N NA |
| Sufficient Volume | Y N NA |
| Samples Received on Ice | Y N NA |
| VOA - Headspace Acceptable | Y N NA |
| USDA Regulated Soils | Y N NA |
| Samples in Holding Time | Y N NA |
| Residual Chlorine Present | Y N NA |
| Cl Strips: _____ | |
| Sample pH Acceptable | Y N NA |
| pH Strips: _____ | |
| Sulfide Present | Y N NA |
| Lead Acetate Strips: _____ | |

LAB USE ONLY:
Lab Sample # / Comments:

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: Wet Blue Dry None

Packing Material Used: (1)

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Tracking #: 2730567

Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: _____
Cooler 1 Temp Upon Receipt: _____oC
Cooler 1 Therm Corr. Factor: _____oC
Cooler 1 Corrected Temp: _____oC
Comments (1)

| Relinquished by/Company: (Signature) | Date/Time: | Received by/Company: (Signature) | Date/Time: |
|---|---|---|---|
| TetraTech | 2/24/22 12:05pm | Fedex | 12:15 2/24 |
| Fedex | 2/25/22 1045 | | 2/25/22 1045 |
| | | | |

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

# Sample Preservation Receipt Form

Pace Analytical Services, LLC
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

Client Name: TetraTech  Project # 40241127

All containers needing preservation have been checked and noted below: X Yes ☐No ☐N/A  Initial when completed: AL  Date/Time:

Lab Lot# of pH paper: 100104  Lab Std #ID of preservation (if pH adjusted):

| | Glass | | | | | | | | Plastic | | | | | Vials | | | | | | Jars | | | | General | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pace Lab # | AG1U | BG1U | AG1H | AG4S | AG4U | AG5U | AG2S | BG3U | BP1U | BP3U | BP3B | BP3N | BP3S | VG9A | DG9T | VG9U | VG9H | VG9M | VG9D | JGFU | JG9U | WGFU | WPFU | SP5T | ZPLC | GN | VOA Vials (>6mm) * | H2SO4 pH ≤2 | NaOH+Zn Act pH ≥9 | NaOH pH ≥12 | HNO3 pH ≤2 | pH after adjusted | Volume (mL) |
| 001 | | | | | | | | | \ | | | | / | | | | | | | | | | | | | | | X | | | | | 2.5 / 5 / 10 |
| 002 | | | | | | | | | \ | | | | / | | | | | | | | | | | | | | | X | | | | | 2.5 / 5 / 10 |
| 003 | | | | | | | | | \ | | | | / | | | | | | | | | | | | | | | X | | | | | 2.5 / 5 / 10 |
| 004 | | | | | | | | | \ | | | | / | | | | | | | | | | | | | | | X | | | | | 2.5 / 5 / 10 |
| 005 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 007 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 008 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 009 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 010 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 011 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 012 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 013 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 014 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 015 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 016 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 017 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 018 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 019 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 020 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |

2/25/22 AL

Exceptions to preservation check: VOA, Coliform, TOC, TOX, TOH, O&G, WI DRO, Phenolics, Other: _____ Headspace in VOA Vials (>6mm) : ☐Yes ☐No ☒N/A ***If yes look in headspace column**

| | |
|---|---|
| AG1U | 1 liter amber glass |
| BG1U | 1 liter clear glass |
| AG1H | 1 liter amber glass HCL |
| AG4S | 125 mL amber glass H2SO4 |
| AG4U | 120 mL amber glass unpres |
| AG5U | 100 mL amber glass unpres |
| AG2S | 500 mL amber glass H2SO4 |
| BG3U | 250 mL clear glass unpres |

| | |
|---|---|
| BP1U | 1 liter plastic unpres |
| BP3U | 250 mL plastic unpres |
| BP3B | 250 mL plastic NaOH |
| BP3N | 250 mL plastic HNO3 |
| BP3S | 250 mL plastic H2SO4 |

| | |
|---|---|
| VG9A | 40 mL clear ascorbic |
| DG9T | 40 mL amber Na Thio |
| VG9U | 40 mL clear vial unpres |
| VG9H | 40 mL clear vial HCL |
| VG9M | 40 mL clear vial MeOH |
| VG9D | 40 mL clear vial DI |

| | |
|---|---|
| JGFU | 4 oz amber jar unpres |
| JG9U | 9 oz amber jar unpres |
| WGFU | 4 oz clear jar unpres |
| WPFU | 4 oz plastic jar unpres |
| SP5T | 120 mL plastic Na Thiosulfate |
| ZPLC | ziploc bag |
| GN | |

| Pace Analytical® 1241 Bellevue Street, Green Bay, WI 54302 | Document Name: **Sample Condition Upon Receipt (SCUR)** | Document Revised: 26Mar2020 |
|---|---|---|
| | Document No.: **ENV-FRM-GBAY-0014-Rev.00** | Author: Pace Green Bay Quality Office |

# Sample Condition Upon Receipt Form (SCUR)

Project #:

WO#: 40241127

40241127

**Client Name:** TetraTech

**Courier:** ☐ CS Logistics ☒ Fed Ex ☐ Speedee ☐ UPS ☐ Waltco ☐ Client ☐ Pace Other:

**Tracking #:** 2701 9827 6840

**Custody Seal on Cooler/Box Present:** ☐ yes ☒ no Seals intact: ☐ yes ☐ no

**Custody Seal on Samples Present:** ☐ yes ☒ no Seals intact: ☐ yes ☐ no

**Packing Material:** ☐ Bubble Wrap ☐ Bubble Bags ☒ None ☐ Other

**Thermometer Used** SR-107 **Type of Ice:** (Wet) Blue Dry None ☒ Samples on ice, cooling process has begun

**Cooler Temperature** Uncorr: 4 /Corr: 3.8

**Temp Blank Present:** ☒ yes ☐ no **Biological Tissue is Frozen:** ☐ yes ☐ no

**Person examining contents:**
Date: 2/25/22 Initials: AZ

**Labeled By Initials:** NK

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

| | | |
|---|---|---|
| Chain of Custody Present: | ☒Yes ☐No ☐N/A | 1. |
| Chain of Custody Filled Out: | ☐Yes ☒No ☐N/A | 2. no PO# 2/25/22 AZ |
| Chain of Custody Relinquished: | ☒Yes ☐No ☐N/A | 3. |
| Sampler Name & Signature on COC: | ☐Yes ☒No ☐N/A | 4. |
| Samples Arrived within Hold Time: | ☒Yes ☐No | 5. |
| - VOA Samples frozen upon receipt | ☐Yes ☐No | Date/Time: |
| **Short Hold Time Analysis (<72hr):** | ☒Yes ☐No | 6. |
| **Rush Turn Around Time Requested:** | ☐Yes ☒No | 7. |
| Sufficient Volume: For Analysis: ☒Yes ☐No MS/MSD: ☐Yes ☒No ☐N/A | | 8. |
| Correct Containers Used: | ☒Yes ☐No | 9. |
| -Pace Containers Used: | ☒Yes ☐No ☐N/A | |
| -Pace IR Containers Used: | ☐Yes ☐No ☒N/A | |
| Containers Intact: | ☒Yes ☐No | 10. |
| Filtered volume received for Dissolved tests | ☐Yes ☐No ☒N/A | 11. |
| Sample Labels match COC: | ☒Yes ☐No ☐N/A | 12. |
| -Includes date/time/ID/Analysis Matrix: WW | | |
| Trip Blank Present: | ☐Yes ☐No ☒N/A | 13. |
| Trip Blank Custody Seals Present | ☐Yes ☐No ☒N/A | |
| Pace Trip Blank Lot # (if purchased): | | |

**Client Notification/ Resolution:** If checked, see attached form for additional comments ☐

Person Contacted: Date/Time:

Comments/ Resolution:

**PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample logi**

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

March 08, 2022

John Oswald
TETRATECH - Madison
8413 Excelsior Drive, Suite 16
Madison, WI 53717

RE: Project: DANE CO. LF
Pace Project No.: 40241136

Dear John Oswald:

Enclosed are the analytical results for sample(s) received by the laboratory on February 25, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Green Bay

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Dan Milewsky
dan.milewsky@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Luke Specketer, TETRATECH - Madison

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## CERTIFICATIONS

Project: DANE CO. LF
Pace Project No.: 40241136

**Pace Analytical Services Green Bay**
1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky UST Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334
New York Certification #: 12064
North Dakota Certification #: R-150
Virginia VELAP ID: 460263
South Carolina Certification #: 83006001
Texas Certification #: T104704529-14-1
Wisconsin Certification #: 405132750
Wisconsin DATCP Certification #: 105-444
USDA Soil Permit #: P330-16-00157
Federal Fish & Wildlife Permit #: LE51774A-0

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## SAMPLE SUMMARY

Project: DANE CO. LF
Pace Project No.: 40241136

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|---|---|---|---|---|
| **40241136001** | **DRILL WATER 1** | Water | 02/22/22 13:00 | 02/25/22 10:45 |
| **40241136002** | **TRIP BLANKS** | Water | 02/22/22 00:00 | 02/25/22 10:45 |

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## SAMPLE ANALYTE COUNT

Project: DANE CO. LF
Pace Project No.: 40241136

| Lab ID | Sample ID | Method | Analysts | Analytes Reported |
|---|---|---|---|---|
| **40241136001** | **DRILL WATER 1** | EPA 6010D | TXW | 1 |
| | | EPA 8260 | LAP | 45 |
| | | EPA 300.0 | HMB | 1 |
| | | EPA 310.2 | DAW | 1 |
| **40241136002** | **TRIP BLANKS** | EPA 8260 | LAP | 45 |

PASI-G = Pace Analytical Services - Green Bay

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## SUMMARY OF DETECTION

Project: DANE CO. LF
Pace Project No.: 40241136

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **40241136001** | **DRILL WATER 1** | | | | | |
| EPA 6010D | Total Hardness by 2340B | 324 | mg/L | 2.0 | 03/04/22 12:24 | |
| EPA 8260 | Bromodichloromethane | 1.2 | ug/L | 1.0 | 03/01/22 17:08 | |
| EPA 8260 | Tetrachloroethene | 0.74J | ug/L | 1.0 | 03/01/22 17:08 | |
| EPA 300.0 | Chloride | 16.6 | mg/L | 2.0 | 02/28/22 18:49 | |
| EPA 310.2 | Alkalinity, Total as CaCO3 | 288 | mg/L | 24.8 | 03/03/22 12:17 | |

## REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## ANALYTICAL RESULTS

Project: DANE CO. LF
Pace Project No.: 40241136

**Sample: DRILL WATER 1** **Lab ID: 40241136001** Collected: 02/22/22 13:00 Received: 02/25/22 10:45 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **6010D MET ICP** | Analytical Method: EPA 6010D Preparation Method: EPA 3010A<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Total Hardness by 2340B | **324** | mg/L | 2.0 | 0.15 | 1 | 03/03/22 06:03 | 03/04/22 12:24 | | |
| **8260 MSV** | Analytical Method: EPA 8260<br>Pace Analytical Services - Green Bay | | | | | | | | |
| 1,1,1-Trichloroethane | **<0.30** | ug/L | 1.0 | 0.30 | 1 | | 03/01/22 17:08 | 71-55-6 | |
| 1,1,2-Trichloroethane | **<0.34** | ug/L | 5.0 | 0.34 | 1 | | 03/01/22 17:08 | 79-00-5 | |
| 1,1-Dichloroethane | **<0.30** | ug/L | 1.0 | 0.30 | 1 | | 03/01/22 17:08 | 75-34-3 | |
| 1,1-Dichloroethene | **<0.58** | ug/L | 1.0 | 0.58 | 1 | | 03/01/22 17:08 | 75-35-4 | |
| 1,2-Dibromo-3-chloropropane | **<2.4** | ug/L | 5.0 | 2.4 | 1 | | 03/01/22 17:08 | 96-12-8 | |
| 1,2-Dibromoethane (EDB) | **<0.31** | ug/L | 1.0 | 0.31 | 1 | | 03/01/22 17:08 | 106-93-4 | |
| 1,2-Dichlorobenzene | **<0.33** | ug/L | 1.0 | 0.33 | 1 | | 03/01/22 17:08 | 95-50-1 | |
| 1,2-Dichloroethane | **<0.29** | ug/L | 1.0 | 0.29 | 1 | | 03/01/22 17:08 | 107-06-2 | |
| 1,2-Dichloropropane | **<0.45** | ug/L | 1.0 | 0.45 | 1 | | 03/01/22 17:08 | 78-87-5 | |
| 1,3-Dichlorobenzene | **<0.35** | ug/L | 1.0 | 0.35 | 1 | | 03/01/22 17:08 | 541-73-1 | |
| 1,4-Dichlorobenzene | **<0.89** | ug/L | 1.0 | 0.89 | 1 | | 03/01/22 17:08 | 106-46-7 | |
| 2-Butanone (MEK) | **<6.5** | ug/L | 25.0 | 6.5 | 1 | | 03/01/22 17:08 | 78-93-3 | |
| Acetone | **<8.6** | ug/L | 25.0 | 8.6 | 1 | | 03/01/22 17:08 | 67-64-1 | |
| Benzene | **<0.30** | ug/L | 1.0 | 0.30 | 1 | | 03/01/22 17:08 | 71-43-2 | |
| Bromodichloromethane | **1.2** | ug/L | 1.0 | 0.42 | 1 | | 03/01/22 17:08 | 75-27-4 | |
| Bromoform | **<3.8** | ug/L | 5.0 | 3.8 | 1 | | 03/01/22 17:08 | 75-25-2 | |
| Bromomethane | **<1.2** | ug/L | 5.0 | 1.2 | 1 | | 03/01/22 17:08 | 74-83-9 | |
| Carbon disulfide | **<1.1** | ug/L | 5.0 | 1.1 | 1 | | 03/01/22 17:08 | 75-15-0 | |
| Carbon tetrachloride | **<0.37** | ug/L | 1.0 | 0.37 | 1 | | 03/01/22 17:08 | 56-23-5 | |
| Chlorobenzene | **<0.86** | ug/L | 1.0 | 0.86 | 1 | | 03/01/22 17:08 | 108-90-7 | |
| Chloroethane | **<1.4** | ug/L | 5.0 | 1.4 | 1 | | 03/01/22 17:08 | 75-00-3 | |
| Chloroform | **<1.2** | ug/L | 5.0 | 1.2 | 1 | | 03/01/22 17:08 | 67-66-3 | |
| Chloromethane | **<1.6** | ug/L | 5.0 | 1.6 | 1 | | 03/01/22 17:08 | 74-87-3 | |
| Dibromochloromethane | **<2.6** | ug/L | 5.0 | 2.6 | 1 | | 03/01/22 17:08 | 124-48-1 | |
| Dibromomethane | **<0.99** | ug/L | 5.0 | 0.99 | 1 | | 03/01/22 17:08 | 74-95-3 | |
| Dichlorodifluoromethane | **<0.46** | ug/L | 5.0 | 0.46 | 1 | | 03/01/22 17:08 | 75-71-8 | |
| Ethylbenzene | **<0.33** | ug/L | 1.0 | 0.33 | 1 | | 03/01/22 17:08 | 100-41-4 | |
| Methyl-tert-butyl ether | **<1.1** | ug/L | 5.0 | 1.1 | 1 | | 03/01/22 17:08 | 1634-04-4 | |
| Methylene Chloride | **<0.32** | ug/L | 5.0 | 0.32 | 1 | | 03/01/22 17:08 | 75-09-2 | |
| Naphthalene | **<1.1** | ug/L | 5.0 | 1.1 | 1 | | 03/01/22 17:08 | 91-20-3 | |
| Styrene | **<0.36** | ug/L | 1.0 | 0.36 | 1 | | 03/01/22 17:08 | 100-42-5 | |
| Tetrachloroethene | **0.74J** | ug/L | 1.0 | 0.41 | 1 | | 03/01/22 17:08 | 127-18-4 | |
| Tetrahydrofuran | **<2.4** | ug/L | 25.0 | 2.4 | 1 | | 03/01/22 17:08 | 109-99-9 | |
| Toluene | **<0.29** | ug/L | 1.0 | 0.29 | 1 | | 03/01/22 17:08 | 108-88-3 | |
| Trichloroethene | **<0.32** | ug/L | 1.0 | 0.32 | 1 | | 03/01/22 17:08 | 79-01-6 | |
| Trichlorofluoromethane | **<0.42** | ug/L | 1.0 | 0.42 | 1 | | 03/01/22 17:08 | 75-69-4 | |
| Vinyl chloride | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 03/01/22 17:08 | 75-01-4 | |
| Xylene (Total) | **<1.0** | ug/L | 3.0 | 1.0 | 1 | | 03/01/22 17:08 | 1330-20-7 | |
| cis-1,2-Dichloroethene | **<0.47** | ug/L | 1.0 | 0.47 | 1 | | 03/01/22 17:08 | 156-59-2 | |
| cis-1,3-Dichloropropene | **<0.36** | ug/L | 1.0 | 0.36 | 1 | | 03/01/22 17:08 | 10061-01-5 | |
| trans-1,2-Dichloroethene | **<0.53** | ug/L | 1.0 | 0.53 | 1 | | 03/01/22 17:08 | 156-60-5 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## ANALYTICAL RESULTS

Project: DANE CO. LF
Pace Project No.: 40241136

**Sample: DRILL WATER 1** **Lab ID: 40241136001** Collected: 02/22/22 13:00 Received: 02/25/22 10:45 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8260 MSV** | Analytical Method: EPA 8260 | | | | | | | | |
| | Pace Analytical Services - Green Bay | | | | | | | | |
| trans-1,3-Dichloropropene | **<3.5** | ug/L | 5.0 | 3.5 | 1 | | 03/01/22 17:08 | 10061-02-6 | |
| ***Surrogates*** | | | | | | | | | |
| 4-Bromofluorobenzene (S) | 94 | % | 70-130 | | 1 | | 03/01/22 17:08 | 460-00-4 | |
| 1,2-Dichlorobenzene-d4 (S) | 107 | % | 70-130 | | 1 | | 03/01/22 17:08 | 2199-69-1 | |
| Toluene-d8 (S) | 100 | % | 70-130 | | 1 | | 03/01/22 17:08 | 2037-26-5 | |
| **300.0 IC Anions** | Analytical Method: EPA 300.0 | | | | | | | | |
| | Pace Analytical Services - Green Bay | | | | | | | | |
| Chloride | **16.6** | mg/L | 2.0 | 0.43 | 1 | | 02/28/22 18:49 | 16887-00-6 | |
| **310.2 Alkalinity** | Analytical Method: EPA 310.2 | | | | | | | | |
| | Pace Analytical Services - Green Bay | | | | | | | | |
| Alkalinity, Total as CaCO3 | **288** | mg/L | 24.8 | 7.4 | 1 | | 03/03/22 12:17 | | |

## REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## ANALYTICAL RESULTS

Project: DANE CO. LF
Pace Project No.: 40241136

**Sample: TRIP BLANKS** **Lab ID: 40241136002** Collected: 02/22/22 00:00 Received: 02/25/22 10:45 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8260 MSV** | Analytical Method: EPA 8260<br>Pace Analytical Services - Green Bay | | | | | | | | |
| 1,1,1-Trichloroethane | **<0.30** | ug/L | 1.0 | 0.30 | 1 | | 03/01/22 13:11 | 71-55-6 | |
| 1,1,2-Trichloroethane | **<0.34** | ug/L | 5.0 | 0.34 | 1 | | 03/01/22 13:11 | 79-00-5 | |
| 1,1-Dichloroethane | **<0.30** | ug/L | 1.0 | 0.30 | 1 | | 03/01/22 13:11 | 75-34-3 | |
| 1,1-Dichloroethene | **<0.58** | ug/L | 1.0 | 0.58 | 1 | | 03/01/22 13:11 | 75-35-4 | |
| 1,2-Dibromo-3-chloropropane | **<2.4** | ug/L | 5.0 | 2.4 | 1 | | 03/01/22 13:11 | 96-12-8 | |
| 1,2-Dibromoethane (EDB) | **<0.31** | ug/L | 1.0 | 0.31 | 1 | | 03/01/22 13:11 | 106-93-4 | |
| 1,2-Dichlorobenzene | **<0.33** | ug/L | 1.0 | 0.33 | 1 | | 03/01/22 13:11 | 95-50-1 | |
| 1,2-Dichloroethane | **<0.29** | ug/L | 1.0 | 0.29 | 1 | | 03/01/22 13:11 | 107-06-2 | |
| 1,2-Dichloropropane | **<0.45** | ug/L | 1.0 | 0.45 | 1 | | 03/01/22 13:11 | 78-87-5 | |
| 1,3-Dichlorobenzene | **<0.35** | ug/L | 1.0 | 0.35 | 1 | | 03/01/22 13:11 | 541-73-1 | |
| 1,4-Dichlorobenzene | **<0.89** | ug/L | 1.0 | 0.89 | 1 | | 03/01/22 13:11 | 106-46-7 | |
| 2-Butanone (MEK) | **<6.5** | ug/L | 25.0 | 6.5 | 1 | | 03/01/22 13:11 | 78-93-3 | |
| Acetone | **<8.6** | ug/L | 25.0 | 8.6 | 1 | | 03/01/22 13:11 | 67-64-1 | |
| Benzene | **<0.30** | ug/L | 1.0 | 0.30 | 1 | | 03/01/22 13:11 | 71-43-2 | |
| Bromodichloromethane | **<0.42** | ug/L | 1.0 | 0.42 | 1 | | 03/01/22 13:11 | 75-27-4 | |
| Bromoform | **<3.8** | ug/L | 5.0 | 3.8 | 1 | | 03/01/22 13:11 | 75-25-2 | |
| Bromomethane | **<1.2** | ug/L | 5.0 | 1.2 | 1 | | 03/01/22 13:11 | 74-83-9 | |
| Carbon disulfide | **<1.1** | ug/L | 5.0 | 1.1 | 1 | | 03/01/22 13:11 | 75-15-0 | |
| Carbon tetrachloride | **<0.37** | ug/L | 1.0 | 0.37 | 1 | | 03/01/22 13:11 | 56-23-5 | |
| Chlorobenzene | **<0.86** | ug/L | 1.0 | 0.86 | 1 | | 03/01/22 13:11 | 108-90-7 | |
| Chloroethane | **<1.4** | ug/L | 5.0 | 1.4 | 1 | | 03/01/22 13:11 | 75-00-3 | |
| Chloroform | **<1.2** | ug/L | 5.0 | 1.2 | 1 | | 03/01/22 13:11 | 67-66-3 | |
| Chloromethane | **<1.6** | ug/L | 5.0 | 1.6 | 1 | | 03/01/22 13:11 | 74-87-3 | |
| Dibromochloromethane | **<2.6** | ug/L | 5.0 | 2.6 | 1 | | 03/01/22 13:11 | 124-48-1 | |
| Dibromomethane | **<0.99** | ug/L | 5.0 | 0.99 | 1 | | 03/01/22 13:11 | 74-95-3 | |
| Dichlorodifluoromethane | **<0.46** | ug/L | 5.0 | 0.46 | 1 | | 03/01/22 13:11 | 75-71-8 | |
| Ethylbenzene | **<0.33** | ug/L | 1.0 | 0.33 | 1 | | 03/01/22 13:11 | 100-41-4 | |
| Methyl-tert-butyl ether | **<1.1** | ug/L | 5.0 | 1.1 | 1 | | 03/01/22 13:11 | 1634-04-4 | |
| Methylene Chloride | **<0.32** | ug/L | 5.0 | 0.32 | 1 | | 03/01/22 13:11 | 75-09-2 | |
| Naphthalene | **<1.1** | ug/L | 5.0 | 1.1 | 1 | | 03/01/22 13:11 | 91-20-3 | |
| Styrene | **<0.36** | ug/L | 1.0 | 0.36 | 1 | | 03/01/22 13:11 | 100-42-5 | |
| Tetrachloroethene | **<0.41** | ug/L | 1.0 | 0.41 | 1 | | 03/01/22 13:11 | 127-18-4 | |
| Tetrahydrofuran | **<2.4** | ug/L | 25.0 | 2.4 | 1 | | 03/01/22 13:11 | 109-99-9 | |
| Toluene | **<0.29** | ug/L | 1.0 | 0.29 | 1 | | 03/01/22 13:11 | 108-88-3 | |
| Trichloroethene | **<0.32** | ug/L | 1.0 | 0.32 | 1 | | 03/01/22 13:11 | 79-01-6 | |
| Trichlorofluoromethane | **<0.42** | ug/L | 1.0 | 0.42 | 1 | | 03/01/22 13:11 | 75-69-4 | |
| Vinyl chloride | **<0.17** | ug/L | 1.0 | 0.17 | 1 | | 03/01/22 13:11 | 75-01-4 | |
| Xylene (Total) | **<1.0** | ug/L | 3.0 | 1.0 | 1 | | 03/01/22 13:11 | 1330-20-7 | |
| cis-1,2-Dichloroethene | **<0.47** | ug/L | 1.0 | 0.47 | 1 | | 03/01/22 13:11 | 156-59-2 | |
| cis-1,3-Dichloropropene | **<0.36** | ug/L | 1.0 | 0.36 | 1 | | 03/01/22 13:11 | 10061-01-5 | |
| trans-1,2-Dichloroethene | **<0.53** | ug/L | 1.0 | 0.53 | 1 | | 03/01/22 13:11 | 156-60-5 | |
| trans-1,3-Dichloropropene | **<3.5** | ug/L | 5.0 | 3.5 | 1 | | 03/01/22 13:11 | 10061-02-6 | |
| ***Surrogates*** | | | | | | | | | |
| 4-Bromofluorobenzene (S) | 94 | % | 70-130 | | 1 | | 03/01/22 13:11 | 460-00-4 | |
| 1,2-Dichlorobenzene-d4 (S) | 105 | % | 70-130 | | 1 | | 03/01/22 13:11 | 2199-69-1 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## ANALYTICAL RESULTS

Project: DANE CO. LF
Pace Project No.: 40241136

**Sample: TRIP BLANKS** **Lab ID: 40241136002** Collected: 02/22/22 00:00 Received: 02/25/22 10:45 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8260 MSV** | Analytical Method: EPA 8260<br>Pace Analytical Services - Green Bay | | | | | | | | |
| ***Surrogates*** | | | | | | | | | |
| Toluene-d8 (S) | 101 | % | 70-130 | | 1 | | 03/01/22 13:11 | 2037-26-5 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: DANE CO. LF
Pace Project No.: 40241136

QC Batch: 409422
QC Batch Method: EPA 3010A
Analysis Method: EPA 6010D
Analysis Description: 6010D MET
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40241136001

METHOD BLANK: 2359347 Matrix: Water
Associated Lab Samples: 40241136001

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Total Hardness by 2340B | mg/L | <0.15 | 2.0 | 03/04/22 12:04 | |

LABORATORY CONTROL SAMPLE: 2359348

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Total Hardness by 2340B | mg/L | | 65.6 | | | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2359349 2359350

| Parameter | Units | 40241101003 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Hardness by 2340B | mg/L | 584000 ug/L | | | 605 | 593 | | | | 2 | 20 | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

## REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: DANE CO. LF
Pace Project No.: 40241136

QC Batch: 409109
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40241136001, 40241136002

METHOD BLANK: 2358021 Matrix: Water
Associated Lab Samples: 40241136001, 40241136002

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | ug/L | <0.30 | 1.0 | 03/01/22 09:23 | |
| 1,1,2-Trichloroethane | ug/L | <0.34 | 5.0 | 03/01/22 09:23 | |
| 1,1-Dichloroethane | ug/L | <0.30 | 1.0 | 03/01/22 09:23 | |
| 1,1-Dichloroethene | ug/L | <0.58 | 1.0 | 03/01/22 09:23 | |
| 1,2-Dibromo-3-chloropropane | ug/L | <2.4 | 5.0 | 03/01/22 09:23 | |
| 1,2-Dibromoethane (EDB) | ug/L | <0.31 | 1.0 | 03/01/22 09:23 | |
| 1,2-Dichlorobenzene | ug/L | <0.33 | 1.0 | 03/01/22 09:23 | |
| 1,2-Dichloroethane | ug/L | <0.29 | 1.0 | 03/01/22 09:23 | |
| 1,2-Dichloropropane | ug/L | <0.45 | 1.0 | 03/01/22 09:23 | |
| 1,3-Dichlorobenzene | ug/L | <0.35 | 1.0 | 03/01/22 09:23 | |
| 1,4-Dichlorobenzene | ug/L | <0.89 | 1.0 | 03/01/22 09:23 | |
| 2-Butanone (MEK) | ug/L | <6.5 | 25.0 | 03/01/22 09:23 | |
| Acetone | ug/L | <8.6 | 25.0 | 03/01/22 09:23 | |
| Benzene | ug/L | <0.30 | 1.0 | 03/01/22 09:23 | |
| Bromodichloromethane | ug/L | <0.42 | 1.0 | 03/01/22 09:23 | |
| Bromoform | ug/L | <3.8 | 5.0 | 03/01/22 09:23 | |
| Bromomethane | ug/L | <1.2 | 5.0 | 03/01/22 09:23 | |
| Carbon disulfide | ug/L | <1.1 | 5.0 | 03/01/22 09:23 | |
| Carbon tetrachloride | ug/L | <0.37 | 1.0 | 03/01/22 09:23 | |
| Chlorobenzene | ug/L | <0.86 | 1.0 | 03/01/22 09:23 | |
| Chloroethane | ug/L | <1.4 | 5.0 | 03/01/22 09:23 | |
| Chloroform | ug/L | <1.2 | 5.0 | 03/01/22 09:23 | |
| Chloromethane | ug/L | <1.6 | 5.0 | 03/01/22 09:23 | |
| cis-1,2-Dichloroethene | ug/L | <0.47 | 1.0 | 03/01/22 09:23 | |
| cis-1,3-Dichloropropene | ug/L | <0.36 | 1.0 | 03/01/22 09:23 | |
| Dibromochloromethane | ug/L | <2.6 | 5.0 | 03/01/22 09:23 | |
| Dibromomethane | ug/L | <0.99 | 5.0 | 03/01/22 09:23 | |
| Dichlorodifluoromethane | ug/L | <0.46 | 5.0 | 03/01/22 09:23 | |
| Ethylbenzene | ug/L | <0.33 | 1.0 | 03/01/22 09:23 | |
| Methyl-tert-butyl ether | ug/L | <1.1 | 5.0 | 03/01/22 09:23 | |
| Methylene Chloride | ug/L | <0.32 | 5.0 | 03/01/22 09:23 | |
| Naphthalene | ug/L | <1.1 | 5.0 | 03/01/22 09:23 | |
| Styrene | ug/L | <0.36 | 1.0 | 03/01/22 09:23 | |
| Tetrachloroethene | ug/L | <0.41 | 1.0 | 03/01/22 09:23 | |
| Tetrahydrofuran | ug/L | <2.4 | 25.0 | 03/01/22 09:23 | |
| Toluene | ug/L | <0.29 | 1.0 | 03/01/22 09:23 | |
| trans-1,2-Dichloroethene | ug/L | <0.53 | 1.0 | 03/01/22 09:23 | |
| trans-1,3-Dichloropropene | ug/L | <3.5 | 5.0 | 03/01/22 09:23 | |
| Trichloroethene | ug/L | <0.32 | 1.0 | 03/01/22 09:23 | |
| Trichlorofluoromethane | ug/L | <0.42 | 1.0 | 03/01/22 09:23 | |

