



**CITY OF MEMPHIS**

**REQUEST FOR QUOTE**

**#286754**

**Lichterman Nature Center Major Maintenance – Phase 1**

**Addendum No. 1**

This Addendum will become part of the Contract Documents. In case of difference with any previous Addenda or communications, this Addendum takes precedence. Receipt will be acknowledged by inserting the Addendum number and its date in the RFQ Response.

**TO**

Name: Plan Holders

**PROJECT**

Name: Lichterman Nature Center  
Major Maintenance – Phase 1  
A2H #: 21513

**DETAILS**

Addendum #: 1  
Date of Issuance: 4/29/25  
Sent Via: Email  
Total Pages: 26

This addendum modifies the original drawings/specifications and shall be included as part of the contract documents. Items in this addendum apply to all drawings and specification sections whether referenced or not involving the portion of the work added, deleted, modified, or otherwise addressed in the addendum.

The bidder shall acknowledge receipt of this addendum by placing the addenda dates and addenda numbers on the outside of their proposal envelope and in the place provided on the bid form. In addition, the bidder shall confirm receipt of this addendum by returning the signature page with appropriate initial where indicated via email (Bidding@a2h.com) or fax (901) 373-4002. Failure to do so may subject the bidder to disqualification.

**ACKNOWLEDGEMENT OF RECEIPT**

Name: \_\_\_\_\_  
Signature: \_\_\_\_\_

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

**GENERAL**

1. City of Memphis Bid Envelopes are available and may be picked up at A2H's new *temporary* office location:  
A2H, Inc.  
65 Germantown Court, Suite 226  
Memphis, TN 38018  
(901) 372-0404.

Plans may also be viewed at this address. Please call ahead.

2. Site Visits:
  - a. Contact: Jeffrey King, Chief Operating Officer, Lichterman Nature Center (901-636-2401).
  - b. Site visits should be scheduled Tuesday – Friday.
  - c. Standard Hours: Wednesday – Sunday, 10:30 a.m. – 5 p.m.

**CLARIFICATIONS**

1. Can L1.1 and L1.2 be reissued for text to be easier to read?

- *These are existing scans of old drawings and can't be revised. They are for reference only.*

2. Can we provide an estimated date for Notice to Proceed?
  - *Approximately 60 days after bid is awarded.*
3. Will the existing fence be removed along the East Stream as part of the project?
  - *Yes, this will need to be removed as part of the project. It will be necessary for the stream restoration and new safety fence to be installed.*
4. Can A2H quantify the dirt work?
  - *The bid form has been revised to include a unit price for the dirt. See attached Bid Form in this addendum.*
5. Will the Lake have to be partially drained to install the outlet control structure, and can the water be released into the stream?
  - *Yes. There is an existing system that can lower the lake level but will need to see if it is operational.*
6. Review the existing trees to be removed since the redesign of the stream.
  - *See revised Sheet C5.1 attached to this addendum.*
7. With the bridge being removed, is there anything being provided to let pedestrians know the trail dead-ends and is barricade be provided?
  - *Signage noting the dead-end trail will be provided by Lichterman Nature Center.*

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#### CHANGES TO SPECIFICATIONS

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1. Bid Form: added dirt excavation to Base Bid table as a unit price item.

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#### CHANGES TO DRAWINGS

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1. C5.0 – East Stream Plan & Profile
2. C5.1 – East Stream Enlargements
3. C8.1 – Area 1 Enlargement
4. C8.2 – Area 2 Enlargement
5. C8.3 – Area 3 Enlargement
6. L2.2 – Greenhouse Notes
7. P1.1 – Plumbing Floor Plan

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#### ATTACHMENTS

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1. A2H Prebid Meeting Minutes.
2. City of Memphis Prebid Conference Record.
3. Prevailing Wage Rate Checklist.
4. Sign Detail.

- 8. C5.0 – East Stream Plan & Profile.
- 9. C5.1 – East Stream Enlargements.
- 10. C8.1 – Area 1 Enlargement.
- 11. C8.2 – Area 2 Enlargement.
- 12. C8.3 – Area 3 Enlargement.
- 13. L2.2 – Greenhouse Notes.
- 14. P1.1 – Plumbing Floor Plan.

Sincerely,  
**A2H, Inc.**



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Chet Winstead, ASLA, PLA  
Landscape Architect

**PROJECT**

*Name:* Lichterman Nature Center Major  
Maintenance – Phase 1  
*A2H #:* 21513  
*A2H PM:* Chet Winstead

**DETAILS**

*Date:* 4/22/2025  
*Time* 10:00 am  
*Location:* Memphis Parks Division  
2599 Avery Avenue  
Memphis, TN 38112  
2<sup>nd</sup> Floor Administration  
Conference Room

**ATTENDEES**

<i>Name:</i>	<i>Title:</i>	<i>Email:</i>	<i>Initials:</i>
Mike Lemm	City of Memphis – Project Manager	<a href="mailto:Mike.lemm@memphistn.gov">Mike.lemm@memphistn.gov</a>	ML
Chet Winstead	A2H – Project Manager	<a href="mailto:chetw@a2h.com">chetw@a2h.com</a>	CW
Mike Flowers	Memphis Parks	<a href="mailto:Paul.fowers@memphistn.gov">Paul.fowers@memphistn.gov</a>	MF
Joyce Douglas	City of Memphis	<a href="mailto:Joyce.douglas@memphistn.gov">Joyce.douglas@memphistn.gov</a>	JD
Jeffrey King	MOSH	<a href="mailto:Jeffrey.king@memphistn.gov">Jeffrey.king@memphistn.gov</a>	JK
Matthew McBride	City of Memphis Prevailing Wages	<a href="mailto:Matthew.mcbride@memphistn.gov">Matthew.mcbride@memphistn.gov</a>	MM
Bill Edwards	A2H	<a href="mailto:bille@a2h.com">bille@a2h.com</a>	BE

See attached sign-in sheet for additional attendees.

**ITEMS DISCUSSED**

<i>Item #:</i>	<i>Initials:</i>	<i>Discussion:</i>
<b>#1</b>	ML	Site Location: 5992 Quince Rd, Memphis, TN 38119 RFQ #: 286754 CIP#: PK08037
<b>#2</b>	ML	Pre-Bid Conference Record and meeting minutes will be issued in Addendum #1
<b>#3</b>	ML	Introduction of project team Mike Lemm – Project Manager Chet Winstead – A2H Project Manager Mike Flowers – Memphis Parks Joyce Douglas – City of Memphis Contract Compliance Matthew McBride – City of Memphis Prevailing Wages
<b>#4</b>	ML	Reads the Pre-Bid Conference Record (see attached)
<b>#5</b>	ML	Addresses the A2H office location move
<b>#6</b>	CW	The new address is 65 Germantown Court, Suite 300 Memphis, TN 38018 The updated address will be included in Addendum #1
<b>#7</b>	ML	The following sections will be revised in Addendum #1 <ul style="list-style-type: none"><li>• Table of Contents</li></ul>

- Section 00100 – Instructions to Bidders [Postscript: Section 00100 will be issued in an Addendum after Addendum #1, due to additional revisions to be made to it.].
  - Section 00430 – Equal Business Opportunity Program
  - Section 00520 – Escrow Agreement
  - Section 00710 – General Conditions of Contract
- #8** ML Any questions about the Equal Business Opportunity Program bidding process to be sent to A2H and they will be forwarded to Joyce Douglas (Director, Contract Compliance Office)
- #9** ML Any questions about the project to be sent to A2H
- #10** ML Questions can be submitted until 10 days before the bid opening
- #11** ML Bid is nonresponsive if Addendums received are not noted by the Bidder on bid form.
- #12** MM Handed out and went over the prevailing wage checklist.
- Award recipients and their subcontractors shall submit expected classifications of laborers / mechanics to ensure all worker classifications have prevailing wages identified.
  - Payroll reports shall be submitted on a weekly basis to the Prevailing Wage Office utilizing the LCP tracer certified payroll reporting software.
- See attached Prevailing Wage Checklist  
See Project Manual Section 100, Article 21 for complete Prevailing Wage Ordinance requirements.
- #13** ML Jeffrey King  
Chief Operating Officer, Memphis Museums of Science & History (MOSH)  
901.636.2401  
will be the contact person for Lichterman Nature Center to schedule site visits.  
CW to revise in Project Manual in Addendum #1
- #14** JK Standard Hours are Wednesday – Sunday, 10:30 am – 5 pm  
Try to schedule site visits on Tuesday - Friday
- #15** ML The City of Memphis may include an up to 8% contingency allowance in the total construction contract amount. The bidder is not to include the 8% contingency allowance in his bid. However, the bidder's performance bond and insurance costs in the bid shall be based on a total construction contract amount equal to the bid amount plus 8% in anticipation of the City's including the contingency allowance in the total construction contract amount.
- #16** ML A2H to clarify how the Shade Curtain options for Additive Alternate 1 – Shade Screen are to be priced since the options will not be selected by the Owner until the construction phase, after the bid.
- #17** ML A2H to advise the City of Memphis of any IT items (i.e. wireless or cabled internet connection, etc.) required, at the Owner's cost, for the Additive Alternate 2 – Monitoring System scope of work.
- #18** ML A2H to provide Signage Detail in Addendum #1
- #19** ML, CW, JK Open for questions from Bidders:
- Question 1:  
Can L1.1 and L1.2 be reissued for text to be easier to read?  
CW – These are existing scans and can't be revised.  
JK – There may be plans at Lichterman Nature Center that can be provide to A2H.
- Question 2:  
Can we provide an estimated date for Notice to Proceed?

ML – Approximately 60 days after bid is awarded.  
ML – Asked CW to walk through the plan set.  
ML – Asked about the bridge being removed and the concern of the dead-end trail on the west side of the stream.  
JK – Lichterman Nature Center is working on signage, and signage will be provided by Lichterman Nature Center.  
CW – Signage as you cross the west stream noting it's a dead-end trail should be provided.

Question 3:

Will the existing fence be removed along the East Stream as part of the project?

CW – Yes, this will need to be removed as part of the project.

BE – It will be necessary for the stream restoration and new safety fence to be installed.

ML – Review the existing trees to be removed since the redesign of the stream.

CW – A2H will review and revise in Addendum #1

JK – Lichterman Nature Center is an Arboretum and would like to maintain it's status but doesn't see that being a problem.

Question 4:

Can A2H quantify the dirt work?

BE – will work to quantify the dirt work number.

ML – add a unit price on bid form and add a lump sum allowance based on an estimated quantity for dirt work to be included in the base bid.

Question 5:

Will the Lake have to be partially drained to install the outlet control structure, and can the water be released into the stream?

BE – Yes

JK – There is an existing system that can lower the lake level but will need to see if it is operational.

Question 6:

When will Addendum #1 be sent out?

CW / ML / BE – Early next week.

#20      ML      Envelopes are available to bidders. CW will provide a location for pickup in Addendum #1.

