

BID OF \_\_\_\_\_

**2017**

**PROPOSAL, CONTRACT, BOND AND SPECIFICATIONS**

**FOR**

**FOREST HILL CEMETERY IMPROVEMENTS 2017**

**CONTRACT NO. 8002**

**MUNIS NO. 17167-51-130**

**IN**

**MADISON, DANE COUNTY, WISCONSIN**

AWARDED BY THE COMMON COUNCIL  
MADISON, WISCONSIN ON \_\_\_\_\_

CITY ENGINEERING DIVISION  
1600 EMIL STREET  
MADISON, WISCONSIN 53713

<https://bidexpress.com/login>

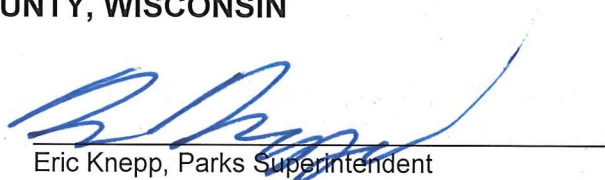
**FOREST HILL CEMETERY IMPROVEMENTS 2017  
CONTRACT NO. 8002**

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This Proposal, and Agreement have  
been prepared by:

**CITY ENGINEERING DIVISION  
CITY OF MADISON  
MADISON, DANE COUNTY, WISCONSIN**

  
Eric Knepp, Parks Superintendent

RFP: EK

# SECTION A: ADVERTISEMENT FOR BIDS AND INSTRUCTIONS TO BIDDERS

## REQUEST FOR BID FOR PUBLIC WORKS CONSTRUCTION CITY OF MADISON, WISCONSIN

### A BEST VALUE CONTRACTING MUNICIPALITY

PROJECT NAME:	FOREST HILL CEMETERY IMPROVEMENTS 2017
CONTRACT NO.:	8002
SBE GOAL	4%
BID BOND	5%
PRE BID MEETING (1:00 P.M.)	6/9/17
PREQUALIFICATION APPLICATION DUE (1:00 P.M)	6/9/17
BID SUBMISSION (1:00 P.M.)	6/16/17
BID OPEN (1:30 P.M.)	6/16/17
PUBLISHED IN WSJ	6/2/17 & 6/9/17

PRE BID MEETING: Representatives of the Affirmative Action Department will be present to discuss the Small Business Enterprise requirements at 1600 Emil Street, Madison Wisconsin.

PREQUALIFICATION APPLICATION: Forms are available on our website, [www.cityofmadison.com/business/pw/forms.cfm](http://www.cityofmadison.com/business/pw/forms.cfm). If not currently prequalified in the categories listed in Section A, an amendment to your Prequalification will need to be submitted prior to the same due date. Postmark is not applicable.

BIDS TO BE SUBMITTED by hand to 1600 EMIL ST., MADISON, WI 53713 or online at [www.bidexpress.com](http://www.bidexpress.com).

THE BID OPENING is at 1600 EMIL ST., MADISON, WI 53713.

#### STANDARD SPECIFICATIONS

The City of Madison's Standard Specifications for Public Works Construction - 2017 Edition, as supplemented and amended from time to time, forms a part of these contract documents as if attached hereto.

These standard specifications are available on the City of Madison Public Works website, [www.cityofmadison.com/Business/PW/specs.cfm](http://www.cityofmadison.com/Business/PW/specs.cfm).

The Contractor shall review these Specifications prior to preparation of proposals for the work to be done under this contract, with specific attention to Article 102, "BIDDING REQUIREMENTS AND CONDITIONS" and Article 103, "AWARD AND EXECUTION OF THE CONTRACT." For the convenience of the bidder, below are highlights of three subsections of the specifications.

#### SECTION 102.1: PRE-QUALIFICATION OF BIDDERS

In accordance with Wisconsin State Statutes 66.0901 (2) and (3), all bidders must submit to the Board of Public Works proof of responsibility on forms furnished by the City. The City requires that all bidders be qualified on a biennial basis.

Bidders must present satisfactory evidence that they have been regularly engaged in the type of work specified herein and they are fully prepared with necessary capital, materials, machinery and supervisory personnel to conduct the work to be contracted for to the satisfaction of the City. All bidders must be pre-qualified by the Board of Public Works for the type of construction on which they are bidding prior to the opening of the bid.

In accordance with Section 39.02(9)(a)l. of the General Ordinances, all bidders shall submit in writing to the Affirmative Action Division Manager of the City of Madison, a Certificate of Compliance or an Affirmative Action Plan at the same time or prior to the submission of the proof of responsibility forms.

The bidder shall be disqualified if the bidder fails to or refuses to, prior to opening of the bid, submit a Certificate of compliance, Affirmative Action Plan or Affirmative Action Data Update, as applicable, as defined by Section 39.02 of the General Ordinances (entitled Affirmative Action) and as required by Section 102.11 of the Standard Specifications.

#### SECTION 102.4 PROPOSAL

No bid will be accepted that does not contain an adequate or reasonable price for each and every item named in the Schedule of Unit Prices.

A lump sum bid for the work in accordance with the plans and specifications is required. The lump sum bid must be the same as the total amounts bid for the various items and it shall be inserted in the space provided.

All papers bound with or attached to the proposal form are considered a part thereof and must not be detached or altered when the proposal is submitted. The plans, specifications and other documents designated in the proposal form will be considered a part of the proposal whether attached or not.

A proposal submitted by an individual shall be signed by the bidder or by a duly authorized agent. A proposal submitted by a partnership shall be signed by a member/partner or by a duly authorized agent thereof. A proposal submitted by a corporation shall be signed by an authorized officer or duly authorized registered agent of such corporation, and the proposal shall show the name of the State under the laws of which such corporation was chartered. The required signatures shall in all cases appear in the space provided thereof on the proposal.

Each proposal shall be placed, together with the proposal guaranty, in a sealed envelope, so marked as to indicate name of project, the contract number or option to which it applies, and the name and address of the Contractor or submitted electronically through Bid Express ([www.bidexpress.com](http://www.bidexpress.com)). Proposals will be accepted at the location, the time and the date designated in the advertisement. Proposals received after the time and date designated will be returned to the bidder unopened.

#### SECTION 102.5: BID DEPOSIT (PROPOSAL GUARANTY)

All bids, sealed or electronic, must be accompanied with a Bid Bond equal to at least 5% of the bid or a Certificate of Annual/Biennial Bid Bond or certified check, payable to the City Treasurer. Bid deposit of the successful bidders shall be returned within forty-eight (48) hours following execution of the contract and bond as required.

#### MINOR DISCREPENCIES

Bidder is responsible for submitting all forms necessary for the City to determine compliance with State and City bidding requirements. Notwithstanding any language to the contrary contained herein, the City may exercise its discretion to allow bidders to correct or supplement submissions after bid opening, if the minor discrepancy, bid irregularity or omission is insignificant and not one related to price, quality, quantity, time of completion or performance of the contract.

**Bidders for this Contract(s) must be Pre-Qualified for at least one of the following type(s) of construction denoted by an**

Building Demolition

- 101  Asbestos Removal
- 120  House Mover

- 110  Building Demolition

Street, Utility and Site Construction

- 201  Asphalt Paving
- 205  Blasting
- 210  Boring/Pipe Jacking
- 215  Concrete Paving
- 220  Con. Sidewalk/Curb & Gutter/Misc. Flat Work
- 221  Concrete Bases and Other Concrete Work
- 222  Concrete Removal
- 225  Dredging
- 230  Fencing
- 235  Fiber Optic Cable/Conduit Installation
- 240  Grading and Earthwork
- 241  Horizontal Saw Cutting of Sidewalk
- 242  Infrared Seamless Patching
- 245  Landscaping, Maintenance
- 246  Ecological Restoration
- 250  Landscaping, Site and Street
- 251  Parking Ramp Maintenance
- 252  Pavement Marking
- 255  Pavement Sealcoating and Crack Sealing
- 260  Petroleum Above/Below Ground Storage Tank Removal/Installation
- 262  Playground Installer

- 265  Retaining Walls, Precast Modular Units
- 270  Retaining Walls, Reinforced Concrete
- 275  Sanitary, Storm Sewer and Water Main Construction
- 276  Sawcutting
- 280  Sewer Lateral Drain Cleaning/Internal TV Insp.
- 285  Sewer Lining
- 290  Sewer Pipe Bursting
- 295  Soil Borings
- 300  Soil Nailing
- 305  Storm & Sanitary Sewer Laterals & Water Svc.
- 310  Street Construction
- 315  Street Lighting
- 318  Tennis Court Resurfacing
- 320  Traffic Signals
- 325  Traffic Signing & Marking
- 332  Tree pruning/removal
- 333  Tree, pesticide treatment of
- 335  Trucking
- 340  Utility Transmission Lines including Natural Gas, Electrical & Communications
- 399  Other \_\_\_\_\_

Bridge Construction

- 501  Bridge Construction and/or Repair

Building Construction

- 401  Floor Covering (including carpet, ceramic tile installation, rubber, VCT)
- 402  Building Automation Systems
- 403  Concrete
- 404  Doors and Windows
- 405  Electrical - Power, Lighting & Communications
- 410  Elevator - Lifts
- 412  Fire Suppression
- 413  Furnishings - Furniture and Window Treatments
- 415  General Building Construction, Equal or Less than \$250,000
- 420  General Building Construction, \$250,000 to \$1,500,000
- 425  General Building Construction, Over \$1,500,000
- 428  Glass and/or Glazing
- 429  Hazardous Material Removal
- 430  Heating, Ventilating and Air Conditioning (HVAC)
- 433  Insulation - Thermal
- 435  Masonry/Tuck pointing

- 437  Metals
- 440  Painting and Wallcovering
- 445  Plumbing
- 450  Pump Repair
- 455  Pump Systems
- 460  Roofing and Moisture Protection
- 464  Tower Crane Operator
- 461  Solar Photovoltaic/Hot Water Systems
- 465  Soil/Groundwater Remediation
- 466  Warning Sirens
- 470  Water Supply Elevated Tanks
- 475  Water Supply Wells
- 480  Wood, Plastics & Composites - Structural & Architectural
- 499  Other \_\_\_\_\_

State of Wisconsin Certifications

- 1  Class 5 Blaster - Blasting Operations and Activities 2500 feet and closer to inhabited buildings for quarries, open pits and road cuts.
- 2  Class 6 Blaster - Blasting Operations and Activities 2500 feet and closer to inhabited buildings for trenches, site excavations, basements, underwater demolition, underground excavations, or structures 15 feet or less in height.
- 3  Class 7 Blaster - Blasting Operations and Activities for structures greater than 15 ' in height, bridges, towers, and any of the objects or purposes listed as "Class 5 Blaster or Class 6 Blaster".
- 4  Petroleum Above/Below Ground Storage Tank Removal and Installation (Attach copies of State Certifications.)
- 5  Hazardous Material Removal (Contractor to be certified for asbestos and lead abatement per the Wisconsin Department of Health Services, Asbestos and Lead Section (A&LS).) See the following link for application: [www.dhs.wisconsin.gov/Asbestos/Cert](http://www.dhs.wisconsin.gov/Asbestos/Cert). State of Wisconsin Performance of Asbestos Abatement Certificate must be attached.
- 6  Certification number as a Certified Arborist or Certified Tree Worker as administered by the International Society of Arboriculture
- 7  Pesticide application (Certification for Commercial Applicator For Hire with the certification in the category of turf and landscape (3.0) and possess a current license issued by the DATCP)
- 8  State of Wisconsin Master Plumbers License.

## SECTION B: PROPOSAL

Please refer to the  
Bid Express Website  
at <https://bidexpress.com>  
look up contract number  
and go to  
Section B: Proposal Page

You can access all City of Madison bid solicitations for FREE at [www.bidexpress.com](http://www.bidexpress.com)

Click on the "Register for Free" button and follow the instructions to register your company and yourself. You will be asked for a payment subscription preference, since you may wish to bid online someday. Simply choose the method to pay on a 'per bid' basis. This requires no payment until / unless you actually bid online. You can also choose the monthly subscription plan at this time. You will, however, be asked to provide payment information. Remember, you can change your preference at anytime. You will then be able to complete your free registration and have full access to the site. Your free access does not require completion of the 'Digital ID' process, so you will have instant access for viewing and downloading. To be prepared in case you ever do wish to bid online, you may wish to establish your digital ID also, since you cannot bid without a Digital ID.

If you have any problems with the free registration process, you can call the bidexpress help team, toll free at 1-888-352-2439 (option 1, option1).

## **SECTION C: SMALL BUSINESS ENTERPRISE**

### **Instructions to Bidders City of Madison SBE Program Information**

#### **2 Small Business Enterprise (SBE) Program Information**

##### **2.1 Policy and Goal**

The City of Madison reaffirms its policy of nondiscrimination in the conduct of City business by maintaining a procurement process which remains open to all who have the potential and ability to sell goods and services to the City. It is the policy of the City of Madison to allow Small Business Enterprises (SBE) maximum feasible opportunity to participate in City of Madison contracting. The bidder acknowledges that its bid has been submitted in accordance with the SBE program and is for the public's protection and welfare.

Please refer to the "ADVERTISEMENT FOR BIDS" for the goal for the utilization of SBEs on this project. SBEs may participate as subcontractors, vendors and/or suppliers, which provide a commercially useful function. The dollar value for SBE suppliers or 'materials only' vendors shall be discounted to 60% for purposes of meeting SBE goals.

A bidder which achieves or exceeds the SBE goal will be in compliance with the SBE requirements of this project. In the event that the bidder is unable to achieve the SBE goal, the bidder must demonstrate that a good faith effort to do so was made. Failure to either achieve the goal or demonstrate a good faith effort to do so will be grounds for the bidder being deemed a non-responsible contractor ineligible for award of this contract.

A bidder may count towards its attainment of the SBE goal only those expenditures to SBEs that perform a commercially useful function. For purposes of evaluating a bidder's responsiveness to the attainment of the SBE goal, the contract participation by an SBE is based on the percentage of the total base bid proposed by the Contractor. The total base bid price is inclusive of all addenda.

Work performed by an SBE firm in a particular transaction can be counted toward the goal only if it involves a commercially useful function. That is, in light of industry practices and other relevant considerations, does the SBE firm have a necessary and useful role in the transaction, of a kind for which there is a market outside the context of the SBE Program, or is the firm's role a superfluous step added in an attempt to obtain credit towards goals? If, in the judgment of the Affirmative Action Division, the SBE firm will not perform a commercially useful function in the transaction, no credit towards goals will be awarded.

The question of whether a firm is performing a commercially useful function is completely separate from the question of whether the firm is an eligible SBE. A firm is eligible if it meets the definitional criteria and ownership and control requirements, as set forth in the City of Madison's SBE Program.

If the City of Madison determines that the SBE firm is performing a commercially useful function, then the City of Madison must then decide what that function is. If the commercially useful function is that of an SBE vendor / supplier that regularly transacts business with the respective product, then the City of Madison will count 60% of the value of the product supplied toward SBE goals.

To be counted, the SBE vendor / supplier must be engaged in selling the product in question to the public. This is important in distinguishing an SBE vendor / supplier, which has a regular trade with a variety of customers, from a firm which performs supplier-like functions on an ad hoc basis or for only one or two contractors with whom it has a special relationship.

A supplier of bulk goods may qualify as an eligible SBE vendor / supplier if it either maintains an inventory or owns or operates distribution equipment. With respect to the distribution equipment; e.g., a fleet of trucks, the term "operates" is intended to cover a situation in which the supplier leases the equipment on a regular basis for its entire business. It is not intended to cover a situation in which the firm simply provides drivers for trucks owned or leased by another party; e.g., a prime contractor, or leases such a party's trucks on an ad hoc basis for a specific job.

If the commercially useful function being performed is not that of a qualified SBE vendor / supplier, but rather that of delivery of products, obtaining bonding or insurance, procurement of personnel, acting as a broker or manufacturer's representative in the procurement of supplies, facilities, or materials, etc., only the fees or commissions will apply towards the goal.

For example, a business that simply transfers title of a product from manufacturer to ultimate purchaser; e. g., a sales representative who re-invoices a steel product from the steel company to the Contractor, or a firm that puts a product into a container for delivery would not be considered a qualified SBE vendor / supplier. The Contractor would not receive credit based on a percentage of the cost of the product for working with such firms.

Concerning the use of services that help the Contractor obtain needed supplies, personnel, materials or equipment to perform a contract: only the fee received by the service provider will be counted toward the goal. For example, use of a SBE sales representative or distributor for a steel company, if performing a commercially useful function at all, would entitle the Contractor receiving the steel to count only the fee paid to the representative or distributor toward the goal. This provision would also govern fees for professional and other services obtained expressly and solely to perform work relating to a specific contract.

Concerning transportation or delivery services: if an SBE trucking company picks up a product from a manufacturer or a qualified vendor / supplier and delivers the product to the Contractor, the commercially useful function it is performing is not that of a supplier, but simply that of a transporter of goods. Unless the trucking company is itself the manufacturer or a qualified vendor / supplier in the product, credit cannot be given based on a percentage of the cost of the product. Rather, credit would be allowed for the cost of the transportation service.

The City is aware that the rule's language does not explicitly mention every kind of business that may contribute work on this project. In administering these programs, the City would, on a case-by-case basis, determine the appropriate counting formula to apply in a particular situation.

## **2.2 Contract Compliance**

Questions concerning the SBE Program shall be directed to the Contract Compliance Officer of the City of Madison Department of Civil Rights, Affirmative Action Division, 210 Martin Luther King, Jr. Blvd., Room 523, Madison, WI 53703; telephone (608) 266-4910.



## 2.3 Certification of SBE by City of Madison

The Affirmative Action Division maintains a directory of SBEs which are currently certified as such by the City of Madison. Contact the Contract Compliance Officer as indicated in Section 2.2 to receive a copy of the SBE Directory or you may access the SBE Directory online at [www.cityofmadison.com/dcr/aaTBDDir.cfm](http://www.cityofmadison.com/dcr/aaTBDDir.cfm).

All contractors, subcontractors, vendors and suppliers seeking SBE status must complete and submit the **Targeted Business Certification Application** to the City of Madison Affirmative Action Division by the time and date established for receipt of bids. A copy of the Targeted Business Certification Application is available by contacting the Contract Compliance Officer at the address and telephone indicated in Section 2.2 or you may access the Targeted Business Certification Application online at [www.cityofmadison.com/dcr/aaTBDDir.cfm](http://www.cityofmadison.com/dcr/aaTBDDir.cfm). Submittal of the Targeted Business Certification Application by the time specified does not guarantee that the applicant will be certified as a SBE eligible to be utilized towards meeting the SBE goal for this project.

## 2.4 Small Business Enterprise Compliance Report

### 2.4.1 Good Faith Efforts

Bidders shall take all necessary affirmative steps to assure that SBEs are utilized when possible and that the established SBE goal for this project is achieved. A contractor who self performs a portion of the work, and is pre-qualified to perform that category of work, may subcontract that portion of the work, but shall not be required to do so. When a bidder is unable to achieve the established SBE goal, the bidder must demonstrate that a good faith effort to do so was made. Such a good faith effort should include the following:

- 2.4.1.1 Attendance at the pre-bid meeting.
- 2.4.1.2 Using the City of Madison's directory of certified SBEs to identify SBEs from which to solicit bids.
- 2.4.1.3 Assuring that SBEs are solicited whenever they are potential sources.
- 2.4.1.4 Referring prospective SBEs to the City of Madison Affirmative Action Division for certification.
- 2.4.1.5 Dividing total project requirements into smaller tasks and/or quantities, where economically feasible, to permit maximum feasible SBE participation.
- 2.4.1.6 Establishing delivery schedules, where requirements permit, which will encourage participation by SBEs.
- 2.4.1.7 Providing SBEs with specific information regarding the work to be performed.
- 2.4.1.8 Contacting SBEs in advance of the deadline to allow such businesses sufficient time to prepare a bid.
- 2.4.1.9 Utilizing the bid of a qualified and competent SBE when the bid of such a business is deemed reasonable (i.e. 5% above the lowest bidder), although not necessarily low.
- 2.4.1.10 Contacting SBEs which submit a bid, to inquire about the details of the bid and confirm that the scope of the work was interpreted as intended.
- 2.4.1.11 Completion of Cover Page (page C-6), Summary Sheet (page C-7) and SBE Contact Reports (pages C-8 and C9) if applicable.

## 2.4.2 Reporting SBE Utilization and Good Faith Efforts

The Small Business Enterprise Compliance Report is to be submitted by the bidder with the bid: This report is due by the specified bid closing time and date. Bids submitted without a completed SBE Compliance Report as outlined below may be deemed non-responsible and the bidder ineligible for award of this contract. Notwithstanding any language to the contrary contained herein, the City may exercise its discretion to allow bidders to correct or supplement submissions after bid opening, if the minor discrepancy, bid irregularity or omission is insignificant and not one related to price, quality, quantity, time of completion, performance of the contract, or percentage of SBE utilization.

2.4.2.1 If the Bidder meets or exceeds the goal established for SBE utilization, the Small Business Enterprise Compliance Report shall consist of the following:

- 2.4.2.1.1 **Cover Page**, Page C-6; and
- 2.4.2.1.2 **Summary Sheet**, C-7.

2.4.2.2 If the bidder does not meet the goal established for SBE utilization, the Small Business Enterprise Compliance Report shall consist of the following:

- 2.4.2.2.1 **Cover Page**, Page C-6;
- 2.4.2.2.2 **Summary Sheet**, C-7; and
- 2.4.2.2.3 **SBE Contact Report**, C-8 and C-9. (A separate Contact Report must be completed for each applicable SBE which is not utilized.)

## 2.5 Appeal Procedure

A bidder which does not achieve the established goal and is found non-responsible for failure to demonstrate a good faith effort to achieve such goal and subsequently denied eligibility for award of contract may appeal that decision to the Small Business Enterprises Appeals Committee. All appeals shall be made in writing, and shall be delivered to and received by the City Engineer no later than 4:30 PM on the third business day following the bidder's receipt of the written notification of ineligibility by the Affirmative Action Division Manager. Postmark not acceptable. The notice of appeal shall state the basis for the appeal of the decision of the Affirmative Action Division Manager. The Appeal shall take place in accordance with Madison General Ordinance 33.54.

## 2.6 SBE Requirements After Award of the Contract

The successful bidder shall identify SBE subcontractors, suppliers and vendors on the subcontractor list in accordance with the specifications. The Contractor shall submit a detailed explanation of any variances between the listing of SBE subcontractors, vendors and/or suppliers on the subcontractor list and the Contractor's SBE Compliance Report for SBE participation.

No change in SBE subcontractors, vendors and/or suppliers from those SBEs indicated in the SBE Compliance Report will be allowed without prior approval from the Engineer and the Affirmative Action Division. The contractor shall submit in writing to the City of Madison Affirmative Action Division a request to change any SBE citing specific reasons which necessitate such a change. The Affirmative Action Division will use a general test of reasonableness in approving or rejecting the contractor's request for change. If the request is approved, the Contractor will make every effort to utilize another SBE if available.

The City will monitor the project to ensure that the actual percentage commitment to SBE firms is carried out.

## **2.7 SBE Definition and Eligibility Guidelines**

A Small Business Enterprise is a business concern awarded certification by the City of Madison. For the purposes of this program a Small Business Enterprise is defined as:

- A. An independent business operated under a single management. The business may not be a subsidiary of any other business and the stock or ownership may not be held by any individual or any business operating in the same or a similar field. In determining whether an entity qualifies as a SBE, the City shall consider all factors relevant to being an independent business including, but not limited to, the date the business was established, adequacy of its resources for the work in which it proposes to involve itself, the degree to which financial, equipment leasing and other relationships exist with other ineligible firms in the same or similar lines of work. SBE owner(s) shall enjoy the customary incidents of ownership and shall share in the risks and profits commensurate with their enjoyment interests, as demonstrated by an examination of the substance rather than form or arrangements that may be reflected in its ownership documents.
- B. A business that has averaged no more than \$4.0 million in annual gross receipts over the prior three year period and the principal owner(s) do not have a personal net worth in excess of \$1.32 million.

Firm and/or individuals that submit fraudulent documents/testimony may be barred from doing business with the City and/or forfeit existing contracts.

SBE certification is valid for one (1) year unless revoked.

**FOREST HILL CEMETERY IMPROVEMENTS 2017  
CONTRACT NO. 8002**

**Small Business Enterprise Compliance Report**

**This information may be submitted electronically through  
Bid Express or submitted with bid in sealed envelope.**

**Cover Sheet**

Prime Bidder Information

Company: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone Number: \_\_\_\_\_ Fax Number: \_\_\_\_\_

Contact Person/Title: \_\_\_\_\_

Prime Bidder Certification

I, \_\_\_\_\_, \_\_\_\_\_ of  
Name Title  
\_\_\_\_\_ certify that the information  
Company

contained in this SBE Compliance Report is true and correct to the best of my knowledge and belief.

\_\_\_\_\_  
Witness' Signature

\_\_\_\_\_  
Bidder's Signature

\_\_\_\_\_  
Date



**FOREST HILL CEMETERY IMPROVEMENTS 2017  
CONTRACT NO. 8002**

**Small Business Enterprise Compliance Report**

**SBE Contact Report**

Submit separate copy of this form for each SBE which you are not able to utilize towards meeting the SBE goal for this project. Attach separate sheets if necessary.

SBE Information

Company: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

Contact Person/Title: \_\_\_\_\_

1. Outline below all efforts to solicit a bid from the above SBE. Include date, means of contact, who from your company made this contact and the result.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Describe the information provided to the aforementioned SBE regarding the scope of work for which he/she was to provide a bid.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Is this the same scope of work on which the subcontractor you intend to utilize based his/her bid?

Yes     No

3. Did this SBE submit a bid?     Yes     No

4. Is the General Contractor pre-qualified to self-perform this category of work?

Yes     No

5. If you responded "Yes" to Question 3, please check the items below which apply and provide the requested detail. If you responded "No" to Question 3, please skip ahead to item 6 below.

The SBE listed above is unavailable for work on this project for the following reasons. Provide specific detail for this conclusion.

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The SBE listed above is unqualified for work on this project. Provide specific details for this conclusion.

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The SBE listed above provided a price that was unreasonable (i.e. more than 5% above the lowest bidder). Provide specific detail for this conclusion including the SBE's price and the price of the subcontractor you intend to utilize.

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A contract with the SBE listed above may constitute a breach of the bidder's collective bargaining agreements. Provide specific detail for this conclusion including, but not limited to, correspondence from the SBE indicating it will not sign a project labor agreement and/or correspondence from the applicable trade union indicating a project labor agreement will not be allowed at the time of project bidding.

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Other; please specify reason(s) other than listed above which made it impossible for you to utilize this SBE on this project.

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6. Describe any other good faith efforts:

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## **SECTION D: SPECIAL PROVISIONS**

### **FOREST HILL CEMETERY IMPROVEMENTS 2017 CONTRACT NO. 8002**

It is the intent of these Special Provisions to set forth the final contractual intent as to the matter involved and shall prevail over the Standard Specifications and plans whenever in conflict therewith. In order that comparisons between the Special Provisions can be readily made, the numbering system for the Special Provisions is equivalent to that of the Specifications.

Whenever in these Specifications the term "Standard Specifications" appears, it shall be taken to refer to the City of Madison Standard Specifications for Public Works Construction and Supplements thereto.

#### **SECTION 102.12: BEST VALUE CONTRACTING**

This Contract shall be considered a Best Value Contract if the Contractor's bid is equal to or greater than \$59,000 for a single trade contract; or equal to or greater than \$288,000 for a multi-trade contract pursuant to MGO 33.07(7).

#### **ARTICLE 104 SCOPE OF WORK**

Work shall include an extension of storm sewer to collect water in the south half of Forest Hill Cemetery, installation of a new irrigation system, and resurfacing of roadways disturbed by storm sewer installation.

The resurfaced roadways will require a Carlson screed raised edge of pavement to be installed 18" wide and 4" high on all sections of road except intersections. The Carlson screed raised edge of pavement shall be incidental to asphalt paving but an increase in asphalt quantities has been calculated. The street will pulverized, shaped and paved with 3", type E-0.3 asphaltic pavement.

#### **SECTION 104.4 INCREASED OR DECREASED QUANTITIES**

The Contractor shall note that some bid item quantities may increase or decrease based on what is encountered in the field. If the actual field conditions vary from the plan quantity, no additional compensation shall be given for increasing or decreasing quantities. The Contractor shall not be reimbursed for any deletions to the contract. No change to the unit bid price will be allowed for changes to the quantities.

All bid items listed in the proposal page will be paid for at the quantity listed in the proposal page, and will not be measured in the field unless otherwise indicated in these special provisions, or there is a significant change approved by the Engineer. A significant change shall be considered more than a 30% change in quantities.

Quantities for irrigation system components are included in these special provisions.

The exception is that the following bid items shall be measured in the field. The contractor shall notify the construction engineer when each item has been placed or used so that measurement may occur.

BID ITEM 20219 BREAKER RUN  
BID ITEM 20321 REMOVE CONCRETE PAVEMENT  
BID ITEM 70109 UNDERCUT  
BID ITEM 21052 POLYMER STABILIZATION  
BID ITEM 21002 EROSION CONTROL INSPECTION  
BID ITEM 20140 GEOTEXTILE FABRIC TYPE SAS NON WOVEN  
BID ITEM 90002 CONSTRUCTION FENCING (UNDISTRIBUTED)



**SECTION 105.1: AUTHORITY OF THE ENGINEER**

The Engineer shall resolve all questions which arise as to the quality and acceptability of materials furnished, work performed, manner of performance, rate of progress of the work, interpretation of the plans and Specifications, acceptable fulfillment of the contract, compensation, and disputes and mutual rights between Contractors under the Specifications. The Engineer shall determine the amount and quantity of work performed and materials furnished.

**SECTION 105.9: SURVEYS, POINTS, AND INSTRUCTION**

The Contractor will be responsible for all layout, lines and/or grades required to complete the work for the installation of the storm sewer and irrigation system. The Contractor shall mark the trench routes, then call the Parks Division for location/route approval prior to any digging. The City of Madison Parks Division will make available to the surveyor an electronic copy of the project upon request.

Any questions regarding this project should be directed to Corey Stelljes at the Parks Division at [cstelljes@cityofmadison.com](mailto:cstelljes@cityofmadison.com) or (608) 266-6518. Any questions regarding surveying issues should be directed to Dan Rodman of the Parks Division [drodman@cityofmadison.com](mailto:drodman@cityofmadison.com) or (608) 266-6674.

**SECTION 105.12: COOPERATION BY CONTRACTOR**

Several utilities exist on site. The Contractor shall perform a One Call through Digger's Hotline at least three days prior to beginning construction. To ensure that Parks-owned utilities are also marked, include the PARK NAME AT THE BEGINNING OF THE MARKING instructions field on the ticket, and send a copy of the ticket to the City of Madison Parks Surveyor (Dan Rodman / [drodman@cityofmadison.com](mailto:drodman@cityofmadison.com) / tel (608)266-6674 / fax (608)267-1162).

The Contractor shall secure materials at the end of each work day to deter any potential vandalism and theft.