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## REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: DANE CO. LF
Pace Project No.: 40241136

METHOD BLANK: 2358021 Matrix: Water
Associated Lab Samples: 40241136001, 40241136002

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Vinyl chloride | ug/L | <0.17 | 1.0 | 03/01/22 09:23 | |
| Xylene (Total) | ug/L | <1.0 | 3.0 | 03/01/22 09:23 | |
| 1,2-Dichlorobenzene-d4 (S) | % | 107 | 70-130 | 03/01/22 09:23 | |
| 4-Bromofluorobenzene (S) | % | 95 | 70-130 | 03/01/22 09:23 | |
| Toluene-d8 (S) | % | 102 | 70-130 | 03/01/22 09:23 | |

LABORATORY CONTROL SAMPLE: 2358022

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | ug/L | 50 | 50.2 | 100 | 70-130 | |
| 1,1,2-Trichloroethane | ug/L | 50 | 49.4 | 99 | 70-130 | |
| 1,1-Dichloroethane | ug/L | 50 | 56.7 | 113 | 68-132 | |
| 1,1-Dichloroethene | ug/L | 50 | 49.3 | 99 | 85-126 | |
| 1,2-Dibromo-3-chloropropane | ug/L | 50 | 44.5 | 89 | 51-126 | |
| 1,2-Dibromoethane (EDB) | ug/L | 50 | 47.9 | 96 | 70-130 | |
| 1,2-Dichlorobenzene | ug/L | 50 | 55.5 | 111 | 70-130 | |
| 1,2-Dichloroethane | ug/L | 50 | 50.1 | 100 | 70-130 | |
| 1,2-Dichloropropane | ug/L | 50 | 50.7 | 101 | 78-125 | |
| 1,3-Dichlorobenzene | ug/L | 50 | 54.8 | 110 | 70-130 | |
| 1,4-Dichlorobenzene | ug/L | 50 | 57.0 | 114 | 70-130 | |
| Benzene | ug/L | 50 | 52.8 | 106 | 70-132 | |
| Bromodichloromethane | ug/L | 50 | 52.7 | 105 | 70-130 | |
| Bromoform | ug/L | 50 | 56.8 | 114 | 65-130 | |
| Bromomethane | ug/L | 50 | 42.5 | 85 | 44-128 | |
| Carbon disulfide | ug/L | 50 | 45.1 | 90 | 60-140 | |
| Carbon tetrachloride | ug/L | 50 | 52.1 | 104 | 70-130 | |
| Chlorobenzene | ug/L | 50 | 55.0 | 110 | 70-130 | |
| Chloroethane | ug/L | 50 | 48.5 | 97 | 73-137 | |
| Chloroform | ug/L | 50 | 49.7 | 99 | 80-122 | |
| Chloromethane | ug/L | 50 | 37.5 | 75 | 27-148 | |
| cis-1,2-Dichloroethene | ug/L | 50 | 45.8 | 92 | 70-130 | |
| cis-1,3-Dichloropropene | ug/L | 50 | 49.1 | 98 | 70-130 | |
| Dibromochloromethane | ug/L | 50 | 49.7 | 99 | 70-130 | |
| Dichlorodifluoromethane | ug/L | 50 | 22.1 | 44 | 22-151 | |
| Ethylbenzene | ug/L | 50 | 59.0 | 118 | 80-123 | |
| Methyl-tert-butyl ether | ug/L | 50 | 46.6 | 93 | 66-130 | |
| Methylene Chloride | ug/L | 50 | 53.8 | 108 | 70-130 | |
| Styrene | ug/L | 50 | 62.9 | 126 | 70-130 | |
| Tetrachloroethene | ug/L | 50 | 53.4 | 107 | 70-130 | |
| Toluene | ug/L | 50 | 53.5 | 107 | 80-121 | |
| trans-1,2-Dichloroethene | ug/L | 50 | 48.3 | 97 | 70-130 | |
| trans-1,3-Dichloropropene | ug/L | 50 | 47.3 | 95 | 58-125 | |
| Trichloroethene | ug/L | 50 | 52.7 | 105 | 70-130 | |
| Trichlorofluoromethane | ug/L | 50 | 53.2 | 106 | 84-148 | |

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## REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: DANE CO. LF
Pace Project No.: 40241136

LABORATORY CONTROL SAMPLE: 2358022

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Vinyl chloride | ug/L | 50 | 47.8 | 96 | 63-142 | |
| Xylene (Total) | ug/L | 150 | 178 | 119 | 70-130 | |
| 1,2-Dichlorobenzene-d4 (S) | % | | | 99 | 70-130 | |
| 4-Bromofluorobenzene (S) | % | | | 106 | 70-130 | |
| Toluene-d8 (S) | % | | | 96 | 70-130 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2358612 2358613

| Parameter | Units | 40241097017 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | ug/L | <0.30 | 50 | 50 | 49.4 | 50.9 | 99 | 102 | 70-130 | 3 | 20 | |
| 1,1,2-Trichloroethane | ug/L | <0.34 | 50 | 50 | 48.3 | 51.1 | 97 | 102 | 70-130 | 6 | 20 | |
| 1,1-Dichloroethane | ug/L | <0.30 | 50 | 50 | 54.9 | 55.7 | 110 | 111 | 68-132 | 2 | 20 | |
| 1,1-Dichloroethene | ug/L | <0.58 | 50 | 50 | 49.8 | 49.0 | 100 | 98 | 76-132 | 1 | 20 | |
| 1,2-Dibromo-3-chloropropane | ug/L | <2.4 | 50 | 50 | 47.6 | 46.9 | 95 | 94 | 51-126 | 1 | 20 | |
| 1,2-Dibromoethane (EDB) | ug/L | <0.31 | 50 | 50 | 46.7 | 50.4 | 93 | 101 | 70-130 | 8 | 20 | |
| 1,2-Dichlorobenzene | ug/L | <0.33 | 50 | 50 | 54.7 | 53.1 | 109 | 106 | 70-130 | 3 | 20 | |
| 1,2-Dichloroethane | ug/L | <0.29 | 50 | 50 | 50.6 | 49.1 | 101 | 98 | 70-130 | 3 | 20 | |
| 1,2-Dichloropropane | ug/L | <0.45 | 50 | 50 | 53.8 | 52.1 | 108 | 104 | 77-125 | 3 | 20 | |
| 1,3-Dichlorobenzene | ug/L | <0.35 | 50 | 50 | 54.8 | 52.4 | 110 | 105 | 70-130 | 4 | 20 | |
| 1,4-Dichlorobenzene | ug/L | <0.89 | 50 | 50 | 56.5 | 53.1 | 113 | 106 | 70-130 | 6 | 20 | |
| Benzene | ug/L | <0.30 | 50 | 50 | 50.5 | 52.4 | 101 | 105 | 70-132 | 4 | 20 | |
| Bromodichloromethane | ug/L | <0.42 | 50 | 50 | 53.0 | 52.3 | 106 | 105 | 70-130 | 1 | 20 | |
| Bromoform | ug/L | <3.8 | 50 | 50 | 57.1 | 58.0 | 114 | 116 | 65-130 | 2 | 20 | |
| Bromomethane | ug/L | <1.2 | 50 | 50 | 46.0 | 47.1 | 92 | 94 | 44-128 | 2 | 21 | |
| Carbon disulfide | ug/L | <1.1 | 50 | 50 | 45.6 | 46.0 | 91 | 92 | 60-140 | 1 | 20 | |
| Carbon tetrachloride | ug/L | <0.37 | 50 | 50 | 51.4 | 53.2 | 103 | 106 | 70-132 | 3 | 20 | |
| Chlorobenzene | ug/L | <0.86 | 50 | 50 | 55.7 | 56.0 | 111 | 112 | 70-130 | 1 | 20 | |
| Chloroethane | ug/L | <1.4 | 50 | 50 | 50.4 | 51.6 | 101 | 103 | 70-137 | 2 | 20 | |
| Chloroform | ug/L | <1.2 | 50 | 50 | 49.2 | 51.4 | 98 | 103 | 80-122 | 4 | 20 | |
| Chloromethane | ug/L | <1.6 | 50 | 50 | 36.7 | 38.7 | 73 | 77 | 17-149 | 5 | 20 | |
| cis-1,2-Dichloroethene | ug/L | 1.9 | 50 | 50 | 48.1 | 47.9 | 92 | 92 | 70-130 | 0 | 20 | |
| cis-1,3-Dichloropropene | ug/L | <0.36 | 50 | 50 | 49.3 | 51.4 | 99 | 103 | 70-130 | 4 | 20 | |
| Dibromochloromethane | ug/L | <2.6 | 50 | 50 | 49.7 | 50.5 | 99 | 101 | 70-130 | 2 | 20 | |
| Dichlorodifluoromethane | ug/L | <0.46 | 50 | 50 | 21.9 | 21.8 | 44 | 44 | 22-158 | 1 | 20 | |
| Ethylbenzene | ug/L | <0.33 | 50 | 50 | 58.6 | 59.9 | 117 | 120 | 80-123 | 2 | 20 | |
| Methyl-tert-butyl ether | ug/L | <1.1 | 50 | 50 | 46.2 | 47.6 | 92 | 95 | 66-130 | 3 | 20 | |
| Methylene Chloride | ug/L | <0.32 | 50 | 50 | 51.0 | 53.7 | 102 | 107 | 70-130 | 5 | 20 | |
| Styrene | ug/L | <0.36 | 50 | 50 | 60.5 | 51.6 | 121 | 103 | 70-130 | 16 | 20 | |
| Tetrachloroethene | ug/L | <0.41 | 50 | 50 | 52.2 | 54.4 | 104 | 109 | 70-130 | 4 | 20 | |
| Toluene | ug/L | <0.29 | 50 | 50 | 53.9 | 53.2 | 108 | 106 | 80-121 | 1 | 20 | |
| trans-1,2-Dichloroethene | ug/L | <0.53 | 50 | 50 | 50.0 | 49.9 | 99 | 99 | 70-134 | 0 | 20 | |
| trans-1,3-Dichloropropene | ug/L | <3.5 | 50 | 50 | 47.0 | 47.5 | 94 | 95 | 58-130 | 1 | 20 | |
| Trichloroethene | ug/L | 0.38J | 50 | 50 | 52.5 | 51.6 | 104 | 102 | 70-130 | 2 | 20 | |