**Meeting concluded at approximately: 11:30 am**

Sincerely,

**A2H, Inc.**



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Chet Winstead, ASLA, PLA  
Landscape Architect



**CITY OF MEMPHIS ENGINEERING DIVISION  
BUILDING DESIGN & CONSTRUCTION DEPARTMENT  
PRE-BID CONFERENCE RECORD**

**DATE/TIME:** APRIL 22, 2025; 10:00 A.M.  
**PROJECT:** LICHTERMAN NATURE CENTER MAJOR MAINT. - PHASE 1  
 5992 QUINCE RD.; MEMPHIS, TN 38119  
 RFQ #286754; CIP NO.: PK08037, BD&C NO.: 15X16K  
**MEETING LOCATION:** DIVISION OF PARKS & NEIGHBORHOODS  
 2599 AVERY AVE.; MEMPHIS, TN 38112  
**PRE-BID RECORD BY:** MIKE LEMM, PROJECT MANAGER  
 CITY OF MEMPHIS  
 BUILDING DESIGN & CONSTRUCTION DEPARTMENT  
**MINUTES BY:** A2H, INC. (CONSULTANT)

**1. ATTENDEES (PLEASE PRINT):**

<u>NAME:</u>	<u>ORGANIZATION:</u>	<u>PHONE #:</u>	<u>EMAIL:</u>
1. Chet Winstead	A2H	404-5835000	ChetW@A2H.com
2. Mike Flowerly	Park	903-64245	MIKE.FLOWERY@MEMPHIS.TN.GOV
3. Josh Pickett	GTG	901-281-3006	JPickett@grinder-toben.com
4. JAKE TRIBBLE	A+B CONSTRUCTION	901-517-0191	JAKE@AAMPBCONSTRUCTIONCO.COM
5. Dylan Whitmore	ABES CONTRACTING	901-691-4768	BIDS@ABESBUILDS.COM
6. Hal King	TREY construction	901-461-4213	Treyconstructioninc.com
7. Dan on Carisle	Bluff City Const	901-419-0970	dan@carisle.com
8. Joyce Douglas	City of Memphis	901-636-6545	Joyce.Douglas@memphistn.gov
9. Jeff King	MOSH	901-636-2401	Jeffrey.King@memphistn.gov
10. Hayden Wagner	Wagner General	901-386-0069	Hayden@wagnergeneral.com
11. Mark Sims	VGC	901-692-1418	Mark@Nicksongeneral.com
12. Abner Fernandez	Prevailing Wage	901-5858915	Abner.Fernandez@memphistn.gov
13. Delmi Ortega	Com Prevailing Wage	901-826-6605	delmi.ortega@memphistn.gov
14. Matthew McBride	Com-Prevailing Wage	901-581-0121	matthew.mcbride@memphistn.gov
15. Tabitha Davis	City of Memphis	901-636-6366	tabitha.davis@memphistn.gov
Bill Edwards	A2H	901-377-0405	bill@azh.com



**CITY OF MEMPHIS ENGINEERING DIVISION  
BUILDING DESIGN & CONSTRUCTION DEPARTMENT  
PRE-BID CONFERENCE RECORD**

**DATE/TIME:** APRIL 22, 2025; 10:00 A.M.  
**PROJECT:** LICHTERMAN NATURE CENTER MAJOR MAINT. – PHASE 1  
 5992 QUINCE RD.; MEMPHIS, TN 38119  
 RFQ #286754; CIP NO.: PK08037, BD&C NO.: 15X16K  
**MEETING LOCATION:** DIVISION OF PARKS & NEIGHBORHOODS  
 2599 AVERY AVE.; MEMPHIS, TN 38112  
**PRE-BID RECORD BY:** MIKE LEMM, PROJECT MANAGER  
 CITY OF MEMPHIS  
 BUILDING DESIGN & CONSTRUCTION DEPARTMENT  
**MINUTES BY:** A2H, INC. (CONSULTANT)

**1. ATTENDEES (PLEASE PRINT):**

	<u>NAME:</u>	<u>ORGANIZATION:</u>	<u>PHONE #:</u>	<u>EMAIL:</u>
1.	DAN NELSON	Alliant Const.	901 720 1520	Dnelson@alliantconstruction.com
2.	Matthew Hurlings	Alliant Construction	901-336-4658	mhurlings@alliantconstruction.com
3.	MIKE LEMM	CITY/BD+C	901-636-6946	mika.lemm@memphistn.gov
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____
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13.	_____	_____	_____	_____
14.	_____	_____	_____	_____
15.	_____	_____	_____	_____

2. **PROJECT DESCRIPTION:** THE BASE BID WORK INCLUDES THE DEMOLITION OF SELECTIVE SITE ELEMENTS; CONSTRUCTION OF NEW FOOTBRIDGES AND NEW LOW WATER CROSSINGS; SITEWORK; IMPROVEMENTS TO EXISTING ELEVATED BOARDWALK; IMPROVEMENTS TO EXISTING GREENHOUSE; NEW LAKE CONTROL STRUCTURE; STREAM BANK RESTORATION; AND OTHER RELATED WORK AS SHOWN IN THE PLANS AND SPECIFICATIONS FOR “LICHTERMAN NATURE CENTER MAJOR MAINTENANCE – PHASE 1” (PROJECT), DATED APRIL 4, 2025, AS PREPARED BY THE CITY’S CONSULTANT, A2H, INC.

COMPLETE SETS OF BID DOCUMENTS, PLANS AND SPECIFICATIONS, IN ELECTRONIC FORMAT MAY BE DOWNLOADED FREE OF CHARGE FROM THE A2H PLANROOM AT [WWW.A2HPLANROOM.COM](http://WWW.A2HPLANROOM.COM). HARD COPY SETS OF PLANS AND SPECIFICATIONS ARE ALSO AVAILABLE FOR PURCHASE ON THE A2H PLANROOM AT THE CONTRACTOR’S EXPENSE. PARTIAL SETS OF BID DOCUMENTS WILL NOT BE ISSUED.

PLANS ARE AVAILABLE FOR VIEW ONLY AT MEMPHIS PARKS (2599 AVERY AVE.); A2H, INC. (65 GERMANTOWN COURT, SUITE 300); THE BUILDERS EXCHANGE PLAN ROOM (642 S. COOPER ST.); AND THE MEMPHIS AREA MINORITY CONTRACTOR’S ASSOCIATION (480 DR. M.L. KING JR. AVE.).

3. **LICENSE CLASSIFICATION:** THE LICENSE CLASSIFICATION FOR THE PROJECT SHALL BE: **BC, BC-B.**

4. **BID SUBMITTAL:** THE BID DATE IS **WEDNESDAY, MAY 14, 2025**, TIME 12:00 PM. THE BIDDER SHALL ENSURE THAT HIS/HER LICENSE NUMBER, LICENSE EXPIRATION DATE, AND LICENSE CLASSIFICATION IS ON THE BID ENVELOPE, AS WELL AS ANY INFORMATION REQUIRED FOR MECHANICAL, PLUMBING, ELECTRICAL AND MASONRY SUBCONTRACTORS.

BE SURE THE BID ENVELOPE CONTAINS THE SIGNED BID (SECTION 00310), BID BOND (SECTION 00410) OR CERTIFIED CHECK IN THE AMOUNT OF 5% OF THE BIDDER’S PROPOSED BID [FOR BIDS WHICH EXCEED \$100,000], NON-DISCRIMINATION CERTIFICATE (SECTION 00420), EQUAL BUSINESS OPPORTUNITY PROGRAM FORMS (SECTION 00430), AND CERTIFICATE OF DRUG-FREE WORKPLACE (SECTION 00440), ALL COMPLETED IN INK OR TYPEWRITTEN.

BIDS WILL BE RECEIVED BY THE CITY AT THE OFFICE OF THE PURCHASING AGENT, ROOM 368, CITY HALL, 125 N. MAIN ST., MEMPHIS, TN 38103 **UNTIL 12:00 PM, MAY 14, 2025**, AND THEN OPENED AND READ DURING THE CITY OF MEMPHIS BID SESSION. BID SESSIONS ARE NOW AVAILABLE ON M.S. TEAMS FOR VIEWING. YOU CAN VISIT THE CITY OF MEMPHIS BUSINESS WEBSITE TO OBTAIN THE LINK, [HTTPS://WWW.MEMPHISTN.GOV/BUSINESS/](https://WWW.MEMPHISTN.GOV/BUSINESS/).

5. **EQUAL BUSINESS OPPORTUNITY PROGRAM:** THIS PROJECT IS SUBJECT TO THE REQUIREMENTS OF ORDINANCE #5662 WHICH ESTABLISHES THE EQUAL BUSINESS OPPORTUNITY PROGRAM. THE MINORITY/WOMEN BUSINESS ENTERPRISE (M/WBE) PARTICIPATION GOALS FOR THE PROJECT ARE AS FOLLOWS:

**MBE GOAL: 42% AND WBE GOAL: 7%**

**(NOTE THAT THESE ARE SEPARATE GOALS, NOT A “COMBINED” M/WBE GOAL)**



IT IS THE BIDDER'S RESPONSIBILITY TO VERIFY WITH THE CITY OF MEMPHIS CONTRACT COMPLIANCE OFFICE (SEE CONTACT INFORMATION IN SECTION 00430) THAT THE M/WBE FIRM(S) UTILIZED TO MEET THE PARTICIPATION GOAL ARE CERTIFIED AS A M/WBE FIRM WITH THE CITY OF MEMPHIS. A LISTING OF CURRENT M/WBE CERTIFIED FIRMS CAN BE FOUND ON THE CITY OF MEMPHIS WEB SITE AT [WWW.MEMPHISTN.GOV](http://WWW.MEMPHISTN.GOV) UNDER "BUSINESS", OR AT [HTTPS://MEMPHIS.MWSBE.COM](https://MEMPHIS.MWSBE.COM). AN ENTIRE LISTING OF ALL CERTIFIED M/WBE FIRMS CAN BE FOUND OR A SEARCH CAN BE PERFORMED FOR A PARTICULAR FIRM. ONE OR A COMBINATION OF SEVERAL M/WBE FIRMS MAY BE USED TO MEET THE GOALS. TO FIND THE BEST RESULTS FROM THE CERTIFIED VENDOR DIRECTORY, IT IS RECOMMENDED TO DOWNLOAD THE ENTIRE DIRECTORY INCLUDING COMMODITY CODES.

WITHIN TEN (10) BUSINESS DAYS AFTER RECEIPT OF THE CONTRACT NOTIFICATION OF AWARD, THE BIDDER SHALL SUBMIT COMPLETED SECTION 00430, FORM B - LETTER OF INTENT TO PERFORM AS A SUBCONTRACTOR OR SUBCONSULTANT, SIGNED BY THE M/WBE, IF THE BIDDER HAS IDENTIFIED M/WBE PARTICIPATION THAT WILL BE USED ON THE PROJECT. SUBMIT FORM(S) B TO [OCC@MEMPHISTN.GOV](mailto:OCC@MEMPHISTN.GOV). FAILURE TO SUBMIT THESE FORMS WITHIN THE REQUIRED TIMEFRAME, FULLY COMPLETED, WILL RESULT IN THE BID BEING CONSIDERED AS NON-RESPONSIVE.

WITHIN TEN (10) BUSINESS DAYS AFTER RECEIPT OF AN EXECUTED CONTRACT FROM THE OWNER, THE CONTRACTOR SHALL SUBMIT COPIES OF EXECUTED SUBCONTRACTS WITH THE CERTIFIED M/WBE'S IDENTIFIED IN THE BID DOCUMENTS. THE EXECUTED SUBCONTRACT SHALL INCLUDE THE SCOPE OF WORK TO BE PERFORMED BY THE M/WBE SUBCONTRACTOR.

REFER TO UPDATED SECTION 00430, TO BE ISSUED IN AN ADDENDUM, FOR THE COMPLETE EQUAL BUSINESS OPPORTUNITY PROGRAM REQUIREMENTS.

6. **INTERPRETATION:** QUESTIONS AND REQUESTS FOR INTERPRETATION OF THE BID DOCUMENTS DURING BIDDING SHALL SOLELY BE ADDRESSED TO THE CONSULTANT IN WRITING TO: CHET WINSTEAD, A2H PROJECT MANAGER, AT [CHETW@A2H.COM](mailto:CHETW@A2H.COM). REQUESTS FOR INTERPRETATION WILL BE ACCEPTED UP TO TEN (10) CALENDAR DAYS PRIOR TO THE BID DATE. ALL INTERPRETATIONS WILL BE MADE IN THE FORM OF AN ADDENDUM AND WILL BE ISSUED TO HOLDERS OF EACH SET OF DOCUMENTS.

ALL SUCH ADDENDA WILL BECOME PART OF THE CONTRACT DOCUMENTS AND SUBJECT TO ALL CONDITIONS CONTAINED THEREIN AND **MUST BE INDICATED ON THE BID FORM TO HAVE BEEN RECEIVED BY THE BIDDER FOR THE BID TO BE ACCEPTED.**

NO ADDENDUM SHALL BE ISSUED WITHIN SEVEN (7) CALENDAR DAYS PRIOR TO THE DATE SET FOR OPENING OF BIDS, UNLESS SAID ADDENDUM DELAYS THE OPENING OF SAID BIDS.

A2H, INC. WILL ISSUE THIS PRE-BID CONFERENCE RECORD AND MINUTES OF ADDITIONAL DISCUSSION ITEMS IN AN ADDENDUM.

7. WITHIN SEVEN (7) DAYS AFTER BIDS ARE OPENED, THE APPARENT LOW BIDDER,

AND ANY OTHER BIDDER SO REQUESTED, SHALL SUBMIT A LIST OF ALL SUBCONTRACTORS EXPECTED TO BE USED IN THE WORK. AN EXPERIENCE STATEMENT WITH PERTINENT INFORMATION AS TO SIMILAR PROJECTS AND OTHER EVIDENCE OF QUALIFICATIONS SHALL BE FURNISHED FOR EACH NAMED SUBCONTRACTOR, AS REQUESTED BY THE CITY. THE CITY OF MEMPHIS AND ITS CONSULTANT WILL REVIEW THIS LIST AND SUBMIT ANY OBJECTIONS TO THE CONTRACTOR THROUGH THE CONSULTANT. SHOULD A SUBSTITUTE BE REQUESTED WITHOUT AN INCREASE IN BID, THE APPARENT LOW BIDDER WILL NOT SACRIFICE THE BID SECURITY BY DECLINING TO MAKE ANY SUCH SUBSTITUTION. THE CONTRACTOR SHALL NOT BE REQUIRED TO EMPLOY ANY SUBCONTRACTORS AGAINST WHOM HE/SHE HAS REASONABLE OBJECTIONS.