The cemetery will be open during construction. The Contractor shall construct and maintain traffic control during construction operations to the extent possible as specified in this Contract. The Contractor shall ensure that all construction fencing and barricades are erect and without gaps at the end of each work day.

A pre-construction meeting will be required prior to the start of construction.

Matting and seeding quantities are included for all areas disturbed during site access and construction activities. All areas disturbed shall be seeded and matted and Contractor shall ensure proper establishment of seeding. Seeding, matting, and erosion control quantities shall only be paid plan quantity without measurement thereof unless mutually agreed to by Contractor and project Engineer.

The Contractor is allowed to start work in the fall of 2017, in accordance with Section 109.7, upon approval of the detailed Construction Scheduling and Traffic Control plan, which includes construction material staging and storage. The work shall commence in an orderly fashion and shall be stabilized and restored prior to the end of the construction season. If work starts in the fall the Contractor shall not be allowed to remove pavement surfaces beyond the utility trenches unless all final paving will occur prior to the winter shut down. If final pavement is not in place prior to winter shut down then all trenches shall be restored with temporary pavement ("cold patch"), which shall be considered incidental to the contract. Stone or gravel patches or plating shall not be allowed over winter. All work, materials, labor, tools, equipment, disposal, and incidentals required to complete the work to secure the site as described above shall be considered incidental to mobilization and no additional compensation shall be provided.

For the dates listed below all construction activities shall be halted, the site and materials secured, and the site made accessible for pedestrian and vehicular traffic. The Contractor shall be required to relocate any construction equipment during the dated listed below. Parking of equipment within a defined area

behind the cemetery mausoleum will be provided. This area is approximately 80'x60', if the area is not large enough to accommodate all equipment the Contractor shall be required to store the equipment off site or to an area within the facility as allowed by the Parks Division. No construction materials shall be allowed to be stored in this location and equipment must be immediately returned to the job site or to a location provided by the Contractor outside the time frames identified below.

#### DATES OF CONSTRUCTION SHUT DOWN:

Talking Spirits Tour: October 2, 2018 through October 8, 2017  
Memorial Day Weekend: May 24, 2018 through May 28, 2018

Upon request by the Parks Division, the Contractor shall cease work in particular areas if funeral or burial services are to be held and shall move equipment from the immediate vicinity to accommodate services. When possible, the cemetery office (Darin Hall at 266-4720 or [dhall@cityofmadison.com](mailto:dhall@cityofmadison.com)) shall provide a minimum of 48 hours notice for any planned services are to occur.

The Contractor shall be allowed to take the existing irrigation out of service starting September 15, 2017 until the time of completion of the project. If new irrigation is installed prior to September 15, 2017, the Contractor shall be required to keep the existing service active or identify how temporary service will be allowed prior to the cut off date.

The Contractor warrants that its services are performed, within the limits prescribed by the City, with the usual thoroughness and competence of the consulting profession; in accordance with the standard for professional services at the time those services are rendered. The Contractor shall be responsible for the accuracy of the work performed under this Agreement, and shall promptly make necessary revisions or corrections resulting from their negligent acts, errors or omissions without additional compensation. The Contractor shall be responsible for any damages incurred as a result of their errors, omissions, or negligent acts and for any losses or costs to repair or remedy construction.

#### **SECTION 107.13      TREE PROTECTION SPECIFICATIONS**

The Contractor is advised to review Article 107.13 of the Standard Specifications for tree protection. Note that Articles 107.13(a) Underground Utility Excavation & Installation, 107.13(b) Curb Excavation and Installation, and 107.13(c) Sidewalk Excavation and Installation are applicable to this project.

The intent of these designs is to minimize the damage to those trees that remain following construction. No trees may be removed as part of this project. Contractor shall not grade, excavate, store materials or equipment or otherwise disturb areas within five (5) feet of any tree to remain in accordance with Article 107.2 of the Standard Specifications. Contractor shall take care at all times to conduct operations in a way that avoids damage to any trees not designated for removal. All above precautions are considered incidental to other items of the work.

It is recognized that grading operations and root cutting of some trees will need to occur in order to complete the work, and care must be taken in these areas. For trees where construction operations, including grading, trenching, stone placement, filling, etc. occur within 5 feet of the trunk, or where a tree marked No Root Cut "(NRC)" on the plan, construction operations shall be done under the supervision of a City of Madison Forestry Representative. The sequence to construct in these areas shall be as follows:

1. Trees within 5' of construction operations shall not be disturbed until inspected by a City of Madison Forestry Representative.
2. The Contractor shall place a yellow ribbon around the tree to highlight these trees for the equipment operator.

3. The ribbon shall remain until the area is fine graded and seeded or sodded. Roots shall be cut cleanly by using a saw, ax, lopping shears, chain saw, stump grinder, or other means which will produce a clean cut. Exposed roots shall be covered as soon as excavation and installation are complete. All roots over one (1) inch in diameter that are damaged shall be cleanly cut immediately back of the damaged section on the same day of the excavation. The Contractor shall not rip or pull roots out towards the trunk of a tree while excavating with a backhoe. The use of a backhoe to cut roots is NOT acceptable.

All provisions of Articles 107.13(d), 107.13(f) Bark Abrasions and Limb Damage, 107.13(g) Soil Compaction, 107.13(h) Contractor/Foreperson Acknowledgement, and 107.13(i) Cost Recovery and Liquidated Damages are applicable to this contract.

Where it is likely that grading or trenching will encounter roots of a protected tree greater than 1 inch in diameter, the roots shall be exposed by hand cut cleanly with a saw or ax.

All trees on roadways to be resurfaced have been pruned up to a height of 12' to allow for construction equipment to operate. No additional pruning beyond this height shall be done.

The contact for City Forestry is:

Wayne Buckley- (608) 220-0637.

Protection of these trees shall be paid under Bid Item 10803- ROOT CUTTING

#### **SECTION 107.6 DUST PROOFING**

The Contractor shall take all necessary steps to control dust arising from operations connected with this contract. When ordered by the Engineer, the Contractor shall dust proof the construction area by using power sweepers and water. Dust proofing shall be incidental with operations connected with this contract.

#### **SECTION 107.7 MAINTENANCE OF TRAFFIC**

All signing and barricading shall conform to Part VI of the Federal Highways Administrations "Manual on Uniform Traffic Control Devices" (MUTCD), the State of Wisconsin Standard Facilities Development Manual (including Chapter 16 – Standard Detail Drawings) and the City of Madison Standards for sidewalk and bikeway closures.

The Contractor shall submit an acceptable Construction Scheduling and Traffic Control Plan, including all necessary phasing and staging, to Corey Stelljes at [cstelljes@cityofmadison.com](mailto:cstelljes@cityofmadison.com), prior to the pre-construction meeting. The Construction Scheduling and Traffic Control Plan shall address all requirements of this section of the Special Provisions. The successful bidder shall work with the City Parks Division to develop an approved Construction Scheduling and Traffic Control Plan. Creation and submission of a Construction Scheduling and Traffic Control Plan shall be included in Bid Item 10701- TRAFFIC CONTROL. The Contractor shall not start work on this project until Parks Division has approved a traffic control plan and traffic control devices have been installed, in accordance with the approved plan. Failure of the Contractor to obtain approval of a Construction Scheduling and Traffic Control Plan, as specified above, may prevent the Contractor from starting work and shall be considered a delay of the project, caused by the Contractor. Included in the Construction Scheduling and Traffic Control plan shall be details on phasing and staging of equipment and materials.

The Contractor shall be responsible for installing and maintaining traffic control in accordance with the approved Construction Scheduling and Traffic Control Plan and as directed by the City Traffic Engineer. The traffic control plan may need to be altered as conditions change in the field or as unexpected conditions occur. This may include relocating existing traffic control or providing additional traffic control. The Contractor shall install and maintain any necessary modifications or additions to the traffic control, as directed by the Engineer, at no cost to the City.

The Contractor may close each cemetery road during construction activities but closure shall be limited to the specific road currently under active construction only. Access to all numbered sections of the cemetery must be maintained at all times. The Contractor shall restore disturbed roadways with gravel base and open them to traffic as needed to maintain access. Phasing and temporary restoration shall be outlined in the traffic control plan. All temporary restoration of roadways shall be included in this item.

Work is to occur in a platted cemetery that is on the Register of Historic Places with the Wisconsin Historical Society (WHS.) The City of Madison hired Phase One Archeology to complete a report for construction and disturbance activities in the cemetery outlined on the plans and in this contract. This report has been submitted and approved by WHS. This report and authorization letter from WHS is attached to these special provisions and outlines recommendations for construction activities. The Contractor shall comply with all recommendations outlined in this report.

No disturbance, staging, equipment operation, or storage of materials is allowed outside the roadways. Contractor shall stage all equipment and materials inside the construction limits unless approved by Construction Engineer in the Construction Scheduling and Traffic Control plan. The contractor shall not disturb or damage any headstones or grave sites or markings. Contractor shall be liable for any damages to headstones or grave markings.

## **SECTION 108.2:        PERMITS**

The following permits have been obtained for this project:

1. City of Madison Erosion Control Permit
2. DNR Water Resources Application for Projects Permits (WRAPP)

A City of Madison Erosion Control permit has been obtained and weekly inspections will be completed by The Contractor at all times following storm events, and this work will be paid for under the appropriate bid item. See **SECTION 210.1(a)**. The Contractor shall meet the conditions of the permits by properly installing and maintaining the erosion control and electrical measures and items shown on the plans, specified in these Special Provisions, or as directed by the Construction Engineer or his designees. A copy of the permit is available at the City of Madison, Engineering Division office.

Copies of these permits will be provided to Contractor prior to start of construction. The Contractor must keep a copy of each individual permit on site at all times throughout construction.

The City's obtaining of these permits is not intended to be exhaustive of all permits that may be required to be obtained by the Contractor for construction of this project. It shall be the responsibility of the Contractor to identify and obtain any other permits needed for construction.

Contractor shall note that the project overlaps a Native American mound group (uncataloged) known as DA-134 at the south end of the site. The City has contracted an archaeological investigation, which is on file at the City Parks Division office. The archaeologist recommends as a precaution archaeological monitoring during ground disturbing activities in any undisturbed areas. The City will hire an archaeologist to perform this monitoring during construction activities and the Contractor shall keep him or her informed of progress and cooperate with him or her as needed. Construction areas requiring monitoring are shown on page D-2 of the plans.

This area DA-134 contains a known mound group through which the existing irrigation system runs. Hose bibs near existing mound group boundary shall be abandoned by unscrewing the hydrant only. If the hydrant is unable to be unscrewed the standpipe shall be cut off no more than 6" below ground surface elevation and the hole be backfilled. The Contractor shall familiarize himself/herself with the location of DA-134 and shall not enter or disturb this area outside of the work needed to remove the existing hose bibs.

In the event any archaeological materials or human remains are encountered during the project, the Contractor shall halt all construction activities within the immediate area and the Principal Investigator or the Office of Historic Preservation at the State Historical Society of Wisconsin be consulted prior to continuing work.

Pursuant to Federal and Wisconsin State laws, should human skeletal remains, coffin hardware or potential coffin pieces (metal or wood) be encountered during construction, all activities in the area are required to cease immediately and the State of Wisconsin Burial Sites Preservation Office must be contacted at 608-264-6503 or 800-342-7834 for further instructions.

In addition to the four areas of concern described above, during the construction, Mr. Darin Hall of City Parks Division shall be given the authority to request archaeological monitoring in any areas that he feels should be supervised during ground disturbance.

## **SECTION 109.2            PROSECUTION OF THE WORK**

Work cannot start on this contract until after the "Start to Work" letter has been received. Construction work must begin within seven (7) calendar days after the date appearing on the mailed notice to do so that was sent to the Contractor. Construction work shall be carried at a rate so as to secure full completion within the contract times outlined in Section 109.7, the rate of progress and the time of completion being essential conditions of this Agreement. Definite notice of intention to start work shall be given to the Engineer at least seventy-two (72) hours in advance of beginning work.

The fixed, agreed upon, liquidated damages for failure to complete all work within the contract, unless otherwise specified in this section, shall be calculated in accordance with Article 109 of the Standard Specifications. The Contractor shall limit workdays from Monday through Friday 7:00 am to 7:00 pm, unless approved by the Engineer in writing.

Construction work must begin within seven (7) calendar days after the date appearing on mailed notice to do so. Once started, work shall be carried on at a rate so as to secure full completion within the contract time, the rate of progress and the time of completion being essential conditions of this Agreement.

The Contractor may elect to start portions of the work in the in 2017 or may start all work in 2018. If work commences in 2017, the Contractor shall comply with the requirements stated in Section 105.12. No additional mobilization shall be provided if the Contractor chooses to start work or is required to shut down construction activities for the winter or fall.

Work on this project should be scheduled through Corey Stelljes from the Parks Division, at [cstelljes@cityofmadison.com](mailto:cstelljes@cityofmadison.com) or (608) 266-6518.

## **SECTION 109.7:            TIME OF COMPLETION**

Work shall start on or after August 14, 2017 and must be completed by July 14, 2018.

## **BID ITEM 20101 – EXCAVATION CUT**

### **DESCRIPTION**

Some of the roadways in this contract are being slightly narrowed. The area of pavement removal in this contract is larger than the proposed asphalt area. The quantity of excavation cut included in this contract was calculated based on the area of proposed asphalt subtracted from the existing asphalt. Existing asphalt depth is assumed to be 6" but may vary. Contractor shall remove all existing asphalt and place topsoil as needed in voids left between new and existing asphalt. Topsoil shall be paid under Bid Item 20221- TOPSOIL. Gravel shouldering shall be no wider than 1 foot.

## **BID ITEM 20217 – CLEAR STONE**

### **DESCRIPTION**

The quantity of clear stone included in this contract is sufficient to construct one typical construction entrance and stone berm shown on plans. This item shall include the quantity of clear stone required for the construction entrance per BID ITEM 21011 – CONSTRUCTION ENTRANCE and clear stone berm per BID ITEM 21015 – STREET CONSTRUCTION STONE BERM. If the Contractor chooses to use additional clear stone it shall be at no additional cost to the City.

### **METHOD OF MEASUREMENT**

Clear Stone shall be measured by the ton as listed in the proposal page without measurement thereof.

### **BASIS OF PAYMENT**

Clear Stone shall be measured as described above and shall be paid for at the contract unit price which shall be full compensation for all work, materials, labor, tools, equipment, disposal, and incidentals required to complete the work as set forth in the description.

## **BID ITEM 21011 – CONSTRUCTION ENTRANCE**

### **DESCRIPTION**

Work under this item shall include the placement of a stone pad and paid as a construction entrance at the location shown in the plans and in accord with the City of Madison Standard Specifications and with the approval of the Construction Engineer.

Construction entrance shall be constructed at the size and location as approved by the field engineer. The Contractor shall place stone, ramping, and/or plating to avoid damage to concrete or asphalt. If any concrete or asphalt is damaged during construction the Contractor shall remove and replace damaged sections at no additional cost to the city. The field engineer shall determine any damaged sections to be replaced.

### **METHOD OF MEASUREMENT**

Construction Entrance shall be measured as each pad placed in the field as listed in the proposal page without measurement thereof.

### **BASIS OF PAYMENT**

Construction Entrance shall be measured as described above and shall be paid for at the contract unit price which shall be full compensation for all work, materials, labor, tools, equipment, disposal, and incidentals required to complete the work as set forth in the description.

## **BID ITEM 40311 – PULVERIZE AND SHAPE**

### **DESCRIPTION**

Work under this item shall include pulverizing and shaping all asphalt roadways accord with the plans, City of Madison Standard Specifications, and with the approval of the Construction Engineer.

All storm sewer trenches shall be restored with Trench Patch Type IV. Pavement removal required to install storm sewer shall be included in Bid Item 40311- Pulverize and Shape.

It is anticipated that there will be excess material from pulverizing the existing asphalt. The Contractor may use this material for gravel shouldering and select backfill on site if approved by the engineer.

Excess material must be hauled off site and disposed of at a location determined by the Contractor. All costs associated with removing, handling, transporting, and disposing of excess material shall be included in this item.

Edges shall be sawcut per Bid Item 20303 Sawcut Bituminous Pavement.

## **METHOD OF MEASUREMENT**

Pulverize and Shape shall be measured per square yard in the field as listed in the proposal page without measurement thereof.

## **BASIS OF PAYMENT**

Pulverize and Shape shall be measured as described above and shall be paid for at the contract unit price which shall be full compensation for all work, materials, labor, tools, equipment, disposal, and incidentals required to complete the work as set forth in the description.

## **STORM SEWER AND SEWER STRUCTURES GENERAL**

### **STORM SEWER GENERAL**

Storm sewer pipe work shall include installing approximately 1783 feet of new 12", 15", 18", and 24" storm sewer at location shown on the plan and in accordance with the Standard Specifications.

Precast structures are only allowed where field poured structures are not specifically called for.

All storm sewer trenches shall be backfilled at the end of each working day, no trenches shall be left open while Contractor is not on site.

## **BID ITEM 90001- GRAVEL SHOULDERING**

### **DESCRIPTION**

The work under this item shall consist of installing a maximum 1 foot wide gravel shoulder along the sides of the cemetery roadways so that the new asphalt transitions to existing ground. The shoulder shall meet the proposed pavement grade and be flush with the asphalt pavement once completely compacted, then taper off to match existing grade. Provide aggregate shoulder material compacted to a 3:1 cross slope from the surface of the pavement edge. After final compaction, shape the shoulders to remove all longitudinal ridges to ensure proper drainage. The work shall consist of grading, installing, compacting, watering as necessary, cleaning adjacent pavement after the gravel shoulder is install.

It is anticipated that there will be excess material from pulverizing the existing asphalt. The Contractor may use this material for gravel shouldering if approved by the engineer. Excess material must be hauled off site and disposed of at a location determined by the Contractor. Any areas needed to be filled beyond the maximum limits of gravel shouldering shall be filled with topsoil.

### **MATERIALS**

Gravel shouldering shall consist of Crushed Aggregate Base Course Gradation 2 or 3 or existing pulverized gravel material from the site if approved by construction engineer.

### **MEASUREMENT AND PAYMENT**

Gravel Shouldering shall be measured by the lineal foot installed.

## **BASIS OF PAYMENT**

Gravel Shouldering shall be paid based on price to properly install a one foot gravel shoulder along both sides of the street as described under this bid item. Payment shall be full compensation for furnishing, placing, watering, drying, compacting, and maintaining the gravel shouldering; for preparing foundation; for stockpiling, if required; and for furnishing all labor, tools, equipment and incidentals necessary to complete the work, without damaging the new asphaltic pavement and/or the pavement markings.

## **BID ITEM 90002 - CONSTRUCTION FENCE (PLASTIC)- UNDISTRIBUTED**

### **DESCRIPTION**

Work under this item shall include all work, materials, labor and incidentals necessary for the Contractor to provide, install, maintain and remove construction fence from the project site as shown on the plans.

Construction fencing shall be installed as directed by construction engineer to discourage access to the construction area and by the general public and protect trees or headstones during the course of the project. Fencing will be maintained throughout and adjusted or removed at the request of the Engineer.

This construction fence shall be highly visible (orange), constructed of a plastic web, and able to withstand the expected amount of use it will receive on a construction site. Minor relocation of fencing may be required as the work progresses. No extra payment shall be made for temporarily opening and re-closing the fence, or minor relocation of the fencing as needed to perform the work.

Construction fencing shall be orange color, high-density polyethylene mesh conforming to the following:

- Mesh opening: 1 inch minimum to 3 inch maximum
- Height: 4 feet
- Ultimate tensile strength: Avg 3000lb per 4' width (ASTM D638)

Construction fencing posts shall be installed a minimum of 10' O.C.

### **METHOD OF MEASUREMENT**

Construction Fence (plastic) shall be measured by the Linear Foot as listed in the proposal page without measurement thereof.

### **BASIS OF PAYMENT**

Construction Fence (plastic) shall be measured as described above and shall be paid for at the contract unit price which shall be full compensation for all work, materials, tools, equipment, labor, hauling, placement, disposal and incidentals required to complete the work as set forth in the description.

## **BID ITEM 90003 – IRRIGATION SYSTEM**

### **DESCRIPTION**

Work under this item shall include all work, materials, labor and incidentals necessary for the Contractor to provide, install, maintain irrigation system, restore areas disturbed by system installation, and abandon existing irrigation system.

The Contractor shall have the ability to install irrigation main by one of two options:

Option 1- Open cut method with PVC pipe



Pipe installed by open cut or trenching shall be PVC as described by this Bid Item. All diameters and locations of irrigation main listed on the plans shall be maintained regardless of pipe material. If Option 1 is chosen, no additional compensation will be provided for boring that is performed beyond plan quantities and any additional boring required to avoid conflicts shall be considered incidental to this bid item. The minimum amount of main to be bored is shown on the plans and quantities listed in the Special Provisions. All pipe shall include Tracer Wire and Metallic Tracer Tape will be required.

#### Option 2 -Boring method with HDPE pipe

Pipe installed by boring method shall be HDPE and shall comply with section 3.13 of this item. All diameters and locations of irrigation main listed on the plans shall be maintained regardless of pipe material. If Option 2 is chosen a maximum depth of 24" and minimum depth of 18" shall be maintained at all times unless instructed by Engineer and all work shall conform to section 3.13 of this specification. In addition, the Contractor shall omit the Metallic Tracer Tape but all pipe shall include Tracer Wire.

The Contractor shall make the determination on the construction method prior to ordering materials and prior to the start of work and shall not be allowed to mix and match piping material types.

#### 1.01 RELATED DOCUMENTS

- A. Attention is directed to the Bidding and Contract Requirements and General and Supplemental Requirements, which are hereby made a part of this Section.

#### 1.02 DESCRIPTION OF WORK

- A. Furnish all labor, materials, supplies, equipment, tools, and transportation, and perform all operations in connection with and reasonably incidental to the complete installation of the irrigation system, and guarantee/warranty as shown on the drawings, the installation details, and as specified herein. The system shall be constructed to grades and conform to areas and locations as shown on the drawings. Removal and or restoration of existing improvements, excavation and back-fill, and all other work in accordance with plans and specifications are required. Contractor to acquire all registrations, inspections and permits to complete the irrigation system.
- B. Extent of irrigation system work is shown on drawings and by provisions of this Section.
- C. Sprinkler lines shown on the drawings are essentially diagrammatic. Spacing of the sprinkler heads or quick coupling valves are shown on the drawings and shall be exceeded only with the permission of the City of Madison's authorized representative.
- D. The irrigation system shall include a controlled valve distribution system. Contractor shall furnish and install equipment, associated piping and incidentals as shown and specified.
- E. Items of work specifically included, but not limited to are:
  - 1) Procurement of all applicable licenses, permits, and fees.
  - 2) Coordination of all utilities.
  - 3) Installation of the system
  - 4) Sleeving for irrigation pipe and wire.
  - 5) Restoration of trenches
  - 6) As-Built Drawings

### 1.03 RELATED WORK

- A. Division 2-Site Work:
  - 1) Section 02010 – Subsurface Investigation
  - 2) Section 02920 – Lawns and Grasses
  - 3) Section 02300 – Earthwork
  - 4) Section 02930 – Trees, Shrubs and Ground Cover

### 1.04 QUALITY ASSURANCE

- A. The “Contractor” shall maintain continuously a competent superintendent, satisfactory to the City of Madison, with authority to act for him in all matters pertaining to the work. The “Contractor” shall coordinate his work with the other trades.
- B. The “Contractor” shall confine his operations to the area to be improved and to the areas allotted him by the City of Madison’s representative for material and equipment storage.
- C. The “Contractor” shall have a minimum of 5 years’ experience installing systems of comparable size and complexity. The Contractor shall also have suitable financial status to meet obligations for this project.

### 1.05 SUBMITTALS

- A. Submit samples under provisions of Section 01300-Submittals.  
  
Materials List: Include valves, pipe, fittings, valve boxes, swing joints and quick couplers to be used on the project prior to purchasing materials. Quantities of material need not be included.
- B. Manufacturer’s Data: Submit manufacturer’s catalog cuts, specifications, and operating instructions for the equipment mentioned above and equipment shown on the materials list.
- C. Shop Drawings: Upon irrigation system acceptance, submit written operating and maintenance instructions. Provide format and contents as directed by the City of Madison’s representative. Include instruction sheets and parts lists for all operating equipment. If the Contractor has an approved equal change, submit shop drawings for the change.
- D. Project Record (As-Built) Drawings
  - 1) The Contractor is to provide the City of Madison a scaled drawing of the completed field “As-Built” of the system.
  - 2) All components of the system are to be drawn and referenced to the base drawing on the site by using sub meter GPS or surveyed in. All components of the as-built are to be reference the original drawing and layout and tied into those points.
  - 3) Components of the system but not limited to, isolation valves, all PVC piping, sleeves, hose bibs, quick couplers, PVC pipe and sizing,
  - 4) All PVC piping shall be referenced in the trench for lengths of run, change in direction and distance and locations of all components referenced.

- 5) Two final hard copies of the overall drawings with dimension and notes are to be provided to the City of Madison and one copy of the As-Built in AutoCAD 2016 digital format at the same scale drawing as provided to the Contractor. Contractor to provide City of Madison with GPS, surveyed points as well as final graphic drawing of the As-Built. The Contractor is to provide in the original size and 11 x 17" format.
- 6) The Contractor is to submit proof of daily field As-Builts with pay submittal for each area the pay submittal is being submitted for. Payment will not be approved if progress drawings are not submitted.
- 7) Contractor is to provide a picture log of the daily installation for piping, and all related components. Submit this picture log after the first 2 days of installation for format approval. Submit the project picture log at the end of the project in digital form and place on a memory stick for the City of Madison.

#### 1.06 RULES AND REGULATIONS

- A. Work and materials shall be in accordance with the latest edition of the National Electric Code, the Uniform Plumbing Code as published by the Western Plumbing Officials Association, and applicable laws and regulations of the governing authorities.
- B. When the contract documents call for materials or construction of a better quality or larger size than required by the above-mentioned rules and regulations, provide the quality and size required by the contract documents.
- C. If quantities are provided either in these specifications or on the drawings, these quantities are provided for information only. It is the "Contractor's" responsibility to determine the actual quantities of all material, equipment, and supplies required by the project and to complete an independent estimate of quantities and wastage.

#### 1.07 DELIVERY, STORAGE AND HANDLING

- A. Deliver irrigation system components in manufacturer's original undamaged and unopened containers with labels intact and legible.
- B. Deliver plastic piping in bundles, packaged to provide adequate protection of pipe ends either threaded or plain.
- C. Store and handle materials to prevent damage and deterioration.
- D. Provide secure, locked storage for valves and similar components that cannot be immediately replaced, to prevent installation delays.

#### 1.08 CODES AND STANDARDS

- A. The entire installation shall fully comply with local and state laws and ordinances and with all established codes applicable thereto.
- B. Any permits for the installation or construction of the work included under this contract which are required by any of the legally constituted authorities having jurisdiction, shall be obtained and paid for by the "Contractor", each at the proper time. He shall also arrange for and pay all costs concerning any inspections and examinations required by these authorities.

- C. In all cases where inspection of the system work is required and/or where portions of the work are specified to be performed under the direction and/inspection of the City of Madison's authorized representative, the "Contractor" shall notify the City of Madison's authorized representative at least 48 hours in advance of the time and such inspection and/or direction is required.
- D. Any necessary re-excavation or alterations to the system needed because of failure of the "Contractor" to have the required inspections, in the opinion of the Engineer/City of Madison's representative, shall be performed at the "Contractor's" own expense.

#### 1.09 TESTING

- A. Notify the engineer/City of Madison's representative three days in advance of testing.
- B. Pipelines jointed with rubber gaskets or threaded connections may be subjected to a pressure test at any time after partial completion of backfill. Pipelines jointed with solvent-welded joints shall be allowed to cure at least 24 hours before testing.
- C. Subsections of mainline pipe may be tested independently, subject to the review of the engineer/City of Madison's representative.
- D. Furnish clean, clear water, pumps, labor, fittings, and equipment necessary to conduct test or retests.
- E. Volumetric Leakage Test:
  - 1) Cap riser of mainline components for volumetric pressure tests. Backfill to prevent pipe from moving under pressure. Expose coupling and fitting.
  - 2) Purge all air from the pipeline before test.
  - 3) Subject mainline pipe to the anticipated operating pressure for two hours. Maintain constant pressure. Test complete system under full line pressure. Pressure must be maintained with less than 2lbs loss in the system for 4 hours. If the system does not hold pressure, repair leaks and retest system until the system maintains pressure.
  - 4) All necessary testing equipment shall be furnished by Contractor.
  - 5) Cement or caulking to seal leaks is prohibited.
- F. Operational Test:
  - 1) Activate each hose bib. The engineer/City of Madison's representative will visually observe operation and leakage.
  - 2) Replace appurtenance to correct operational deficiencies.
  - 3) Replace defective pipe, fitting, joint, valve, or appurtenance to correct leakage problems. Cement or caulking to seal leaks is prohibited.
  - 4) Repeat test(s) until each lateral passes all tests. Repeat tests, replace components, and correct deficiencies at no additional cost to the City of Madison.

#### 1.10 CONSTRUCTION REVIEW

- A. The purpose of on-site reviews by the engineer/City of Madison's representative is to periodically observe the work in progress, the "Contractor's" interpretation of the construction documents, and to address questions with regard to the installation.
- B. Scheduled reviews such as those for irrigation system layout or testing must be scheduled with the engineer/City of Madison's representative as required by these specifications.
- C. Impromptu reviews may occur at any time during the project.
- D. A review may occur at the completion of the irrigation system installation and project record (as-built) drawing submittal.

#### 1.11 GUARANTEE/WARRANTY AND REPLACEMENT

- A. It shall be the "Contractor's" responsibility to ensure and guarantee satisfactory operation of the entire system and the workmanship and restoration of the area. The entire system shall be guaranteed to be complete and perfect in every detail for a period of one year from the date of its acceptance and he hereby agrees to repair or replace any such defects occurring within that year, free of expense to the City of Madison.
- B. Minor maintenance and adjustment shall be by the City of Madison.
- C. For a period of one year from final acceptance, fill and repair depressions or settling more than one (1") inch. Restore landscape or structural features damaged by the settlement of irrigation trenches or excavation. Repair damage to the premises caused by a defective item.
- D. Make repairs within seven (7) days of notification from the engineer/City of Madison's representative.
- E. Contract documents govern replacements identically as with new work. Make replacements at no additional cost to the contract price.
- F. Guarantee/warranty applies to originally installed materials, equipment, and replacements made during the guarantee/warranty period.

#### 1.12 WINTERIZATION AND SPRING START-UP

- A. Coordinate the winterization and start-up with the City of Madison's landscape maintenance personnel.
- B. Contractor shall winterize the system the first year as part of this contract, and will provide written instructions to the City of Madison for future service and maintenance.
- C. Return to the site during the subsequent spring season and demonstrate to the City of Madison the proper procedures for the system start-up, operation and proper maintenance. Repair any damage caused in improper winterization at no additional cost to the City of Madison.
- D. After completion, testing and acceptance of the system, the "Contractor" will instruct the City of Madison's personnel in the operation and maintenance of the system.
- E. The City of Madison will supply the air compressor, but the Contractor will need to be present, coordinate timing with the City of Madison and complete the blow out.