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## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
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(920)469-2436

## QUALITY CONTROL DATA

Project: DANE CO. LF
Pace Project No.: 40241136

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2358612 2358613

| Parameter | Units | 40241097017 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Trichlorofluoromethane | ug/L | <0.42 | 50 | 50 | 53.3 | 54.3 | 107 | 109 | 82-151 | 2 | 20 | |
| Vinyl chloride | ug/L | 0.60J | 50 | 50 | 49.4 | 49.5 | 98 | 98 | 61-143 | 0 | 20 | |
| Xylene (Total) | ug/L | <1.0 | 150 | 150 | 177 | 174 | 118 | 116 | 70-130 | 2 | 20 | |
| 1,2-Dichlorobenzene-d4 (S) | % | | | | | | 101 | 96 | 70-130 | | | |
| 4-Bromofluorobenzene (S) | % | | | | | | 104 | 101 | 70-130 | | | |
| Toluene-d8 (S) | % | | | | | | 100 | 100 | 70-130 | | | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: DANE CO. LF
Pace Project No.: 40241136

QC Batch: 409157
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40241136001

METHOD BLANK: 2358141 Matrix: Water
Associated Lab Samples: 40241136001

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Chloride | mg/L | <0.43 | 2.0 | 02/28/22 14:59 | |

LABORATORY CONTROL SAMPLE: 2358142

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Chloride | mg/L | 20 | 19.1 | 96 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2358143 2358144

| Parameter | Units | 40241082001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | mg/L | 721 | 400 | 400 | 1070 | 1090 | 88 | 92 | 90-110 | 1 | 15 | M0 |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: DANE CO. LF
Pace Project No.: 40241136

QC Batch: 409406
QC Batch Method: EPA 310.2
Analysis Method: EPA 310.2
Analysis Description: 310.2 Alkalinity
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40241136001

METHOD BLANK: 2359266 Matrix: Water
Associated Lab Samples: 40241136001

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | <7.4 | 24.8 | 03/03/22 11:49 | |

LABORATORY CONTROL SAMPLE: 2359267

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | 100 | 101 | 101 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2359268 2359269

| Parameter | Units | 40241097010 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | 121 | 200 | 200 | 337 | 333 | 108 | 106 | 90-110 | 1 | 20 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2359270 2359271

| Parameter | Units | 40241246001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | 426 | 200 | 200 | 622 | 626 | 98 | 100 | 90-110 | 1 | 20 | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

# QUALIFIERS

Project: DANE CO. LF
Pace Project No.: 40241136

## DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## ANALYTE QUALIFIERS

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: DANE CO. LF
Pace Project No.: 40241136

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **40241136001** | **DRILL WATER 1** | EPA 3010A | 409422 | EPA 6010D | 409507 |
| **40241136001** | **DRILL WATER 1** | EPA 8260 | 409109 | | |
| **40241136002** | **TRIP BLANKS** | EPA 8260 | 409109 | | |
| **40241136001** | **DRILL WATER 1** | EPA 300.0 | 409157 | | |
| **40241136001** | **DRILL WATER 1** | EPA 310.2 | 409406 | | |

# CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here: 10241136

**ALL SHADED AREAS are for LAB USE ONLY**

| | |
|---|---|
| Company: TetraTech | Billing Information: John Oswald - TetraTech 8413 Excelsior Dr. Suite 160 Madison, WI 53717 |
| Address: 8413 Excelsior Dr. Suite 160 Madison, WI, 53717 | |
| Report To: John.Oswald@Tetratech.com | Email To: John.Oswald@TetraTech.com |
| Copy To: Luke.Spackeler@tetratech.com | Site Collection Info/Address: |
| Customer Project Name/Number: Dane Co. LF | State: WI County/City: Dane Time Zone Collected: [ ] PT [ ] MT [X] CT [ ] ET |
| Phone: (608)515-4111 Email: Same as "Report to" | Site/Facility ID #: Compliance Monitoring? [ ] Yes [ ] No |
| Collected By (print): Logan Dwyer | Purchase Order #: Quote #: DW PWS ID #: DW Location Code: |
| Collected By (signature): L Dwyer | Turnaround Date Required: Immediately Packed on Ice: [X] Yes [ ] No |
| Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive: _____ [ ] Hold: _____ | Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply) |
| | Field Filtered (if applicable): [ ] Yes [X] No Analysis: _____ |

Container Preservative Type **: 3 | 1 | U

Lab Project Manager:

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

| Customer Sample ID | Matrix * | Comp / Grab | Collected (or Composite Start) Date | Collected (or Composite Start) Time | Composite End Date | Composite End Time | Res Cl | # of Ctns | Analyses: VOCs 40mL glass | Hardness 250mL Plastic | Cl/Alk 250mL Plastic | Lab Sample # / Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Drill Water 1 | DW | Grab | 2/22/22 | 1:00PM | | | | | 3 | 1 | 1 | 001 |
| Trip Blanks | | | | | | | | | 2 | | | 002 |

Lab Profile/Line:

Lab Sample Receipt Checklist:

| | | | |
|---|---|---|---|
| Custody Seals Present/Intact | Y | N | NA |
| Custody Signatures Present | Y | N | NA |
| Collector Signature Present | Y | N | NA |
| Bottles Intact | Y | N | NA |
| Correct Bottles | Y | N | NA |
| Sufficient Volume | Y | N | NA |
| Samples Received on Ice | Y | N | NA |
| VOA - Headspace Acceptable | Y | N | NA |
| USDA Regulated Soils | Y | N | NA |
| Samples in Holding Time | Y | N | NA |
| Residual Chlorine Present | Y | N | NA |
| Cl Strips: _____ | | | |
| Sample pH Acceptable | Y | N | NA |
| pH Strips: _____ | | | |
| Sulfide Present | Y | N | NA |
| Lead Acetate Strips: _____ | | | |

LAB USE ONLY
Lab Sample # / Comments:

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: Wet Blue Dry None

Packing Material Used: (1)

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Tracking #: 2730568

Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: _____
Cooler 1 Temp Upon Receipt: _____ oC
Cooler 1 Therm Corr. Factor: _____ oC
Cooler 1 Corrected Temp: _____ oC
Comments: (1)

| Relinquished by/Company: (Signature) | Date/Time: | Received by/Company: (Signature) | Date/Time: |
|---|---|---|---|
| L Dwyer Tetratech | 2/24/22 12:05PM | Fedex | 12:15p 2/24 |
| Fedex | 2/25/22 1045 | Anthony Vendel | 2/25/22 1045 |
| | | | |

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

# Pace Container Order #911243. C#0241156

## Addresses

| Order By : | | Ship To : | | Return To: | |
|---|---|---|---|---|---|
| Company | Tetratech_Cornerstone | Company | Cornerstone:lims40 | Company | Pace Analytical Green Bay |
| Contact | Specketer, Luke | Contact | Logan Dwyer | Contact | Milewsky, Dan |
| Email | luke.specketer@cornerstoneeg.com | Email | logan.dwyer@cornerstoneeg.com | Email | dan.milewsky@pacelabs.com |
| Address | 8413 Excelsior Drive | Address | 8413 Excelsior Drive | Address | 1241 Bellevue Street |
| Address 2 | | Address 2 | | Address 2 | Suite 9 |
| City | Madison | City | Madison | City | Green Bay |
| State | WI Zip 53717 | State | WI Zip 53717 | State | WI Zip 54302 |
| Phone | NONE | Phone | NONE | Phone | (920)469-2436 |

## Info

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Project Name** | Dane County Expansion | **Due Date** | 01/27/2022 | **Profile** | 6237 | **Quote** | |
| **Project Manager** | Milewsky, Dan | **Return Date** | | **Carrier** | Most Economical | **Location** | |

## Trip Blanks

- [X] Include Trip Blanks

## Bottle Labels

- [ ] Blank
- [X] Pre-Printed No Sample IDs
- [ ] Pre-Printed With Sample IDs

## Bottles

- [ ] Boxed Cases
- [ ] Individually Wrapped
- [ ] Grouped By Sample ID/Matrix

## Return Shipping Labels

- [ ] No Shipper
- [ ] With Shipper

## COC Options

- [X] Number of Blanks 2
- [ ] Pre-Printed

## Misc

- [ ] Sampling Instructions
- [ ] Custody Seal
- [X] Temp. Blanks
- [X] Coolers
- [ ] Syringes
- [ ] Extra Bubble Wrap
- [ ] Short Hold/Rush Stickers
- [ ] DI Water Liter(s)
- [ ] USDA Regulated Soils

| # of Samples | Matrix | Test | Container | Total | # of | Lot # | Notes |
|---|---|---|---|---|---|---|---|
| 2 | WT | Hardness | 250mL plastic w/HNO3 | 2 | 0 | M-1-288-06BB | |
| 2 | WT | Alkalinity, Chloride | 250mL plastic unpres | 2 | 0 | M-1-266-04BB | |
| 5 | WT | TSS | 1L plastic unpres | 5 | 0 | C-1-344-01BB | |
| 5 | WT | COD | 250mL plastic H2SO4 | 5 | 0 | M-1-266-04BB | |
| 2 | WT | VOC WI List | 3-40ml clear vial HCl-hydrochloric acid | 6 | 0 | B-1-314-01VB | |
| 1 | WT | Trip BLANK | 2-40mL HCL w/custody seal | 2 | 0 | B-1-205-01VB | |

## Hazard Shipping Placard In Place : NA

*Sample receiving hours are typically 8am-5pm, but may differ by location. Please check with your Pace Project Manager.

*Pace Analytical reserves the right to return hazardous, toxic, or radioactive samples to you.

*Pace Analytical reserves the right to charge for unused bottles, as well as cost associated with sample storage/disposal.

*Payment term are net 30 days.

*Please include the proposal number on the chain of custody to insure proper billing.