8. **EQUAL EMPLOYMENT OPPORTUNITY:** THE CITY OF MEMPHIS ENCOURAGES THE EMPLOYMENT OF MINORITY CONTRACTORS, WORKERS, AND SUBCONTRACTORS ON ITS CONSTRUCTION PROJECTS. ANY CLAIM OF DISCRIMINATION WILL BE THOROUGHLY INVESTIGATED AND, IF FOUND TO BE TRUE, WILL BE FOLLOWED UP TO THE FULL EXTENT OF THE LAW.
9. **PREVAILING WAGE ORDINANCE:** IT IS THE POLICY OF THE CITY OF MEMPHIS THAT A RESPONSIBLE BIDDER AWARDED A CONTRACT BY THE CITY OF MEMPHIS THAT FALLS WITHIN THE GUIDELINES OF THE CURRENT CITY OF MEMPHIS PREVAILING WAGE ORDINANCE MUST COMPLY WITH THE MOST CURRENT PREVAILING WAGE RATES (AS DETERMINED BY THE U.S. DEPARTMENT OF LABOR) FOR CORRESPONDING CLASSES OF LABORERS AND MECHANICS EMPLOYED ON SIMILAR PROJECTS IN THE AREA ON THE DATE THE LEGAL NOTICE IS PUBLISHED. ANY FIRM, INDIVIDUAL, PARTNERSHIP, OR CORPORATION THAT IS AWARDED A CONTRACT BY THE CITY OF MEMPHIS FOR THE CONSTRUCTION, IMPROVEMENT, ENLARGEMENT, ALTERATION, OR REPLACEMENT OF A CITY OF MEMPHIS PUBLIC WORK OR PROJECT IN EXCESS OF \$50,000 SHALL BE REQUIRED BY THE CITY OF MEMPHIS TO PAY LOCAL PREVAILING WAGES FOR LABORERS, WORKERS, MECHANICS OR OTHERS, AS LISTED BY THE TENNESSEE DEPARTMENT OF LABOR, CLASSIFICATION OF WORKERS, ESTABLISHED FOR REGION 1, AT THE TIME THE PROJECT IS BID AND CONTINUE UNTIL THE COMPLETION OF SUCH PROJECT. FURTHERMORE, THE ENTITY AWARDED THE CONTRACT WILL CLASSIFY ITS EMPLOYEES ACCORDING TO THE STATE OF TENNESSEE, DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT, CLASSIFICATION OF WORKERS, AND IF APPLICABLE, ADHERE TO THE GUIDELINES FOR APPRENTICE AND APPRENTICESHIP PROGRAMS. REFER TO SECTION 00100, ARTICLE 21 – PREVAILING WAGE ORDINANCE, FOR THE COMPLETE PREVAILING WAGE ORDINANCE REQUIREMENTS.

THE MOST CURRENT PREVAILING WAGE RATES ON THE DATE THE LEGAL NOTICE WAS PUBLISHED ARE PROVIDED IN SECTION 00650 – DEPARTMENT OF LABOR (DOL) 2025 WAGE RATES OF THE PROJECT MANUAL.

10. **SECURITY AND PROTECTION:** THE FACILITY WILL REMAIN OPEN TO THE PUBLIC DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE PROPERLY MAINTAINED WARNING SIGNS, LIGHTS, BARRICADES, RAILING AND OTHER SAFEGUARDS FOR PROTECTION OF WORKMEN AND OTHERS ON OR ABOUT OR ADJACENT TO THE WORK.



11. **EXAMINATION OF SITE:** BEFORE SUBMITTING A BID, THE BIDDER SHALL PERSONALLY VISIT THE SITE. BIDDERS MUST MAKE AN APPOINTMENT WITH JEFF KING (CHIEF OPERATING OFFICER, MoSH / MEMPHIS MUSEUMS OF SCIENCE & HISTORY) BY TELEPHONE (901) 636-2401 TO VISIT THE PROJECT SITE. BIDDERS SHALL NOTIFY CHET WINSTEAD (A2H) IF HE/SHE HAS ANY PROBLEMS VISITING THE SITE PRIOR TO BID.

THE PUBLIC OPERATING DAYS/HOURS OF THE FACILITY ARE WEDNESDAY-SUNDAY, 10:30 AM-5:00 PM. IT IS PREFERRED THAT BIDDER'S SITE VISIT BE ON TUESDAY-FRIDAY.

12. **OTHER ITEMS:**

- A. **TIME OF COMPLETION:** ONE HUNDRED TWENTY (120) CALENDAR DAYS. LIQUIDATED DAMAGES SHALL BE \$500.00/DAY THAT THE WORK REMAINS INCOMPLETE BEYOND THE SUBSTANTIAL COMPLETION DATE AND \$100.00/DAY THAT THE PUNCHLIST WORK AND SUBMISSION OF ALL CLOSE-OUT DOCUMENTS REMAINS INCOMPLETE BEYOND THIRTY (30) DAYS AFTER THE SUBSTANTIAL COMPLETION DATE.

- B. **CONTINGENCY ALLOWANCE:** ONCE BIDS HAVE BEEN RECEIVED AND A SUCCESSFUL BIDDER IDENTIFIED, THE CITY MAY ADD A CONTINGENCY ALLOWANCE TO THE CONSTRUCTION CONTRACT AS PART OF THE TOTAL CONTRACT AMOUNT. WHILE CALCULATING PERFORMANCE BOND AND INSURANCE COSTS FOR BID PREPARATION PURPOSES ONLY, BIDDERS SHALL ADD 8% TO THEIR OVERALL BID TO ACCOMMODATE THE INCREASE IN THE CONTRACT AMOUNT DUE TO THE POSSIBLE INCLUSION OF A CONTINGENCY ALLOWANCE BY THE CITY AFTER BIDS HAVE BEEN TAKEN.

- C. **BASE BID:** THE BASE BID WORK INCLUDES THE DEMOLITION OF SELECTIVE SITE ELEMENTS; CONSTRUCTION OF NEW FOOTBRIDGES AND NEW LOW WATER CROSSINGS; SITEWORK; IMPROVEMENTS TO EXISTING ELEVATED BOARDWALK; IMPROVEMENTS TO EXISTING GREENHOUSE; NEW LAKE CONTROL STRUCTURE; STREAM BANK RESTORATION; AND OTHER RELATED WORK AS SHOWN IN THE PLANS AND SPECIFICATIONS FOR "LICHTERMAN NATURE CENTER MAJOR MAINTENANCE – PHASE I" (PROJECT), DATED APRIL 4, 2025, AS PREPARED BY THE CITY'S CONSULTANT, A2H, INC.

D. **ALTERNATES:**

1. **ADDITIVE ALTERNATE NO. 1 (GREENHOUSE SHADE SCREEN):** INCLUDES PROVIDING AN INTERIOR AUTOMATED, MOTORIZED SHADE/ENERGY CURTAIN SYSTEM WITH LIGHT LEVEL OR TEMPERATURE CONTROLS. CONTRACTOR WILL BE EXPECTED TO EXPLAIN THE AVAILABLE OPTIONS WITH OWNER STAFF BEFORE FINALIZING THE SYSTEM DESIGN. FINAL DESIGN PLANS SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER FOR REVIEW AND APPROVAL. A2H IS TO CLARIFY IN AN ADDENDUM HOW BIDDERS ARE TO PRICE AVAILABLE OPTIONS THAT WILL NOT BE SELECTED BY THE OWNER UNTIL CONSTRUCTION, AFTER BIDDING.

2. **ADDITIVE ALTERNATE NO. 2 (GREENHOUSE MONITORING SYSTEM):** INCLUDES PROVIDING A SENTINEL MONITORING SYSTEM WITH CELLULAR MODEM AND COMMUNICATION AND IS CAPABLE OF UNLIMITED NOTIFICATIONS BY EMAIL, TEXT, OR VOICE IN THE EVENT OF AN ALARM. SYSTEM SHALL INCLUDE EXTERNAL ANTENNA, CELLULAR MODEM, SIM CARD, AND ONE YEAR'S SUBSCRIPTION COST.

**E. ALLOWANCES:**

1. **ALLOWANCE NO. 1 (TEMPORARY PROJECT SIGNAGE):** A \$1,000.00 LUMP SUM ALLOWANCE SHALL BE INCLUDED IN THE BASE BID FOR TEMPORARY PROJECT SIGNAGE.

- F. UPDATED BOILERPLATE TABLE OF CONTENTS AND SECTIONS:** THE CITY HAS ISSUED AN UPDATED BOILERPLATE TABLE OF CONTENTS (CHANGE 28 – 4/14/25), SECTION 00100 – INSTRUCTIONS TO BIDDERS (CHANGE 30 – 4/14/25), SECTION 00430 – EQUAL BUSINESS OPPORTUNITY PROGRAM (CHANGE 7 – 4/15/25), SECTION 00520 ESCROW AGREEMENT (CHANGE 7 – 4/14/25), AND SECTION 00710 – GENERAL CONDITIONS OF THE CONTRACT (CHANGE 9 – 12/5/24). A2H, INC. WILL ISSUE THE UPDATED TABLE OF CONTENTS AND SECTIONS IN ADDENDUM #1.

A2H, INC. WILL ISSUE ANY FURTHER BOILERPLATE UPDATES ISSUED BY THE CITY PRIOR TO THE BID DATE IN AN ADDENDUM.

13. **QUESTIONS / DISCUSSION:** [MINUTES TO BE RECORDED BY A2H, INC. AND ISSUED ALONG WITH THE CITY'S PRE-BID CONFERENCE RECORD AND SIGN-IN SHEET IN ADDENDUM #1].

**END OF PRE-BID CONFERENCE RECORD**



**SECTION 00310-BID FORM**

To: The Honorable Mayor of the City of Memphis, Tennessee:

In compliance with your Legal Notice to Bidders for the Lichterman Nature Center Major Maintenance, 5992 Quince Rd, Memphis, TN 38119; the undersigned bidder, a \_\_\_\_\_ organized and existing under the laws of the State of Tennessee; having examined the drawings, specifications and contract form provided hereto, and being fully advised as to the extent and character of the work to be performed and the equipment to be furnished, hereby proposes to furnish all labor, tools, materials, plant and equipment necessary for the Lichterman Nature Center Major Maintenance.

The undersigned further proposes to perform all work and furnish all equipment in accordance with drawings and specifications prepared by (A2H, Inc.), and contract stipulations thereof, within the time limit specified, for the prices so stated below.

BASE BID					
Item	Description	Qty	Unit	Unit Price	Total Price
1	The demolition of selective site elements, construction of new footbridges, new low water crossings, sitework, improvements to existing boardwalk and existing greenhouse, a new lake control structure and stream bank restoration and other related work as shown in the plans and specifications.	1	LS	\$	\$
2	Borrow Excavation (Unclassified)	650	CY	\$	\$
<b>Total Base Bid:</b>					<b>\$</b>
<b>Total Base Bid in Words:</b>					

<b>ADDITIVE ALTERNATE 1 – SHADE SYSTEM</b>	
Additive Alternate 1 includes:	
A. Shade System: Provide an interior automated shade/energy curtain system:	
a. Motorized system that works with the greenhouse control system to operate the shade curtain based upon light level and temperature.	
b. The shade / energy curtain to reduce energy consumption by up to 40% to 50%.	
c. Curtain to control light levels with shade fabrics that range from 15% to 70%.	
d. Curtain to be flame retardant.	
<b>Lump Sum Total (Additive Alternate 1):</b>	<b>\$</b>
<b>Total Additive Alternate 1 Bid in Words:</b>	

<b>ADDITIVE ALTERNATE 2 – MONITORING SYSTEM</b>	
Additive Alternate 2 includes providing a Sentinel Monitoring System with cellular modem and communication and is capable of unlimited notifications by email, text or voice in the event of an alarm. System shall include external antenna, cellular modem, sim car, and one year's subscription cost.	
<b>Lump Sum Total (Additive Alternate 2):</b>	<b>\$</b>
<b>Total Additive Alternate 2 Bid in Words:</b>	

<b>BID SUMMARY</b> <i>(Grand Total of Base Bid, Alternate 1, and Alternate 2)</i>	
Base Bid Amount:	\$
Additive Alternate 1 (Shade System) Amount:	\$
Additive Alternate 2 (Monitoring System) Amount:	\$
<b>TOTAL BID AMOUNT:</b>	<b>\$</b>
<b>TOTAL BID AMOUNT in Words:</b>	

**BD&C VERSION 2011B - Change 1 (10-20-2022)**

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in bidding.