## 2.01 GENERAL

Use materials that are new and without flaws or defects of any type, and which are the best of their class and kind. All material overages at the completion of the installation are the property of the "Contractor" and are to be removed from the site.

- A. Each major component of equipment shall have manufacturer's name, address, catalog and serial number permanently attached in a conspicuous place.
- B. The same brand or manufacturer shall be used for each specific application of valves, fittings, controls, and other equipment.
- C. All materials shall be new and of the quality specified.
- D. All equipment shall be listed, approved or rated by a nationally recognized testing and rating bureau of recognized manufacturer's association responsible for setting industry standards.
  - 1) Acceptable irrigation manufacturers – as indicated or approved equal, but must be approved as equal to that product shown on the plans and in the specifications.
- E. It is the intent of this specification to establish a uniform equipment pallet for this and phases of the project. Substitutions will only be allowed if in the opinion of the City of Madison's representative it is deemed to be equal or an upgrade and offers the same features that were originally specified.

## 2.02 SUBSTITUTIONS

- A. Equipment Substitutions
  - 1) Whenever a piece of equipment or material is identified by a manufacturer's trade name, catalog number, etc., it is intended to establish a standard; and any equipment of another manufacturer which will perform adequately the requirements of design and is of equal or greater quality than the specifications in the opinion of the City of Madison's representative will be considered equally acceptable.
  - 2) It is the intent of this specification to permit use of materials of any nationally recognized manufacturer so long as they are fully equal to quality and performance of named item in opinion of City of Madison's representative. Materials or equipment of other manufacturers may be used upon following conditions.
    - a. Proposed substitute is equal in design, materials, construction and performance in opinion of City of Madison's representative. No compromise in quality level will be allowed.
    - b. Service capabilities, availability of service parts, and stability of manufacturer are adequate in opinion of the Engineer
    - c. Contractor assumes responsibility for any modifications required for installation of substitute equipment and for accommodation of such substitution by work of other contractors.

Any additional expense on part of other contractors or CITY OF MADISON due to substitution of equipment shall be borne by Contractor making such substitution.
    - d. Substitute equipment shall fit into space provided with adequate

provisions for service and maintenance.

- e. All Substitutions must be approved in writing prior to bidding.

The Contractor shall use materials as specified. Material other than specified will be permitted only after written application by the "Contractor" and written approval by the Engineer/City of Madison's representative. Substitutions will only be allowed when in the best interest of the City of Madison.

## 2.03 SLEEVING/BORE

- A. Install separate sleeve beneath paved areas to route each run of irrigation pipe or wiring bundle.
  - 1) Sleeving material beneath pedestrian pavements shall be PVC Class 200 pipe with solvent welded joints.
  - 2) Sleeving beneath drives and streets shall be PVC Class 200 pipe with solvent welded joints.
  - 3) Sleeving diameter: equal to twice that of the pipe or as indicated on drawings.

## 2.04 PIPE AND FITTINGS

- A. Mainline Pipe, (PURPLE) and Fittings:
  - 1) Use rigid, unplasticized polyvinyl chloride (PVC) 1120, 1220 National Sanitation Foundation (NSF) approved pipe, extruded from material meeting the requirements of Cell Classification 12454-A or 12454-B, ASTM Standard D1784, with an integral belled end.
  - 2) Use Class 200, SDR-21, rated at 200 PSI, conforming to the dimensions and tolerances established by ASTM Standard D2241. Use PVC pipe rated at higher pressures than Class 200 in the case of small nominal diameters that are not manufactured in Class 200.
  - 3) Use rubber-gasketed pipe equipped with Reiber Gasket System for mainline pipe with a nominal diameter 3-inches and greater. Use rubber-gasketed deep bell ductile iron fitting conforming to ASTM A-536 and ASTM F-477 by LEEMCO or equal. Use lubricant approved by the pipe manufacturer. Size slip fitting socket taper to permit a dry unsoftened pipe end to be inserted no more than halfway into the socket. Saddle and cross fittings are not permitted. Mainline pipe going through sleeves shall be solvent weld. No gasketed pipe is allowed in sleeves.
  - 4) Use solvent weld pipe for mainline pipe with a nominal diameter 2 1/2" inches and less or where a pipe connection occurs in a sleeve. Use Schedule 40, Type 1, PVC solvent weld fittings conforming to ASTM Standard D2466 and D1784. Use primer approved by the pipe manufacturer. Solvent cement to conform to ASTM Standard D2564.
  - 5) Provide pipe homogeneous throughout and free from visible cracks, holes, foreign materials, blisters, wrinkles and dents.
  - 6) Provide pipe continuously and permanently marked with manufacturer's name and trademark, size schedule and type of pipe working pressure at 73 degrees F. and (NSF) approval.

- 7) Pipe sizes referenced in the construction documents are minimum sizes, and may be increased at the option of the "Contractor" at no cost to the City of Madison.
- 8) All pipes damaged or rejected because of defects shall be removed from the site at the time of said rejection.
- 9) All mainlines and sleeves are to have a metallic tracer tape placed 6" from the surface. The tape shall be 3" wide and indicate buried water below. Sleeves shall have tape brought just below the surface at the ends for ease of locating or terminated in valve boxes.
- 10) Contractor to run a #14 ga direct bury wire in the mainline and loop to gate valves, quick couplers or other main line components. Label all wire loops in valve boxes. Tracer wire to be red. Tracer wire splice to occur in quick coupler or gate valve locations only.
- 11) All splices are to be made with 3M DBR/Y wire connectors. Test all tracer wire runs and show engineer/project manager how they are traced.
- 12) The PVC Mainline pipe and all piping to the hose bibs shall be Reclaimed water PURPLE pipe throughout the system.
- 13) Restore, re-top soil with 6" of topsoil, seed and matt all areas disturbed by trenching, system installation or boring activities.
- 14) Saw cut all sleeves under roads, compact and patch asphalt.

B. Ductile iron fitting & Joint restraints

- 1) All ductile iron fittings 3" and larger shall have a deep bell design that allows for a 5 degree deflection in any direction. Gaskets shall be a U-cup design. The fitting shall have four lugs for adaption to connecting DI fittings. They shall be made in accordance with ASTM A-536, Grade 65-45-12. Fittings shall be made by LEEMCO or approved equal. All fittings shall have a corresponding joint restraint for valves and angle fittings manufactured by LEEMCO or approved equal.

C. Specialized Pipe and Fittings:

- 1) Assemblies calling for threaded pipe connections shall use PVC Schedule 80 nipples and PVC Schedule 40 threaded fittings.
- 2) Joint sealant: Use only Teflon-type tape on plastic threads.
- 3) Ductile iron fittings: Joint Restraints – all isolation valves shall have a joint restraint system by LEEMCO or approved equal. All ductile iron fittings shall be slanted, deep bell, gasketed style made in accordance with ASTM-A-536, Grade 65-45-12. Fittings shall have four lugs to accommodate joint restraints and other fittings. Bell sections shall allow 5 degree freedom of pipe deflection within the bell end. Gasket design shall be rib-enforced "U-Cup" configuration to seal and assist in restraining pipe at all pressures. Fittings shall be manufactured by LEEMCO or approved equal.
- 4) When called for on main lines, use joint restraints on pipe to pipe gasketed joints by LEEMCO or approved equal.



- 5) Contractor may substitute joint restraints in place of thrust blocks. If joint restraints were to be used, a joint restraint plan must be submitted for approval prior to construction.

D. Thrust Blocks:

Use thrust blocks for fitting on pipe utilizing a rubber gasket pipe.

- 1) Use 3,000 –PSI poured concrete, concrete blocks of any type are not allowed.
- 2) Use 2-mil plastic to encapsulate the fitting or valve.
- 2) Size thrust blocks per piping manufacturer's recommendations for pipe size and soils encountered.

## 2.05 MAINLINE COMPONENTS

- A. Main System Shutoff Valve: per local practice and in compliance with local code.
- B. Isolation Gate Valve Assembly: As presented in the installation details. Install a separate valve box over a 3-inch depth of 3/8"-inch washed stone for each assembly.
- C. Quick Coupling Valve Assembly: PVC S-80 double swing joint arrangements as presented in the installation details.

## 2.06 WATERING SYSTEM COMPONENTS:

A. Hose Bibs

- Hose bibs to be by Arrowhead Brass & Plumbing, model 202, or approved equal, mounted on 3/4" galvanized risers. Standard 'T' handle to be removed and replaced with wheel-type handle (Arrowhead PK1250) or equal, painted PURPLE to denote non-potable water.
- Post to be a 4"x4"x8' treated post with 78" composite sleeve and cap, by Veranda or equal. Secure riser to post with three (3) hot-dipped galvanized finish brackets by T&B Fittings, #4177. Alternate the side brackets are mounted on for most secure positioning (see detail); use stainless steel 1/4" x 1 1/2" screws to mount brackets. Post shall be positioned so that 36" is exposed above ground (60" will be buried).
- Each riser shall have a purple Non-Potable Water sticker.
- Each post to have a purple 3"x4" Maxi Tag with the following text: "Non-Potable Water- For Irrigation Use Only- Do Not Drink". Mount tag above hose bib so it is visible. Tag by Christy's or approved equal.

B. Valve Boxes

- Valve boxes shall be manufactured by RainBird VB Series or approved equal and shall be rectangular, 12" /w 6" extension or 10" round and have "T" lid tops. All covers to be purple.
- Valve box shall be of a size that provides adequate space for valve repairs. A 10" round valve box may be used for isolation valves, quick couplers, wire splices and wire drops only.

- The valve box cover shall have the component markings engraved or heat stamped into the cover. Use the following symbols for corresponding components in the valve box.
  - GV – for Gate Valves
  - QC – for Quick Coupler
  - TW- Tracer Wire
  - AR- Air Release Valve
  - PR- Pressure Regulation Valve
  - BT- Blow-out Tee

C. Quick Coupler Valves

- Valves shall be 1" Hunter HQ-44LRC-R series valves or approved equal. The quick coupling shall have a locking purple vinyl cover. The matching Key shall be Hunter HK-44A. The quick coupler is to have stabilizer wings. If the valve does not have stabilizers originally installed, use attachable stabilizers manufactured by LEEMCO or approved equal.
- The Quick coupler valves are to be mounted on a Lasco swing joint with brass male threads and placed in a 10" round valve box. The valve box is to be filled with 3/8" clear chip gravel as detailed. Ensure proper height when backfilling.
- The Contractor is to provide three (3) quick coupler keys and hose swivels for quick coupler.
- The Contractor is to provide a key for each quick coupler for the locking cover of the quick coupler.

D. Swing Joints

- Swing Joints - Unitized, Factory-Assembled, 1" inlet and outlet styles, shall be rated at 315 psi maximum working pressure @ 73° F when tested in accordance with ASTM D3139, including internal hydrostatic pressure @ 787 psi for 60 minutes and short-term pressure of 1008 psi without leakage or failure. Their performance shall be warranted for five years to installers and City of Madison's of irrigation systems. Swing Joints shall be molded of rigid polyvinyl chloride (PVC). Type 1, Cell classification 12454-B per ASTM specification D 1784, with NPT threads and pipe sockets per ASTM D 2464 and D2466, respectively. Each rotating joint shall be sealed with an O-ring, installed pre-compressed in a sealing groove free of parting lines to prevent leakage. Modified stub ACME threads shall have special engineered (S.E.) diameters and clearances to allow full circle (360°) movement and to reduce stress concentrations and joint fracture at thread roots. Swing Joints riser assemblies shall have a working pressure rating of 315 psi @73F. The swing joint riser assemblies will be molded of Rigid Poly (vinyl) Chloride (PVC) Type 1, Cell Classification 12454-B per ASTM Standard D 1784. It shall be manufactured in such a way, that both the male and female O-ring sealing areas be free from mold parting lines. The burst pressure tested per ASTM D2467 and the long term pressure tested at 1,000psi for 1,000 hours.
- The swing joint shall have a five year warranty for the swing joint. The quick coupler swing joints shall have a minimum length 12" riser for quick couplers and be by Lasco or approved equal. The threads shall correlate to sprinklers, quick couplers and related components. Quick Coupler Swing Joints are to have a brass male threaded outlet 90 ell outlet to enter the bottom of the quick coupler.
- The Contractor is responsible to determine the final lay length of the swing joint to provide a 45 degree angle of the swing joint.

D. Solvent Weld Fittings

- 1) Fittings on 2.5" and smaller shall be Solvent weld PVC fittings shall be Schedule 40 and S-80, ASTM D-2466 and ASTM D-1784. PVC fittings shall be produced from PVC Type 1, Cell Classification 1245B. Fittings shall be manufactured by Spears or approved equal. All solvents and cements shall be that recommended by the manufacturer.
- 3) S-80 PVC fittings may be used and may be threaded or solvent weld. S-80 TOE Nipples with S-80 couplings for plastic to metal connections. (S-80 nipples cut in half will not be allowed.)

E. Gate/Isolation Valves

Isolation valves 2", 2.5" and 3" shall be ductile iron resilient seated globe valves. Valve body and restraint clamps shall be constructed of ductile iron per ASTM A-536, Grade 65-42-12. Epoxy coating on all interior and exterior surfaces shall be fusion bonded epoxy, 10-12 mil thickness. Valve mechanism and hardware shall be made of 100% 304-series stainless steel. The valve stem shall be fine threaded stainless steel, O-ring sealed for ease of operation. Valve outlet shall be deep bell gasket and equipped with integrally cast joint restraint clamps to securely fasten pipe to the valve. Restraint shall have blunt cast serrations. Valve shall be made by LEEMCO or approved equal.

F. Air Relief Valve

The air relief valve shall be 1" with a float operated resilient-seated valve. The valve shall be located at the high point in the line in the general area as indicated on the plans. The air is to exit through a venting orifice. The valve shall be a Val-Matic 15A or approved equal.

G. Pressure Regulation

The pressure regulator shall be an adjustable pressure regulator. The regulator shall be 2" in size and regulate pressure from 25-75 psi discharge. The regulator will be set at 70psi. The regulator shall have threaded inlets and be mounted in-line on the mainline at the point of connection. The regulator shall be an Apollo 36HLF series valve or approved equal.

H. Tracer Wire

- 1) All 24 volt wiring shall be done with an UL listed 3M DBY/R-6 splice kit. All wiring is to be installed following existing local and state codes.
- 2) All signal wire shall include a solid copper conductor and polyethylene (PE) insulation. It shall be rated for 600 volts and manufactured by Paige Electric or equal. Minimum wire size shall be #14 gauge. Jacket color to be red.
- 3) Bring tracer wire into all valve boxes and loop label all ends on water proof tags and water proof labeling. Splices will be allowed at quick couplers or isolation valves.
- 4) All wire splices and wire routes shall be shown on the as-built.

## 2.07 OTHER COMPONENTS

### A. Tools and Extra Equipment

- 1) The Contractor is to provide to the City of Madison, two (2) sets of tools to repair and work on all equipment specified in this irrigation section.
- 2) The Contractor shall provide to the City of Madison, three (3) keys Hunter HK-44 A and three (3) hose swivels, Hunter HS-1 matching the quick coupling valve installed.
- 3) The Contractor shall provide 1 key per quick coupler locking cover.
- 4) The Contractor shall provide two (2) 60" long wrench with 2" nut shut off to fit over the cross handle of the globe valve.
- 5) The Contractor to provide two (2) swing joint assemblies for quick couplers and two (2) hose bib assemblies. Provide five (5) purple ID tags for the hose bib posts.

### B. Other Materials: Provide imported fill material as required to complete this work. Provide other materials or equipment shown on the drawings or installation details, which are part of the irrigation system, although such items may not have been referenced in these specifications.

## 3.01 INSPECTION AND REVIEWS

### A. Site Inspections:

- 1) The bidder acknowledges that he has examined the site, plans and specifications, and the submission of a proposal shall be considered evidence that examination has been made.
- 2) Verify construction site conditions and note irregularities affecting work of this section. It shall be the contracting installer's responsibility to report to the City of Madison's authorized representative any deviations between drawings, specifications and the site. Failure to do so before the installing of equipment and resulting in replacing and/or relocation of equipment shall be done at the "Contractor's" expense.
  - a. Examine final grades and installation conditions. Do not start irrigation system work until unsatisfactory conditions are corrected.
  - b. Beginning work of this section implies acceptance of existing conditions.

### B. Utility Locations:

- 1) The exact location of all existing utilities and structures and underground utilities are not indicated on the drawings; their locations shall be determined by the "Contractor", and he shall conduct his work so as to prevent interruption of service or damage to them.
- 2) Arrange for and coordinate with local authorities the location of all underground utilities.

- 3) Repair any underground utilities damaged during construction. Make repairs at no additional cost above the contract price.
  - 4) The "Contractor" shall protect existing structures and utility services and be responsible for their replacement if damaged by him.
  - 5) The City of Madison will locate the existing water lines, coordinate with City of Madison for marking prior to beginning construction.
- C. Irrigation System Layout Review:
- 1) Irrigation system layout review will occur after the staking has been completed unless specifically waived by the Engineer/City of Madison's representative. Notify the Engineer/City of Madison's representative one week in advance of review.
  - 2) The Engineer/City of Madison's representative at this review will identify modifications.

### 3.02 LAYOUT OF WORK

- A. Stake out the irrigation system. Items staked include: pipe, quick coupling valves, air release, pressure regulation, hose bibs, sleeves, bores and isolation valves.
- B. Install all mainline pipe and mainline components inside of project property lines.
- C. Minor adjustments in system layout will be permitted to clear existing fixed obstructions. Final system layout shall be acceptable to the Engineer/City of Madison's representative.

### 3.03 EXCAVATION, TRENCHING, AND BACKFILLING

- A. Excavating shall be considered unclassified and shall include all materials encountered, except materials that cannot be excavated by normal mechanical means.
- B. Excavate to permit the pipes to be laid at the intended elevations and to permit work space for installing connections and fittings.
- C. Minimum cover (distance from top of pipe or control wire to finish grade):
  - 1) 18-inch over mainline pipe.
- D. PVC mainlines or PVC, PE lateral pipes 2 1/2" and smaller may be pulled into the soil using a vibratory plow device specifically manufactured for pipe pulling, if in the opinion of the Engineer/City of Madison's representative that conditions are suitable. Minimum burial depths equals minimum cover listed above provided soil moisture content and other conditions are suitable to allow for full depth of the right to determine suitability or conditions.
- E. Backfill only after lines have been reviewed and tested.
- F. Excavated material is generally satisfactory for backfill. Backfill shall be free from rubbish, vegetable matter, and stones larger than 2 inches in maximum dimension. Remove material not suitable for backfill. Backfill placed next to pipe shall be free of sharp objects, which may damage the pipe.
- G. Backfill unsleeved pipe by depositing the backfill material equally on both sides of

the pipe in 6-inch layers and compacting each layer to 90% Standard Proctor Density, ASTM D698-78. Use of water for compaction, "puddling," will not be permitted.

- H. Enclose pipe and wiring beneath roadways, walks, curbs, etc., in sleeves. Minimum compaction of backfill for sleeves shall be 95% Standard Proctor Density. ASTM D698-78. Use of water for compaction around sleeve, "puddling," will not be permitted.
- I. Dress backfilled areas to original grade. Incorporate excess backfill into existing site grades.
- J. Where utilities conflict with irrigation trenching and pipe work, contact the engineer/City of Madison's representative for trench depth adjustments.
- K. Provide approved fine grained earth fill or sand to point 4" above the top of pipe where soil conditions are rocky or otherwise objectionable.
- L. Excavate trenches and install piping and backfill during the same working day. Do not leave open trenches or partially-filled trenches open overnight.
- M. The Contractor will be responsible for all finish and fine grading of trenches, disturbed areas around sprinklers heads, electric valves and any other excavated or disturbed areas by the Contractor. Contractor will also be responsible for all trench settling throughout the project during the one-year warranty period. If settling occurs, the Contractor will repair and bring back to originally set grade.
- N. When additional backfill material is needed to replace the unsuitable materials, it will be the Contractor's responsibility and expense to supply such material. It will also be the Contractor's responsibility to dispose of the unsuitable material.
- O. Restore, re-top soil with 6" of topsoil, seed and matt all areas disturbed by trenching, system installation or boring activities. All restoration shall conform to City of Madison Standard Specifications for Trench Restoration 6 Inch Topsoil, seed, fertilize, and mulch. All Matting shall be Class I Urban Type A.

### 3.04 WORKMANSHIP

- A. All work shall be done by qualified irrigation installers that are knowledgeable and experienced in operations they are performing. Installation methods, procedures and materials shall be in accordance with accepted industry practice and with standards of manufacturing and contracting associations applicable to the work. All work shall be neatly done with special emphasis on appearance of work exposed to view.

### 3.05 SLEEVING AND BORING

- A. Install sleeving at a depth that permits the encased pipe or wiring to remain at the specified burial depth.
- B. Extend sleeve ends 2 feet beyond the edge of the paved surface. Cover pipe ends and mark with stakes.
- C. Bore for sleeves under obstructions that cannot be removed. Employ equipment and methods designed for horizontal boring.

- D. Saw cut all sleeves under roads, compact and patch asphalt. All asphalt patching shall be Trench Patch Type III and shall be included in this item.

### 3.06 ASSEMBLING PIPE AND FITTING:

#### A. General:

- 1) Keep pipe free from dirt and pipe scale. Cut pipe ends square and debur. Clean pipe ends.
- 2) Keep ends of assembled pipe capped. Removed caps only when necessary to continue assembly.
- 3) All mainline and continuously pressurized pipe is to be installed using open trenches. Trenches may be curved to change direction or avoid obstructions within the limits of the curvature of the pipe.

#### B. Mainline and Fittings:

- 1) Use only strap-type friction wrenches for threaded plastic pipe.
- 2) PVC Rubber-Gasketed Pipe:
  - a. Use pipe lubricant. Join pipe in the manner recommended by manufacturer and in accordance with accepted industry practices.
  - b. Epoxy-coated steel fittings shall not be struck with a metallic tool. Cushion blows with a wood block or similar shock absorber.
- 3) PVC Solvent Weld Pipe:
  - a. Use a primer and solvent cement. Join pipe in a manner recommended by the manufacturer and in accordance with accepted industry practices.
  - b. Cure for 30 minutes before handling and 24 hours before allowing water in pipe.
  - c. Snake pipe from side to side within the trench.
- 4) Fittings: the uses of cross type fittings are not permitted.
- 5) Install thrust blocks on the mainline pipe work in accordance with pipe manufacturer's written instructions.
- 6) All mainlines and sleeves are to have a metallic tracer tape placed 6" from the surface. The tape shall be 3" wide and indicate buried water below. Sleeves shall have tape brought just below the surface at the ends for ease of locating or terminated in valve boxes.
- 7) All mainline fittings shall be Ductile Iron fittings by LEEMCO or similar.

#### C. Specialized Pipe and Fitting:

- 1) Galvanized Steel Pipe:
  - a. Join pipe in the manner recommended by manufacturer and in accordance with manufacturer recommendations.

b. Use factory-made threads whenever possible. Field-cut threads will be permitted only where necessary. Cut threads on axis using clean, sharp dies.

c. Apply Teflon-type tape to the male threads only.

2) PVC Threaded Connections:

a. Use only factory-formed threads. Field-cut threads are not permitted.

b. Use only Teflon-type tape.

3) Threaded Connections:

a. Make metal-to-metal, threaded connections with Teflon-type tape applied to the male threads only.

### 3.07 INSTALLATION OF WATER COMPONENTS:

A. Tools and Spare Parts: Prior to the review at completion of construction, supply to the City of Madison operating keys, servicing tools, spare parts, test equipment and any other items indicated in general notes on the drawings.

B. Other Materials: Install other materials or equipment shown on the drawings or installation details which are part of the irrigation system, even though such items may not have been referenced in these specifications.

### 3.08 BALANCING AND ADJUSTING

A. The Contractor will be responsible for the balancing and adjustments of the various components of the system so the overall operation of the system is the most efficient.

### 3.09 REQUIREMENT FOR SUBSTANTIAL COMPLETION

A. Cleaning Equipment and Premises

- 1) Thoroughly clean all parts of the piping, valves and equipment.
- 2) Remove all construction debris, excess materials and equipment.

B. Operating and Maintenance Manuals

- 1) Contractor shall furnish to City of Madison two operating manuals for furnished equipment. Information sheets shall be bound in standard three-ring binders labeled to show Contractor's name, address, regular business phone number, emergency phone number and date. Operating manuals shall be submitted prior to completion of work to allow time for review. Manual shall contain following information:

List (keyed with identification numbers used) each item of equipment which requires service, giving the name of the item, model number, manufacturer's name and address, and providing the name, address and phone number of the nearest representative of authorized service organization.

Cut sheets to be included for the following, but not limited to: isolation valves, swing joints and valve boxes. A copy of the shop drawing for each item changed.



- 2) A complete operating and maintenance manual, parts list, wiring diagrams, lubrication requirements, and service instructions for each major item.
- 3) Properly executed registrations and registered manufacturer's warranties.
- 4) After completion of work and when City of Madison has had sufficient time to examine operating manuals and become somewhat familiar with operation of equipment, a meeting will be arranged by the Contractor with the City of Madison for purpose of instructing City of Madison in proper maintenance of system and to answer questions he/she may have regarding its operation.

### 3.10 ACCEPTANCE

- A. The Contractor shall instruct the City of Madison's designated personnel in the operation of the system and valves. Once Contractor has trained the City of Madison's representative, the system is fully operational and has completed the punch list, the project will be accepted. A written acceptance and date will be provided, which will begin the warranty and maintenance periods.

### 3.11 CLEANING

- A. Perform cleaning during installation of the work and upon completion of the work. Remove from site all excess materials, soils, debris and equipment. Repair damage resulting from sprinkler system installation.

### 3.12 ABAONDONMENT OF EXISTING IRRIGATION SYSTEM

The plans call for the existing irrigation system on site to be abandoned in place. Existing system is galvanized pipe 4 inch to 6 inch diameter. Locations have been marked in the field and surveyed. These locations are shown on the plans.

Contractor shall install proposed irrigation system adjacent to existing system to be abandoned while maintaining required depth at all times. It is the Contractors responsibility to resolve any conflicts between existing and proposed systems. No additional compensation shall be paid for avoiding, removing, boring, or removing the existing system. Existing irrigation line may be removed at Contractor's expense if deemed necessary by the Contractor and approved by the Construction Engineer.

All above ground fixtures and hose bibs part of the existing system must be removed to the depth of no less than 1' below ground surface elevation with the exception of the hose bibs and fittings located within the archeological monitoring areas shown on page D-2 of the plans.

Abandonment shall be done by plugging the pipe ends where proposed irrigation system or storm sewer cross, intersect, or expose the existing system. All abandonments shall be done in accordance with City of Madison Standard Specifications Article 203.2(c)-Abandoning Structures and Pipes with the excpetion that no concrete slurry shall be required. All all costs associated with abandonment work, materials, tools, equipment, labor, hauling, placement, disposal and incidentals required to complete the work as set forth in the description shall be included in this item.

### 3.13 USE OF HDPE PIPE

Use of HDPE pipe shall be allowed if the contractor decides to install irrigation main by boring method. If trenching method is used, Contractor shall use PVC pipe. All HDPE pipe shall conform to the following specs and installation methods.

#### Mainline Pipe and Fitting – HDPE Pipe:

1. Pipe shall be manufactured from a PE 4710/PE 3608 resin listed with the Plastic Pipe Institute (PPI) as TR-The resin material will meet the specifications of ASTM D3350-05 with a cell classification of PE 345464C. Pipe shall be manufactured to the dimensions and requirements of ASTM F714. Pipe shall be DR 13.5. The pipe shall contain no recycled compounds except that generated in the manufacturer's own plant from resin of the same specification from the same raw material. All HDPE pipe shall be in straight lengths. The Pipe shall be supplied by ISCO Industries, LLC. (800) 345-ISCO or equal.
2. The supplier must be capable of supplying both the pipe and fittings.
3. The supplier must be capable of manufacturing special fittings within its own manufacturing facility using a DataLogger.
4. The supplier must have the capability to train the contractor's employees in butt fusion, electrofusion and socket fusion of HDPE pipe and fittings.
5. The supplier must be capable of providing a "Hot Line" phone number to assist in fusion and fusion equipment questions.
6. The supplier must be capable of providing a trained representative on site upon the request of the contractor, owner or consultant to address any problems that are encountered during the installation.
7. The supplier must be capable to rent and service fusion equipment.
8. The supplier must furnish a written 5 year limited Warranty for HDPE pipe and fittings for Turf Irrigation Applications.
9. Recommended supplier: ISCO Industries, LLC or approved equal.

#### Mainline Fittings – HDPE Pipe:

Butt Fusion Fittings - Fittings shall be DR 13.5 PE4710/3608 HDPE, Cell Classification of PE 345464C as determined by ASTM D3350-05. Butt Fusion Fittings shall have a manufacturing standard of ASTM D3261. Molded & fabricated fittings shall have the same pressure rating as the pipe unless otherwise specified on the plans. Fabricated fittings are to be manufactured using a DataLogger. Reference to the DataLogger Quality Control records should be referenced from an indented stamp in each fusion bead of each fitting. Temperature, fusion pressure and a graphic representation of the fusion cycle shall be part of the quality control records.

#### Electrofusion– HDPE Pipe:

Electrofusion may be used where the butt fusion method cannot be used. Electrofusion couplings and fittings shall be PE4710/3608 HDPE, Cell Classification of PE 345464C as determined by ASTM D3350-05. Electrofusion couplings or fittings shall have a manufacturing standard of ASTM F1055. Couplings and fittings shall have the same pressure rating as the pipe unless otherwise specified on the plans.

#### Pipe Inspection:

Inspect the pipe for defects before installation and fusion. Defective, damaged or unsound pipe will be rejected.

Protect plain ends of the pipe while inserting through sleeves. It is important that there are no scratches on the plain ends.

#### Record Butt Fusion-HDPE:

All main line pipe joints are to be butt fused using McElroy fusion equipment. Each McElroy butt fusion unit shall be equipped with a McElroy DataLogger. The contractor shall label each butt fused joint so as it will be recorded on the DataLogger. The DataLogger shall record temperature, fusion pressure, with a graphic representation of the fusion cycle and shall be part of the quality control records. The DataLogger information shall be downloaded weekly and given to the irrigation consultant or owners representative for quality control records.

#### Contractor Qualification- HDPE:

The contractor shall have successfully installed high density polyethylene pipe in golf/turf irrigation projects. Three references will be required to be submitted. These reference(s) must provide a satisfactory response or the experience will not be accepted.

If a contractor has not previously successfully installed HDPE pipe for golf/turf irrigation projects within the past five years, he will be required to have a qualified fusion technician from the pipe supplier for a period of three days (at the expense of the contractor). The technician must have been trained and have fusion certification. The training must have been completed within the past twelve months. A designated person or persons will be trained by the technician. The training will include the following:

- a. butt fusion
- b. socket fusion
- c. electrofusion
- d. If electro fused or side wall fusion is required, this training must also be complete while the technician is on site.
- E If the contractor has experience, provide the certification certificate of the individual that will be on-site at all time of the fusing.