**LAB USE:**

| | |
|---|---|
| **Ship Date :** | 01/26/2022 |
| **Prepared By:** | Mai Yer Her |
| **Verified By:** | |

**Sample**

**CLIENT USE (Optional):**

| | |
|---|---|
| **Date Rec'd:** | |
| **Received By:** | |
| **Verified By:** | |



F-ALL-C-009-rev.00. 19Dec2016

# Sample Preservation Receipt Form

Client Name: TetraTech

Project # 610411

Pace Analytical Services, LLC
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

All containers needing preservation have been checked and noted below: ☒Yes ☐No ☐N/A

Lab Lot# of pH paper: 100104 Lab Std #ID of preservation (if pH adjusted):

Initial when completed: AL Date/Time:

| Pace Lab # | Glass | | | | | | | | Plastic | | | | | Vials | | | | | | Jars | | | | General | | | VOA Vials (>6mm) * | H2SO4 pH ≤2 | NaOH+Zn Act pH ≥9 | NaOH pH ≥12 | HNO3 pH ≤2 | pH after adjusted | Volume (mL) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | AG1U | BG1U | AG1H | AG4S | AG4U | AG5U | AG2S | BG3U | BP1U | BP3U | BP3B | BP3N | BP3S | VG9A | DG9T | VG9U | VG9H | VG9M | VG9D | JGFU | JG9U | WGFU | WPFU | SP5T | ZPLC | GN | | | | | | | |
| 001 | | | | | | | | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 002 | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | X | | 2.5 / 5 / 10 |
| 003 | | | | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 004 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 005 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 007 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 008 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 009 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 010 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 011 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 012 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 013 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 014 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 015 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 016 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 017 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 018 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 019 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |
| 020 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 / 10 |

2/25/22 AL

Exceptions to preservation check: VOA, Coliform, TOC, TOX, TOH, O&G, WI DRO, Phenolics, Other: _____ Headspace in VOA Vials (>6mm) : ☐Yes ☒No ☐N/A ***If yes look in headspace column***

| | |
|---|---|
| G1U | 1 liter amber glass |
| G1U | 1 liter clear glass |
| G1H | 1 liter amber glass HCL |
| G4S | 125 mL amber glass H2SO4 |
| G4U | 120 mL amber glass unpres |
| G5U | 100 mL amber glass unpres |
| G2S | 500 mL amber glass H2SO4 |
| G3U | 250 mL clear glass unpres |

| | |
|---|---|
| BP1U | 1 liter plastic unpres |
| BP3U | 250 mL plastic unpres |
| BP3B | 250 mL plastic NaOH |
| BP3N | 250 mL plastic HNO3 |
| BP3S | 250 mL plastic H2SO4 |

| | |
|---|---|
| VG9A | 40 mL clear ascorbic |
| DG9T | 40 mL amber Na Thio |
| VG9U | 40 mL clear vial unpres |
| VG9H | 40 mL clear vial HCL |
| VG9M | 40 mL clear vial MeOH |
| VG9D | 40 mL clear vial DI |

| | |
|---|---|
| JGFU | 4 oz amber jar unpres |
| JG9U | 9 oz amber jar unpres |
| WGFU | 4 oz clear jar unpres |
| WPFU | 4 oz plastic jar unpres |
| SP5T | 120 mL plastic Na Thiosulfate |
| ZPLC | ziploc bag |
| GN | |

| Pace Analytical® 1241 Bellevue Street, Green Bay, WI 54302 | Document Name: Sample Condition Upon Receipt (SCUR) | Document Revised: 26Mar2020 |
|---|---|---|
| | Document No.: ENV-FRM-GBAY-0014-Rev.00 | Author: Pace Green Bay Quality Office |

# Sample Condition Upon Receipt Form (SCUR)

**Client Name:** TetraTech

Project #:

WO#: 40241136


**Courier:** ☐ CS Logistics ☒ Fed Ex ☐ Speedee ☐ UPS ☐ Waltco ☐ Client ☐ Pace Other:

**Tracking #:** 2701 9827 6840

**Custody Seal on Cooler/Box Present:** ☐ yes ☒ no Seals intact: ☐ yes ☐ no

**Custody Seal on Samples Present:** ☐ yes ☒ no Seals intact: ☐ yes ☐ no

**Packing Material:** ☐ Bubble Wrap ☒ Bubble Bags ☒ None ☐ Other

**Thermometer Used** SR-107 **Type of Ice:** (Wet) Blue Dry None ☒ Samples on ice, cooling process has begun

**Cooler Temperature** Uncorr: 4 /Corr: 3.8

**Temp Blank Present:** ☒ yes ☐ no **Biological Tissue is Frozen:** ☐ yes ☐ no

Person examining contents: Date: 2/25/22 Initials: AJ

Labeled By Initials: NK

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

| | | |
|---|---|---|
| Chain of Custody Present: | ☒Yes ☐No ☐N/A | 1. |
| Chain of Custody Filled Out: | ☐Yes ☒No ☐N/A | 2. no pH# 2/25/22 AJ |
| Chain of Custody Relinquished: | ☒Yes ☐No ☐N/A | 3. |
| Sampler Name & Signature on COC: | ☒Yes ☐No ☐N/A | 4. |
| Samples Arrived within Hold Time: | ☒Yes ☐No | 5. |
| - VOA Samples frozen upon receipt | ☐Yes ☐No | Date/Time: |
| **Short Hold Time Analysis (<72hr):** | ☐Yes ☒No | 6. |
| **Rush Turn Around Time Requested:** | ☐Yes ☒No | 7. |
| Sufficient Volume: For Analysis: ☒Yes ☐No MS/MSD: ☐Yes ☒No ☐N/A | | 8. |
| Correct Containers Used: | ☒Yes ☐No | 9. |
| -Pace Containers Used: | ☒Yes ☐No ☐N/A | |
| -Pace IR Containers Used: | ☐Yes ☐No ☒N/A | |
| Containers Intact: | ☒Yes ☐No | 10. |
| Filtered volume received for Dissolved tests | ☐Yes ☐No ☒N/A | 11. |
| Sample Labels match COC: | ☒Yes ☐No ☐N/A | 12. |
| -Includes date/time/ID/Analysis Matrix: WW | | |
| Trip Blank Present: | ☒Yes ☐No ☐N/A | 13. |
| Trip Blank Custody Seals Present | ☒Yes ☐No ☐N/A | |
| Pace Trip Blank Lot # (if purchased): 477 | | |

**Client Notification/ Resolution:** If checked, see attached form for additional comments ☐

Person Contacted: Date/Time:

Comments/ Resolution:

**PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample logi**

Attachment F - Proposed Geotechnical Exploration Work for December 2022

**Table 1**
**Geotechnical Investigation Plan**
**NR 512 Minimum Required Soil Borings, Water Table Wells and Piezometers**
**Proposed Dane County Landfill Site No. 3**
**Dane County, Wisconsin**

| | NR 512 Requirements for a 83.1-acre Site (See Note 3) |
|---|---|
| Soil borings | 42 |
| Water table wells | 21 |
| Piezometers | 10 |

| | Number of Existing Locations (See Note 5) | Minimum Number of Proposed Locations | Total Number for Proposed GIP (Existing + Proposed) |
|---|---|---|---|
| Soil borings | 8 | 34 | 42 |
| Water table wells | 2 | 19 | 21 |
| Piezometers | 0 | 10 | 10 |

Prepared by: LS
Checked by: TD

GIP - Geotechnical Investigation Plan

Notes:

1. Assumes a coarse-grained soil environment site as defined in NR 500.
2. The total proposed limits of waste footprint for the Dane County Landfill Site No. 3 is approximately 83.1 acres.
3. The minimum number of borings, wells and piezometers for a GIP are based on 5 and 10-acre increments. Therefore, the proposed GIP is based on a 85-acre footprint. See Table 1 of NR 512.09.
4. Five well nests (water table well co-located with a piezometer) are required to be installed inside the proposed footprint per NR 512.09(2)(b).
5. The number of existing locations includes soil borings and water table wells installed in January and February 2022 that are within 300 feet of the proposed limits of waste footprint.
6. Soil boring information will be collected from water table wells and/or well nest installations. Therefore, the total minimum number of soil borings will include the total minimum number of water table wells. Ergo, the total minimum number of soil borings that are just soil boring locations will be the difference between the total soil borings and total water table wells (42-21=21).

**Table 2**
**Geotechnical Investigation Plan**
**Proposed Borings and Monitoring Wells**
**Proposed Dane County Landfill Site No. 3**
**Dane County, Wisconsin**