The bidder agrees that his bid shall be good and may not be withdrawn for a period of ONE HUNDRED TWENTY (120) days after the scheduled closing time for receiving bids.

Upon receipt of written notice of acceptance of this bid, Bidder will submit the following documents within ten (10) days:

1. Executed formal contract (attached as Section 00510)
2. Executed performance bond (attached as Section 00610)
3. Certificates of insurance coverage per Section 00710 Article 20

The bid security attached in the sum of five percent (5%) of the bid is to become the property of the Owner in the event the contract, bond and insurance certificates are not executed within the time limit set forth, as liquidated damages for the delay and additional expenses to the Owner caused thereby.

Bidder acknowledges receipt of Addendum(s)

Addendum Number	Addendum Date

Respectfully submitted:

\_\_\_\_\_  
Contractor's Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Printed or Typed Name and Title

Business Address:

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

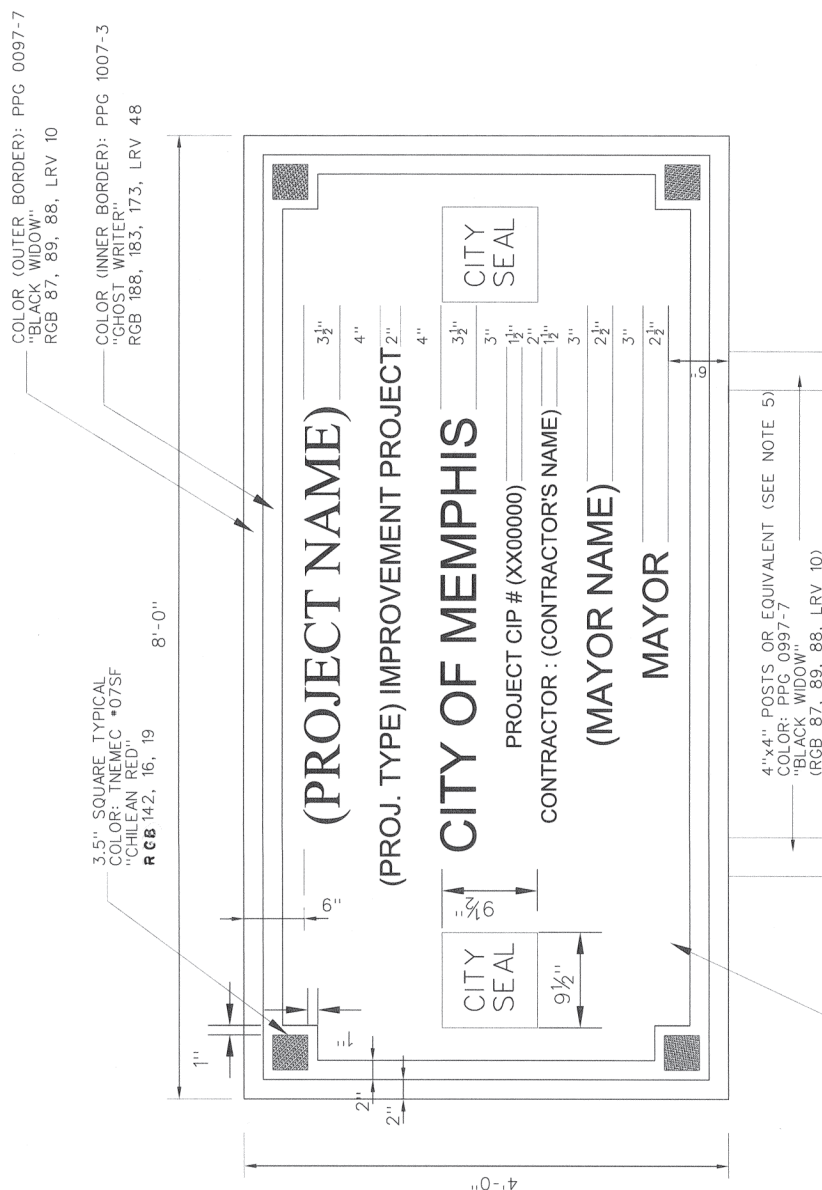
Corporate/Company Seal (Optional)

**END OF SECTION**

# PREVAILING WAGE CHECKLIST

## **Contractors/Subcontractors Responsibilities**

- It is **the responsibility of the award recipient to notify the Prevailing Wage Office of the contract(s) they've been awarded and provide a listing of all subcontractors expected to be used. Award recipients and their subcontractors shall submit expected classifications of laborers/mechanics to ensure all worker classifications have prevailing wages identified.** If classifications are not listed, the Prevailing Wage Office will obtain the wages to be used for such classifications.
- It shall be the responsibility of the award recipient to reach out to The City of Memphis Prevailing Wage Office and schedule a meeting before the construction begins to discuss all requirements that must be fulfilled for such project(s).
- Payroll reports shall be submitted on a **weekly** basis to the Prevailing Wage Office utilizing the LCP tracker certified payroll reporting software. Please contact the Prevailing Wage office at 901-636-6377 or [matthew.mcbride@memphistn.gov](mailto:matthew.mcbride@memphistn.gov) to gain your LCP Tracker Pro account.
- Every contractor and/or subcontractor must post a copy of prevailing wage rates and make these rates available to all covered workers always employed on the project in a visible location at the site of the construction. Fringe benefits, when listed by the U.S. Department of Labor, **are** included in City prevailing wage rates, and must be paid to laborers/mechanics on City funded projects.
- All workers must be classified with the wage rate as determined by the U.S. Department of Labor. Refer to <http://sam.gov> for the most current classifications and wage rate determinations.
- All contractors and subcontractors **must pay** overtime compensation of one and one-half times the basic rate of pay for all hours worked over 40 a week as required by any applicable Federal or State laws, rules, or regulations.
- Contact the Prevailing Wage Office at 901-636-6377 or [matthew.mcbride@memphistn.gov](mailto:matthew.mcbride@memphistn.gov) with any questions regarding prevailing wage or help you with your LCP Tracker Pro account.



SIGN BACKING (SEE NOTE 4)  
COLOR (BACKGROUND): PPG 1025-2  
"SILENT SMOKE"  
RGB 219, 215, 206, LRV 68

THIS STANDARD SUPERCEDES THE ONE  
LAST REVISED ON 11/23/2016.

[illegible]

## REVISIONS

NOTES:

1. THE ITEMS SHOWN IN PARENTHESIS WILL VARY WITH EACH PROJECT:  
A. PROJECT TYPE WILL BE "STREET," "DRAINAGE," "SEWER," ETC.  
B. PROJECT CIP # WILL START WITH TWO LETTERS, WHICH WILL DENOTE THE FUNDING TYPE (PW, ST, SW, ETC). THE REMAINING CHARACTERS ARE NUMBERS.
2. THE CITY SEALS WILL BE PROVIDED BY THE CITY OF MEMPHIS. A DIVISION SEAL OR OTHER LOGO MAY SERVE AS A SUBSTITUTE FOR THE CITY SEAL ON THE RIGHT HAND SIDE WITH THE APPROVAL OF THE CITY ENGINEER.
3. PRODUCT NAMES AND NUMBERS FOR COLORS ARE FOR REFERENCE ONLY AND ARE NOT INTENDED TO BE PROPRIETARY. EQUIVALENT COLORS MAY BE UTILIZED AND ALTERNATE COLORS MAY BE UTILIZED WITH THE APPROVAL OF THE CITY ENGINEER.
4. SIGN TO BE EITHER EXTERIOR GRADE 3/4" PLYWOOD WITH SUFFICIENT 2X4'S FOR STABILITY OR 0.08" GAUGE ALUMINUM SHEET METAL PER CITY SPECIFICATIONS. OTHER APPROVED MATERIAL SUITABLE FOR SIGNING MAY BE APPROVED BY THE CITY ENGINEER.
5. PROVIDE ADEQUATE SUPPORTS FOR SIGN AS SITE CONDITIONS MAY REQUIRE TO PERMIT PUBLIC VIEWING. IF ALUMINUM SHEET METAL IS UTILIZED, ALTERNATIVE POSTS MAY BE UTILIZED IN CONJUNCTION WITH BOLTS, WASHERS, AND OTHER HARDWARE PER CITY SPECIFICATIONS.
6. ALL LETTERING EXCEPT "CITY OF MEMPHIS" SHALL BE TYPE STYLE HELVETICA MEDIUM OR A SIMILAR APPROVED ALTERNATIVE. "CITY OF MEMPHIS" SHALL BE TYPE STYLE NEW BASKERVILLE BOLD OR A SIMILAR APPROVED ALTERNATIVE. ALL LETTERING SHALL BE BLACK.

CITY OF MEMPHIS  
DIVISION OF ENGINEER

# DESIGN STANDARD

CONSTRUCTION SIGN

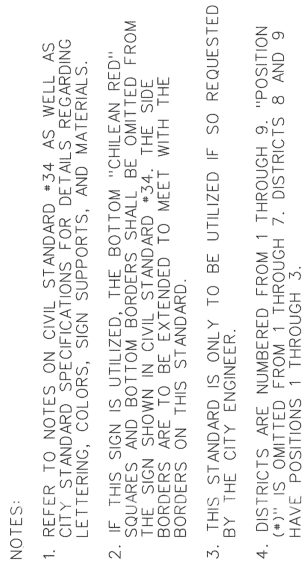
*Chae Chew*  
CIVIL DESIGN ENGINEER  
MS 11/9/21

DATE 11-9-2021

CITY ENGINEER

DATE \_\_\_\_\_

DWG. NO. 34

[illegible]

3.5" SQUARE TYPICAL  
COLOR: TNEC \*07SF  
"CHILEAN RED"  
RGS 142 16 19

4"x4" POSTS OR EQUIVALENT (SEE NOTE 5)  
ON CIVIL STANDARD #34)  
COLOR: PPG 0997-7  
"BLACK WIDOW"  
(RGB 87, 89, 88, LRV 10)

COLOR (OUTER BORDER): PPG 0097-7  
"BLACK WIDOW"  
RGB 87, 89, 88, LRV 10

-COLOR (INNER BORDER): PPG 1007-3  
"GHOST WRITER"  
RGB 188, 183, 173, LRV 48

CITY OF MEMPHIS  
DIVISION OF ENGINEERING

# DESIGN STANDARD FOR CONSTRUCTION SIGN WITH CITY COUNCIL MEMBERS

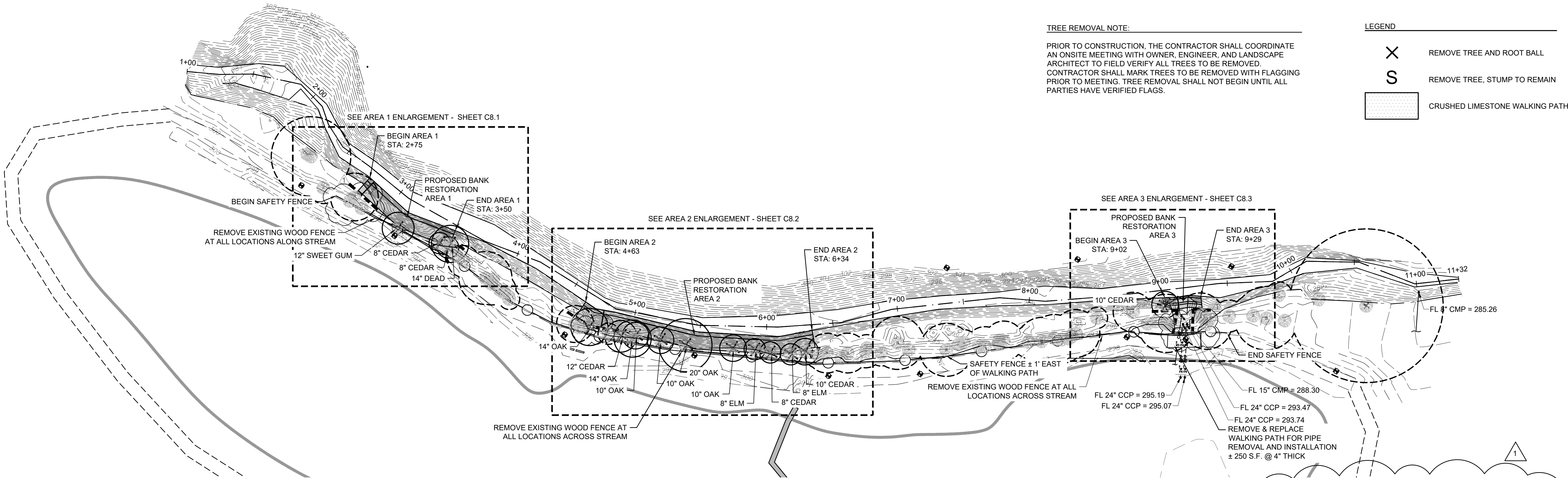
Chae Chae 11-9-2021  
CIVIL DESIGN ENGINEER DATE  
WES 11/9/21

DATE \_\_\_\_\_  
DWG. NO. 34A



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1/22/21 12:13:32 C:\ProgramData\Stream Stabilization & Outlet Control Structures\21613-2-Stream Plan & Profile.dwg  
A2H, INC.  
04/28/2025 5:00pm  
1" = 40' SCALE  
LATEST REV.