#### Contractor Equipment Qualification- HDPE:

If the contractor owns butt fusion equipment, the equipment must be serviced prior to use for this project. The machine must be environmental friendly and satisfactory working order. The hydraulic system must be leak free. The pressure gage must be checked for accuracy and the thermometer checked.

If a butt fusion machine is rented, it must be rented from company that has a fusion machine service center or centers certified by the butt fusion machine manufacturer. The machine must arrive with certification that the pressure gage and heater thermometer were accurate when shipped.

#### HDPE Warranty:

The HDPE pipe is to be 5 Year Limited Warranty for Golf and Turf Irrigation Applications. Seller to warrant that, for a period of five years from the date of final acceptance for turf application, it will replace any section of HDPE pipe product that is defective in materials or workmanship.

Contractor warrants that, for a period of five years from the date of final acceptance, it will re-fuse or repair a fusion connection that is defective in workmanship and promptly notifies Contractor of

the defect and, allows the Contractor to inspect at the place of installation. If it is determined the fused connection to be defective, Contractor will re-fuse or repair the connection at the jobsite.

**METHOD OF MEASUREMENT**

IRRIGATION SYSTEM shall be measured as LUMP SUM installed and accepted in the field as listed in the proposal page without measurement thereof.

**BASIS OF PAYMENT**

IRRIGATION SYSTEM shall be measured as described above and shall be paid for at the contract unit price which shall be full compensation for all work, materials, tools, equipment, labor, hauling, placement, disposal and incidentals required to complete the work as set forth in the description.



Construction • Geotechnical  
Consulting Engineering/Testing

November 14, 2014  
C14051-34

Mr. Tom Maglio  
City of Madison Parks Division  
City-County Building, Suite 104  
210 Martin Luther King Jr. Boulevard  
Madison, WI 53701

Re: Geotechnical Services  
Forest Hill Cemetery  
1 Speedway Road  
Madison, Wisconsin

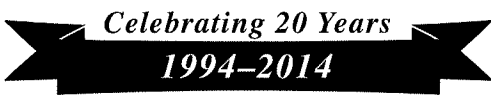
Dear Mr. Maglio:

CGC, Inc. has completed our geotechnical services for the above-referenced project. At your request, four soil borings were drilled along roadways within Forest Hill Cemetery where new storm sewer is planned. We understand that the storm sewer will be installed at invert depths of 4 to 6.5 ft below existing grades. The borings were performed on October 30, 2014, at locations selected by City personnel. Boring locations were marked out in the field by CGC personnel prior to drilling and are shown on a boring location map provided to us (copy attached in Appendix A). Elevations at the boring locations were not obtained. The following paragraphs discuss our observations and provide opinions relative to pavement/utility construction.

### **SUBSURFACE PROGRAM & OBSERVATIONS**

The borings were drilled to depths selected by City personnel utilizing the services of Badger State Drilling (under subcontract to CGC) using a truck-mounted, rotary CME 55 drill rig equipped with hollow-stem augers. Standard Penetration Test (SPT) drilling techniques (ASTM D1586) were used for the full exploration depth at the boring locations. This method consists of driving a 2-inch outside diameter split-barrel sampler using a 140-pound weight falling freely through a distance of 30 inches. The sampler is first seated 6 inches into the material to be sampled and then driven 12 inches. The number of blows required to drive the sampler the final 12 inches is recorded on the log of borings and is known as the Standard Penetration Resistance (commonly referred to as the N-value).

During the field exploration program, the driller visually classified the soils and prepared a field log. Water level observations were made within the borings during and shortly after drilling, which are shown on the bottom of each boring log. Note groundwater was not encountered in each of the borings. Nonetheless, groundwater levels are anticipated to fluctuate based on seasonal variations in precipitation, infiltration, nearby lake stages, etc. Upon completion of



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City of Madison Parks Division  
November 14, 2014  
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drilling, the borings were backfilled to satisfy WDNR requirements (including surface patching) and the soil samples delivered to our laboratory for visual classification (with laboratory testing not desired by the City). The soils were visually classified by CGC and reviewed by a geotechnical engineer using the Unified Soil Classification System (USCS). The final logs prepared by the engineer and a description of the USCS are presented in Appendix A.

The attached boring logs indicate that somewhat consistent pavement/soil conditions exist at the boring locations. In general, 7 to 9 in. of asphalt pavement was present atop 3 to 4 in. base course over 2.5 to 5 ft of stiff to very stiff lean clay. The clay soils were underlain by 4.5 to 11.5 ft of granular soils, which extended to the full depth at the boring locations. The granular soils are generally medium dense to very dense and contain varying percentages of gravel, silt and cobbles/boulders. In addition, portions of the granular soils in B1 and B2 with depth are considered possible to probable dolomite bedrock of variable weathering, with auger refusal in B2 at 10.5 ft suggesting more competent bedrock. As exceptions, the sands in B4 near 6 ft are loose and a layer of clayey sand (also loose) was encountered in B3 near 4 ft. Please refer to the final logs included in Appendix A for additional information specific to a boring location.

## PAVEMENT/UTILITY CONSTRUCTION

### General

In our opinion, the clay soils encountered beneath the base course/pavements will likely prove generally satisfactory for proposed roadway support. If areas of soft clays are encountered (such as where pocket penetrometer values are near 1 tsf or less), they may need to be undercut/removed and replaced with granular fill or additional base course. Furthermore, significant construction traffic could destabilize the existing materials and increase the potential for undercuts. Granular materials should be thoroughly compacted before the placement of additional fill and/or base course. Any pockets of excessively organic topsoil should also be removed. Standard earthwork-related techniques that should be used during roadway construction include:

- Proof-rolling of the exposed subgrades;
- Undercutting and/or stabilization in soft areas; and
- Compaction control of fill/backfill materials.

If a utility alignment coincides with loose conditions (such as those encountered at B3 and B4), we recommend that increased bedding thicknesses, possibly underlain by a geotextile, be considered.

Mr. Tom Maglio  
City of Madison Parks Division  
November 14, 2014  
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**Pavement Design**

Clays will control the pavement design, as we anticipate that the pavement subgrades will generally consist of native clay soils. The following *generalized* parameters should be used to develop the design pavement section:

**TABLE 1**

AASHTO classification	A-6
Frost group index	F-3
Design group index	14
Soil support value	4.0
Subgrade modulus, k (pci)	125
Estimated percent shrinkage	20 - 30
Estimated CBR value	2-5

Based on the measured in-place base course thicknesses, we recommend that the existing asphalt be milled and re-laid to increase the overall thickness to a minimum of 8 in. Subsequently, the pavement subgrades should be proof-rolled/recompacted and stabilized as needed with 3-in. DGB. We assume that the pavement areas will be subjected to mainly automobile traffic with minimal truck traffic (i.e., Traffic Class I, which includes less one design daily equivalent 18-kip single axle load – ESAL). The clay soils will control the pavement thickness design as stated above. Accordingly, the pavement section tabulated below was selected assuming a CBR value of approximately 2 to 5 and a design life of 20 years:

Mr. Tom Maglio  
 City of Madison Parks Division  
 November 14, 2014  
 Page 4

**TABLE 1  
 RECOMMENDED PAVEMENT SECTIONS-LIGHT TRAFFIC LOADS**

<b>Material</b>	<b>Thickness (in.)</b>	<b>WDOT Specification<sup>1</sup></b>
Bituminous upper layer	1.5	Section 460, Table 460-1, 12.5 mm
Bituminous lower layer	1.5	Section 460, Table 460-1, 19.0 mm
A combination of crushed aggregate base course and/or milled recompacted asphalt	8.0	Sections 301 and 305, 31.5mm and 75 mm
<b>TOTAL THICKNESS</b>	<b>11.0</b>	

Notes:

1. Wisconsin DOT *Standard Specifications for Highway and Structure Construction*, latest Edition, including supplement specifications, but excluding Section 460.3.2 relating layer thickness to aggregate size.
2. Compaction requirements:
  - Bituminous concrete: Refer to Section 460-3.
  - Base course: Refer to Section 301.3.4.2, Standard Compaction
3. Mixture Type E-03 bituminous pavement is recommended; refer to Section 460, Table 460-2 of the *Standard Specifications*.

Note that if traffic volumes are greater than those assumed, CGC should be allowed to review the recommended pavement section and adjust it accordingly. The pavement design assumes a stable/non-yielding subgrade and a regular program of preventative maintenance. Alternative pavement designs may prove applicable and should be reviewed by CGC. If there is a delay between subgrade preparation and placing the base course, the subgrade should be recompacted.

**Compaction Requirements**

Regarding utility construction, we anticipate that imported sands will be required for use as backfill which is the typical requirement for City projects. On-site sands could be considered for





Mr. Tom Maglio  
City of Madison Parks Division  
November 14, 2014  
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reuse as trench backfill but they should be separated from any clay soils and selectively stockpiled. Moisture conditioning could be necessary to achieve desired compaction levels. Sands with significant clay content should *not* be considered for reuse as backfill. We recommend that at least a level of 95% compaction be achieved within backfill material placed within the final 3 feet below finished subgrades (including undercut backfill - if any), with 90% compaction required at depths greater than 3 feet. The specified levels of compaction are based on modified Proctor methods (ASTM D1557). Also, the backfill material should be placed and compacted in accordance with our Recommended Compacted Fill Specifications presented in Appendix B.

\*\*\*\*\*

We appreciate this opportunity to be of service on this project and look forward to working with you as the job proceeds. Other information regarding this report and its limitations is included in Appendix C.

We trust this report addresses your present needs. If you have any questions, please contact us.

Sincerely,

**CGC, Inc.**

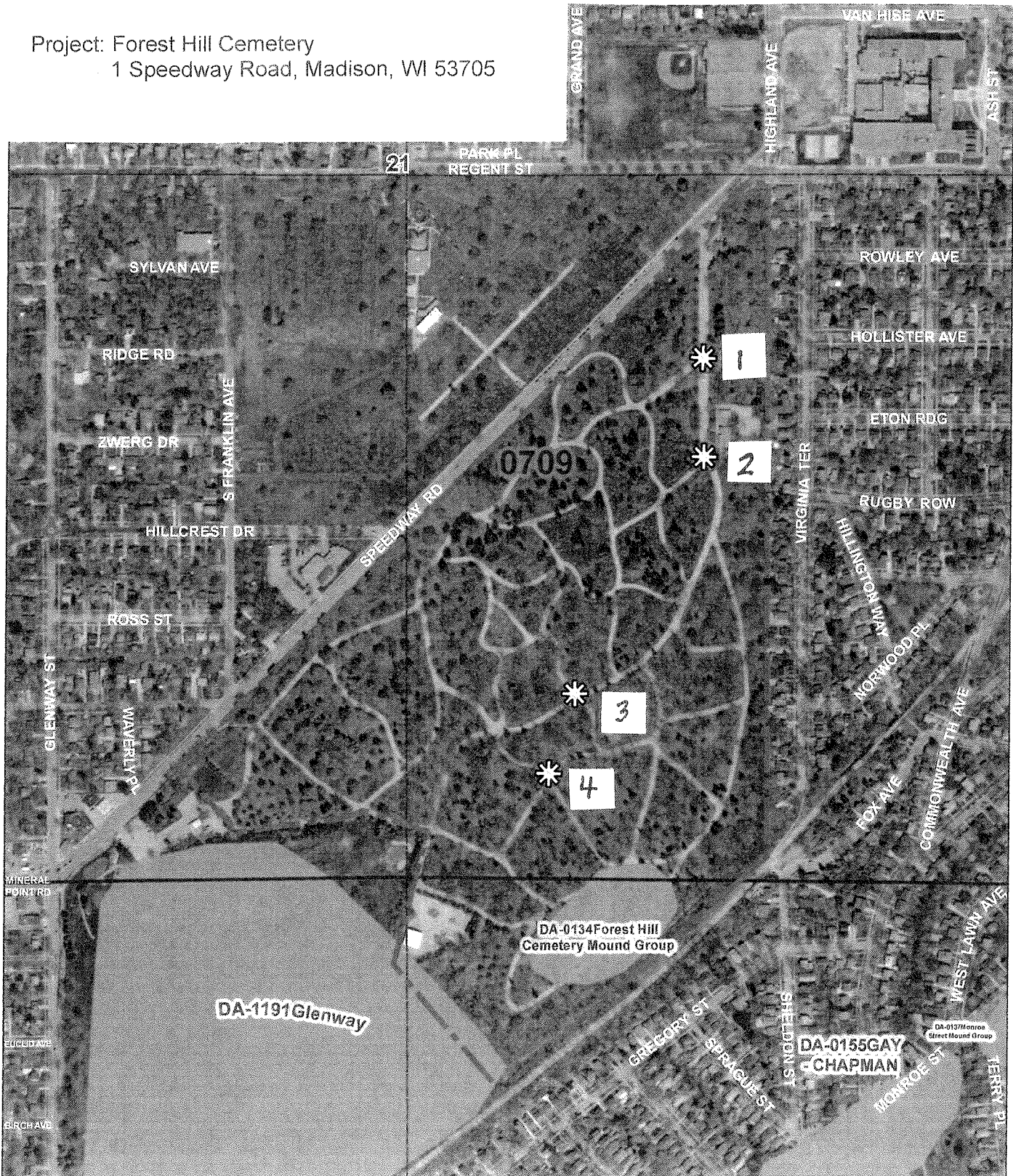
Michael N. Schultz, P.E.  
Principal/Consulting Professional

Encl: As stated

**APPENDIX A**

**SOIL BORING LOCATION MAP  
LOGS OF TEST BORINGS (4)  
LOG OF TEST BORING - GENERAL NOTES  
UNIFIED SOIL CLASSIFICATION SYSTEM**

Project: Forest Hill Cemetery  
 1 Speedway Road, Madison, WI 53705

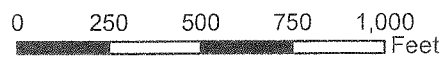


**Legend**

Denotes Recent Boring Location and Number

**Notes**

1. Base map provided by City of Madison.
2. Borings performed by Badger State Drilling in October 2013.
3. Boring locations are approximate.



1 inch = 500 feet



Scale: As shown

<p>Date: 11/2014</p>		<p><b>SOIL BORING LOCATION MAP</b>          Forest Hill Cemetery          Speedway Road          Madison, Wisconsin</p>
<p>Job No. C14051-24</p>		



# LOG OF TEST BORING

Project Forest Hill Cemetary  
Speedway Road  
 Location Madison, WI

Boring No. 1  
 Surface Elevation (ft) \_\_\_\_\_  
 Job No. C14051-34  
 Sheet 1 of 1

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES					
No.	TYPE	Rec (in.)	Moist	N		Depth (ft)	qu (qa) (tsf)	W	LL	PL	LI
					0	X	7 in. Asphalt Pavement/4 in. Base Course				
1		0	M	8	8		Stiff, Brown Lean CLAY, Trace Sand (CL)				
					12		Auger Sample Taken				
2		15	M	12	12		Medium Dense, Brown Fine SAND, Trace Silt (SP)				
					26		Medium Dense to Dense, Brown Fine to Medium SAND, Trace to Little Silt, Little Gravel, with Scattered Silt Seams (SP/SP-SM)				
3		13	M	13	26						
					41						
4		18	M	18	41						
					23		Medium Dense, Brown to Red/Brown, Fine to Coarse SAND, Some Gravel, Little Silt (SP-SM - Possible Weathered Dolomite Bedrock)				
5		14	M	14	23		End Boring at 15 ft				
					15		Borehole backfilled with bentonite chips				

WATER LEVEL OBSERVATIONS	GENERAL NOTES
While Drilling <input checked="" type="checkbox"/> <b>NW</b> Upon Completion of Drilling _____ Time After Drilling _____ Depth to Water _____ Depth to Cave in _____	Start <u>10/30/14</u> End <u>10/30/14</u> Driller <u>BSD</u> Chief <u>JF</u> Rig <u>CME-55</u> Logger <u>ZJ</u> Editor <u>AJB</u> Drill Method <u>2.25" HSA; Autohammer</u>
The stratification lines represent the approximate boundary between soil types and the transition may be gradual.	



# LOG OF TEST BORING

Project Forest Hill Cemetary  
Speedway Road  
 Location Madison, WI

Boring No. 2  
 Surface Elevation (ft) \_\_\_\_\_  
 Job No. C14051-34  
 Sheet 1 of 1

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	TYPE	Rec (in.)	Moist	N		Depth (ft)	qu (qa) (tsf)	w	LL	PL
					0					
					0					
1		7	M	6	0	7 in. Asphalt Pavement/3 in. Base Course				
					0	Stiff to Very Stiff, Brown Lean CLAY, Trace Sand (CL)	(1.5-2.5)			
					0	Little Sand and Gravel with Depth	(1.25)			
2		14	M	7	5	Very Dense, Light Brown to Gray Fine to Coarse SAND and GRAVEL, Little Silt (SP-SM - Possible to Probable Weathered Dolomite Bedrock)				
					5	Rough Drill Noted from 9 to 10.5 ft				
3		6	M	54	10	End Boring/Auger Refusal on Probable Dolomite Bedrock at 10.5 ft				
4		4	M	50/4"	10	Borehole backfilled with bentonite chips				
					15					
					20					

WATER LEVEL OBSERVATIONS	GENERAL NOTES
While Drilling <input checked="" type="checkbox"/> <b>NW</b> Upon Completion of Drilling _____ Time After Drilling _____ Depth to Water _____ Depth to Cave in _____	Start <b>10/30/14</b> End <b>10/30/14</b> Driller <b>BSD</b> Chief <b>JF</b> Rig <b>CME-55</b> Logger <b>ZJ</b> Editor <b>AJB</b> Drill Method <b>2.25" HSA; Autohammer</b>
The stratification lines represent the approximate boundary between soil types and the transition may be gradual.	



# LOG OF TEST BORING

Project Forest Hill Cemetary  
Speedway Road  
 Location Madison, WI

Boring No. 3  
 Surface Elevation (ft) \_\_\_\_\_  
 Job No. C14051-34  
 Sheet 1 of 1

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	TYPE	Rec (in.)	Moist	N		Depth (ft)	qu (qa) (tsf)	w	LL	PL
					0	9 in. Asphalt Pavement/5 in. Base Course				
1		8	M	6	1	Very Stiff, Brown Lean CLAY, Trace Sand (CL)				
2		12	M	5	5	Loose, Brown Clayey Fine to Medium SAND, Trace Gravel (SC)				
3		16	M	19	10	Medium Dense to Very Dense, Red-Brown Fine to Medium SAND, Little to Some Silt, Little Gravel, Scattered Cobbles/Boulders with Occasional Silt Seams (SP-SM/SM)				
4		10	M	68	10	Cobble Near 10 ft				
5		19	M	18	15	End Boring at 15 ft  Borehole backfilled with bentonite chips				
					20					

WATER LEVEL OBSERVATIONS	GENERAL NOTES
While Drilling <input checked="" type="checkbox"/> <b>NW</b> Upon Completion of Drilling _____ Time After Drilling _____ Depth to Water _____ Depth to Cave in _____	Start <u>10/30/14</u> End <u>10/30/14</u> Driller <u>BSD</u> Chief <u>JF</u> Rig <u>CME-55</u> Logger <u>ZJ</u> Editor <u>AJB</u> Drill Method <u>2.25" HSA; Autohammer</u>
The stratification lines represent the approximate boundary between soil types and the transition may be gradual.	



# LOG OF TEST BORING

Project Forest Hill Cemetary  
Speedway Road  
 Location Madison, WI

Boring No. 4  
 Surface Elevation (ft) \_\_\_\_\_  
 Job No. C14051-34  
 Sheet 1 of 1

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES									
No.	TYPE	Rec (in.)	Moist	N		Depth (ft)	qu (qa) (tsf)	W	LL	PL	LI				
					X	8 in. Asphalt Pavement/4 in. Base Course									
1		10	M	9		Very Stiff, Brown Lean CLAY, Trace to Little Sand (CL)					(2.0)				
2		15	M	12		5					(2.5)				
3		13	M	7		Loose to Medium Dense, Brown Fine to Medium SAND, Trace to Little Silt, Little Gravel with Scattered Silt Seams (SP/SP-SM)									
4		2	M	12		10									
5		15	M	31		15									
End Boring at 15 ft						Borehole backfilled with bentonite chips									
20															

WATER LEVEL OBSERVATIONS					GENERAL NOTES				
While Drilling	<input checked="" type="checkbox"/>	NW	Upon Completion of Drilling	_____	Start	<u>10/30/14</u>	End	<u>10/30/14</u>	
Time After Drilling	_____	_____		_____	Driller	<u>BSD</u>	Chief	<u>JF</u>	Rig <u>CME-55</u>
Depth to Water	_____	_____		_____	Logger	<u>ZJ</u>	Editor	<u>AJB</u>	
Depth to Cave in	_____	_____		_____	Drill Method	<u>2.25" HSA; Autohammer</u>			
The stratification lines represent the approximate boundary between soil types and the transition may be gradual.									

**LOG OF TEST BORING**  
**General Notes**

**DESCRIPTIVE SOIL CLASSIFICATION**

Grain Size Terminology

Soil Fraction	Particle Size	U.S. Standard Sieve Size
Boulders .....	Larger than 12" .....	Larger than 12"
Cobbles .....	3" to 12" .....	3" to 12"
Gravel: Coarse .....	¾" to 3" .....	¾" to 3"
Fine .....	4.76 mm to ¾" .....	#4 to ¾"
Sand: Coarse .....	2.00 mm to 4.76 mm .....	#10 to #4
Medium .....	0.42 to mm to 2.00 mm .....	#40 to #10
Fine .....	0.074 mm to 0.42 mm .....	#200 to #40
Silt .....	0.005 mm to 0.074 mm .....	Smaller than #200
Clay .....	Smaller than 0.005 mm .....	Smaller than #200

Plasticity characteristics differentiate between silt and clay.

General Terminology

- Physical Characteristics  
Color, moisture, grain shape, fineness, etc.
- Major Constituents  
Clay, silt, sand, gravel
- Structure  
Laminated, varved, fibrous, stratified, cemented, fissured, etc.
- Geologic Origin  
Glacial, alluvial, eolian, residual, etc.

Relative Density

- |                   |           |
|-------------------|-----------|
| Term              | "N" Value |
| Very Loose.....   | 0 - 4     |
| Loose.....        | 4 - 10    |
| Medium Dense..... | 10 - 30   |
| Dense.....        | 30 - 50   |
| Very Dense.....   | Over 50   |

Relative Proportions Of Cohesionless Soils

Proportional Term	Defining Range by Percentage of Weight
Trace.....	0% - 5%
Little .....	5% - 12%
Some .....	12% - 35%
And.....	35% - 50%

Consistency

Term	q <sub>u</sub> -tons/sq. ft
Very Soft.....	0.0 to 0.25
Soft.....	0.25 to 0.50
Medium.....	0.50 to 1.0
Stiff.....	1.0 to 2.0
Very Stiff.....	2.0 to 4.0
Hard.....	Over 4.0

Organic Content by Combustion Method

Soil Description	Loss on Ignition
Non Organic.....	Less than 4%
Organic Silt/Clay.....	4 - 12%
Sedimentary Peat.....	12% - 50%
Fibrous and Woody Peat...	More than 50%

Plasticity

Term	Plastic Index
None to Slight.....	0 - 4
Slight.....	5 - 7
Medium.....	8 - 22
High to Very High ..	Over 22

The penetration resistance, N, is the summation of the number of blows required to effect two successive 6" penetrations of the 2" split-barrel sampler. The sampler is driven with a 140 lb. weight falling 30" and is seated to a depth of 6" before commencing the standard penetration test.

**SYMBOLS**

Drilling and Sampling

- CS – Continuous Sampling
- RC – Rock Coring: Size AW, BW, NW, 2"W
- RQD – Rock Quality Designation
- RB – Rock Bit/Roller Bit
- FT – Fish Tail
- DC – Drove Casing
- C – Casing: Size 2 ½", NW, 4", HW
- CW – Clear Water
- DM – Drilling Mud
- HSA – Hollow Stem Auger
- FA – Flight Auger
- HA – Hand Auger
- COA – Clean-Out Auger
- SS - 2" Dia. Split-Barrel Sample
- 2ST – 2" Dia. Thin-Walled Tube Sample
- 3ST – 3" Dia. Thin-Walled Tube Sample
- PT – 3" Dia. Piston Tube Sample
- AS – Auger Sample
- WS – Wash Sample
- PTS – Peat Sample
- PS – Pitcher Sample
- NR – No Recovery
- S – Sounding
- PMT – Borehole Pressuremeter Test
- VS – Vane Shear Test
- WPT – Water Pressure Test

Laboratory Tests

- q<sub>a</sub> – Penetrometer Reading, tons/sq ft
- q<sub>u</sub> – Unconfined Strength, tons/sq ft
- W – Moisture Content, %
- LL – Liquid Limit, %
- PL – Plastic Limit, %
- SL – Shrinkage Limit, %
- LI – Loss on Ignition
- D – Dry Unit Weight, lbs/cu ft
- pH – Measure of Soil Alkalinity or Acidity
- FS – Free Swell, %

Water Level Measurement

- ▽ - Water Level at Time Shown
- NW – No Water Encountered
- WD – While Drilling
- BCR – Before Casing Removal
- ACR – After Casing Removal
- CW – Cave and Wet
- CM – Caved and Moist

Note: Water level measurements shown on the boring logs represent conditions at the time indicated and may not reflect static levels, especially in cohesive soils.



# CGC, Inc.

Madison - Milwaukee

## UNIFIED SOIL CLASSIFICATION SYSTEM

### UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

COARSE-GRAINED SOILS (more than 50% of material is larger than No. 200 sieve size.)		
<b>GRAVELS</b> More than 50% of coarse fraction larger than No. 4 sieve size	Clean Gravels (Less than 5% fines)	
	GW	Well-graded gravels, gravel-sand mixtures, little or no fines
	GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
	Gravels with fines (More than 12% fines)	
	GM	Silty gravels, gravel-sand-silt mixtures
	GC	Clayey gravels, gravel-sand-clay mixtures
<b>SANDS</b> 50% or more of coarse fraction smaller than No. 4 sieve size	Clean Sands (Less than 5% fines)	
	SW	Well-graded sands, gravelly sands, little or no fines
	SP	Poorly graded sands, gravelly sands, little or no fines
	Sands with fines (More than 12% fines)	
	SM	Silty sands, sand-silt mixtures
	SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (50% or more of material is smaller than No. 200 sieve size.)		
<b>SILTS AND CLAYS</b> Liquid limit less than 50%	ML	Inorganic silts and very fine sands, rock flour, silty of clayey fine sands or clayey silts with slight plasticity
	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
	OL	Organic silts and organic silty clays of low plasticity
<b>SILTS AND CLAYS</b> Liquid limit 50% or greater	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
	CH	Inorganic clays of high plasticity, fat clays
	OH	Organic clays of medium to high plasticity, organic silts
<b>HIGHLY ORGANIC SOILS</b>	PT	Peat and other highly organic soils

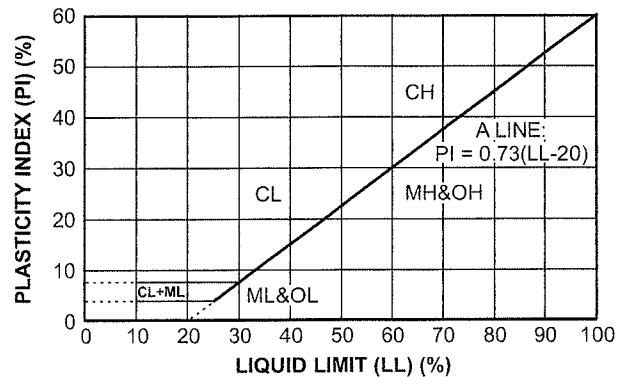
### LABORATORY CLASSIFICATION CRITERIA

GW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3	
GP	Not meeting all gradation requirements for GW	
GM	Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
GC	Atterberg limits above "A" line with P.I. greater than 7	
SW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3	
SP	Not meeting all gradation requirements for GW	
SM	Atterberg limits below "A" line or P.I. less than 4	Limits plotting in shaded zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols.
SC	Atterberg limits above "A" line with P.I. greater than 7	

Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows:

Less than 5 percent ..... GW, GP, SW, SP  
 More than 12 percent ..... GM, GC, SM, SC  
 5 to 12 percent ..... Borderline cases requiring dual symbols

### PLASTICITY CHART



**APPENDIX B**

**RECOMMENDED COMPACTED FILL SPECIFICATIONS**

## **APPENDIX B**

### **CGC, INC.**

## **RECOMMENDED COMPACTED FILL SPECIFICATIONS**

### **General Fill Materials**

Proposed fill shall contain no vegetation, roots, topsoil, peat, ash, wood or any other non-soil material which by decomposition might cause settlement. Also, fill shall never be placed while frozen or on frozen surfaces. Rock, stone or broken concrete greater than 6 in. in the largest dimension shall not be placed within 10 ft of the building area. Fill used greater than 10 ft beyond the building limits shall not contain rock, boulders or concrete pieces greater than a 2 sq ft area and shall not be placed within the final 2 ft of finish subgrade or in designated utility construction areas. Fill containing rock, boulders or concrete pieces should include sufficient finer material to fill voids among the larger fragments.

### **Special Fill Materials**

In certain cases, special fill materials may be required for specific purposes, such as stabilizing subgrades, backfilling undercut excavations or filling behind retaining walls. For reference, WisDOT gradation specifications for various types of granular fill are attached in Table 1.

### **Placement Method**

The approved fill shall be placed, spread and leveled in layers generally not exceeding 10 in. in thickness before compaction. The fill shall be placed at moisture content capable of achieving the desired compaction level. For clay soils or granular soils containing an appreciable amount of cohesive fines, moisture conditioning will likely be required.

It is the Contractor's responsibility to provide all necessary compaction equipment and other grading equipment that may be required to attain the specified compaction. Hand-guided vibratory or tamping compactors will be required whenever fill is placed adjacent to walls, footings, columns or in confined areas.

### **Compaction Specifications**

Maximum dry density and optimum moisture content of the fill soil shall be determined in accordance with modified Proctor methods (ASTM D1557). The recommended field compaction as a percentage of the maximum dry density is shown in Table 2. Note that these compaction guidelines would generally not apply to coarse gravel/stone fill. Instead, a method specification would apply (e.g., compact in thin lifts with a vibratory compactor until no further consolidation is evident).

### **Testing Procedures**

Representative samples of proposed fill shall be submitted to CGC, Inc. for optimum moisture-maximum density determination (ASTM D1557) prior to the start of fill placement. The sample size should be approximately 50 lb.

CGC, Inc. shall be retained to perform field density tests to determine the level of compaction being achieved in the fill. The tests shall generally be conducted on each lift at the beginning of fill placement and at a frequency mutually agreed upon by the project team for the remainder of the project.