| Proposed Boring & Well ID | Northing (Y) | Easting (X) | Approx. Ground Surface Elevation (ft-MSL) | Approx. Nearest Subbase Elevation (ft-MSL) | Estimated Groundwater Elevation (ft-MSL) | Estimated Well Bottom Elevation (ft-MSL) | Estimated Competent Bedrock Elevation (ft-MSL) | Estimated Boring Bottom Elevation (ft-MSL) | Sample Interval (feet) | Total Boring Depth (feet bgs) | Well Depth (feet bgs) | Well Screen Length (feet) | Riser Length (feet) | Well Type | Well Casing Material | Sampled (feet) | Drilled Only (feet) | Drilling in Bedrock (feet) | Well Borehole Backfill (feet) | Abandoned (feet) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Wells | | | | | | | | | | | | | | | | | | | | |
| MW-5 | 380069.3915 | 2167910.2110 | 870 | 860 | 860 | 850 | 790 | 849 | 5 feet | 21 | 20 | 15 | 8 | WT | Sch. 40 PVC | - | 21 | - | - | - |
| MW-5A | 380069.3915 | 2167910.2110 | 870 | 860 | 860 | 821 | 790 | 820 | 5 feet | 50 | 49 | 5 | 47 | P | Sch. 40 PVC | 50 | - | - | - | - |
| MW-6 | 380118.0550 | 2168477.0090 | 875 | 866 | 866 | 856 | 805 | 836 | 5 feet | 39 | 19 | 15 | 7 | WT | Sch. 40 PVC | 39 | - | - | 19 | - |
| MW-7 | 379942.4629 | 2169107.8710 | 878 | 868 | 868 | 858 | 833 | 857 | 5 feet | 21 | 20 | 15 | 8 | WT | Sch. 40 PVC | - | 21 | - | - | - |
| MW-7A | 379942.4629 | 2169107.8710 | 878 | 868 | 868 | 829 | 833 | 828 | 5 feet | 50 | 49 | 5 | 47 | P | Sch. 40 PVC | 50 | - | 5 | - | - |
| MW-8 | 379488.4343 | 2167831.4430 | 876 | 860 | 860 | 850 | 820 | 830 | 5 feet | 46 | 26 | 15 | 14 | WT | Sch. 40 PVC | 46 | - | - | 19 | - |
| MW-9 | 379220.3384 | 2168353.9570 | 897 | 876 | 876 | 866 | 860 | 865 | 5 feet | 32 | 31 | 15 | 19 | WT | Sch. 40 PVC | - | 32 | - | - | - |
| MW-9A | 379220.3384 | 2168353.9570 | 897 | 876 | 876 | 837 | 860 | 836 | 5 feet | 61 | 60 | 5 | 58 | P | Sch. 40 PVC | 61 | - | 24 | - | - |
| MW-10 | 379280.6836 | 2169095.7300 | 896 | 880 | 880 | 870 | 867 | 869 | 5 feet | 27 | 26 | 15 | 14 | WT | Sch. 40 PVC | - | 27 | - | - | - |
| MW-10A | 379280.6836 | 2169095.7300 | 896 | 880 | 880 | 841 | 867 | 840 | 5 feet | 56 | 55 | 5 | 53 | P | Sch. 40 PVC | 56 | - | 27 | - | - |
| MW-11 | 379406.1846 | 2169693.5580 | 883 | 880 | 880 | 870 | 868 | 868 | 5 feet | 15 | 13 | 10 | 6 | WT | Sch. 40 PVC | 15 | - | - | - | - |
| MW-12 | 378768.9249 | 2168697.5810 | 899 | 887 | 887 | 877 | 870 | 870 | 5 feet | 29 | 22 | 15 | 10 | WT | Sch. 40 PVC | 29 | - | - | 6 | - |
| MW-13 | 378417.0950 | 2167810.1880 | 915 | 884 | 884 | 874 | 859 | 859 | 5 feet | 56 | 41 | 15 | 29 | WT | Sch. 40 PVC | 56 | - | - | 14 | - |
| MW-14 | 378424.0974 | 2168515.2030 | 897 | 890 | 890 | 883 | 871 | 882 | 5 feet | 15 | 14 | 10 | 7 | WT | Sch. 40 PVC | - | 15 | - | - | - |
| MW-14A | 378424.0974 | 2168515.2030 | 897 | 890 | 890 | 854 | 871 | 853 | 5 feet | 44 | 43 | 5 | 41 | P | Sch. 40 PVC | 44 | - | 18 | - | - |
| MW-15 | 378491.5433 | 2169061.1260 | 896 | 890 | 890 | 883 | 870 | 870 | 5 feet | 26 | 13 | 10 | 6 | WT | Sch. 40 PVC | 26 | - | - | 12 | - |
| MW-16 | 378453.9844 | 2169761.6260 | 900 | 887 | 887 | 877 | 845 | 876 | 5 feet | 24 | 23 | 15 | 11 | WT | Sch. 40 PVC | - | 24 | - | - | - |
| MW-16A | 378453.9844 | 2169761.6260 | 900 | 887 | 887 | 848 | 845 | 847 | 5 feet | 53 | 52 | 5 | 50 | P | Sch. 40 PVC | 53 | - | - | - | - |
| MW-17 | 377889.7916 | 2168418.9250 | 900 | 894 | 894 | 887 | 874 | 886 | 5 feet | 14 | 13 | 10 | 6 | WT | Sch. 40 PVC | - | 14 | - | - | - |
| MW-17A | 377889.7916 | 2168418.9250 | 900 | 894 | 894 | 858 | 874 | 857 | 5 feet | 43 | 42 | 5 | 40 | P | Sch. 40 PVC | 43 | - | 17 | - | - |
| MW-18 | 377992.9971 | 2169161.6970 | 901 | 888 | 888 | 878 | 875 | 877 | 5 feet | 24 | 23 | 15 | 11 | WT | Sch. 40 PVC | - | 24 | - | - | - |
| MW-18A | 377992.9971 | 2169161.6970 | 901 | 888 | 888 | 849 | 875 | 848 | 5 feet | 53 | 52 | 5 | 50 | P | Sch. 40 PVC | 53 | - | 27 | - | - |
| MW-19 | 378018.7402 | 2169756.8420 | 919 | 880 | 880 | 870 | 858 | 858 | 5 feet | 61 | 49 | 15 | 37 | WT | Sch. 40 PVC | 61 | - | - | 11 | - |
| MW-20 | 377602.2773 | 2167853.7980 | 908 | 896 | 896 | 886 | 875 | 885 | 5 feet | 23 | 22 | 15 | 10 | WT | Sch. 40 PVC | - | 23 | - | - | - |
| MW-20A | 377602.2773 | 2167853.7980 | 908 | 896 | 896 | 857 | 875 | 856 | 5 feet | 52 | 51 | 5 | 49 | P | Sch. 40 PVC | 52 | - | 19 | - | - |
| MW-21 | 377558.8789 | 2168444.9590 | 907 | 897 | 897 | 887 | 875 | 875 | 5 feet | 32 | 20 | 15 | 8 | WT | Sch. 40 PVC | 32 | - | - | 11 | - |
| MW-22 | 377558.8484 | 2169034.7980 | 910 | 885 | 885 | 875 | 869 | 869 | 5 feet | 41 | 35 | 15 | 23 | WT | Sch. 40 PVC | 41 | - | - | 5 | - |
| MW-23 | 377592.2810 | 2169726.2120 | 930 | 865 | 865 | 855 | 858 | 854 | 5 feet | 76 | 75 | 15 | 63 | WT | Sch. 40 PVC | - | 76 | 4 | - | - |
| MW-23A | 377592.2810 | 2169726.2120 | 930 | 865 | 865 | 826 | 858 | 825 | 5 feet | 105 | 104 | 5 | 102 | P | Sch. 80 PVC | 105 | - | 33 | - | - |
| Borings | | | | | | | | | | | | | | | | | | | | |
| B-12 | 379823.2847 | 2168049.1660 | 871 | 863 | 863 | - | 805 | 833 | 5 feet | 38 | - | - | - | - | - | 38 | - | - | - | 38 |
| B-13 | 379565.3424 | 2168293.4310 | 885 | 868 | 868 | - | 826 | 838 | 5 feet | 47 | - | - | - | - | - | 47 | - | - | - | 47 |
| B-14 | 379569.5177 | 2168653.0990 | 889 | 872 | 872 | - | 843 | 843 | 5 feet | 46 | - | - | - | - | - | 46 | - | - | - | 46 |
| B-15 | 379635.5037 | 2168983.4610 | 886 | 873 | 873 | - | 852 | 852 | 5 feet | 34 | - | - | - | - | - | 34 | - | - | - | 34 |
| B-16 | 379277.4045 | 2168017.1940 | 883 | 867 | 867 | - | 842 | 842 | 5 feet | 41 | - | - | - | - | - | 41 | - | - | - | 41 |
| B-17 | 379195.1645 | 2168799.6050 | 903 | 880 | 880 | - | 868 | 868 | 5 feet | 35 | - | - | - | - | - | 35 | - | - | - | 35 |
| B-18 | 379290.3102 | 2169530.1530 | 887 | 881 | 881 | - | 869 | 869 | 5 feet | 18 | - | - | - | - | - | 18 | - | - | - | 18 |
| B-19 | 378840.0380 | 2168088.0020 | 902 | 878 | 878 | - | 858 | 858 | 5 feet | 44 | - | - | - | - | - | 44 | - | - | - | 44 |
| B-20 | 378850.1506 | 2169022.5090 | 899 | 887 | 887 | - | 870 | 870 | 5 feet | 29 | - | - | - | - | - | 29 | - | - | - | 29 |
| B-21 | 378832.1578 | 2169690.0550 | 893 | 887 | 887 | - | 859 | 859 | 5 feet | 34 | - | - | - | - | - | 34 | - | - | - | 34 |
| B-22 | 378424.7986 | 2168164.2950 | 900 | 886 | 886 | - | 862 | 862 | 5 feet | 38 | - | - | - | - | - | 38 | - | - | - | 38 |
| B-23 | 378445.6054 | 2169403.2180 | 900 | 890 | 890 | - | 859 | 860 | 5 feet | 40 | - | - | - | - | - | 40 | - | - | - | 40 |
| B-24 | 377942.4831 | 2167813.6590 | 908 | 891 | 891 | - | 871 | 871 | 5 feet | 37 | - | - | - | - | - | 37 | - | - | - | 37 |
| B-25 | 377935.8028 | 2168773.1050 | 903 | 890 | 890 | - | 874 | 874 | 5 feet | 29 | - | - | - | - | - | 29 | - | - | - | 29 |
| B-26 | 377559.9951 | 2168755.6370 | 907 | 890 | 890 | - | 873 | 873 | 5 feet | 34 | - | - | - | - | - | 34 | - | - | - | 34 |
| Total | | | | | | | | | | 1733 | 1062 | 315 | 834 | | | 1456 | 277 | 174 | 97 | 544 |

# Table 2
# Geotechnical Investigation Plan
# Proposed Borings and Monitoring Wells
# Proposed Dane County Landfill Site No. 3
# Dane County, Wisconsin

Prepared by: LS/TD
Checked by: JO

Notes:

1 WT = water table well
2 P = piezometer
3 bgs = below ground surface
4 ft-MSL = feet above mean sea level
5 The approximate nearest subbase elevation is equal to the estimated groundwater elevation. A gravity-drained gradient control system is proposed underlying the bottom of the clay component of the composite liner. Thus, the lowest subbase elevation possible will be the seasonal high groundwater table.
6 Estimated groundwater elevations are projections based on the water table elevations collected on 4/29/2022 from existing monitoring wells (MW-1 through MW-4) installed in January and February 2022.
7 Estimated well bottom elevations may vary depending on hydrogeologic conditions at the site at the time of drilling. Actual drilling depths will be determined by Tetra Tech's Authorized Representative.
8 Estimated competent bedrock elevations are projections based on the existing soil borings (B-1 through B-11) and existing monitoring wells (MW-1 through MW-4) installed in January and February 2022.
9 Estimated boring bottom elevations are based on the requirement that borings shall extend a minimum 25 feet below nearest subbase elevations or to competent bedrock, whichever comes first. A minimum of 30 feet below the subbase elevation was used to be conservative for subbase design flexibility. When estimated competent bedrock elevations are anticipated above the 30 feet below subbase elevations, the estimated boring bottom elevation for each boring equals the estimated competent bedrock elevation. The competent bedrock elevation is an estimate and drilling should continue until competent bedrock is encountered but not to exceed 30 feet below the nearest subbase elevation. However, wells and piezometers may extend into the competent bedrock as hydrogeologic conditions (observed water table) dictate.
10 For landfills with extended leachate collection lines (greater than 1,200 ft but less than 2,000 ft), NR 512.09(6)(b) requires one boring located within each proposed cell be extended 50 feet below the lowest subbase or to competent bedrock, whichever is shallower. The 83.1-acre limits of waste boundary is anticipated to include 8 distinct liner cells (conceptual). Competent bedrock is anticipated to be encountered within each liner cell prior to reaching 50-ft below the lowest subbase elevation; however, this is to be determined during drilling. Existing boring B-1 accounts for the northernmost cell. Borings and wells B-19, B-20, B-25, MW-10P, MW-14P, MW-17P and MW-18P have been identified as locations within the remaining proposed liner cells. Competent bedrock elevations at these locations are anticipated to be encountered first and therefore, the boring depth has be set based on the anticipated competent bedrock elevation.
11 Water table wells that are co-located with piezometers (well nest) will be blind drilled.
12 Hollow Stemmed Augers (HSA), sonic, and/or air rotary (AR) drilling method may be utilized. HQ rock cores to be obtained from drilling locations that extend into the competent bedrock surface to total depth and the core holes will be reamed to 6 inches for well installations. Competent bedrock surface depths are approximate and may vary. Rock cores in competent bedrock will be collected unless there is less than 5-ft of competent bedrock.
13 Drilling in Bedrock (feet) includes HQ rock coring and borehole reaming within bedrock.
14 Drilling water and water used for decontamination of equipment can be obtained at the site or from an off-site hydrant. Drilling water and decontamination water can be discharged to the ground surface at well locations.
15 Augers, rods, and other drilling equipment shall be decontaminated on-site between each drilling location using a steam cleaner and Alconox soap.
16 The boring and well locations are on site. All soil and rock cuttings will be containerized in drums and compiled for collection by Dane County at each boring location. Driller to supply drums.
17 A minimum of 3 feet is required between the existing ground surface and top of screen for water table well construction. Water table wells MW-11, MW-14, MW-15 and MW-17 were adjusted from 15 foot to 10 foot screen lengths to accommodate at least 3 feet of space between ground surface and top of screen.
18 Riser length = total well depth - screen length + 3-ft stick up above the ground surface.
19 Total Boring Depth for wells and piezometers includes drilling in competent bedrock.
20 Well installation materials shall include all sand (coarse, fine), bentonite (chipped, granular, powder), PVC screen and riser casing, PVC caps/plugs,keyed alike locks and any other appropriate materials. Borehole annulus will be backfilled with a bentonite slurry where applicable by regulation.
21 Borehole backfill may be required for wells when the minimum required boring depth (e.g., 25 ft or 50 ft below subbase or until competent bedrock is encountered) extends beyond the estimated well bottom. In these cases, borehole backfilling will be performed in accordance with Wis. Stats., NR 141. The well borehole backfill (feet) estimated for each well does not include the 1 ft of filter pack sand to be installed below the bottom of the well.
22 Drilling, boring abandonment and well installation work will be performed in accordance with Wis. Stats., NR 141 and NR 500.
23 A stick-up protective casing will be installed at the monitoring wells. No bollards or bumper posts will be installed on the site.
24 The drilling locations are on the City of Madison Parks Department Yahara Golf Course property, located on and south of USH 12/18, east of I-39/90 and west of CTH AB, Madison, Wisconsin. Assume access to all the boring locations are on soft ground. An ATV drill rig is required to access all of the boring and well locations to avoid rutting the golf course. Matting may be needed to access some drilling locations. Driller will contact Digger's Hotline for utility clearance. Dane County and City of Madison to clear on-site water lines and electrical services for the golf course irrigation system ahead of drilling activities.

E 2165000 E 2165500 E 2166000 E 2166500 E 2167000 E 2167500 E 2168000 E 2168500 E 2169000 E 2169500 E 2170000 E 2170500

N 380,500 N 380,000 N 379,500 N 379,000 N 378,500 N 378,000 N 377,500 N 377,000 N 376,500

EXISTING YAHARA HILLS GOLF COURSE CLUB HOUSE

Pond #2 Pond #6 Pond #4 Pond #1 Pond #3

Pump House #1 Pump House #2 Pump Station

Lower Shelter Upper Shelter

Barn

USH 12-18 CTH - AB

I-90 / I-39

SEC 25 T7N R10E

SEC 30 T7N R11E

SEC 31 T7N R11E

SEC 36 T7N R10E

PROPOSED WASTE FOOTPRINT (83.1 ACRES)

EXISTING MAINTENANCE BUILDINGS

fuel tanks

300' 150'

PW-49 PW-98 PW-E PW-B PW-C

M303AR M23 M17AR M17BR B-1/MW-1 B-2/B-2A/MW-2 B-3/MW-3 B-5/B-5A B-6/B-6A B-7 B-8 B-9 B-10 B-11 MW-4

MW-6 MW-5 MW-5A MW-7 MW-7A B-12 B-13 B-14 B-15 MW-8 MW-9 MW-9A B-16 B-17 MW-10 MW-10A B-18 MW-11 B-19 B-20 B-21 MW-12 MW-13 B-22 MW-14 MW-14A MW-15 B-23 MW-16 MW-16A MW-17 MW-17A B-24 B-25 MW-18 MW-18A MW-19 MW-20 MW-20A MW-21 B-26 MW-22 MW-23 MW-23A

## LEGEND

- PROPERTY BOUNDARY (PENDING)
- SIXTEENTH SECTION LINE
- SEC 25 T7N R10E — SECTION-TOWNSHIP-RANGE DESIGNATION
- 900 — EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING BUILDING / STRUCTURE
- PW-E — KNOWN YAHARA HILLS PRIVATE WELL, APPROXIMATE LOCATION
- ASSUMED OFFSITE PRIVATE WELL, APPROXIMATE LOCATION
- KNOWN PRIVATE WELL, APPROXIMATE LOCATION
- PW-49 — ABANDONED YAHARA HILLS PRIVATE WELL
- STREAM / SHORELINE LIMITS
- PROPOSED LIMITS OF WASTE (86.1-ac)
- APPROXIMATE LIMITS OF WEST 18 HOLE GOLF COURSE
- M17BR — EXISTING PIEZOMETER
- B-5 — EXISTING SOIL BORING LOCATION
- M23 — EXISTING MONITORING WELL LOCATION
- B-12 — PROPOSED SOIL BORING LOCATION
- MW-11 — PROPOSED WATER TABLE WELL LOCATION
- MW-17 MW-17A — PROPOSED WELL NEST LOCATION (WATER TABLE WELL AND PIEZOMETER)

## NOTES:

1. TOPOGRAPHIC SURVEY OF THE DEVELOPMENT AREA TAKEN FROM THE WISCONSIN VIEW PORTAL LIDAR DATA, YEAR OF ACQUISITION: 2017. TOPOGRAPHIC SURVEY DATA PROVIDED BY STATE CARTOGRAPHER'S OFFICE.
2. SITE LOCATED IN THE FOLLOWING PARCELS IN DANE COUNTY:
   - NW 1/4 , NW 1/4, T7N, R10E, SECTION 25 CITY OF MADISON
   - SE 1/4, SE 1/4, SECTION 25, T7N, R10E, CITY OF MADISON
   - SW 1/4, SE 1/4 SECTION 25, T7N, R10E, CITY OF MADISON
   - BLOOMING GROVE ASSESSORS PLAN NO. 10, CITY OF MADISON
   - NW 1/4 SECTION 26, T7N, R10E, CITY OF MADISON
   - N 1/2, NE 1/4, T7N, R10E, CITY OF MADISON
3. HORIZONTAL DATUM IS REFERENCED TO WISCONSIN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM (NAD 83), US SURVEY FEET.
4. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM 1988. CONTOUR INTERVAL IS TWO FEET.
5. STREAM AND SHORELINE TAKEN FROM WDNR SURFACE WATER DATA VIEWER. STREAM AND SHORELINE TAKEN FROM WISCONSIN DEPARTMENT OF NATURAL RESOURCES DATA CURATOR, PUBLISHED AUGUST 9, 2017 AND UPDATED AUGUST 16, 2021.
6. EXISTING SOIL BORING AND MONITORING WELL LOCATIONS (MW-1 THROUGH MW-4 AND B-1 THROUGH B11) WERE INSTALLED IN JANUARY AND FEBRUARY 2022. OTHER EXISTING MONITORING WELLS SHOWN ON THIS FIGURE ARE AFFILIATED WITH THE DANE COUNTY LANDFILL NO. 2 (RODEFELD).
7. NR512 MINIMUM REQUIREMENTS: 83.1 ACRE FOOTPRINT

| | |
|---|---|
| BORINGS | 42 |
| WATER TABLE WELLS | 21 |
| PIEZOMETERS | 10 |
| NESTS INSIDE FOOTPRINT | 5 |

N

0 250 500

SCALE IN FEET



| REV | DATE | DESCRIPTION | DWN BY | DES BY | CHK BY | APP BY |
|---|---|---|---|---|---|---|
| 1 | 9/7/2022 | UPDATED BORING/WELL LAYOUT PER 83.1 ACRE FOOTPRINT | RBN | RBN | TD | JCO |

DATE OF ISSUE JULY 2022 | DRAWN BY NTW | DESIGNED BY RBN | CHECKED BY TD | APPROVED BY JCO

TETRA TECH

ALL PROFESSIONAL ENGINEERING WORK IS PERFORMED BY DULY LICENSED PROFESSIONAL ENGINEERS UNDER THE APPROPRIATE STATE REGISTERED PROFESSIONAL ENTITY.

DANE COUNTY WASTE & RENEWABLES DEPARTMENT
PROPOSED DANE COUNTY LANDFILL SITE NO. 3
CITY OF MADISON, DANE COUNTY, WISCONSIN

**GEOTECHNICAL INVESTIGATION PLAN**

**PROPOSED BORING AND MONITORING WELL LOCATION MAP (B)**

FIGURE NO. **02**

PROJECT NO. 4221302

1" 1 1/2" 0" 1"

File: X:\PROJECTS\dane county\4221302 - initial greenfield permitting_plan set~style\02-DCL_AGP-S-BORE.dwg Layout: 02 User: RANDY.NOLDEN Sep 07, 2022 - 11:58am