TREE REMOVAL NOTE:

PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE AN ONSITE MEETING WITH OWNER, ENGINEER, AND LANDSCAPE ARCHITECT TO FIELD VERIFY ALL TREES TO BE REMOVED. CONTRACTOR SHALL MARK TREES TO BE REMOVED WITH FLAGGING PRIOR TO MEETING. TREE REMOVAL SHALL NOT BEGIN UNTIL ALL PARTIES HAVE VERIFIED FLAGS.

LEGEND

- X REMOVE TREE AND ROOT BALL
- S REMOVE TREE, STUMP TO REMAIN
- CRUSHED LIMESTONE WALKING PATH

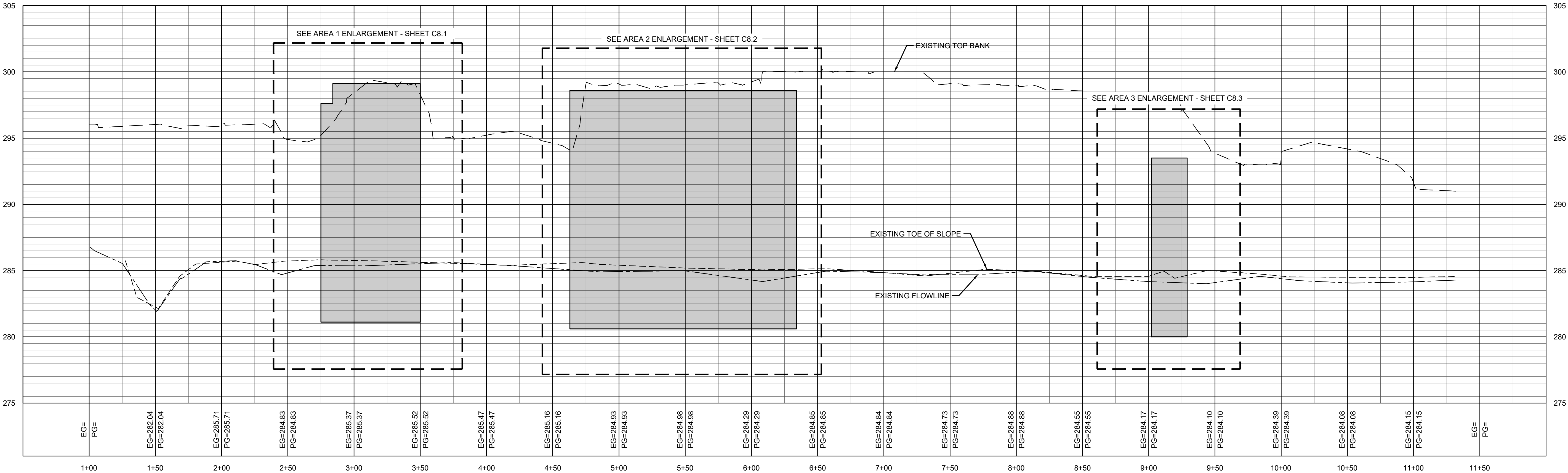
B1 PLAN VIEW OF STREAM

1" = 40'



GRAPHIC SCALE: 1" = 40'

PRIOR TO COMMENCING WORK ON THE STREAM BANK RESTORATION THE CONTRACTOR SHALL MEET WITH A REPRESENTATIVE OF THE LICHTERMAN NATURE CENTER AND THE LANDSCAPE ARCHITECT TO MARK THE TREES TO BE REMOVED AND THOSE IMMEDIATELY ADJACENT TO THE WORK THAT ARE TO BE PROTECTED AND REMAIN

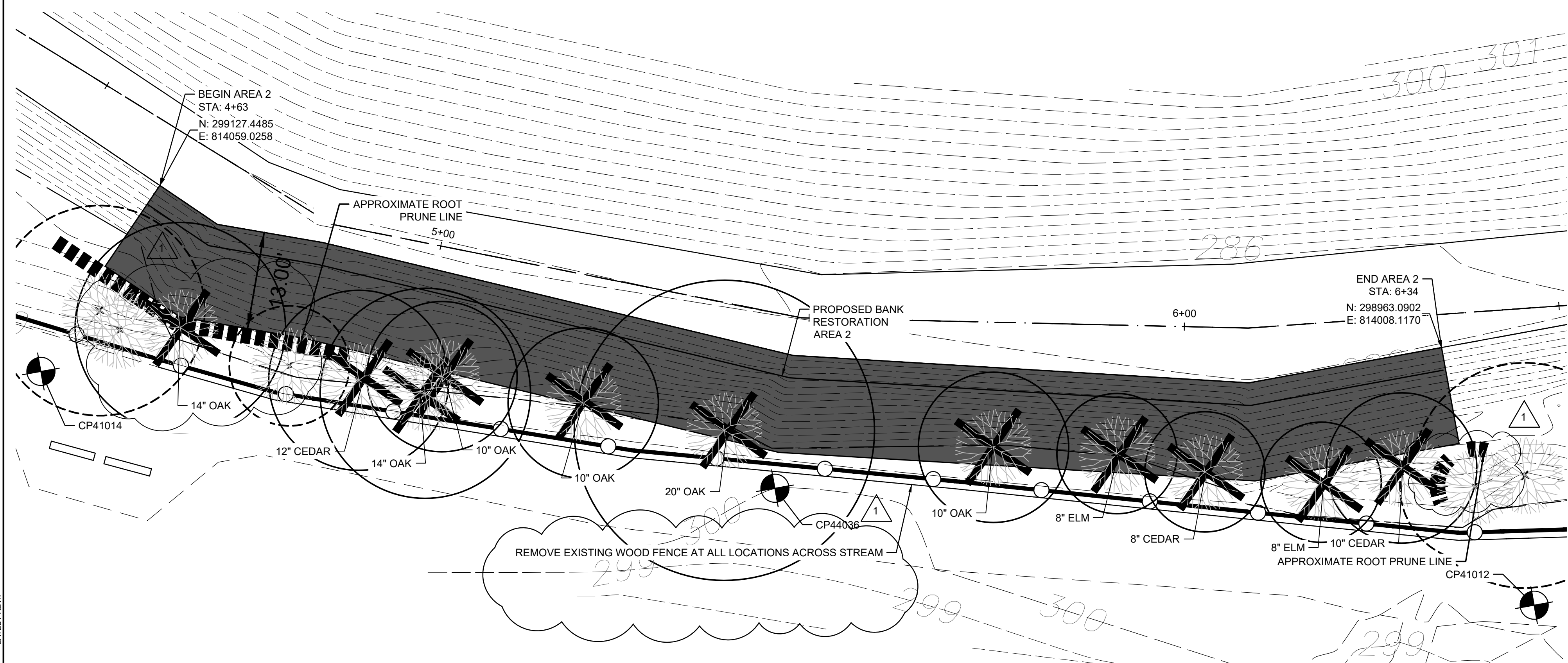
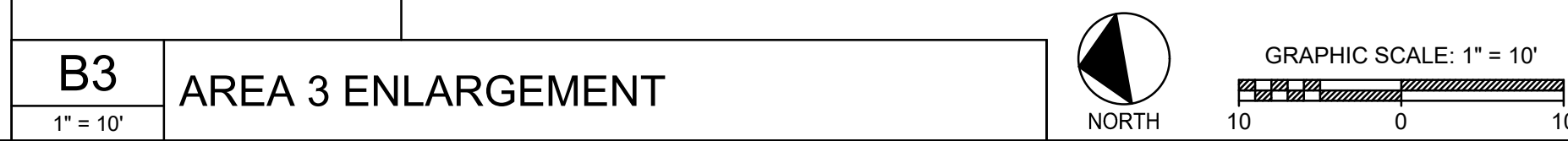
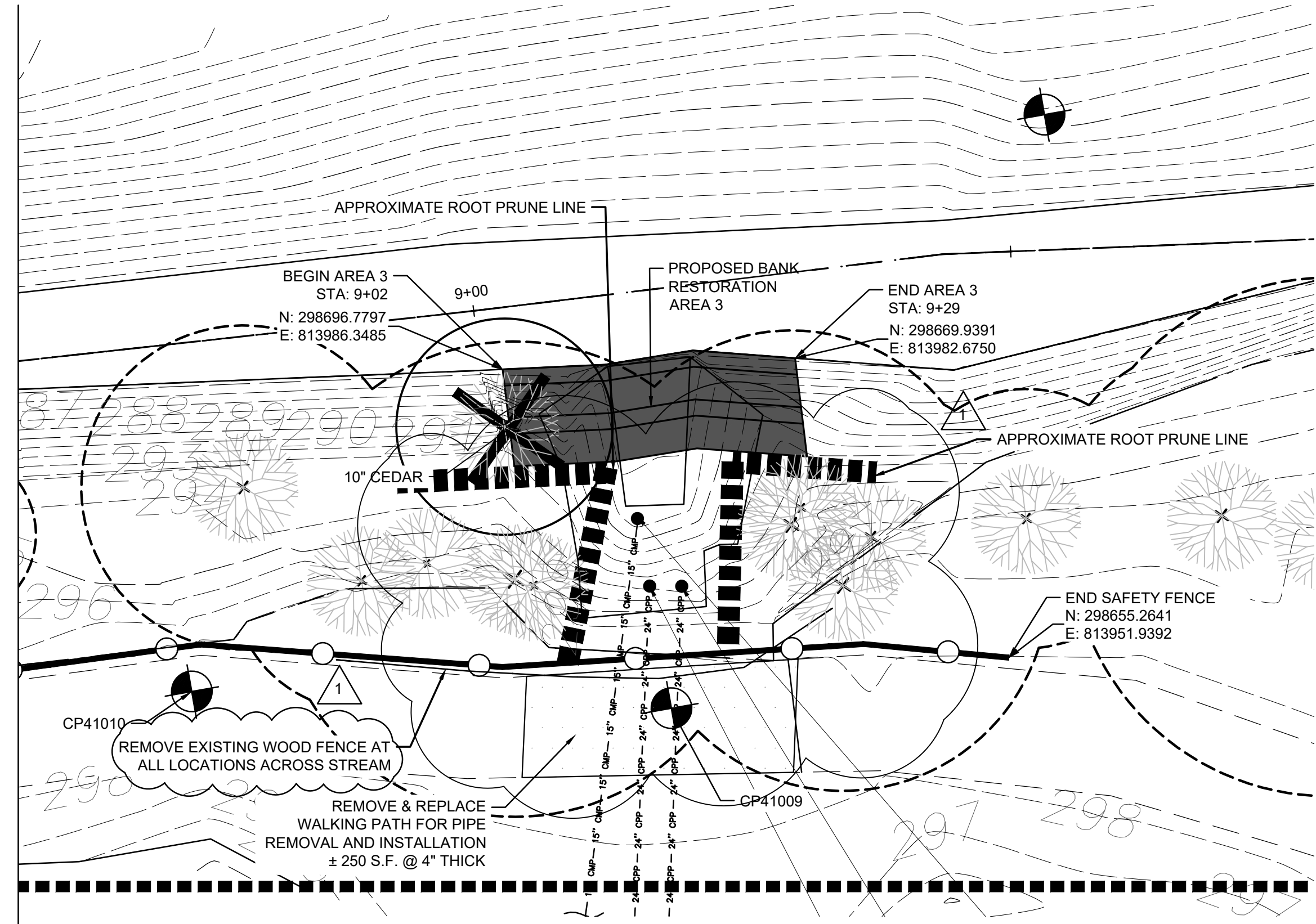
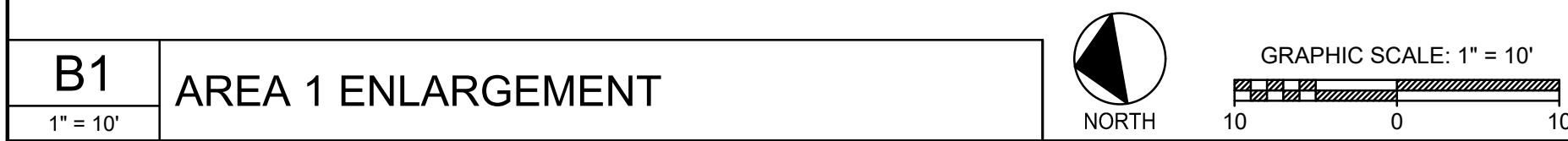
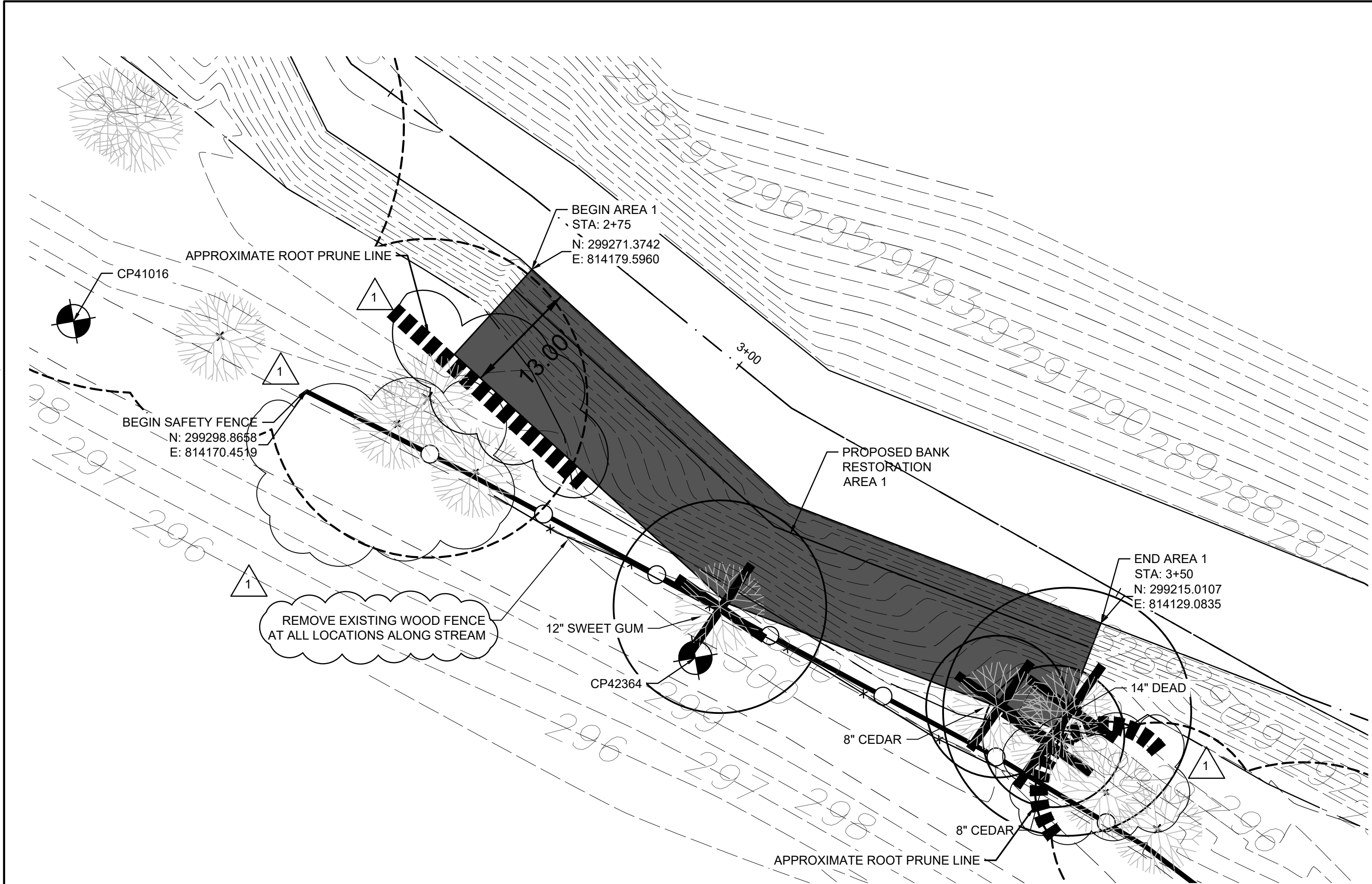