**Table 1**  
**Gradation of Special Fill Materials**

Material	WisDOT Section 311	WisDOT Section 312	WisDOT Section 305			WisDOT Section 209		WisDOT Section 210
	Breaker Run	Select Crushed Material	3-in. Dense Graded Base	1 1/4-in. Dense Graded Base	3/4-in. Dense Graded Base	Grade 1 Granular Backfill	Grade 2 Granular Backfill	Structure Backfill
Sieve Size	Percent Passing by Weight							
6 in.	100							
5 in.		90-100						
3 in.			90-100					100
1 1/2 in.		20-50	60-85					
1 1/4 in.				95-100				
1 in.					100			
3/4 in.			40-65	70-93	95-100			
3/8 in.				42-80	50-90			
No. 4			15-40	25-63	35-70	100 (2)	100 (2)	25-100
No. 10		0-10	10-30	16-48	15-55			
No. 40			5-20	8-28	10-35	75 (2)		
No. 100						15 (2)	30 (2)	
No. 200			2-12	2-12	5-15	8 (2)	15 (2)	15 (2)

**Notes:**

1. Reference: Wisconsin Department of Transportation *Standard Specifications for Highway and Structure Construction*.
2. Percentage applies to the material passing the No. 4 sieve, not the entire sample.
3. Per WisDOT specifications, both breaker run and select crushed material can include concrete that is 'substantially free of steel, building materials and other deleterious material'.

**Table 2**  
**Compaction Guidelines**

Area	Percent Compaction (1)	
	Clay/Silt	Sand/Gravel
<b><u>Within 10 ft of building lines</u></b>		
Footing bearing soils	93 - 95	95
Under floors, steps and walks		
- Lightly loaded floor slab	90	90
- Heavily loaded floor slab and thicker fill zones	92	95
<b><u>Beyond 10 ft of building lines</u></b>		
Under walks and pavements		
- Less than 2 ft below subgrade	92	95
- Greater than 2 ft below subgrade	90	90
Landscaping	85	90

**Notes:**

1. Based on Modified Proctor Dry Density (ASTM D 1557)

**APPENDIX C**

**DOCUMENT QUALIFICATIONS**

## APPENDIX C DOCUMENT QUALIFICATIONS

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### I. GENERAL RECOMMENDATIONS/LIMITATIONS

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CGC, Inc. should be provided the opportunity for a general review of the final design and specifications to confirm that earthwork and foundation requirements have been properly interpreted in the design and specifications. CGC should be retained to provide soil engineering services during excavation and subgrade preparation. This will allow us to observe that construction proceeds in compliance with the design concepts, specifications and recommendations, and also will allow design changes to be made in the event that subsurface conditions differ from those anticipated prior to the start of construction. CGC does not assume responsibility for compliance with the recommendations in this report unless we are retained to provide construction testing and observation services.

This report has been prepared in accordance with generally accepted soil and foundation engineering practices and no other warranties are expressed or implied. The opinions and recommendations submitted in this report are based on interpretation of the subsurface information revealed by the test borings indicated on the location plan. The report does not reflect potential variations in subsurface conditions between or beyond these borings. Therefore, variations in soil conditions can be expected between the boring locations and fluctuations of groundwater levels may occur with time. The nature and extent of the variations may not become evident until construction.

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### II. IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL ENGINEERING REPORT

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Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. *No one except you* should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one - not even you* - should apply the report for any purpose or project except the one originally contemplated.

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

#### **A GEOTECHNICAL ENGINEERING REPORT IS BASED ON A UNIQUE SET OF PROJECT-SPECIFIC FACTORS**

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, *do not rely on a geotechnical engineering report* that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or project ownership.

As a general rule, , *always* inform your geotechnical engineer of project changes - even minor ones - and request an assessment of their impact. *CGC cannot accept responsibility or liability for problems that occur because our reports do not consider developments of which we were not Informed.*

#### **SUBSURFACE CONDITIONS CAN CHANGE**

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

#### **MOST GEOTECHNICAL FINDINGS ARE PROFESSIONAL OPINION**

Site exploration identifies subsurface conditions only at those points where surface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgement to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ - sometimes significantly - from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

## **A REPORT'S RECOMMENDATIONS ARE NOT FINAL**

Do not over-rely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgement and opinion, geotechnical engineers can finalize their recommendations only by observing actual subsurface conditions revealed during construction. *CGC cannot assume responsibility or liability for the report's recommendations if we do not perform construction observation.*

## **A GEOTECHNICAL ENGINEERING REPORT IS SUBJECT TO MISINTERPRETATION**

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having CGC participate in prebid and preconstruction conferences, and by providing construction observation.

## **DO NOT REDRAW THE ENGINEER'S LOGS**

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

## **GIVE CONTRACTORS A COMPLETE REPORT AND GUIDANCE**

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

## **READ RESPONSIBILITY PROVISIONS CLOSELY**

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce such risks, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes

labeled "limitations," many of these provisions indicate where geotechnical engineer's responsibilities begin and end, to help others recognize their own responsibilities and risks. Read these provisions closely. Ask questions. Your geotechnical engineer should respond fully and frankly.

## **GEOENVIRONMENTAL CONCERNS ARE NOT COVERED**

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

## **OBTAIN PROFESSIONAL ASSISTANCE TO DEAL WITH MOLD**

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

## **RELY ON YOUR GEOTECHNICAL ENGINEER FOR ADDITIONAL ASSISTANCE**

Membership in ASFE exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with CGC, a member of ASFE, for more information.

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881 Colesville Road, Suite G 106  
Silver Spring, MD 20910

# **Archaeological Investigation Results**

## **Forest Hill Cemetery Improvements 2017**

### **Report and Recommendations**

**Proposed Road Resurfacing, Storm Sewer and Landscaping Water Lines abandonment and replacement, Forest Hill Cemetery (47-BDA-177) and The Forest Hill Cemetery Mound Group 47-DA-0134/47-BDA-0388.**



**Prepared for the City of Madison Parks Department**

**John G. Hodgson  
Phase One Archaeological Services Inc.  
5618 Hempstead Road  
Madison, Wisconsin, 53711**



## Abstract

The following report describes the results of field and literature research conducted for a proposed road resurfacing, storm sewer, and irrigation project at the Forest Hill Cemetery (47-BDA-177) with portions of the project occurring within uncataloged boundaries of the Forest Hill Cemetery Mound Group 47-DA-0134/47-BDA-0388.

In compliance with requirements under State laws (44.40 and 157.70 Wisconsin Statutes) literature and field investigations were made at the project location to identify the potential for the physical disturbance to archaeological features and human burials.

Based on study findings, the current project design will not have adverse effects on any known archaeological resources.

As a result of the investigation, the principal investigator recommends that no further archaeological or cultural resource studies be required prior to proceeding with planned construction for the described project.

As a precautionary measure, it is recommended that all ground disturbing activities associated with the proposed project that will occur adjacent to and within the four areas described in this report be monitored by a qualified archaeologist authorized by the state of Wisconsin to excavate human burials.

In addition to the four areas of concern described in the report, during the construction, the supervisor of the cemetery, Mr. Darin Hall should be given the authority to request archaeological in any areas that he feels should be supervised during ground disturbance.

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## **Introduction:**

The following report describes the results of field and literature research conducted for a proposed road and utility improvement project to be located at the Forest Hill Cemetery (47-BDA-177) with activities occurring within uncataloged boundaries of the Forest Hill Cemetery Mound Group 47-DA-0134/47-BDA-0388 in the City of Madison, Dane County, Wisconsin.

Following requirements under State laws (Chapters 44.40 and 157.70 Wisconsin Statutes), investigations were made for the planned project location to identify the presence or absence of archaeological materials and human burial areas.

During the investigation, the Principal investigator worked in close cooperation with Mr. Darin Hall, supervisor of the Forest Hill Cemetery (FHC), to identify areas of concern for disturbance to human remains. In addition to field investigations at FHC, historical documents and computer databases maintained at the State Historical Society of Wisconsin (SHSW) were examined for information.

Consultation with the Office of the State Archaeologist (OSA) and the State Historic Preservation Office (SHPO) of the SHSW led to the agreement that the majority of planned construction and modifications at the cemetery fall under the category of “normal cemetery business” and will not require permits to disturb cataloged and uncataloged human burial site areas.

During consultation with SHSW personnel and Mr. Hall, design plans were reviewed and revised four times in order to minimize the potential for disturbance to human burials in FHC and the project was redesigned to avoid any ground disturbance within the cataloged areas of the Native American Mound Group DA-134

Prior to field work, historical documents and other resources maintained at the State Historical Society of Wisconsin were consulted for information on FHC and 47-DA-0134 (DA-134).

All aspects of the reported investigation were conducted in accordance with methodological guidelines of the Wisconsin Archaeological Survey (WAS) as outlined in *Guide for Public Archaeology in Wisconsin* (Dudzik et al. 2012). WAS methods are endorsed by the SHPO, SHSW and provide the professional standards for conducting all legislative compliance related archaeological research in the State of Wisconsin.

As required by Federal law, the principal investigator meets all standards of the Secretary of the Interior’s criteria for “Qualified Archaeologist” as specified in Appendix A of 36 CFR 61 and is authorized to excavate human remains by SHSW. .

Literature research was conducted at the SHSW in Madison During January-March 2017. Field visits to the planned project area took place on several occasions during the winter of 2016-2017.

As a result of the investigation, the principal investigator recommends that no further archaeological or cultural resource studies be required prior to proceeding with planned construction for the described project.

As a precautionary measure, it is recommended that all ground disturbing activities associated with the proposed project that will occur adjacent to and within the four areas described in this report be monitored by a qualified archaeologist authorized by the state of Wisconsin to excavate human burials.

**Project Location:**

The investigated area is located within the boundaries of FHC, south of Speedway Boulevard and east of the City of Madison Glenway Golf Course on the west central side of the City of Madison, Dane County, Wisconsin. The proposed project areas are located (Figures One and Two).

**Project Description:**

The planned project activities consist of the installation of storm sewer and irrigation water lines and the replacement of the existing road ways. The proposed project will proceed over a schedule of three years as follows:

2017- South half of storm sewer and irrigation lines. Resurfacing of all roads disturbed from storm and irrigation construction.

2018-North half of storm sewer and irrigation lines. Resurfacing of all roads disturbed from storm and irrigation construction.

2019- Pavement resurfacing of all remaining roads in the cemetery.

The pavement is proposed to be replaced at the existing widths with no expansion into new areas (Appendices B and C).

Storm sewer will be constructed as far from human burials as possible by placing the majority of the proposed storm sewer under the approximate centerline of roadway with inlets placed at lower elevations along the roadway. New storm sewer pipe sections will be installed under the roadway at depths of approximately 4-10 feet below surface. Storm sewer pipe diameters will vary in size from 12-18 inches.

Storm sewer pipe to be placed at depths of 5 feet or greater. In areas of the project that are in close proximity to tree roots will be installed using directional boring techniques.

Irrigation water pipes will be placed at a approximate depth of 18 inches below the surface with stand pipes and faucets placed at varying intervals. The water pipes will be installed under pavement or as close to the edge of roadway shoulders as possible. Irrigation water pipe sizes will vary in diameter from 3 to 6 inches. Water lines will be installed using a trenching machine or by directional borings.

The size and area values of the planned construction activities are as follows:

Total storm sewer length= 1,728 Linear Feet (LF).

Total irrigation by open cut=8,500 LF.

Total irrigation by bore=1,000 LF,

Total street length=23,021 LF.

Total asphalt resurfacing = 39,720 Square Yards.

### **Literature Investigations:**

Prior to field investigations, modern and historical documents were examined in the SHSW Archives and Library and in the holdings of FHC.

The goal of literature search was to assess if the roadways of the cemetery had been modified or changed since the original cemetery layout was designed in the 19<sup>th</sup> century and to assess documentation for human burial locations to determine if the cemetery records had accurate locations for the known human burial areas and grave locations within the cemetery.

FHC holds records since the establishment of the cemetery in the late 1850s. The collection of FHC are almost complete and are highly accurate in recording the specific location of burials (e.g. Figures Four and Five).

The current roadways at FHC are in the same positions of the gravel drives that were laid out for the original cemetery design in the late 1850s. The road beds have not been expanded or had their routes changed. As a result, no historic period human burials were made under the roadway areas in the general location of the planned storm sewer placement.

In addition to documentation of the roadways, highly detailed records showing locations of the graves and their distances from the edges of the roadways (e.g. Figure Five) allowed for the ability to redesign the irrigation project to avoid going over the tops of human burial areas.

The second goal of the literature research was to identify the previous location of the destroyed Native American mounds that had formed the eastern areas of DA-0134. The purpose of this goal was to avoid the previous area of the mounds during excavation of irrigation lines in the general area.

The DA-0137 site was first recorded by Stephan D. Peet (1890). The site was later revisited and examined by C. E. Brown (Brown 1906, 1915, and 1929) but by the time of the visits by Brown in the early 20<sup>th</sup> century, the eastern mounds described by Peet had been destroyed or were in the process of being destroyed and the specific location of the former mounds is not well known.

During literature investigations, no previously unreported information was encountered to assist in refining the specific location of the destroyed mounds of DA-134.

### **Field Investigations:**

During field investigations for the reported study, no ground disturbing testing methods were performed such as shovel testing or coring.

Following consultation with the SHPO Office, the entire route of the planned irrigation lines, storm sewer and road construction was walked by the Principal Investigator. During the walk over inspection, notes were made of areas where the proposed design plans were in close proximity to grave markers.

After areas of potential concern were identified, the Principal Investigator met with Mr. Darin Hall, the supervisor of FHC and cemetery records were checked for more specific locations of human burials.

In consultation with SHPO, the Office of the State Archaeologist and City of Madison Parks Department Officials, several modifications were made to the proposed route of the irrigation lines to avoid Euro-American graves and the NRHP listed and cataloged areas of DA-134.

This process was repeated four times until concerns of FHC and the Principal Investigator for potential disturbance to human burial areas were minimized.

### **Study Results**

Four areas of concern were noted after the development of the final design plan for storm sewer and irrigation lines.

1. The area shown in Section 12, the double graves shown in Figures Five and Fifteen should be monitored.
2. The two areas for the planned excavation of storm sewer adjacent to graves shown in figures Sixteen and Seventeen should be subjected to archaeological monitoring.
3. Areas inside the uncatalogued portions of DA-134 should be monitored.



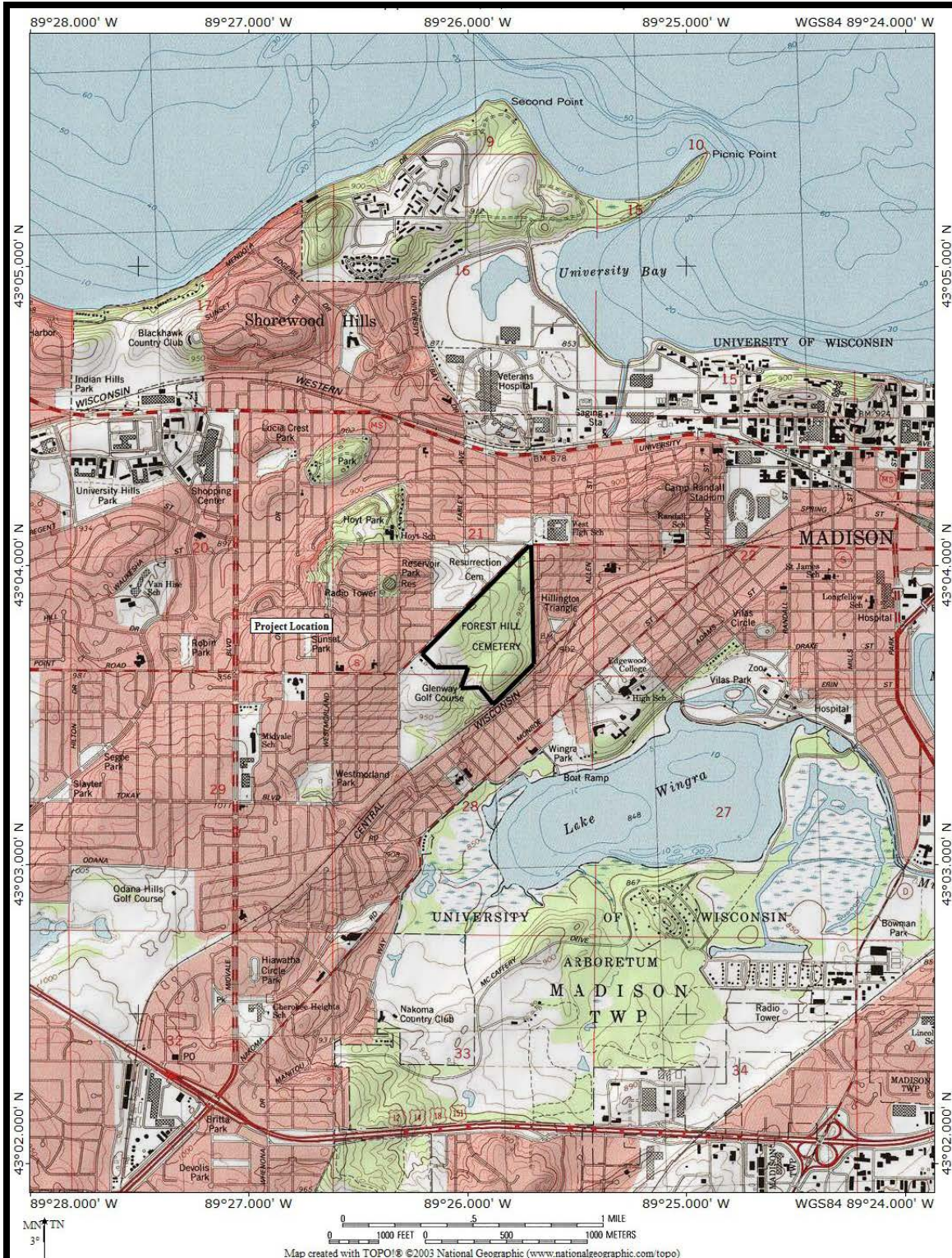


Figure One: Project location plotted in light green on USGS 7.5 topographic map section (USGS).

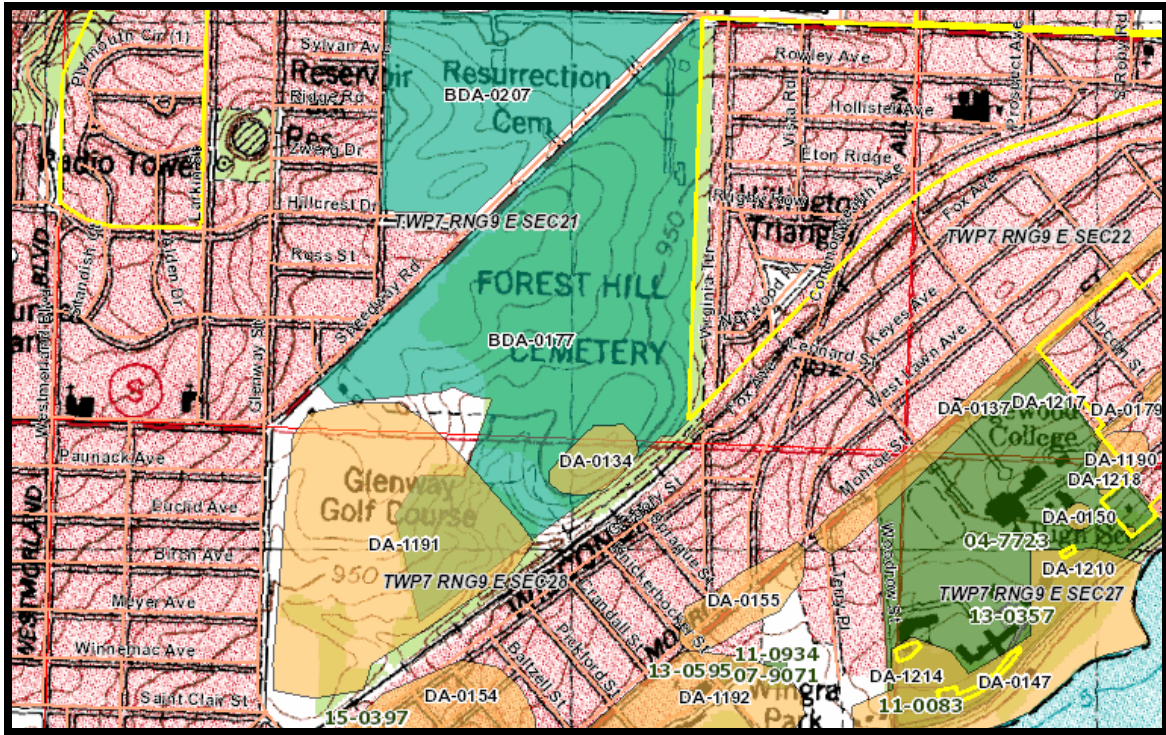


Figure Two: General project area showing archaeological site boundaries highlighted in yellow and cemetery areas highlighted in blue-green (SHSW WHPD- GIS Database).

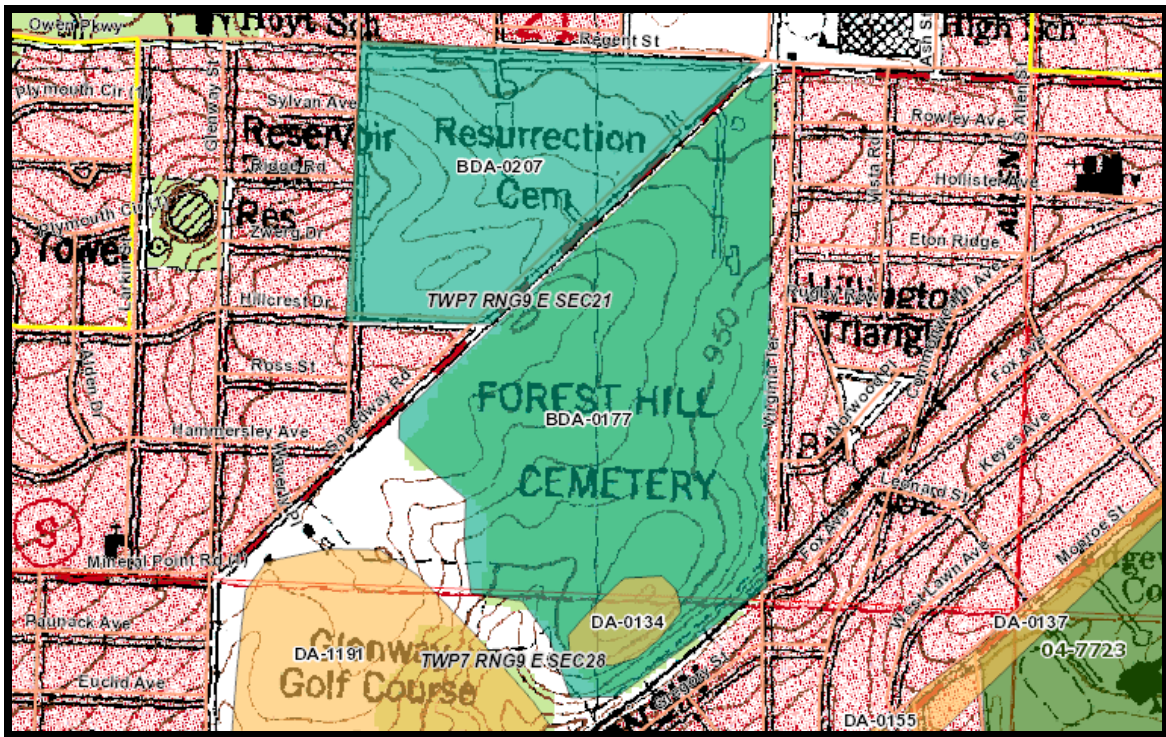


Figure Three: Detail of main project areas showing archaeological site boundaries highlighted in yellow and cemetery areas highlighted in blue-green (SHSW WHPD- GIS Database).



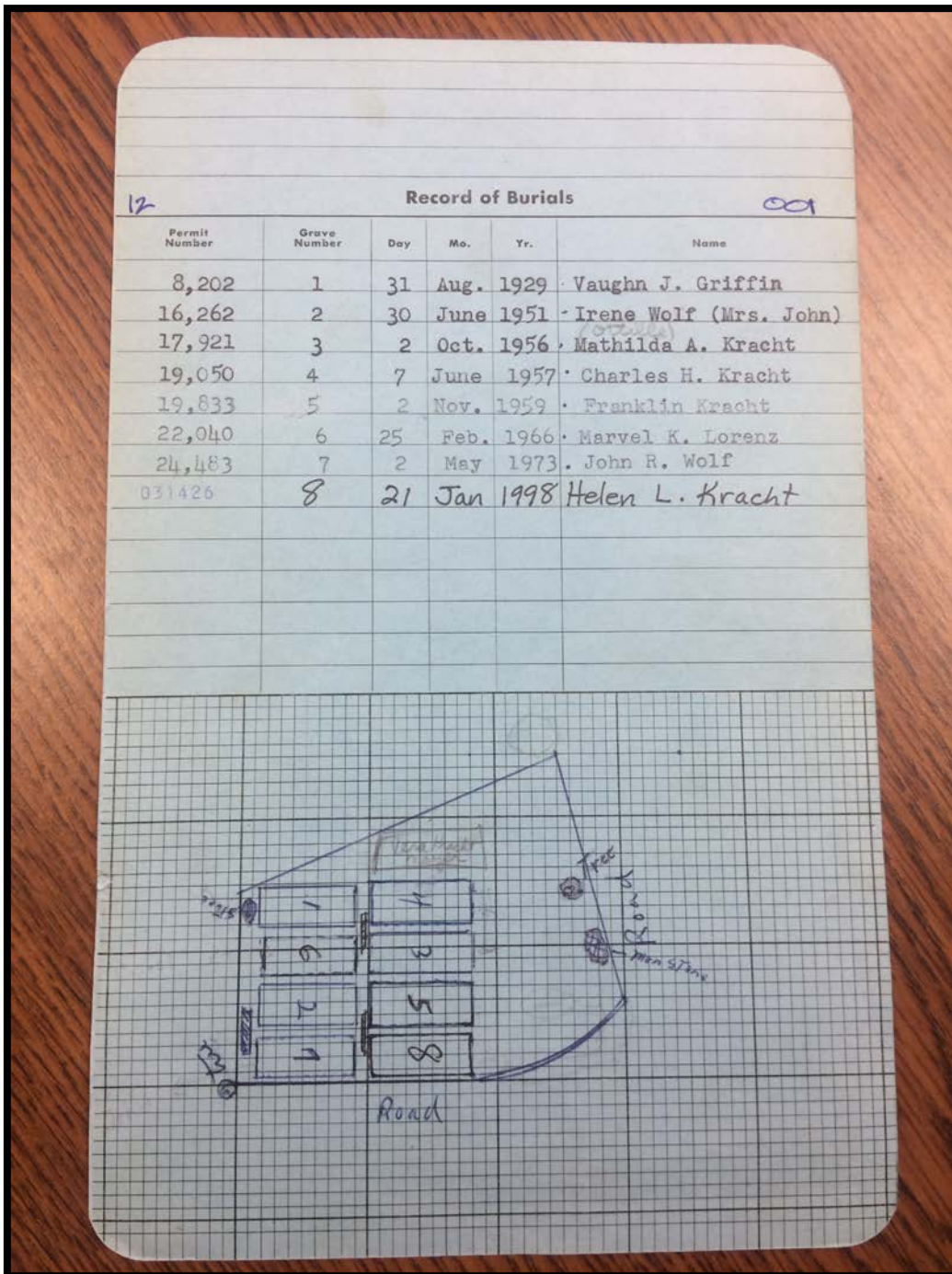


Figure Five: FHC records for Section 12 showing typical detail for burial records (FHC Records).



**Figure Six: Existing standpipe (center of image) to be removed at DA-134.**



**Figure Seven: Existing standpipe (center of image) to be removed at DA-134.**



**Figure Eight: Existing standpipe (center of image) to be removed at DA-134.**



**Figure Nine: Existing standpipe (center of image) to be removed at DA-134.**



**Figure Ten: Existing standpipe (center of image) to be removed at DA-134.**

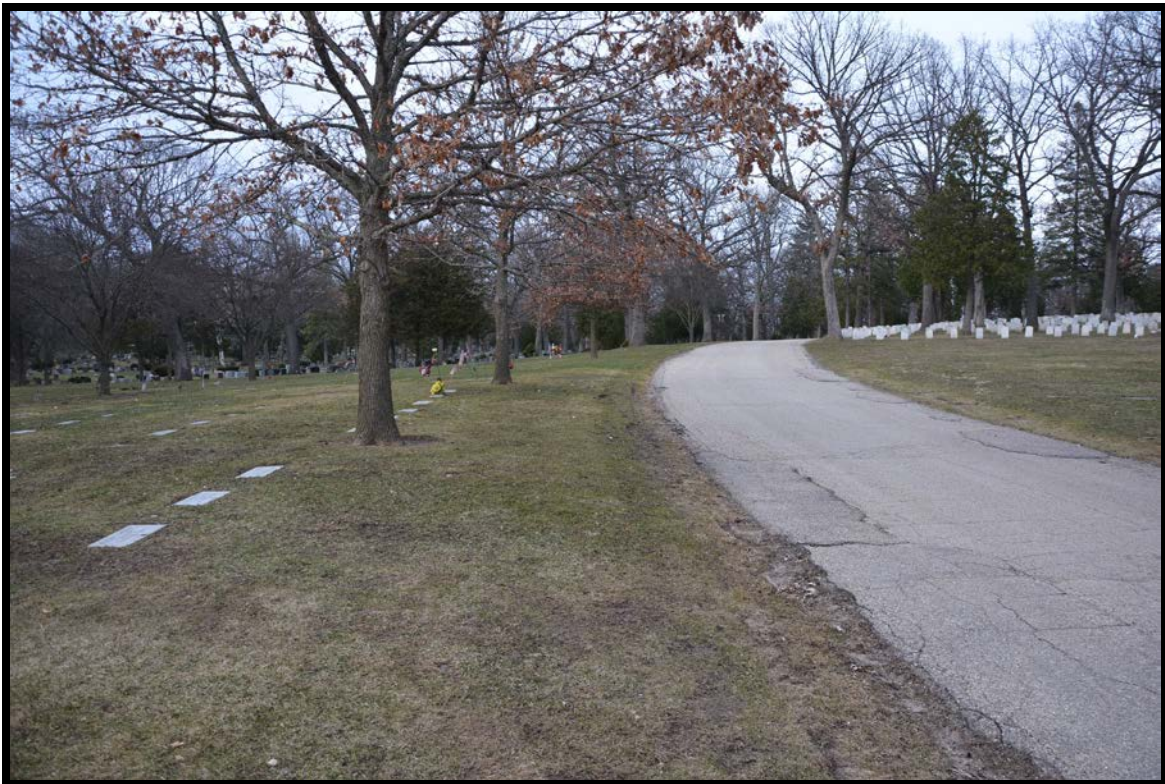


**F**

**Figure Eleven: Existing standpipe (center of image) to be removed at DA-134.**



**Figure Twelve: Existing standpipe (center of image) to be removed at DA-134.**



**Figure Thirteen: New area for irrigation lines and standpipes in FHC Section 41.**





**Figure Fourteen: Example of an area avoided by redesigning irrigation line route.**



**Figure Fifteen: Area of concern in Section 12. Double graves under road edge.**



**Figure Sixteen: Existing storm sewer to be refurbished.**



**Figure Seventeen: Existing storm sewer to be refurbished.**



**Figure Eighteen: Example of roadway conditions and previous repairs.**



**Figure Nineteen: Example of roadway conditions and previous repairs.**

## **Study Overview and Recommendations:**

Based on the results of the investigation, aside from one area in Section 12, the proposed construction will not physically disturb soils in areas currently identified to contain human burials.

Under the current project design plan, no ground disturbing activities will be performed within the cataloged boundaries of the Native American Mound Group DA-134.

Removal of existing black top and resurfacing, the excavation of the planned new water irrigation lines and the storm sewer will not cause ground disturbance within currently identified areas of human remains and will not have direct or indirect adverse effect on either DA-0134 or BDA-0177 or any other identified cultural resources.

In response to study findings, the principal investigator does not recommend any further investigations to be conducted at the proposed project location prior to the planned construction.

As a precautionary measure, it is recommended that all ground disturbing activities associated with the proposed project that will occur adjacent to and within the three areas described in this report be monitored by a qualified archaeologist authorized by the state of Wisconsin to excavate human burials.

In addition to the four areas of concern described above, during the construction, Mr. Darin Hall should be given the authority to request archaeological monitoring in any areas that he feels should be supervised during ground disturbance.

It is important to note that any modifications to the project design may require additional investigations and a modified survey report. If changes are made to plans, personnel in the Office of Historic Preservation at the State Historical Society of Wisconsin must be consulted to ensure that compliance standards have been met prior to any ground disturbing construction at the proposed site location.

In the event any archaeological materials are encountered during the project, it is recommended that all construction activities be brought to a halt and the Principal Investigator or the Office of Historic Preservation at the State Historical Society of Wisconsin be consulted prior to continuing work.

**Pursuant to Federal and Wisconsin State laws, should human skeletal remains, coffin hardware or potential coffin pieces (metal or wood) be encountered during construction, all activities in the area are required to cease immediately and the State of Wisconsin Burial Sites Preservation Office must be contacted at 608-264-6503 or 800-342-7834 for further instructions.**

## References Cited

Brown, Charles

1906 Record of Wisconsin Antiquities, In, *Wisconsin Archaeologist* (Old Series) Vol 5 (3-4):310.

1915 Lake Wingra, In, *Wisconsin Archaeologist* (Old Series) Vol. 14 (3):104-107.

1929 *Wisconsin Archaeologist* (New Series) Vol. 8 (4):165.

Dudzik, Mark, Joseph Tiffany, and Katherine Stevenson

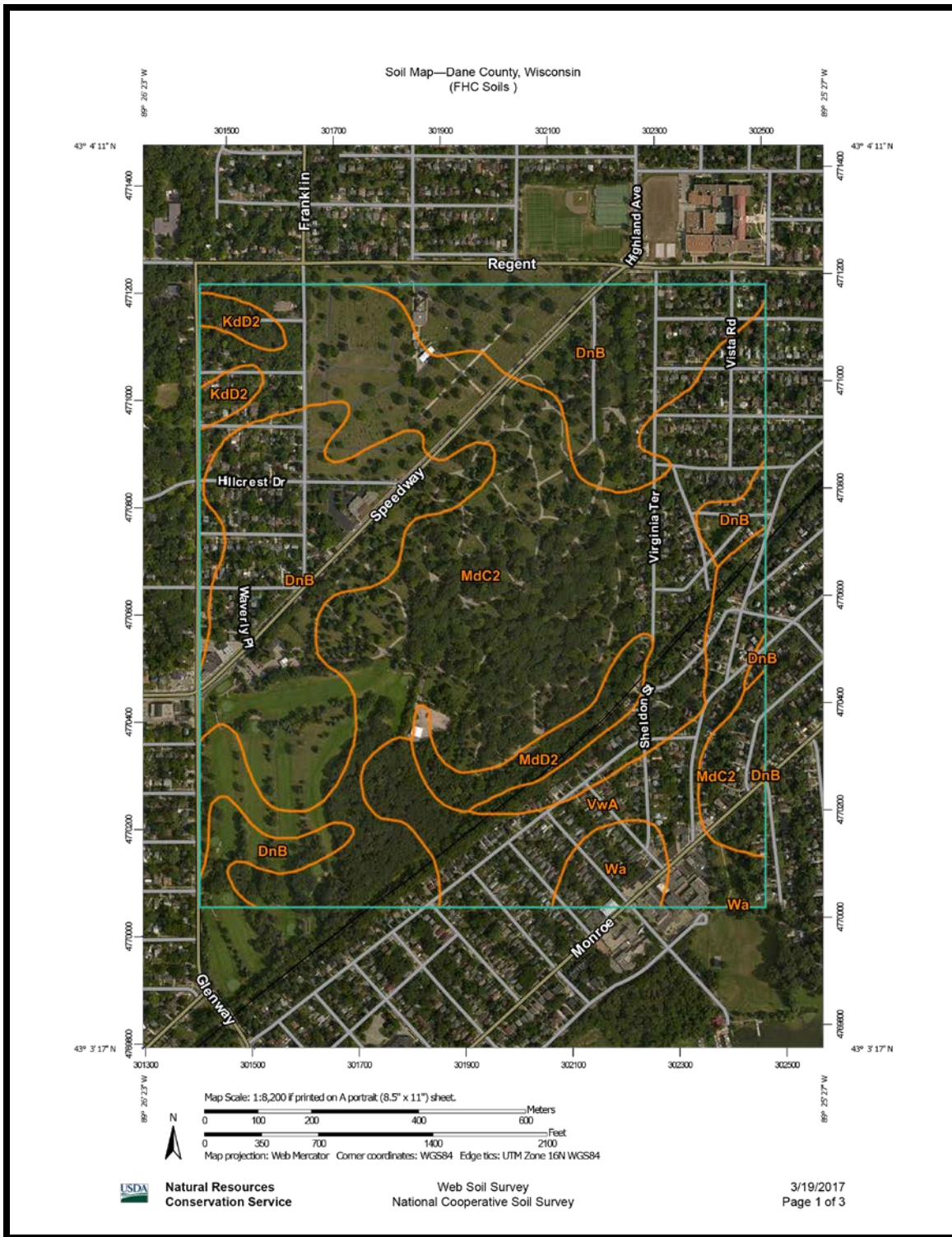
2012 *Guide for Public Archaeology in Wisconsin*. Wisconsin Archaeological Survey, Milwaukee, Wisconsin.

Peet, Stephen D.

1898 *Prehistoric America, Volume 2*, American Antiquarian Office, Chicago, Illinois.





































United States Geological Survey (USGS)

1983 *Madison West WI*. (Map). Series 7.5 Quadrangle, 1:24000 scale Topographic map. USGS Publishing, Reston, Virginia.



**A-1: NRCS Soil Data for the general project area.**

**MAP LEGEND**

-  Area of Interest (AOI)
- Soils**
-  Soil Map Unit Polygons
-  Soil Map Unit Lines
-  Soil Map Unit Points
- Special Point Features**
-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot
-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features
- Water Features**
-  Streams and Canals
- Transportation**
-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads
- Background**
-  Aerial Photography

**MAP INFORMATION**

The soil surveys that comprise your AOI were mapped at 1:15,800.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dane County, Wisconsin  
Survey Area Data: Version 15, Sep 27, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 16, 2013—Aug 29, 2013

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

**A-2: NRCS Soil Data for the general project area.**

## Map Unit Legend

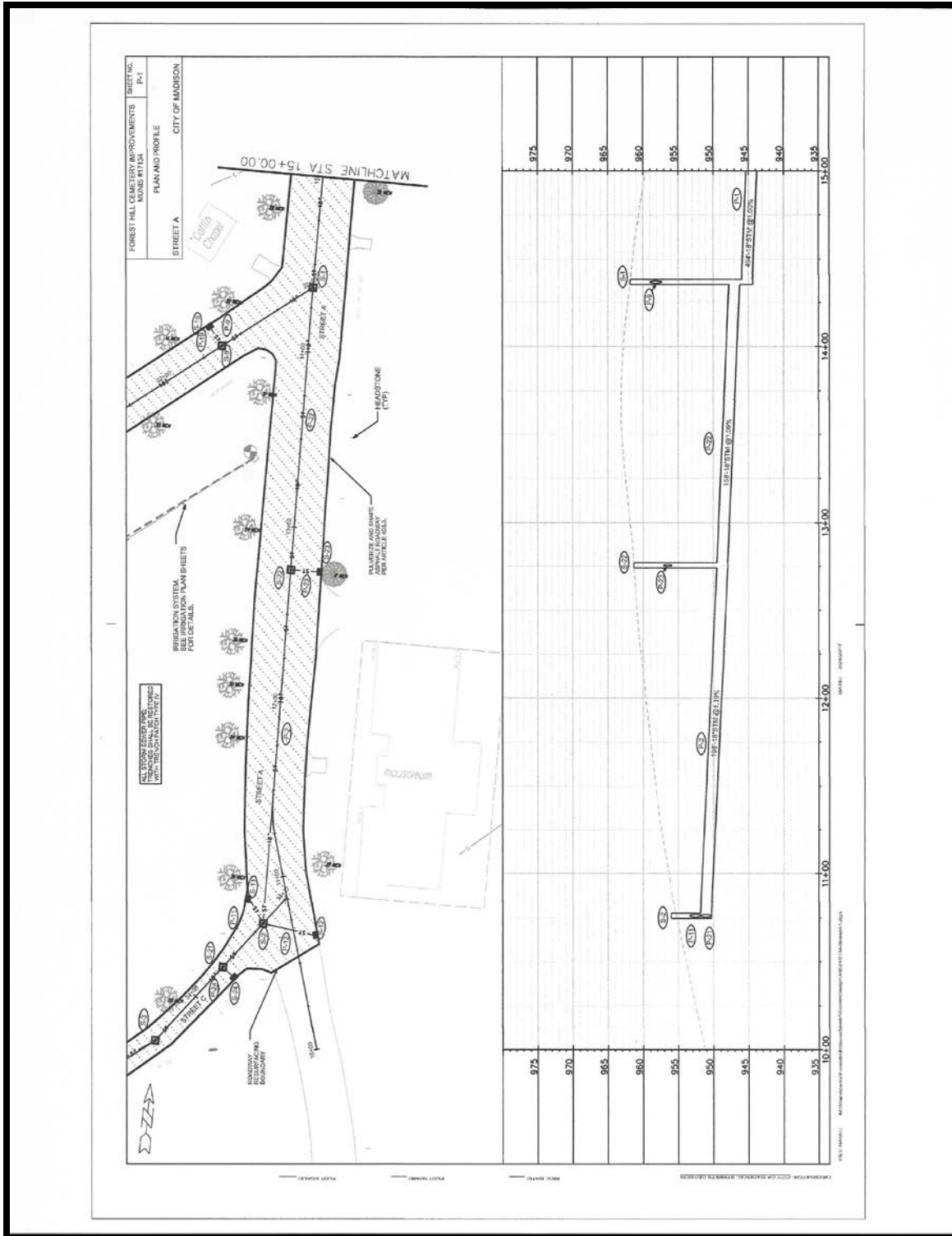
Dane County, Wisconsin (WI025)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
DnB	Dodge silt loam, 2 to 6 percent slopes	96.6	31.7%
KdD2	Kidder loam, 12 to 20 percent slopes, eroded	4.7	1.5%
MdC2	McHenry silt loam, 6 to 12 percent slopes, eroded	151.5	49.7%
MdD2	McHenry silt loam, 12 to 20 percent slopes, eroded	9.1	3.0%
VwA	Virgil silt loam, gravelly substratum, 0 to 3 percent slopes	36.2	11.9%
Wa	Wacousta silty clay loam, 0 to 2 percent slopes	7.0	2.3%
<b>Totals for Area of Interest</b>		<b>305.0</b>	<b>100.0%</b>

### A-3: NRCS Soil Data for the general project area.

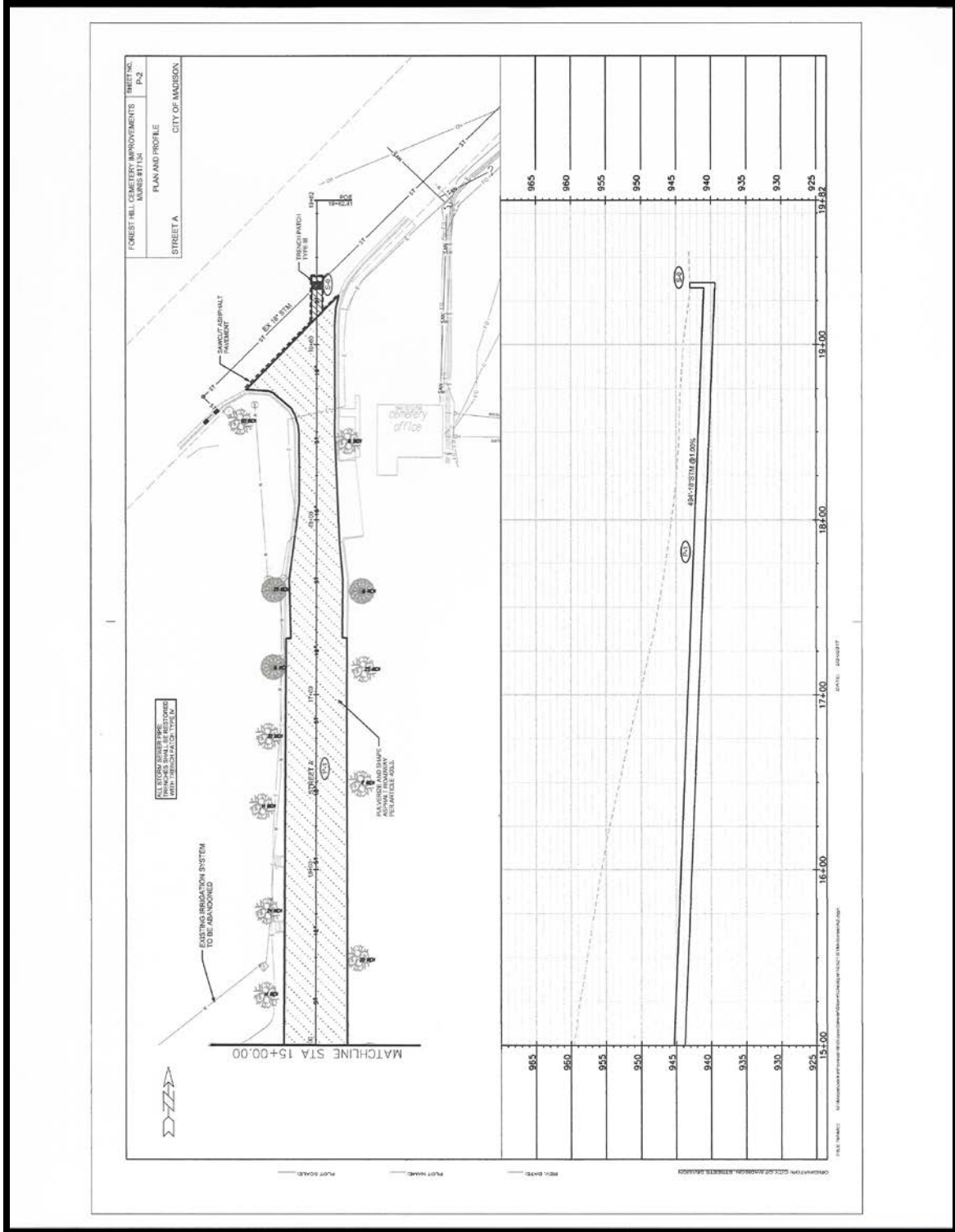




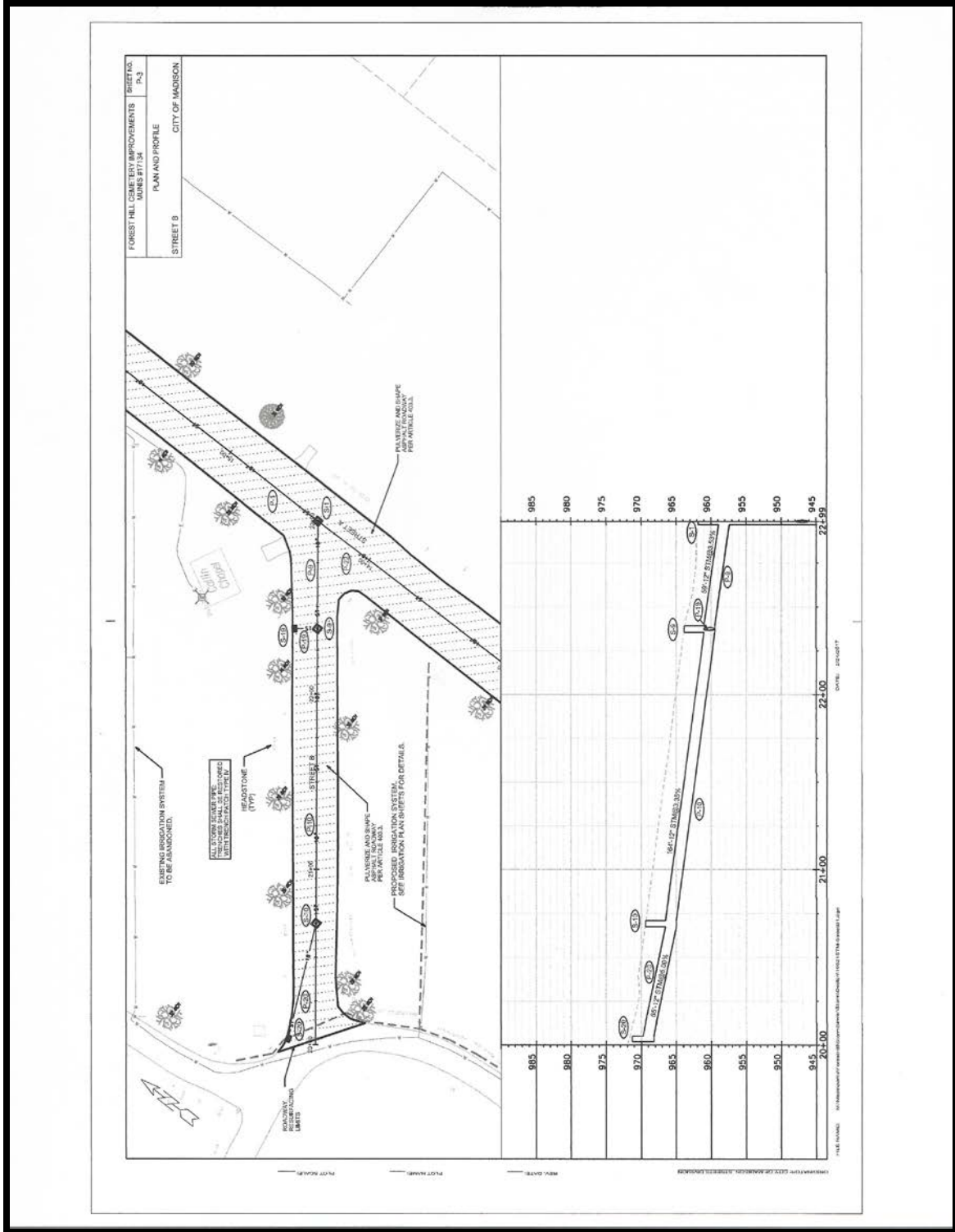
**B-1: Overview showing proposed storm sewer and resurfacing construction areas.**



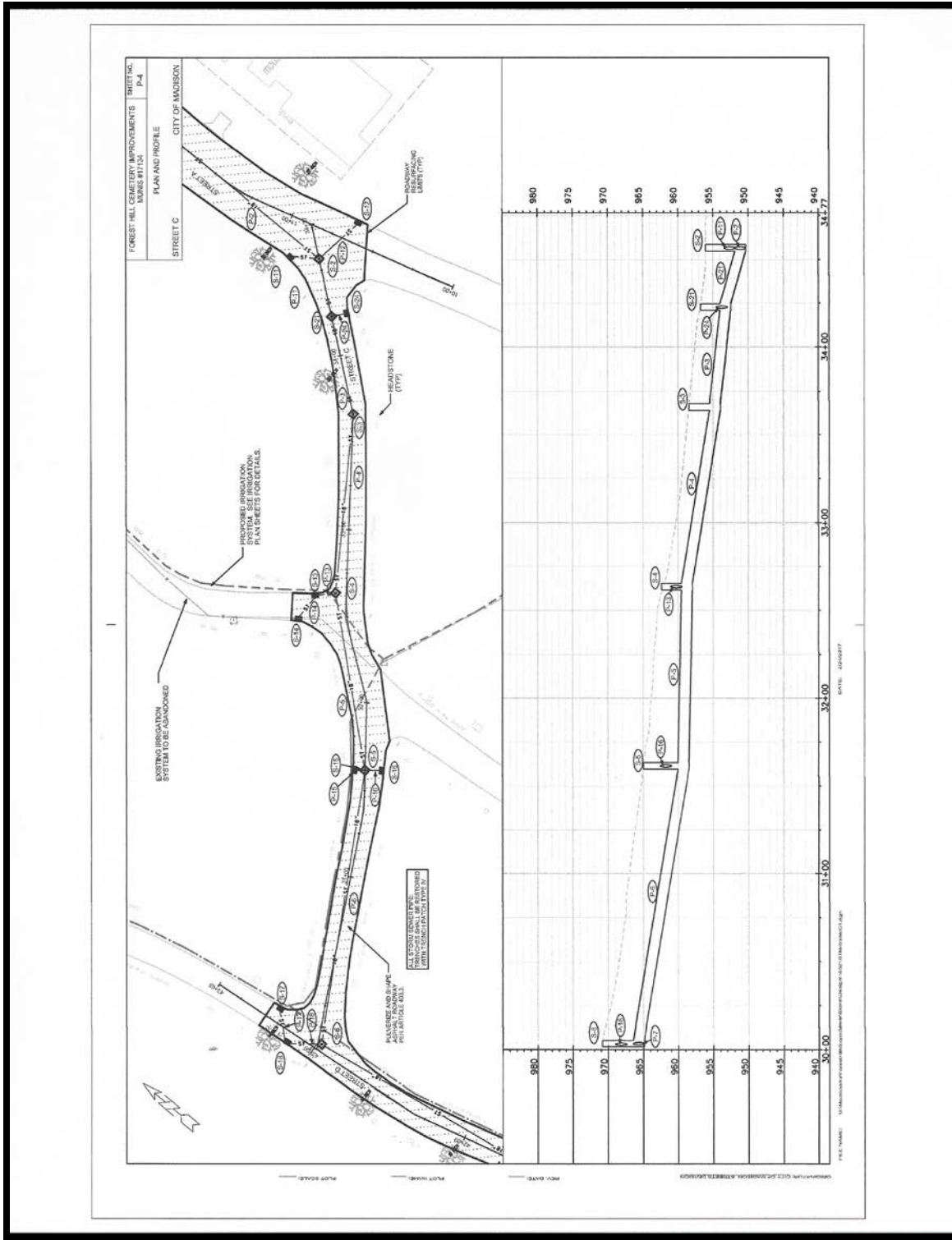
**B-2: Detail of proposed storm sewer and resurfacing construction page P-1.**



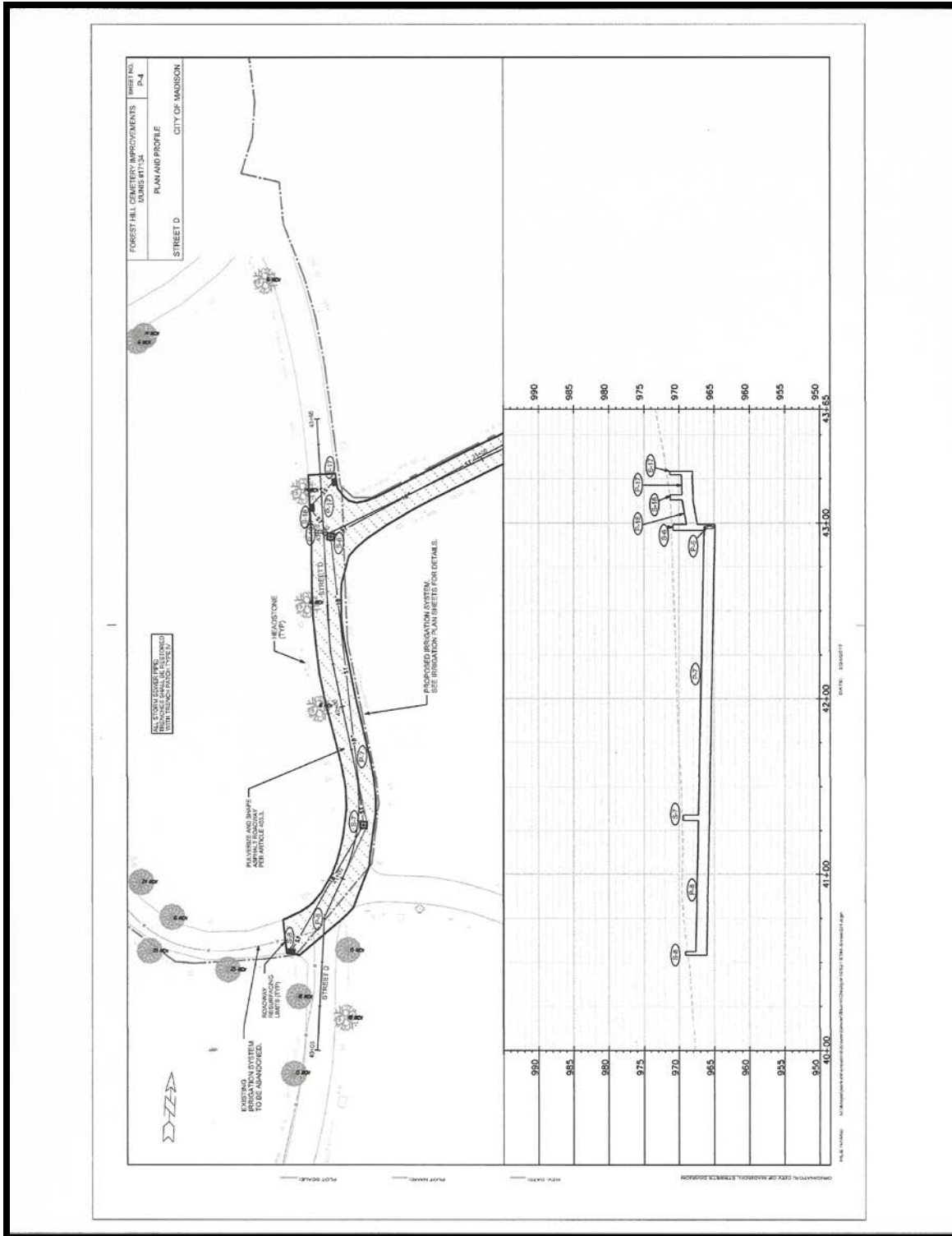
**B-3: Detail of proposed storm sewer and resurfacing construction page P-2.**



**B-4: Detail of proposed storm sewer and resurfacing construction page P-3.**

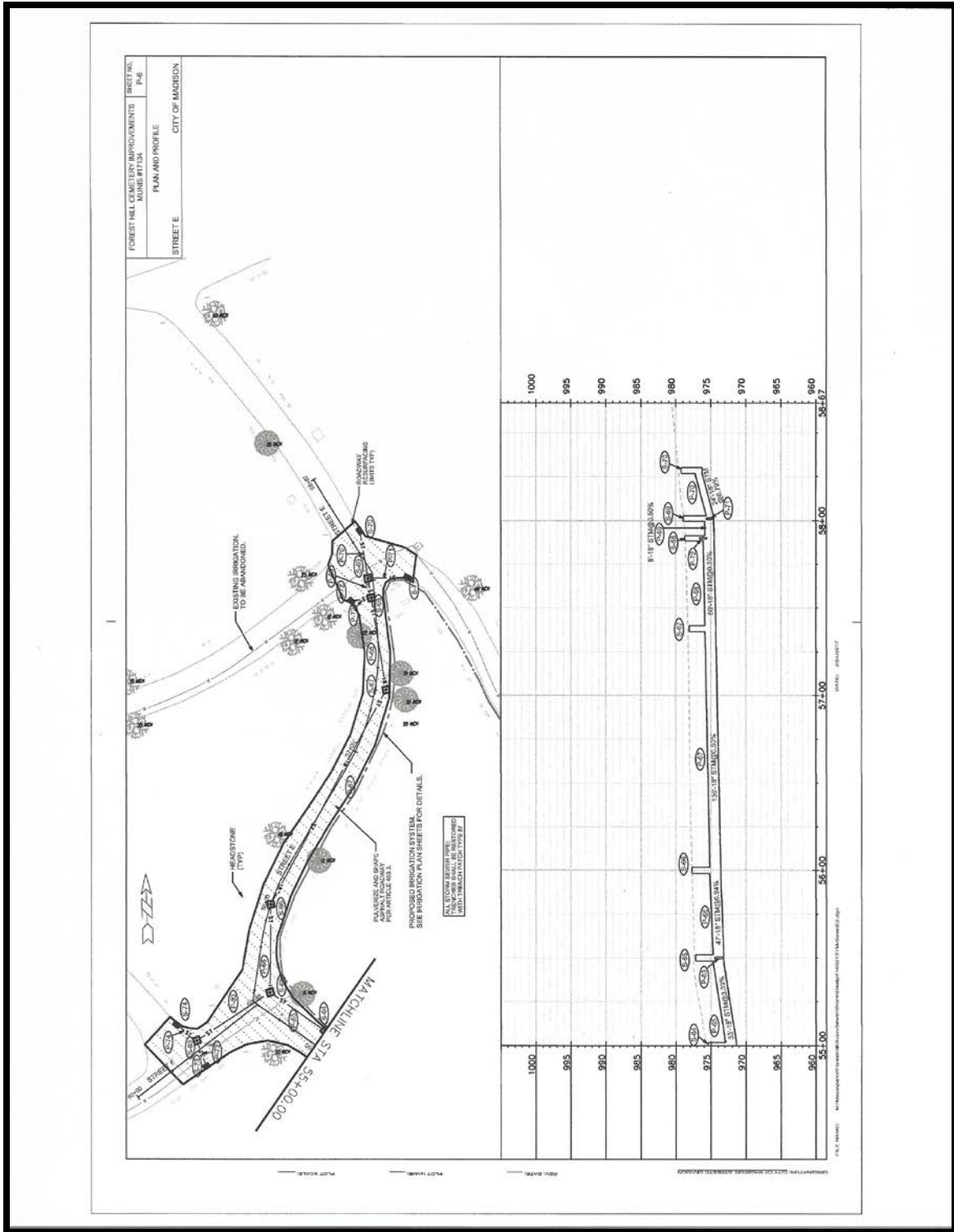


B-5: Detail of proposed storm sewer and resurfacing construction page P-4-1.