D1 PROFILE VIEW OF STREAM

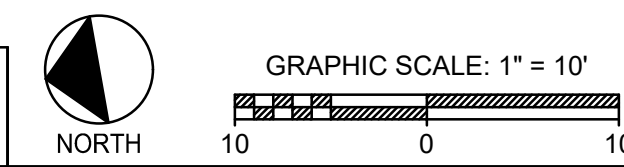
1" = 40' H/4" V



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PRIOR TO COMMENCING WORK ON THE STREAM BANK RESTORATION THE CONTRACTOR SHALL MEET WITH A REPRESENTATIVE OF THE LICHTERMAN NATURE CENTER AND THE LANDSCAPE ARCHITECT TO MARK THE TREES TO BE REMOVED AND THOSE IMMEDIATELY ADJACENT TO THE WORK THAT ARE TO BE PROTECTED AND REMAIN



STATION	N	E	COORDINATE	REMARKS
2035	298748.659	813491.758	299.61	XCP CROSSHAIRS
41001	298469.298	813382.470	297.77	XTRAV= 0.5 REBAR CAP
41001	298469.298	813382.470	297.77	XTRAV= 0.5 REBAR CAP
41003	298478.593	813635.430	297.59	XTRAV= 0.5 REBAR CAP
41003	298478.593	813635.430	297.59	XTRAV= 0.5 REBAR CAP
41005	298573.363	813780.724	297.74	XTRAV= 0.5 REBAR CAP*
41005	298573.363	813780.724	297.74	XTRAV= 0.5 REBAR CAP*
41007	298579.223	813909.339	298.25	XTRAV= 0.5 REBAR CAP*
41009	298686.832	813952.756	298.23	XTRAV_5RB*
41009	298686.832	813952.756	298.23	XTRAV_5RB*
41010	298730.268	813961.982	298.27	XTRAV= 0.5 REBAR CAP*
41010	298730.268	813961.982	298.27	XTRAV= 0.5 REBAR CAP*
41012	298956.896	813972.170	300.59	XTRAV= 0.5 REBAR CAP*
41012	298956.896	813972.170	300.59	XTRAV= 0.5 REBAR CAP*
41014	299147.365	814037.379	300.19	XTRAV= 0.5 REBAR CAP*
41014	299147.365	814037.379	300.19	XTRAV= 0.5 REBAR CAP*
41016	299323.382	814182.811	299.66	XTRAV= 0.5 REBAR CAP*
41016	299323.382	814182.811	299.66	XTRAV= 0.5 REBAR CAP*
41023	299107.939	814336.110	309.11	XTRAV= 0.5 REBAR CAP*
41023	299107.939	814336.110	309.11	XTRAV= 0.5 REBAR CAP*
42074	298643.310	814000.863	290.79	XTRAV=6 IN MAG NAIL
42074	298643.310	814000.863	290.79	XTRAV=6 IN MAG NAIL
42144	298756.630	814026.180	301.42	XTRAV= 0.5 REBAR CAP
42144	298756.630	814026.180	301.42	XTRAV= 0.5 REBAR CAP
42204	298888.554	813961.678	300.33	XTRAV=6 IN MAG NAIL
42204	298888.554	813961.678	300.33	XTRAV=6 IN MAG NAIL
42364	299260.810	814133.189	299.98	XTRAV=6 IN MAG NAIL
44014	298854.899	814037.079	303.41	XTRAV 6IN MAG HUB
44036	299053.789	814005.075	300.00	XTRAV 6IN MAG HUB
44036	299053.789	814005.075	300.00	XTRAV 6IN MAG HUB