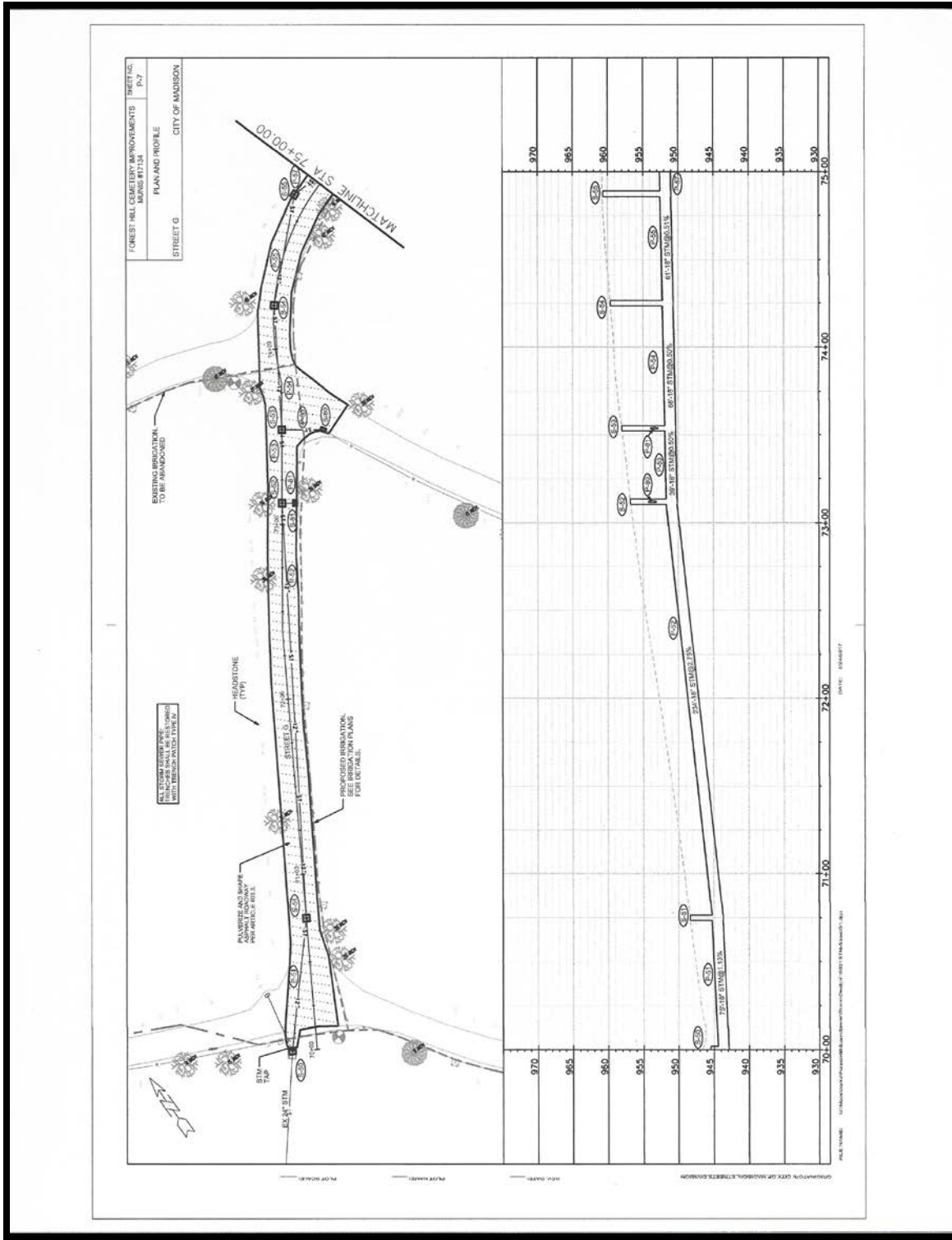
B-6: Detail of proposed storm sewer and resurfacing construction page P-4-2.





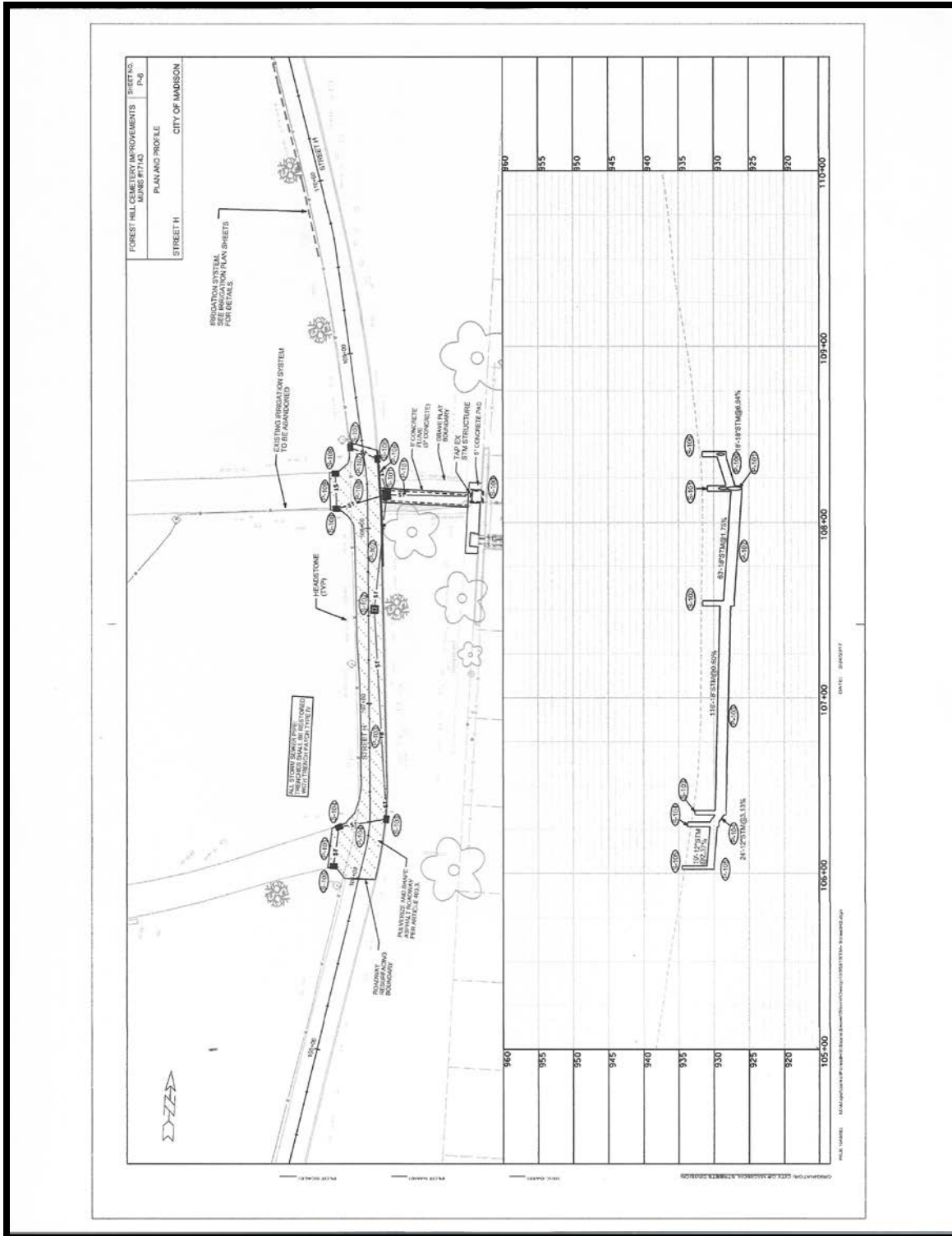
**B-8: Detail of proposed storm sewer and resurfacing construction page P-6**



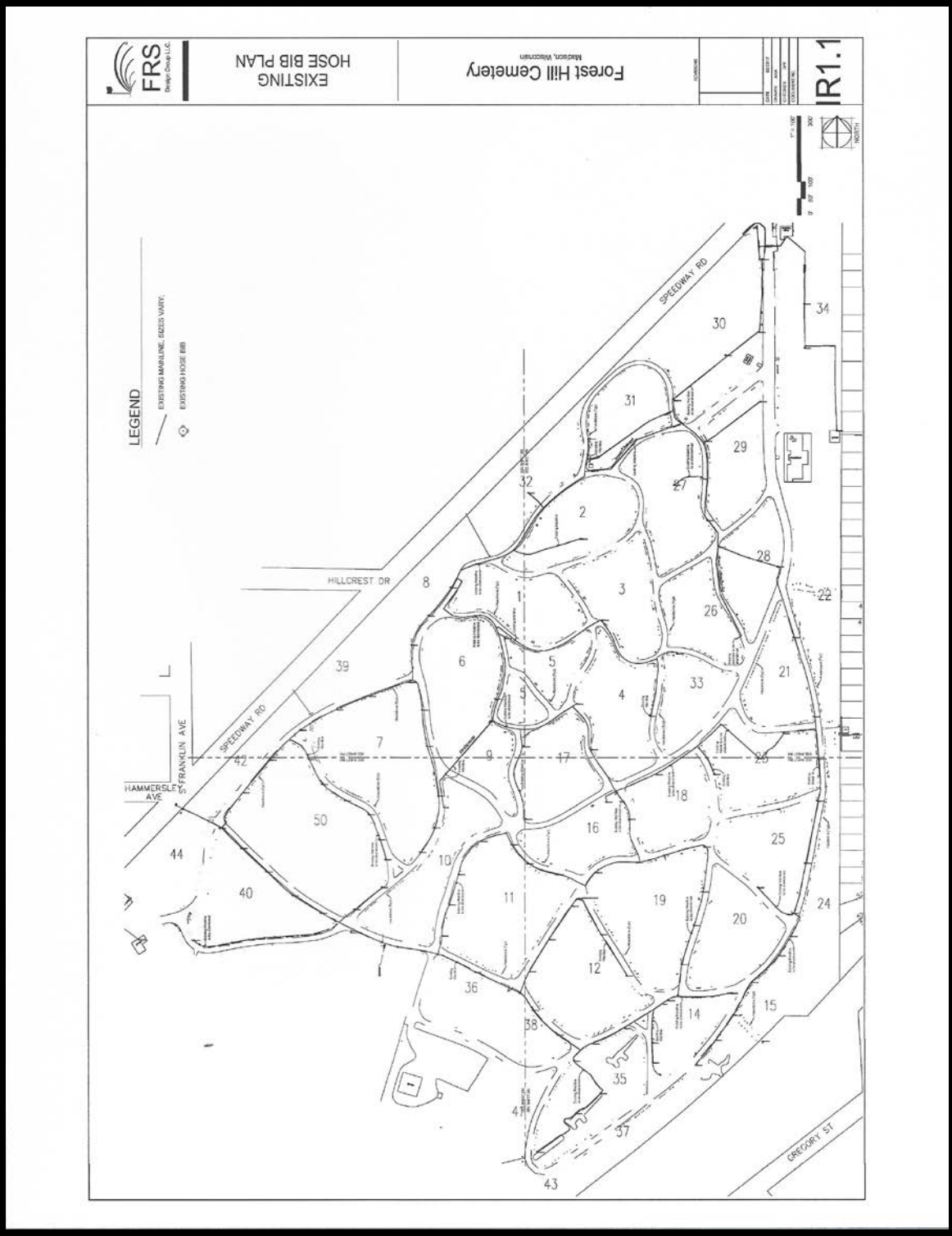


**B-9: Detail of proposed storm sewer and resurfacing construction page P-7.**





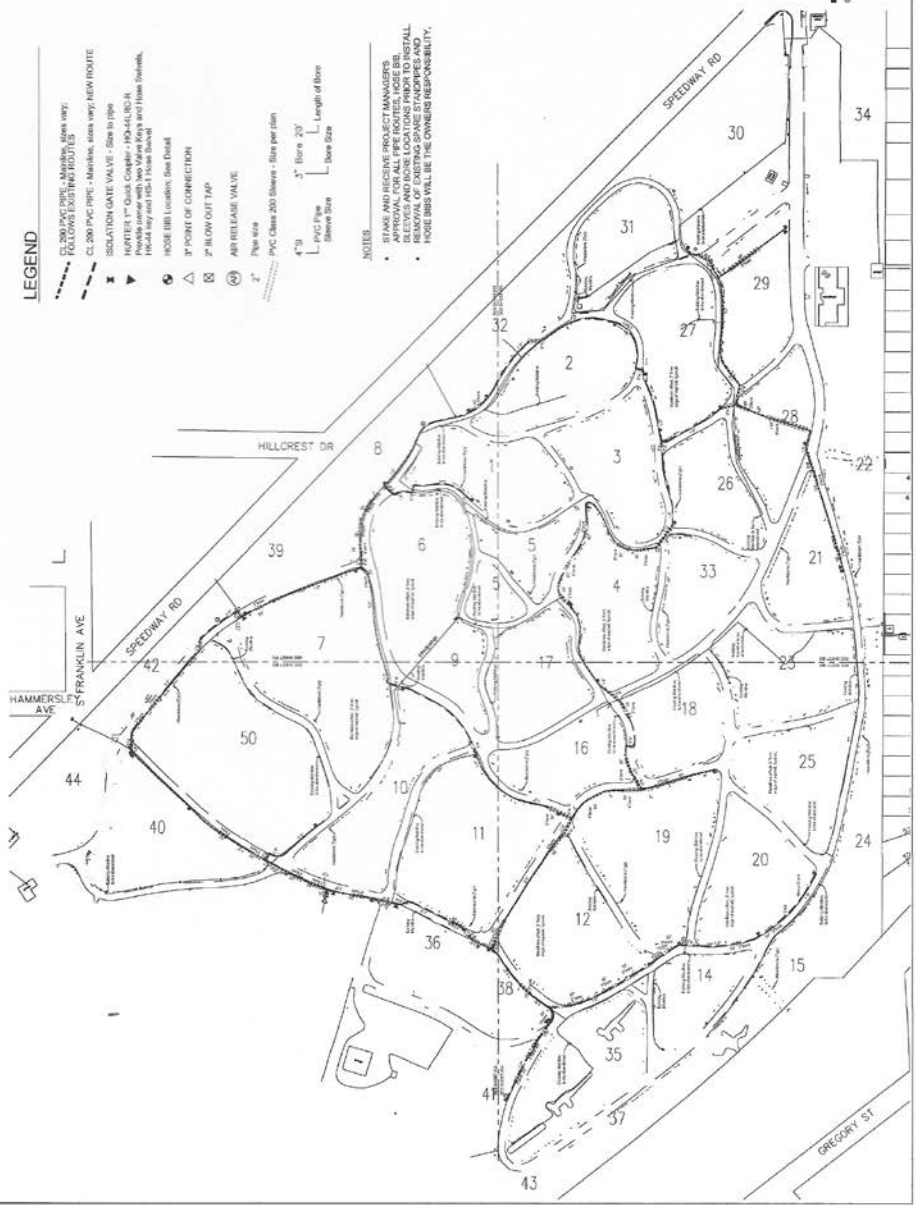
**B-11: Detail of proposed storm sewer and resurfacing construction page P-8-2.**



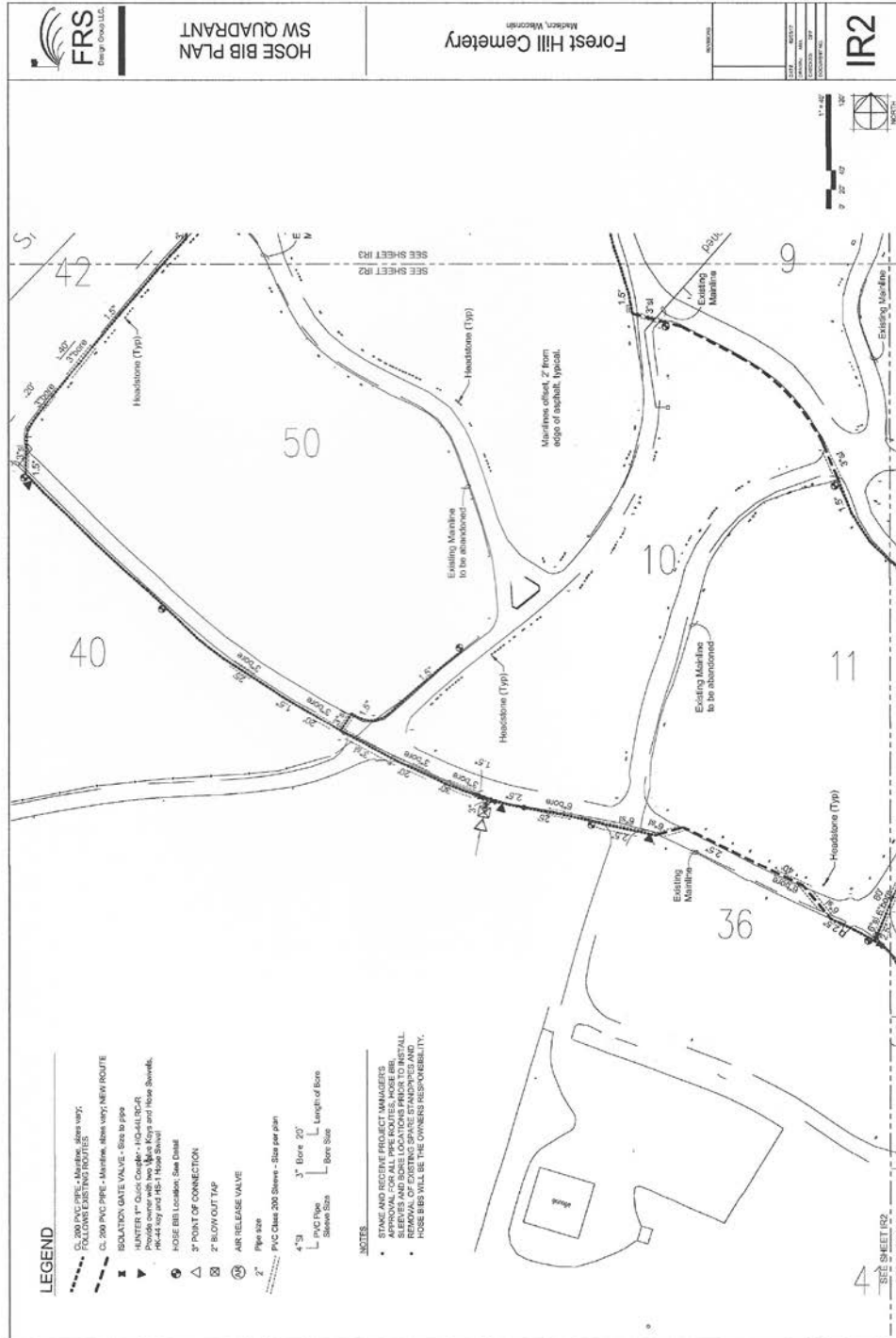
**C-1: Overview Sheet showing existing irrigation lines.**

- LEGEND**
- CL 200 PVC PIPE - Manhole, flow way; FOLLOWS EXISTING ROUTES
  - CL 200 PVC PIPE - Manhole, flow way; NEW ROUTE
  - ISOLATION GATE VALVE - Size to pipe
  - HURTERS 1" Quick Coupler - HD-HL-RC-14. Provides control with two Valve Keys in 1/2" Hose Swivel. Holes may need 1/2" Hole Bore!
  - HOSE BIB Location, Size Detail
  - 3" POINT OF CONNECTION
  - 3" BLOW OFF TAP
  - AIR RELEASE VALVE
  - Pipe size
  - PVC Class 200 Slabwall - Size per plan
  - 4" 5' Bore 20" Sleeve Size
  - 5" Bore 20" Sleeve Size
  - 7" Bore 20" Sleeve Size
  - Length of Bore
  - Slave Size

- NOTES**
- RELEASE AND RECEIVE PROJECT MANAGERS APPROVAL FOR ALL PIPE ROUTES, HOSE BIB, SLEEVES AND BORE LOCATIONS PRIOR TO INSTALL.
  - HOSE BIBS WILL BE THE OWNER'S RESPONSIBILITY.



C-2: Overview Sheet showing proposed irrigation lines.



**LEGEND**

- PROPOSED MAINLINE (SEE NOTES); FOLLOWING ELEVATION ROUTES
- CL 200 PVC PER - Mainline, stem w/ty; NEW ROUTE
- ISOLATION GATE VALVE - Star to pipe
- 1\"/>

**NOTES**

- STAKE AND RECEIVE PROJECT MANAGERS
- REMOVE EXISTING MAINLINE AND HOSE BIBS PRIOR TO INSTALL
- REMOVE EXISTING SPARE STAMPINGS AND HOSE BIBS WILL BE THE OWNERS RESPONSIBILITY.

C-3: Detail of proposed irrigation lines page IR2.



HOSE BIB PLAN  
NW QUADRANT

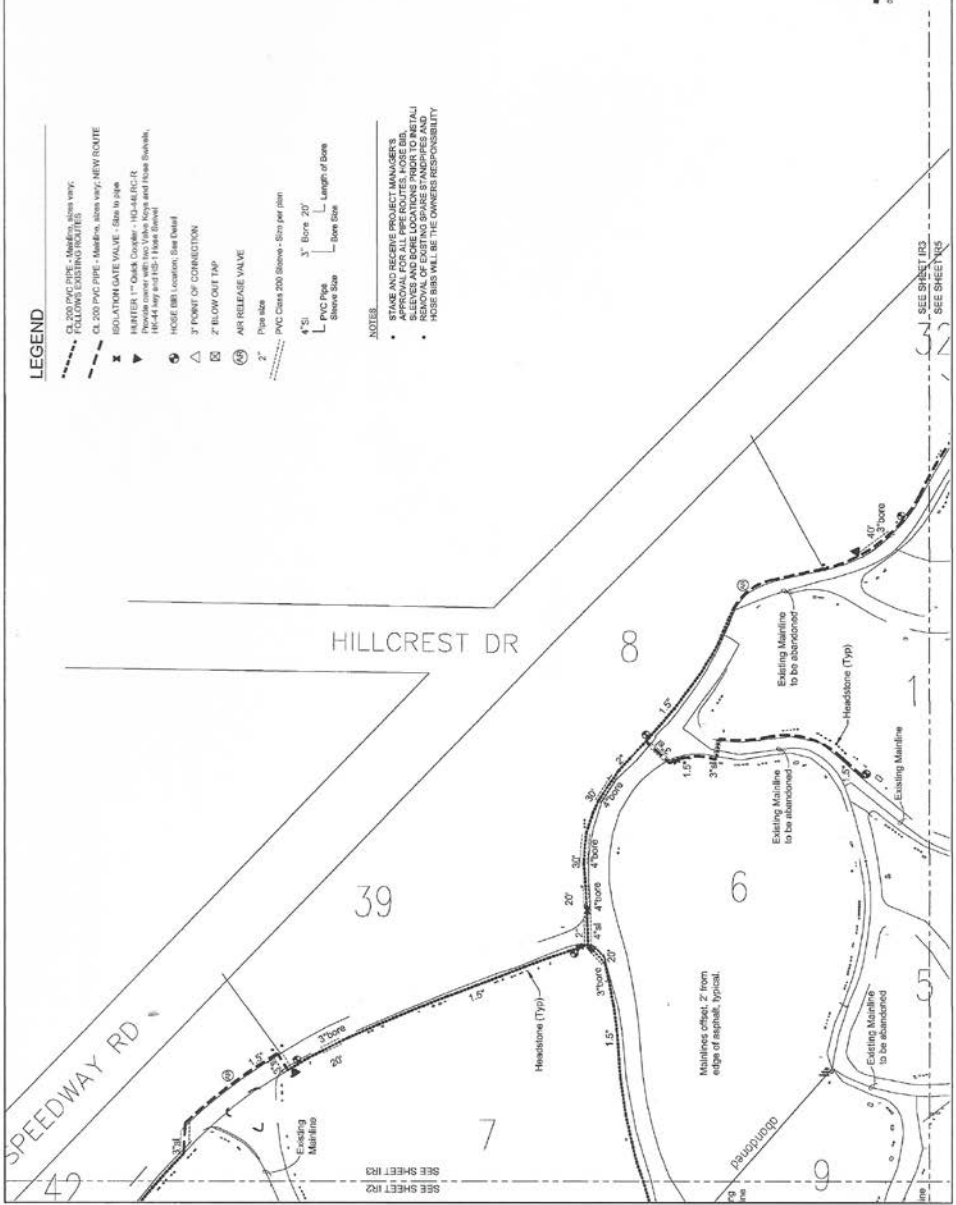
Forest Hill Cemetery  
Madison, Wisconsin

IR3

- LEGEND**
- CL 200 PVC PIPE - Medium, show only; FOLLOWS EXISTING ROUTES
  - CL 200 PVC PIPE - Medium, show only, NEW ROUTE
  - ISOLATION GATE VALVE - Size to pipe
  - HANDY 1" Quick Coupler - HQ-46-PC-R  
Provides access with two Valve Keys and Hose Swivel, HQ-44 Key and HQ-1 Hand Swivel
  - HOSE BIB Location, See Detail
  - 3" POINT OF CONNECTION
  - 2" BLOW OUT TAP
  - AIR RELEASE VALVE
  - PVC Class 200 (Show) - Size per plan
  - 4" Si - 3" Elve 20" - Show Size
  - 3" PVC Pipe - Show Size
  - 2" - Show Size
  - Length of Bore

**NOTES**

- STATE AND RECEIVE PROJECT MANAGER'S APPROVAL FOR ALL PIPE ROUTES, HOSE BIB, VALVE LOCATIONS, AND ISOLATION GATE VALVE REMOVAL OF EXISTING HOSE STANDS AND HOSE BIBS WILL BE THE OWNER'S RESPONSIBILITY.



C-4: Detail of proposed irrigation lines page IR3.







**Primary Info**

State Site #

Name Forest Hill Cemetery

Other Name

Field #

ASI # 13760

**Location Information**

County

Dane

Municipality

Madison

Civil Town

Madison

Location Description

This cemetery is located at One Speedway Road.

PLSS

Township	Range	Direction	Section	QSection	Grid Alignment	French Lot	Gov. Lot
7	9	E	21	W 1/2, SE	S, SE		

UTM Info

USGS 7.5' Quad Info

MADISON WEST

Parcel ID

**Site Description**

Site Description

Site Dimensions (feet)

Site Area (acres) 140

Site Dimensions (meters)

Site Area (hectares)

Site Type

Cemetery/burial

Cultural Info

Culture  
Historic Euro-American

Certainty  
Definite

Investigation Type

Archaeological Phase/Complex

Tribe/Ethnic Group

Site Status

This human burial site is protected under Wis. Stats 157.70. Consultation with the Wisconsin Historical Society is required. See burial page.

Covenant

**Site Characteristics**

Modern Landuse

Marked cemetery

Degree of Disturbance

Minimal

Impacts to Sites

**Burial Site Info**

Burial Number

BDA-0177

Burial Status

Catalogued

Date Catalogued

11/25/2003

Cemetery Type

Active

Earliest Grave Date

1851-1900

Latest Grave Date

2000-2050

Disposition Activity

Date of Disposition

Cataloging Comments

**National Register Info**

**Other Eligibility Evaluation**

Individual Eligibility Evaluation

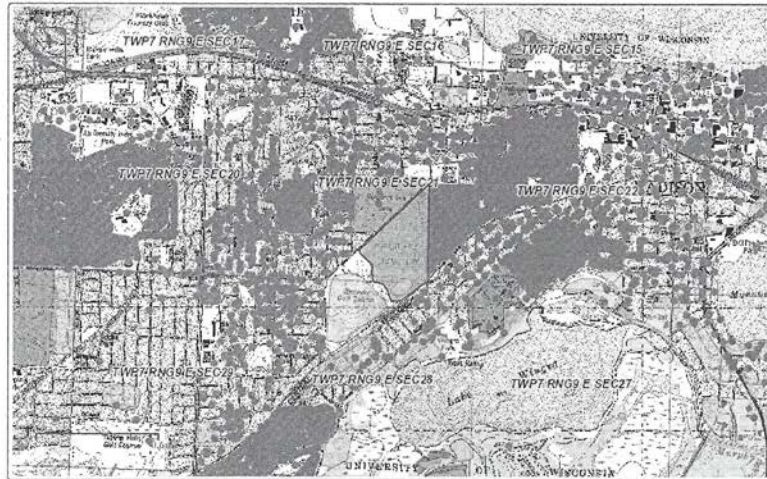
Proposed Historic District

Contributing

Evaluation Date

Eligibility Comments

Ownership				Add
Owner	City of Madison	Address 2	1 Speedway Road	
Chronology	Current Owner	City	Madison	
Ownership Type	Public- Local	State	WI	
Year Determined	1987	Zip	53705	
Address 1	Forest Hill Cemetery			
Artifact Info				
Artifact Repository				
Material Class				
Artifact List				
Date of Site	1858-present			
Dating Method	Historic Records			
Investigator Info				
Investigator	Organization	Date	Recommendation	
Site Reporter Info				
Reporter				
Organization				
Date Reported				
Bibliography	Haswell, Susan. 1993. Forest Hill: Madison's Rural Cemetery, 1857-1878. The Journal of Historic Madison, Inc., Volume 11. Madison. National Cemetery Administration (NCA), 2011, Large Format Photo Documentation Project, Department of Veteran's Affairs, Washington D.C.			
Tracking Info				
WHS Project #	ARI #	Reason For Reporting		



**Primary Info**

State Site # DA-0134  
 Name Forest Hill Cemetery Mound Group  
 Other Name Cemetery Woods  
 Field #  
 ASI # 9912

**Location Information**

County Dane  
 Municipality Madison  
 Civil Town Madison

**Location Description**  
 This site is located in the western portion of the Forest Hill Cemetery, on a ridge above the Illinois Central Railroad Tracks. It is approximately 1/2 mile northwest of Lake Wingra.

PLSS	Township	Range	Direction	Section	QSection	Grid Alignment	French Lot	Gov. Lot
		7	9	E	28	NE, NW, NW, NE		

**UTM Info**

USGS 7.5' Quad Info MADISON WEST  
 Parcel ID

**Site Description**

This site consists of a group of effigy mounds. Two panthers, one goose and one linear mound are still extant. The group formerly contained an additional three linears that were graded away by the City of Madison. The goose lost its head during construction of the adjacent railroad cut, but the body and folded wings are still extant and in good condition.

**Site Description**

Update 2003: Some damage has occurred to the margins of the surrounding mounds, as mowers have chewed into the sod. Debitage was observed eroding from the hip area of one panther mound. BSPO records indicate that dirt was added to the mounds in the 1940's to protect them and restore their outlines.

Additional Comments: This site was placed on the National Register of Historic Places in 1974.

**Site Dimensions (feet)**

**Site Area (acres)**

**Site Dimensions (meters)**

**Site Area (hectares)**

**Site Type**  
 Mound(s) - Linear, Mound(s) - Effigy

**Cultural Info**

Culture  
 Late Woodland  
 Certainty  
 Definite

**Investigation Type**

Avocational Survey

**Archaeological Phase/Complex**

Effigy Mound complex

**Tribe/Ethnic Group**

**Site Status**

This human burial site is protected under Wis. Stats 157.70. Consultation with the Wisconsin Historical Society is required. See burial page.