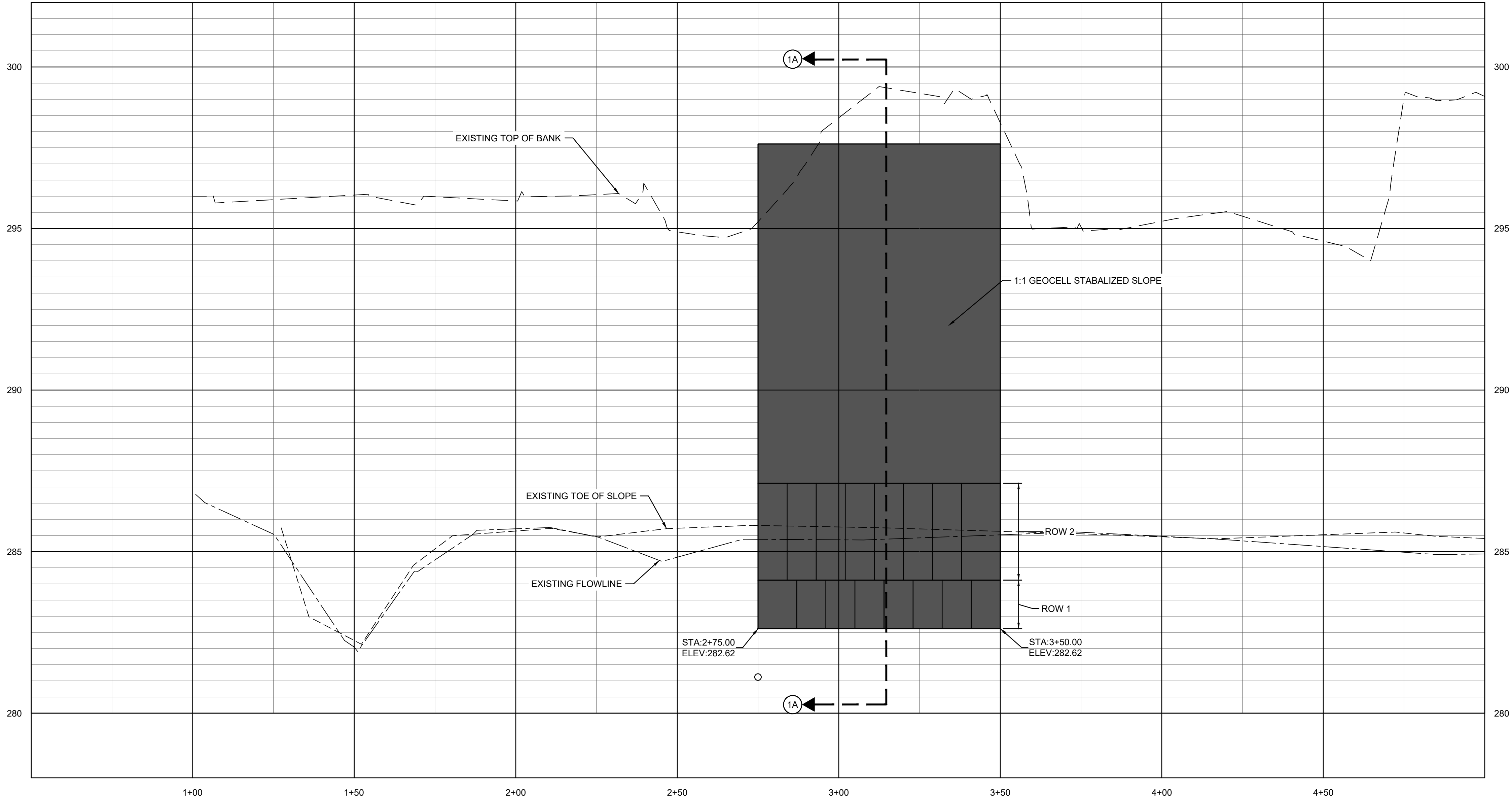


REVISIONS		
1	04/28/2025	Add #1

PROJECT NO.	DATE
21513	04/28/2025
DRAWN	CHECKED
JMB	BE



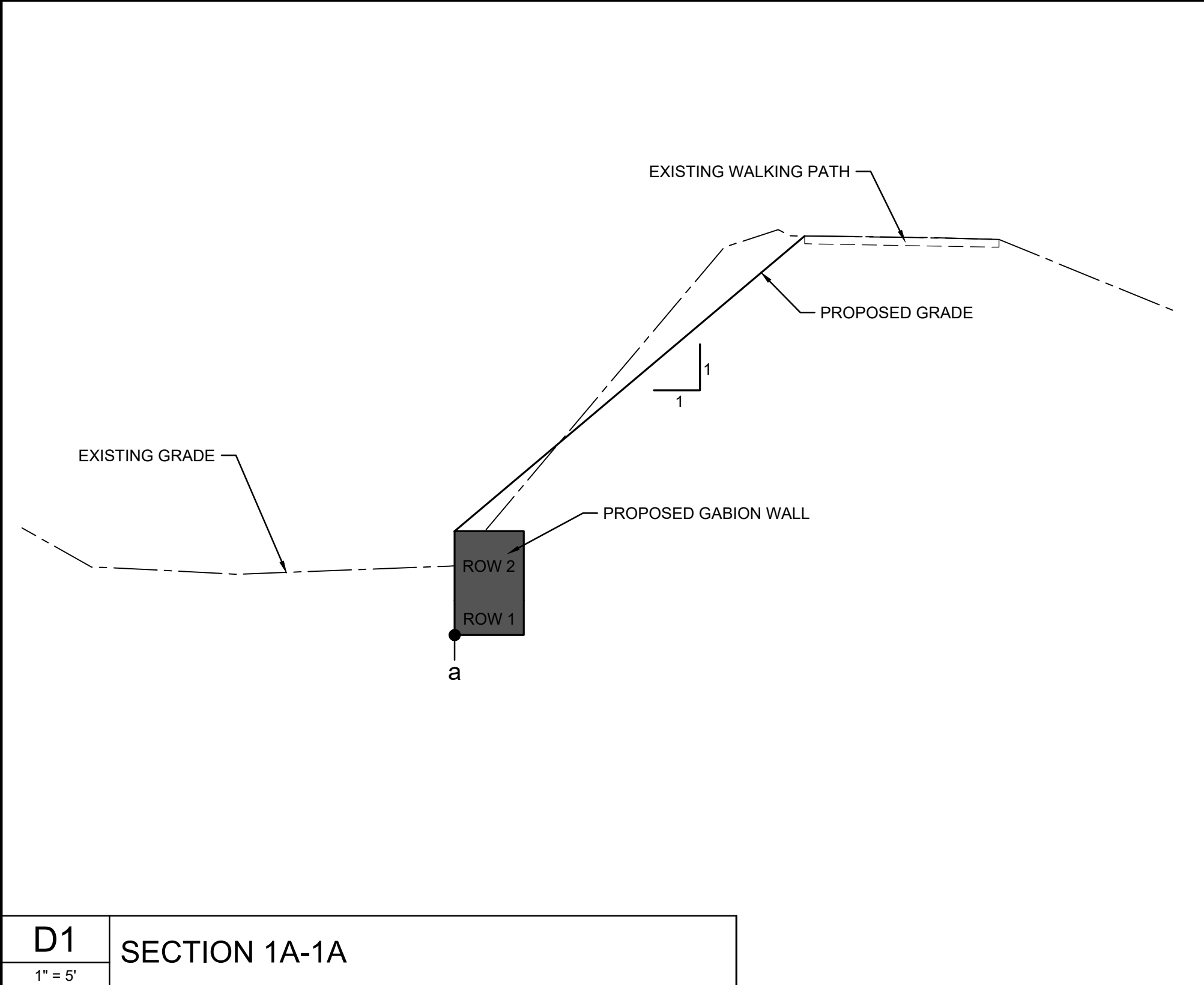
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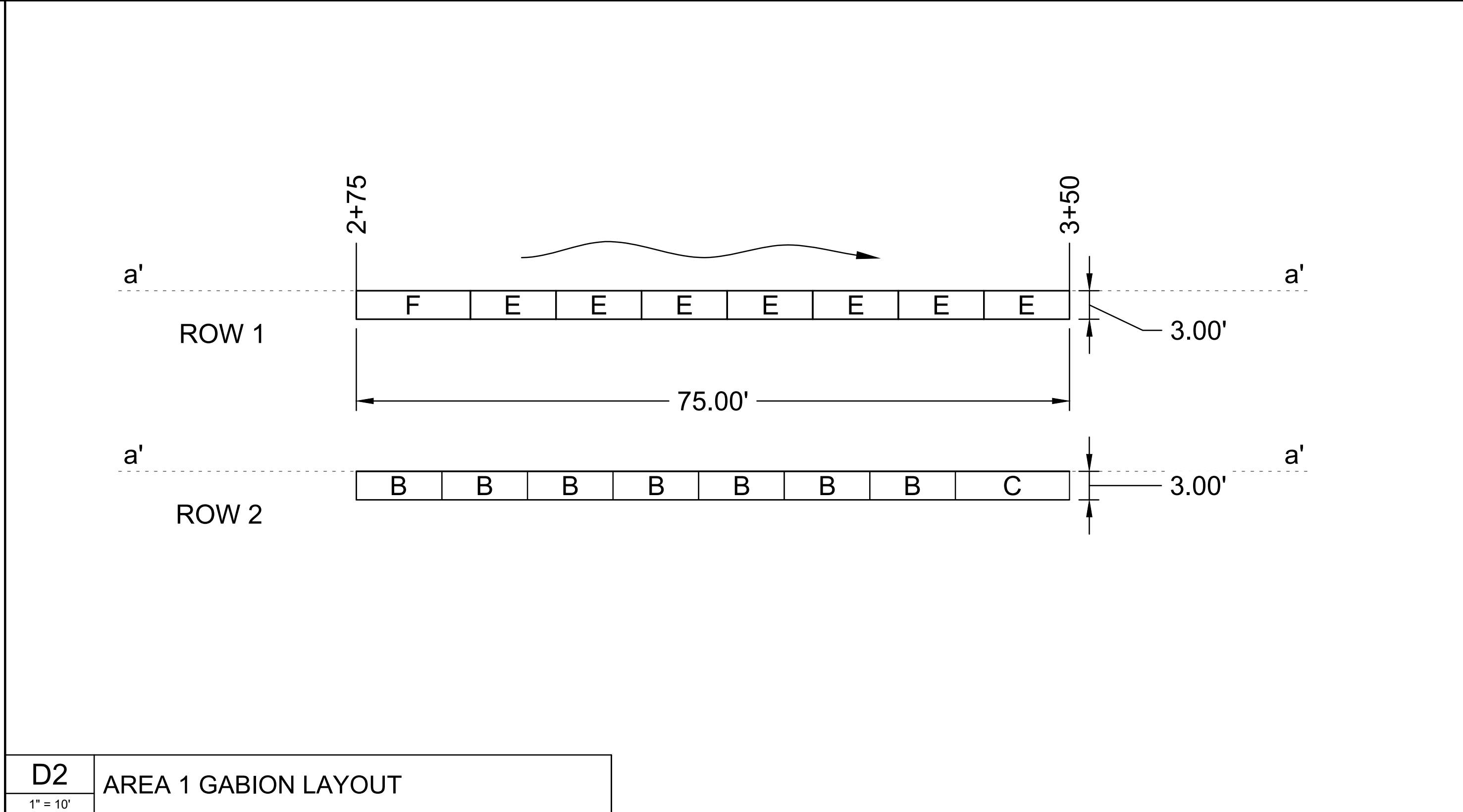
1

TREES TO BE REMOVED		
COUNT	DBH	TYPE
2	8"	CEDAR
1	14"	DEAD
1	12"	SWEET GUM

C1  
1" = 20' H/2" V  
AREA 1 PROFILE



D1  
1" = 5'  
SECTION 1A-1A

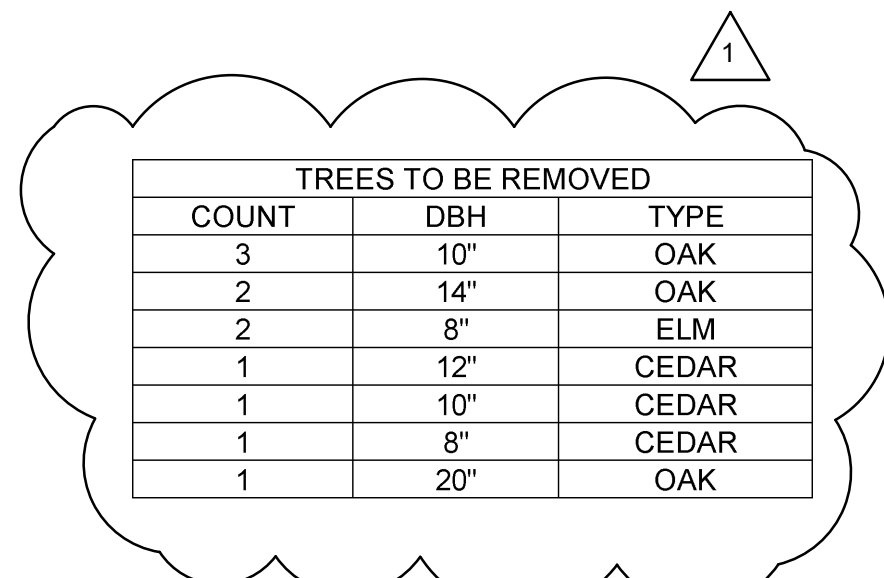


D2  
1" = 10'  
AREA 1 GABION LAYOUT

GABION DIMENSIONS			
CODE	LENGTH	WIDTH	HEIGHT
A	6	3	3
B	9	3	3
C	12	3	3
D	6	3	1.5
E	9	3	1.5
F	12	3	1.5
G	6	3	1
H	9	3	1
I	12	3	1
A.75	4.5	3	3
AA	6	6	3
BB	9	6	3
CC	12	6	3
DD	6	6	1.5
E <sub>s</sub>	9	2.5	1.5
F <sub>s</sub>	9	2.5	1.5



11/2012/1513/2 Civil/Projdwgs12 - Stream Stabilization & Outlet Control Structure/21513-2- SECTION AREA 2.dwg  
Mon, 28 Apr 2025 - 5:45pm  
PLOT SCALE: 1"=1' LATEST REV.:



**A2H** ENGINEERS  
ARCHITECTS  
PLANNERS

**A2H, INC.**  
3009 DAVIES PLANTATION ROAD  
LAKELAND, TN 38002  
P. 901.372.0404  
WWW.A2H.COM



**LICHTERMAN  
NATURE CENTER  
MAJOR  
MAINTENANCE  
PHASE 1**

5992 QUINCE ROAD  
MEMPHIS, TN

**CONSTRUCTION  
DOCUMENTS**

**REVISIONS**

1	04/28/2025	Add #1
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GABION DIMENSIONS			
CODE	LENGTH	WIDTH	HEIGHT
A	6	3	3
B	9	3	3
C	12	3	3
D	6	3	1.5
E	9	3	1.5
F	12	3	1.5
G	6	3	1
H	9	3	1
I	12	3	1
A7.5	4.5	3	3
AA	6	6	3
BB	9	6	3
CC	12	6	3
DD	6	6	1.5
E <sub>s</sub>	9	2.5	1.5
F <sub>s</sub>	9	2.5	1.5