**Covenant**

No - None of site

**Site Characteristics**

**Modern Landuse**  
 Marked cemetery

**Degree of Disturbance**  
 Minimal

**Impacts to Sites**  
 Defacing/Vandalism

**Burial Site Info**

<b>Burial Number</b>	BDA-0388	<b>Burial Status</b>	Catalogued
<b>Date Catalogued</b>	11/25/2003	<b>Cemetery Type</b>	Inactive/Marked
<b>Earliest Grave Date</b>	Precontact	<b>Latest Grave Date</b>	Precontact
<b>Disposition Activity</b>		<b>Date of Disposition</b>	

**Cataloging Comments**  
 This site is included as part of the description on the Forest Hill Cemetery document that was recorded with the Dane County Register of Deeds.

**National Register Info**

National Register Reference # 74000070  
 National / State Register Listing Name Forest Hill Cemetery Mound Group

State Register Listing Date Multiple Property Name  
 National Register Listing Date 12/27/1974

**Other Eligibility Evaluation**

Individual Eligibility Evaluation

Proposed Historic District

Contributing

Evaluation Date

Eligibility Comments

**Ownership** Add

Owner City of Madison Address 2  
 Chronology Current Owner City  
 Ownership Type Public- Local State  
 Year Determined 1979 Zip  
 Address 1 Forest Hill Cemetery

**Artifact Info**

Artifact Repository Not Collected  
 Material Class  
 Artifact List two chert flakes observed eroding from partner mound  
 Date of Site  
 Dating Method

**Investigator Info**

Investigator	Organization	Date	Recommendation
Stephen Peet	Independent or not affiliated	1/1/1890	

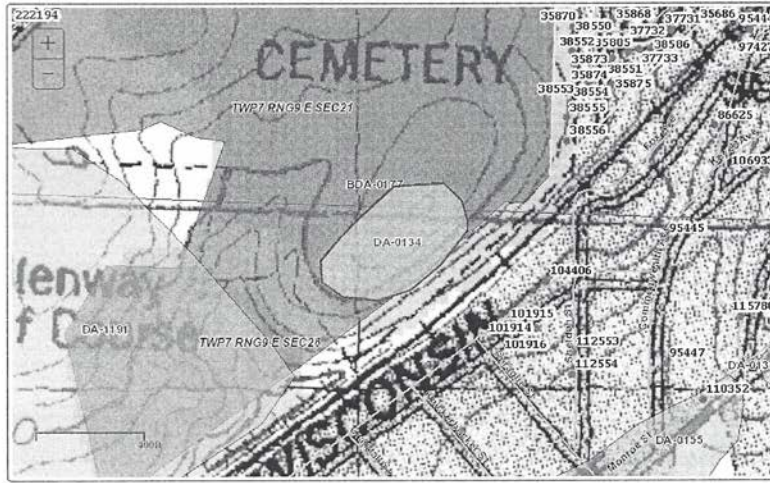
**Site Reporter Info**

Reporter Charles E. Brown  
 Organization Wisconsin Historical Society (unspecified)  
 Date Reported 1/1/1906  
 Peet, Stephen D., 1890, Prehistoric America, Vol 2: 12, 82, 260, and 305. FIG. 158.  
 Thomas, Cyrus, 1891, 12th Bureau of American Ethnology Bulletin: 229.  
 Brown, Charles E., 1906, WA (OS) 5(3-4): 310.  
 Brown, Charles E., 1915 WA (OS) 14(3): 108.  
 Brown, Charles E, 1919, WA (OS) 14(3):108-109.

Bibliography  
 Brown, Charles E., 1929 WA (NS) 8(4):165.  
 Brown, Charles E., Goose Mounds, 1939 WA (NS) 20(3):51.  
 Charles E. Brown Mss (Boxes 21, 22) on file WHS-Archives Division.  
 Peterson, Robert, 1979, the Wisconsin Effigy Mound Project 1: 79-80.

**Tracking Info**

WHS Project #	ARI #	Reason For Reporting



**D-5: 47-DA-0147 ASI Form-2**

## ARCHAEOLOGICAL REPORTS INVENTORY FORM

WHS/SHSW # \_\_\_\_\_ COUNTY: Dane

AUTHORS: John Garwood Hodgson

REPORT TITLE: Archaeological Investigation Results, Proposed Road Resurfacing, Storm Sewer and Landscaping Water Lines abandonment and replacement, Forest Hill Cemetery (47-BDA-177) and The Forest Hill Cemetery Mound Group 47-DA-0134/47-BDA-0388.

DATE OF REPORT (MONTH AND YEAR): March 2017

SERIES/NUMBER: \_\_\_\_\_

PLACE OF PUBLICATION: Madison, Wisconsin

LOCATIONAL INFORMATION [LEGAL DESCRIPTION OF SURVEY AREA (T-R-S)]  
W ½ SE ¼ of Section 21 and NE ¼ of Section 28, Twp. 7 North, Range 9 East.

U.S.G.S. QUAD MAP(S): Madison West WI (1983).

SITE(S) INVESTIGATED: 47-DA-134 and 47-BDA-0177

ACRES INVESTIGATED: Appx. 75      AGENCY # \_\_\_\_\_

### INVESTIGATION TECHNIQUES COMPLETED (Check all that apply.)

- |  |   |  |
|--|---|--|
| <input checked="" type="checkbox"/> Historical Research            | <input type="checkbox"/> Surface Survey                         | <input type="checkbox"/> Geomorphology         |
| <input checked="" type="checkbox"/> Interview/Informant            | <input type="checkbox"/> Soil Cores                             | <input type="checkbox"/> Underwater            |
| <input checked="" type="checkbox"/> Records/Background             | <input checked="" type="checkbox"/> Walk Over/Visual Inspection | <input type="checkbox"/> Avocational Survey    |
| <input checked="" type="checkbox"/> Literature Background Research | <input type="checkbox"/> Mechanical Stripping                   | <input type="checkbox"/> Chance Encounter      |
| <input type="checkbox"/> Traditional Knowledge                     | <input type="checkbox"/> Test Excavation/Phase II               | <input type="checkbox"/> Osteological Analysis |
| <input type="checkbox"/> Monitoring                                | <input type="checkbox"/> Major Excavation/Phase III             | <input type="checkbox"/> Faunal Analysis       |
| <input type="checkbox"/> Shovel Testing/Probing                    | <input type="checkbox"/> Remote Sensing                         | <input type="checkbox"/> Floral Analysis       |

ABSTRACT:       Included in report       Written in space below

*Office of the State Archaeologist*

ARI # \_\_\_\_\_



WISCONSIN  
HISTORICAL  
SOCIETY

April 7, 2017

Corey Stelljes  
City of Madison  
210 Martin Luther King Jr. Blvd  
Rm 104  
Madison, WI 53703

**IN REPLY, PLEASE REFER TO WHS CASE # 17-0273/DA**

Re: Request to Conduct Ground-Disturbing Activity within the Cataloged Boundaries of the Forest Hill Cemetery (BDA-0177) and the Uncataloged Boundaries of the Forest Hill Cemetery Mound Group (BDA-0388)

Dear Mr. Stelljes:

We have received and reviewed your project materials submitted March 16, 2017 and supplemented by John Hodgson's archeological assessment report with recommendations on March 19, 2017 (received March 21, 2017). Based on these materials and my review of our Forest Hill Cemetery and Forest Hill Cemetery Mound Group site files, I offer the following comments.

Because this proposed action is being carried out by the City of Madison, the municipal cemetery association and owner of the Forest Hill Cemetery (BDA-0177), the majority of the proposed cemetery maintenance and improvement work falls under the general provisions of Wis. Stat. §§ 157.11 and 157.70, and is not subject to the review provisions of Wis. Stat. § 157.70 (5).

However, elements of the proposed action will take place within the uncataloged boundaries of the Forest Hill Cemetery Mound Group (BDA-0388), a separate partially cataloged and partially uncataloged burial site located within the Forest Hill Cemetery. These actions (within the uncataloged boundaries of BDA-0388) are subject to review under Wis. Stats. §§ 157.70 (4) and Wis. Admin. Code § HS 2.04 (4).

At this time, I do grant an Authorization to carry out work within the uncataloged boundaries of the Forest Hill Cemetery Mound Group, and agree with all recommendations of Mr. Hodgson in his March 19, 2017 Archeological Investigation Results report.

Your Authorization to conduct this work shall be valid for a period of one year from the date of this letter.

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RECEIVED

APR 12 2017



This Authorization applies to the proposed work activity specifically described in your March 16, 2017 submittal as modified in the March 19, 2017 Hodgson Report materials. All ground-disturbing activities that occur within the uncatalogued boundaries of the Forest Hill Cemetery Mound Group site shall be monitored by a qualified archeologist, as defined at Wis. Stats. § 157.70 (1) (i). Mr. Hodgson is such a qualified archeologist. You may find a list of other such qualified archeologists at the following web site:

<http://www.wisconsinhistory.org/pdfs/hp/HPR-Burial-Excavation-Consultants-List.pdf>.

In the event that the proposed area of construction has been disturbed to a degree greater than that proposed to be disturbed to facilitate your project, or to a degree that would eliminate any possibility of finding intact human burials, please provide corroborating written information describing this finding to justify termination of monitoring activities. Otherwise, again, all areas of ground-disturbing shall be monitored.

If during the proposed ground disturbing activity you encounter human remains, you must stop work at that location and contact our office immediately for further coordination; and in the event that human remains must be excavated and analyzed, for negotiation and execution of an appropriate contract.

Any deviation from the plans described in your March 16, 2017 submittal as modified in the March 19, 2017 Hodgson Report materials that may occur within the uncatalogued boundaries of the Forest Hill Cemetery Mound Group burial site that involves ground disturbing activity must be described in writing and said description forwarded to this office for further review and Authorization. Such modified work is not covered or authorized by this letter.

With questions, please contact me. We anticipate receipt of your monitoring report when it becomes available. Thank you for your continued attention to this matter.

Sincerely,



Chip Harry L. Brown III, J.D.

Senior Compliance Officer - Lead

608-264-6508 (voice)

608-264-6504 (fax)

[chip.brown@wisconsinhistory.org](mailto:chip.brown@wisconsinhistory.org)

# Forest Hill Cemetery Irrigation

11-Apr-17



Total Mainline Pipe		
1.5"	7800	LF
2"	610	LF
2.5"	825	LF

Mainline Trenched		
1.5"	5420	LF
2"	310	LF
2.5"	440	LF

Mainline in Bore		
1.5"	1200	LF
2"	260	LF
2.5"	190	LF

Bore Pipe Only		
3"	1200	LF
4"	260	LF
6"	190	LF

Mainline in Sleeves		
1.5"	1180	LF
2"	40	LF
2.5"	200	LF

Sleeve Pipe Only		
3"	1180	LF
4"	40	LF
6"	200	LF

Isolation Valve		19
1.5"	13	EA
2"	3	EA
2.5"	3	EA

<b>Hose Bibs</b>	29	EA
<b>Quick Coupler Valve</b>	10	EA
<b>Air Release Valve</b>	3	EA

**SECTION E: BIDDERS ACKNOWLEDGEMENT**  
**FOREST HILL CEMETERY IMPROVEMENTS 2017**  
**CONTRACT NO. 8002**

Bidder must state a Unit Price and Total Bid for each item. The Total Bid for each item must be the product of quantity, by Unit Price. The Grand Total must be the sum of the Total Bids for the various items. In case of multiplication errors or addition errors, the Grand Total with corrected multiplication and/or addition shall determine the Grand Total bid for each contract. The Unit Price and Total Bid must be entered numerically in the spaces provided. All words and numbers shall be written in ink.

1. The undersigned having familiarized himself/herself with the Contract documents, including Advertisement for Bids, Instructions to Bidders, Form of Proposal, City of Madison Standard Specifications for Public Works Construction - 2017 Edition thereto, Form of Agreement, Form of Bond, and Addenda issued and attached to the plans and specifications on file in the office of the City Engineer, hereby proposes to provide and furnish all the labor, materials, tools, and expendable equipment necessary to perform and complete in a workmanlike manner the specified construction on this project for the City of Madison; all in accordance with the plans and specifications as prepared by the City Engineer, including Addenda Nos. \_\_\_\_\_ through \_\_\_\_\_ to the Contract, at the prices for said work as contained in this proposal. (Electronic bids submittals shall acknowledge addendum under Section E and shall not acknowledge here)
2. If awarded the Contract, we will initiate action within seven (7) days after notification or in accordance with the date specified in the contract to begin work and will proceed with diligence to bring the project to full completion within the number of work days allowed in the Contract or by the calendar date stated in the Contract.
3. The undersigned Bidder or Contractor certifies that he/she is not a party to any contract, combination in form of trust or otherwise, or conspiracy in restraint of trade or commerce or any other violation of the anti-trust laws of the State of Wisconsin or of the United States, with respect to this bid or contract or otherwise.
4. I hereby certify that I have met the Bid Bond Requirements as specified in Section 102.5.  
*(IF BID BOND IS USED, IT SHALL BE SUBMITTED ON THE FORMS PROVIDED BY THE CITY. FAILURE TO DO SO MAY RESULT IN REJECTION OF THE BID).*
5. I hereby certify that all statements herein are made on behalf of \_\_\_\_\_ (name of corporation, partnership, or person submitting bid) a corporation organized and existing under the laws of the State of \_\_\_\_\_ a partnership consisting of \_\_\_\_\_; an individual trading as \_\_\_\_\_; of the City of \_\_\_\_\_ State of \_\_\_\_\_; that I have examined and carefully prepared this Proposal, from the plans and specifications and have checked the same in detail before submitting this Proposal; that I have fully authority to make such statements and submit this Proposal in (its, their) behalf; and that the said statements are true and correct.

\_\_\_\_\_  
SIGNATURE

\_\_\_\_\_  
TITLE, IF ANY

Sworn and subscribed to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

\_\_\_\_\_  
(Notary Public or other officer authorized to administer oaths)  
My Commission Expires \_\_\_\_\_

Bidders shall not add any conditions or qualifying statements to this Proposal.

**SECTION F: BEST VALUE CONTRACTING**  
**FOREST HILL CEMETERY IMPROVEMENTS 2017**  
**CONTRACT NO. 8002**

**Best Value Contracting**

1. The Contractor shall indicate the non-apprenticeable trades used on this contract.

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2. Madison General Ordinance (M.G.O.), 33.07(7), does provide for some exemptions from the active apprentice requirement. Apprenticeable trades are those trades considered apprenticeable by the State of Wisconsin. Please check applicable box if you are seeking an exemption.

- Contractor has a total skilled workforce of four or less individuals in all apprenticeable trades combined.
- No available trade training program; The Contractor has been rejected by the only available trade training program, or there is no trade training program within 90 miles.
- Contractor is not using an apprentice due to having a journey worker on layoff status, provided the journey worker was employed by the contractor in the past six months.
- First-time Contractor on City of Madison Public Works contract requests a onetime exemption but intends to comply on all future contracts and is taking steps typical of a "good faith" effort.
- Contractor has been in business less than one year.
- Contractor doesn't have enough journeyman trade workers to qualify for a trade training program in that respective trade.
- An exemption is granted in accordance with a time period of a "Documented Depression" as defined by the State of Wisconsin.

3. The Contractor shall indicate on the following section which apprenticeable trades are to be used on this contract. Compliance with active apprenticeship, to the extent required by M.G.O. 33.07(7), shall be satisfied by documentation from an applicable trade training body; an apprenticeship contract with the Wisconsin Department of Workforce Development or a similar agency in another state; or the U.S Department of Labor. This documentation is required prior to the Contractor beginning work on the project site.

- The Contractor has reviewed the list and shall not use any apprenticeable trades on this project.

**LIST APPRENTICABLE TRADES** (check all that apply to your work to be performed on this contract)

- BRICKLAYER
- CARPENTER
- CEMENT MASON / CONCRETE FINISHER
- CEMENT MASON (HEAVY HIGHWAY)
- CONSTRUCTION CRAFT LABORER
- DATA COMMUNICATION INSTALLER
- ELECTRICIAN
- ENVIRONMENTAL SYSTEMS TECHNICIAN / HVAC SERVICE TECH/HVAC INSTALL / SERVICE
- GLAZIER
- HEAVY EQUIPMENT OPERATOR / OPERATING ENGINEER
- INSULATION WORKER (HEAT & FROST)
- IRON WORKER
- IRON WORKER (ASSEMBLER, METAL BLDGS)
- PAINTER & DECORATOR
- PLASTERER
- PLUMBER
- RESIDENTIAL ELECTRICIAN
- ROOFER & WATER PROOFER
- SHEET METAL WORKER
- SPRINKLER FITTER
- STEAMFITTER
- STEAMFITTER (REFRIGERATION)
- STEAMFITTER (SERVICE)
- TAPER & FINISHER
- TELECOMMUNICATIONS (VOICE, DATA & VIDEO) INSTALLER-TECHNICIAN
- TILE SETTER

## **SECTION G: BID BOND**

KNOW ALL MEN BY THESE PRESENT, THAT Principal and Surety, as identified below, are held and firmly bound unto the City of Madison, (hereinafter referred to as the "Obligee"), in the sum of five per cent (5%) of the amount of the total bid or bids of the Principal herein accepted by the Obligee, for the payment of which the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

The conditions of this obligation are such that, whereas the Principal has submitted, to the City of Madison a certain bid, including the related alternate, and substitute bids attached hereto and hereby made a part hereof, to enter into a contract in writing for the construction of:

### **FOREST HILL CEMETERY IMPROVEMENTS 2017 CONTRACT NO. 8002**

1. If said bid is rejected by the Obligee, then this obligation shall be void.
2. If said bid is accepted by the Obligee and the Principal shall execute and deliver a contract in the form specified by the Obligee (properly completed in accordance with said bid) and shall furnish a bond for his/her faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said bid, then this obligation shall be void.

If said bid is accepted by the Obligee and the Principal shall fail to execute and deliver the contract and the performance and payment bond noted in 2. above executed by this Surety, or other Surety approved by the City of Madison, all within the time specified or any extension thereof, the Principal and Surety agree jointly and severally to forfeit to the Obligee as liquidated damages the sum mentioned above, it being understood that the liability of the Surety for any and all claims hereunder shall in no event exceed the sum of this obligation as stated, and it is further understood that the Principal and Surety reserve the right to recover from the Obligee that portion of the forfeited sum which exceed the actual liquidated damages incurred by the Obligee.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by an extension of the time within which the Obligee may accept such bid, and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, on the day and year set forth below.

Seal      PRINCIPAL

\_\_\_\_\_  
Name of Principal

\_\_\_\_\_  
By

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name and Title

Seal      SURETY

\_\_\_\_\_  
Name of Surety

\_\_\_\_\_  
By

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name and Title

This certifies that I have been duly licensed as an agent for the above company in Wisconsin under National Provider No. \_\_\_\_\_ for the year \_\_\_\_\_, and appointed as attorney in fact with authority to execute this bid bond and the payment and performance bond referred to above, which power of attorney has not been revoked.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Agent Signature

\_\_\_\_\_  
Address

\_\_\_\_\_  
City, State and Zip Code

\_\_\_\_\_  
Telephone Number

**NOTE TO SURETY & PRINCIPAL**

The bid submitted which this bond guarantees shall be rejected if the following instrument is not attached to this bond:

Power of Attorney showing that the agent of Surety is currently authorized to execute bonds on behalf of the Surety, and in the amounts referenced above.

## Certificate of Biennial Bid Bond

TIME PERIOD - VALID (FROM/TO)
NAME OF SURETY
NAME OF CONTRACTOR
CERTIFICATE HOLDER <p style="text-align: center;">City of Madison, Wisconsin</p>

This is to certify that a biennial bid bond issued by the above-named Surety is currently on file with the City of Madison.

This certificate is issued as a matter of information and conveys no rights upon the certificate holder and does not amend, extend or alter the coverage of the biennial bid bond.

Cancellation: Should the above policy be cancelled before the expiration date, the issuing Surety will give thirty (30) days written notice to the certificate holder indicated above.

\_\_\_\_\_  
Signature of Authorized Contractor Representative

\_\_\_\_\_  
Date



## SECTION H: AGREEMENT

THIS AGREEMENT made this \_\_\_\_\_ day of \_\_\_\_\_ in the year Two Thousand and Seventeen between \_\_\_\_\_ hereinafter called the Contractor, and the City of Madison, Wisconsin, hereinafter called the City.

WHEREAS, the Common Council of the said City of Madison under the provisions of a resolution adopted \_\_\_\_\_, and by virtue of authority vested in the said Council, has awarded to the Contractor the work of performing certain construction.

NOW, THEREFORE, the Contractor and the City, for the consideration hereinafter named, agree as follows:

1. **Scope of Work.** The Contractor shall, perform the construction, execution and completion of the following listed complete work or improvement in full compliance with the Plans, Specifications, Standard Specifications, Supplemental Specifications, Special Provisions and contract; perform all items of work covered or stipulated in the proposal; perform all altered or extra work; and shall furnish, unless otherwise provided in the contract, all materials, implements, machinery, equipment, tools, supplies, transportation, and labor necessary to the prosecution and completion of the work or improvements:

### FOREST HILL CEMETERY IMPROVEMENTS 2017 CONTRACT NO. 8002

2. **Completion Date/Contract Time.** Construction work must begin within seven (7) calendar days after the date appearing on mailed written notice to do so shall have been sent to the Contractor and shall be carried on at a rate so as to secure full completion SEE SPECIAL PROVISIONS, the rate of progress and the time of completion being essential conditions of this Agreement.
3. **Contract Price.** The City shall pay to the Contractor at the times, in the manner and on the conditions set forth in said specifications, the sum of \_\_\_\_\_ (\$ \_\_\_\_\_) Dollars being the amount bid by such Contractor and which was awarded to him/her as provided by law.
4. **Affirmative Action.** In the performance of the services under this Agreement the Contractor agrees not to discriminate against any employee or applicant because of race, religion, marital status, age, color, sex, disability, national origin or ancestry, income level or source of income, arrest record or conviction record, less than honorable discharge, physical appearance, sexual orientation, gender identity, political beliefs, or student status. The Contractor further agrees not to discriminate against any subcontractor or person who offers to subcontract on this contract because of race, religion, color, age, disability, sex, sexual orientation, gender identity or national origin.

The Contractor agrees that within thirty (30) days after the effective date of this agreement, the Contractor will provide to the City Affirmative Action Division certain workforce utilization statistics, using a form to be furnished by the City.

If the contract is still in effect, or if the City enters into a new agreement with the Contractor, within one year after the date on which the form was required to be provided, the Contractor will provide updated workforce information using a second form, also to be furnished by the City. The second form will be submitted to the City Affirmative Action Division no later than one year after the date on which the first form was required to be provided.

The Contractor further agrees that, for at least twelve (12) months after the effective date of this contract, it will notify the City Affirmative Action Division of each of its job openings at facilities in Dane County for which applicants not already employees of the Contractor are to be considered. The notice will include a job description, classification, qualifications and application procedures

and deadlines. The Contractor agrees to interview and consider candidates referred by the Affirmative Action Division if the candidate meets the minimum qualification standards established by the Contractor, and if the referral is timely. A referral is timely if it is received by the Contractor on or before the date started in the notice.

#### Articles of Agreement Article I

The Contractor shall take affirmative action in accordance with the provisions of this contract to insure that applicants are employed, and that employees are treated during employment without regard to race, religion, color, age, marital status, disability, sex, sexual orientation, gender identity or national origin and that the employer shall provide harassment free work environment for the realization of the potential of each employee. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation and selection for training including apprenticeship insofar as it is within the control of the Contractor. The Contractor agrees to post in conspicuous places available to employees and applicants notices to be provided by the City setting out the provisions of the nondiscrimination clauses in this contract.

#### Article II

The Contractor shall in all solicitations or advertisements for employees placed by or on behalf of the Contractors state that all qualified or qualifiable applicants will be employed without regard to race, religion, color, age, marital status, disability, sex, sexual orientation, gender identity or national origin.

#### Article III

The Contractor shall send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding a notice to be provided by the City advising the labor union or worker's representative of the Contractor's equal employment opportunity and affirmative action commitments. Such notices shall be posted in conspicuous places available to employees and applicants for employment.

#### Article V

The Contractor agrees that it will comply with all provisions of the Affirmative Action Ordinance of the City of Madison, including the contract compliance requirements. The Contractor agrees to submit the model affirmative action plan for public works contractors in a form approved by the Affirmative Action Division Manager.

#### Article VI

The Contractor will maintain records as required by Section 39.02(9)(f) of the Madison General Ordinances and will provide the City Affirmative Action Division with access to such records and to persons who have relevant and necessary information, as provided in Section 39.02(9)(f). The City agrees to keep all such records confidential, except to the extent that public inspection is required by law.

#### Article VII

In the event of the Contractor's or subcontractor's failure to comply with the Equal Employment Opportunity and Affirmative Action Provisions of this contract or Section 39.03 and 39.02 of the Madison General Ordinances, it is agreed that the City at its option may do any or all of the following:

1. Cancel, terminate or suspend this Contract in whole or in part.

2. Declare the Contractor ineligible for further City contracts until the Affirmative Action requirements are met.
3. Recover on behalf of the City from the prime Contractor 0.5 percent of the contract award price for each week that such party fails or refuses to comply, in the nature of liquidated damages, but not to exceed a total of five percent (5%) of the contract price, or five thousand dollars (\$5,000), whichever is less. Under public works contracts, if a subcontractor is in noncompliance, the City may recover liquidated damages from the prime Contractor in the manner described above. The preceding sentence shall not be construed to prohibit a prime Contractor from recovering the amount of such damage from the non-complying subcontractor.

#### Article VIII

The Contractor shall include the above provisions of this contract in every subcontract so that such provisions will be binding upon each subcontractor. The Contractor shall take such action with respect to any subcontractor as necessary to enforce such provisions, including sanctions provided for noncompliance.

#### Article IX

The Contractor shall allow the maximum feasible opportunity to small business enterprises to compete for any subcontracts entered into pursuant to this contract. (In federally funded contracts the terms "DBE, MBE and WBE" shall be substituted for the term "small business" in this Article.)

5. Substance Abuse Prevention Program Required. Prior to commencing work on the Contract, the Contractor, and any Subcontractor, shall have in place a written program for the prevention of substance abuse among its employees as required under Wis. Stat. Sec. 103.503.
6. **Contractor Hiring Practices.**

#### **Ban the Box - Arrest and Criminal Background Checks. (Sec. 39.08, MGO)**

This provision applies to all prime contractors on contracts entered into on or after January 1, 2016, and all subcontractors who are required to meet prequalification requirements under MGO 33.07(7)(l), MGO as of the first time they seek or renew pre-qualification status on or after January 1, 2016. The City will monitor compliance of subcontractors through the pre-qualification process.

- a. **Definitions.** For purposes of this section, "Arrest and Conviction Record" includes, but is not limited to, information indicating that a person has been questioned, apprehended, taken into custody or detention, held for investigation, arrested, charged with, indicted or tried for any felony, misdemeanor or other offense pursuant to any law enforcement or military authority.

"Conviction record" includes, but is not limited to, information indicating that a person has been convicted of a felony, misdemeanor or other offense, placed on probation, fined, imprisoned or paroled pursuant to any law enforcement or military authority.

"Background Check" means the process of checking an applicant's arrest and conviction record, through any means.

- b. **Requirements.** For the duration of this Contract, the Contractor shall:

1. Remove from all job application forms any questions, check boxes, or other inquiries regarding an applicant's arrest and conviction record, as defined herein.

2. Refrain from asking an applicant in any manner about their arrest or conviction record until after conditional offer of employment is made to the applicant in question.
3. Refrain from conducting a formal or informal background check or making any other inquiry using any privately or publicly available means of obtaining the arrest or conviction record of an applicant until after a conditional offer of employment is made to the applicant in question.
4. Make information about this ordinance available to applicants and existing employees, and post notices in prominent locations at the workplace with information about the ordinance and complaint procedure using language provided by the City.
5. Comply with all other provisions of Sec. 39.08, MGO.

**c. Exemptions:** This section shall not apply when:

1. Hiring for a position where certain convictions or violations are a bar to employment in that position under applicable law, or
2. Hiring a position for which information about criminal or arrest record, or a background check is required by law to be performed at a time or in a manner that would otherwise be prohibited by this ordinance, including a licensed trade or profession where the licensing authority explicitly authorizes or requires the inquiry in question.

To be exempt, Contractor has the burden of demonstrating that there is an applicable law or regulation that requires the hiring practice in question, if so, the contractor is exempt from all of the requirements of this ordinance for the position(s) in question.

**FOREST HILL CEMETERY IMPROVEMENTS 2017  
CONTRACT NO. 8002**

IN WITNESS WHEREOF, the Contractor has hereunto set his/her hand and seal and the City has caused these presents to be sealed with its corporate seal and to be subscribed by its Mayor and City Clerk the day and year first above written.

Countersigned:

	Company Name
Witness	Date
Witness	Date

	President
Witness	Date
Witness	Date

CITY OF MADISON, WISCONSIN

Provisions have been made to pay the liability that will accrue under this contract.

Approved as to form:

Finance Director	City Attorney
Signed this _____ day of _____, 20_____	
Witness	Date
Witness	Date

**SECTION I: PAYMENT AND PERFORMANCE BOND**

KNOW ALL MEN BY THESE PRESENTS, that we \_\_\_\_\_  
as \_\_\_\_\_ principal, \_\_\_\_\_ and

Company of \_\_\_\_\_ as surety, are held and firmly bound unto the City of  
Madison, Wisconsin, in the sum of \_\_\_\_\_ (\$\_\_\_\_\_) Dollars, lawful money of the  
United States, for the payment of which sum to the City of Madison, we hereby bind ourselves and our  
respective executors and administrators firmly by these presents.

The condition of this Bond is such that if the above bounden shall on his/her part fully and faithfully  
perform all of the terms of the Contract entered into between him/herself and the City of Madison for the  
construction of:

**FOREST HILL CEMETERY IMPROVEMENTS 2017  
CONTRACT NO. 8002**

in Madison, Wisconsin, and shall pay all claims for labor performed and material furnished in the  
prosecution of said work, and save the City harmless from all claims for damages because of negligence  
in the prosecution of said work, and shall save harmless the said City from all claims for compensation  
(under Chapter 102, Wisconsin Statutes) of employees and employees of subcontractor, then this Bond is  
to be void, otherwise of full force, virtue and effect.

Signed and sealed this \_\_\_\_\_ day of \_\_\_\_\_

Countersigned:

\_\_\_\_\_  
Company Name (Principal)

\_\_\_\_\_  
Witness

\_\_\_\_\_  
President Seal

\_\_\_\_\_  
Secretary

Approved as to form:

\_\_\_\_\_  
Surety Seal  
 Salary Employee       Commission

\_\_\_\_\_  
City Attorney

By \_\_\_\_\_  
Attorney-in-Fact

This certifies that I have been duly licensed as an agent for the above company in Wisconsin under  
National Producer Number \_\_\_\_\_ for the year \_\_\_\_\_, and appointed as attorney-in-fact  
with authority to execute this payment and performance bond which power of attorney has not been  
revoked.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Agent Signature