PROJECT NO.	DATE
21513	04/28/2025

<b>DRAWN</b>	<b>CHECKED</b>
JMB	BE

## AREA 2 ENLARGEMENT

## C8.2





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- THE GREENHOUSE CONTRACTOR SHALL HAVE AT LEAST (5) YEARS'S EXPERIENCE IN BUILDING GREENHOUSES OF THE TYPE SPECIFIED.
- DISCONNECT AND/OR REMOVE ALL UTILITIES THAT PENETRATE AND/OR ARE CONNECTED TO THE EXISTING POLYCARBONATE CLADDING.
- REMOVE THE EXISTING CLADDING FROM THE WALLS AND GABLE ENDS. ALL ALUMINUM EXTRUSIONS FOR ROOF, SIDES AND ENDWALLS OF THE STRUCTURE SHALL BE CAREFULLY REMOVED AND STORED FOR USE IN THE RE-CLADDING OF THE STRUCTURE. ALL SCREWS AND FASTENERS SHALL BE CLEARED FROM THE SITE AND PROPERLY DISPOSED OF.
- REMOVE EXISTING WORK TABLES AND STORE AND PROTECT FOR FUTURE USE.
- EXCAVATE EXISTING GRAVEL FLOOR AND SUBGRADE TO ESTABLISH SUBGRADE FOR NEW CONCRETE FLOOR. DISPOSE OF EXCAVATED EARTH OFF SITE. GRAVEL MAY BE STOCKPILED FOR USE AS GRANULAR SUB-BASE FOR NEW CONCRETE FLOOR (SEE STRUCTURAL PLANS FOR DETAILS).
- CONNECT PIPING FOR NEW TRENCH FLOOR DRAIN TO EXISTING 12" PVC PIPE RUNNING UNDER THE BUILDING AND SET TRENCH DRAIN TO FINISHED GRADE.
- INSTALL UNDERFLOOR WATER PIPING (SEE PLUMBING PLAN).
- INSTALL GRANULAR BASE. STOCKPILED GRAVEL MAY BE USED. IF ADDITIONAL GRAVEL IS NEEDED IT SHALL CONFORM TO THE GRADATION REQUIREMENTS OF CR No. 78. LANDSCAPE ARCHITECT / ENGINEER HAS THE AUTHORITY TO INSPECT AND REJECT ANY STORED GRAVEL PRIOR TO PLACEMENT TO ENSURE CLEANLINESS AND LACK OF DEBRIS.
- INSTALL WELDED WIRE FABRIC REINFORCING. USE FLAT SHEETS ONLY. NO ROLLED WIRE REINFORCEMENT ALLOWED.
- POUR THE CONCRETE FLOOR
  - 4,000 PSI NON AIR ENTRAINED.
  - TROWEL FINNISH
  - APPLY MEMBRANE CURING CS-25-1315 AS SOON AS THE BLEED WATER HAS DISSIPATED.
- REMOVE REMAINING POLYCARBONATE CLADDING FROM ROOF. CAREFULLY REMOVE AND STORE FOR USE IN THE RE-CLADDING OF THE STRUCTURE ALL ALUMINUM EXTRUSIONS. ALL SCREWS AND FASTENERS SHALL BE CLEARED FROM SITE AND PROPERLY DISPOSED OF.
- REMOVE AND DISPOSE OF THE EXISTING DOORS. SET NEW DOORS IN PLACE. TWO SETS OF TWIN, 42" X 6'-8" DOORS WITH CLOSURE, ADA COMPLIANT, PROVIDE LOCKSET KEYED TO MATCH OWNERS MASTER KEY. PAINT DOORS BENJAMIN MOORE 2121-60 WHITE DIAMOND.
- REMOVE AND DISPOSE OF EXISTING POWER GABLE VENT. INSTALL NEW POWER VENT, COOLAIR LRW39E INLET SHUTTER, 39" X 39", ALUMINUM BLADES AND TIE BAR., EXTRUDED ALUMINUM FRAME. BLADES PIVOT ON NYLON BUSHINGS MOTORIZED HEAVY DUTY WITH CHAIN LINKAGE, MOTOR 110v, 0.2 a., 6300 CFM AIR FLOW RATE.
- RECLAD THE BUILDING WITH 8mm CLEAR TWIN WALL POLYCARBONATE.
  - THE POLYCARBONATE SHALL HAVE A UV-PROTECTED SURFACE. THE UV PROTECTED SURFACE MUST BE FACING TOWARD THE OUTSIDE OF THE BUILDING (FACING TOWARD THE SUN).
  - THE POLYCARBONATE SHALL HAVE THE FOLLOWING PHYSICAL PROPERTIES.
    - VICAT SOFTENING TEMPERATURE, B120 ISO 306; 230° F.
    - CONTINUOUS-USE TEMPERATURE RATING: MAXIMUM OF 212° F; MINIMUM OF - 40° F.
    - COEFFICIENT OF LINEAR THERMAL EXPANSION, 23-80°C ISO 1: 1°F 4.00 E-05. ALLOWANCES MUST BE MADE FOR BOTH THE LENGTH AND WIDTH OF THE SHEET AT A RATE OF 0.04" PER 1' PER 100° TEMPERATURE DIFFERENTIALS. SHEETS SHOULD BE INSTALLED BETWEEN 55° F AND 70° F. CAUTION: SHEETS INSTALLED IN EXTREME COLD OR HOT CONDITIONS (EVEN IF THE HOLES ARE PRE-DRILLED) MAY CRACK OR WARP WHEN THE TEMPERATURE FLUCTUATES BETWEEN SEASONS.
  - STORE SHEETS ON A FLAT, RAISED SURFACE IN A COOL, DRY PLACE OUT OF DIRECT SUNLIGHT. LAY SHEETS FLAT AND STRAIGHT, STACK SHORTER SHEETS ON TOP OF LONGER SHEETS. KEEP SHEETS OUT OF DIRECT CONTACT WITH SUNLIGHT, CEMENT, PVC AND PAINT.
  - FASTENERS SHALL BE #12 X 2-3/8" SELF-DRILLING/SELF-TAPPING WING HEX HEAD SCREWS. CHECK WITH MANUFACTURER FOR CORRECT LENGTH OF SCREW. WASHERS 14 MM WITH BONDED EPDM GASKET. CONSULT WITH MANUFACTURER TO DETERMINE PROPER SPACING OF FASTENERS.
  - SEALING TAPE SHOULD BE USED ON BOTH ENDS OF A MULTIWALL SHEET.
    - USE A SOLID ALUMINUM FOIL-COATED TAPE WITH AN ALL-WEATHER ADHESIVE TO SEAL THE TOP OF A MULTIWALL SHEET SUCH AS 440 TAPE BY TREMCO.
    - USE A VENT TAPE MADE OF A NON-WOVEN MATERIAL TO SEAL THE BOTTOM OF THE MULTIWALL SHEET SUCH AS TAPE 394 OR TAPE 3294 BY 3M.
  - CAULKING SHOULD BE 100 % SILICONE COMPATIBLE WITH POLYCARBONATE SUCH AS GE SILPRUF® SCS2700 OR GE PRUF® SCS2000.
  - INSTALL THE SHEETS WITH THE CHANNELS RUNNING VERTICAL TO ALLOW FOR PROPER DRAINAGE.
  - KEEP THE PROTECTIVE FILM ON UNTIL THE SHEETS ARE FULLY INSTALLED

B1	GREENHOUSE STRUCTURE
NTS	REHABILITATION GENERAL ORDER OF WORK

- ROOF VENT: REPLACE IN KIND TEN (10) RACK AND PINIONS. CONFIRM THE LENGTH OF RACKS BEFORE ORDERING REPLACEMENTS.
- SIDE VENT AT EVAPORATIVE COOLING SYSTEM: REPLACE IN KIND SIX (6) RACK AND PINIONS. CONFIRM THE LENGTH OF RACKS BEFORE ORDERING REPLACEMENTS.
- VENT MOTORS: REPLACE MOTORS CONTROLLING BOTH VENTS
  - WADSWORTH VC 2000 VENT DRIVE UNIT
  - GEAR MOTOR: 1/5 HP - 115 V; 60HZ; 2.5 AMPS -TEFC
  - BALL BEARING MOTOR WITH COPPER WINDINGS - CLASS B INSULATION
  - GEAR REDUCER: TOTAL REDUCTION 1350:1; 1.2 AND 3 RPM FINAL OUTPUT
  - OUTPUT TORQUE 1500 INCH POUND
- REPLACE CEILING FANS: TWO (2) NEW FANS. SEE SHEET E1-1 FOR LOCATIONS AND MOUNTING DETAILS. MODEL FAN NO. AMB-MW-56-MW-NL-WC
  - FAN BLADE SPAN - 52 INCH
  - NO LIGHT
  - ELT LISTED FOR DRY OR DAMP LOCATIONS
  - CONTROL TYPE - WALL CONTROL
  - MATERIAL - ALUMINUM
  - FIXTURE COLOR FINISH - BRUSHED ALUMINUM
  - BLADE FINISH - BRUSHED ALUMINUM
  - WATTAGE - 71
  - VOLTAGE - 120
  - LOWEST SPEED -70 RPM,1672 CFM, 10.61 WATTS, 158 CFM/WATT
  - HIGHEST SPEED - 225 RPM, 5142 CFM, 68.69 WATTS, 7.5 CFM/WATT
- REPLACE HORIZONTAL AIR FLOW FANS: TWO (2) NEW FANS. SEE SHEET E1-1 FOR LOCATIONS. SCHAEFER HAF VK20 20" VERT-KOOL CIRCULATION Fan WITH TAPERED GUARDS, CORD AND MOUNT.
  - FIXED, GUARD COLOR -WHITE, POWDER COATED STEEL, SPACING ½".
  - NUMBER OF BLADES -3, ALUMINUM, METALLIC COLOR,
  - MOTOR: DIRECT DRIVE, 1/3 HP, 115 V, 60 HZ, NAMEPLATE AMPS- 3.8/1.9, MAX RPM - 1725.
  - CFM (FREE AIR)- 5470, CFM CALCULATION STANDARD - ANSI/AMCA 230-99, CFM RANGE (FREE AIR) - 5001-10000, CFM/WATT (FREE AIR) - 15.6, CFM/WATT RANGE (FREE AIR) - 15.1 - 20.
- REPLACE UNIT HEATERS: TWO (2) NEW HEATERS, ADVANCED DISTRIBUTION PRODUCTS NO. ADP SEP-145 NATURAL GAS, HEIGHT 32-3/16 INCH, WIDTH 20-3/16 INCH, GAS CONNECTION ½ INCH NPT.
  - MOTOR, 1/8 HP, 115 VAC, 60 HZ, 2.1 AMP MOTOR FULL LOAD .
  - WIRING JUNCTION BOX LOCATED OUTSIDE OF UNIT
  - TUBULAR HEAT EXCHANGERS MADE OF STAINLESS STEEL
  - SIDEWALL VENTING ELIMINATES ROOF PENETRATIONS
  - DIRECT SPARK IGNITION, NO STANDING PILOT LIGHT
  - HEATING CAPACITY: 116,000 BTUH MAXIMUM INPUT; 145,000 BTU, 80% EFFICIENCY
  - 4 INCH FLUE CONNECTION SIZE
  - 1,900 CFM AIR FLOW; AIR THROW 60 FEET
  - 3/8 X 16 RIVET NUTS ARE LOCATED ON THE TOP OF THE CABINET FOR SUSPENDING UNIT USING THREADED ROD.
- REPLACE EXISTING FLUORESCENT LIGHT FIXTURES: TWELVE (12) NEW LED HORTICULTURE LUMINARIES BY VERJURE NO. VAE2-2-BRI-208V-GZ10-XWD-CNPQDWL.
  - CONSTRUCTION - SUITABLE FOR WET, DAMP AND/OR COLD LOCATIONS. ONE-PIECE 5VA FIBERGLASS HOUSING WITH INTEGRAL PERIMETER CHANNEL UTILIZING CONTINUOUS POURED-IN-PLACE NEMA 4X GASKET.
  - OPTICS - INJECTION MOLDED, ACRYLIC LENS (0.080" THICK) PROVIDES HIGH IMPACT RESISTANCE COMPARABLE TO 100 DUROMETER.
  - UTILIZES HIGH-EFFICIENCY LED'S MOUNTED TO CORE CIRCUIT BOARD. HIGH-EFFICIENCY DRIVERS OPERATE 120-277 MVOLT. STANDARD LUMINAIRE SURGE PROTECTION LEVEL: 6KV/3KVA SURGE RATED PER ANSI C82.77-5-2015.
- REMOVE AND REPLACE THE OUTSIDE WALL PACKS: LITHONIA LIGHTING NO. WDGE2 LED-P3-3500K-80CRI-VW-MVOLTSRM-DOBXD.
- REMOVE AND REPLACE EXISTING RECEPTACLES AND COVERS: TWENTY (20) NEW GFCI RECEPTACLE WITH IN-USE WEATHERPROOF COVER, HUBBELL NO. MG420CS.
- REMOVE AND REPLACE PUMP: LIBERTY PUMP 237 ½ HP, 115 V, 5.2a., 60Hz
- REMOVE AND REPLACE THE EXISTING HOSE BIBS: FIVE (5) NEW ½ TURN VALVE WITH VACUUM BREAKER.
- INSTALL NEW HOSE BIB ½ TURN VALVE WITH VACUUM BREAKER. SEE SHEET P1.1
- REPLACE EXISTING EXTERIOR HOSE BIB WITH THROUGH WALL WOODFORD #70.
  - INSTALL BY DRILLING THROUGH FOUNDATION WALL ON WEST SIDE OF GREENHOUSE.
  - SEAL ANNULAR SPACE BETWEEN CONCRETE AND PIPE WITH LOCTITE EXPANDING FOAM.
- INSTALL FOUR (4) NEW OVERHEAD HOSE BIBS WITH QUICK DISCONNECTS. SEE SHEET P1.1.
- RESET WORK TABLES. SEE SHEET L2.1, D4 PROPOSED BENCH LAYOUT.
  - IN ORDER TO MEET ADA ACCESSIBILITY REQUIREMENTS THE NUMBER OF ROWS OF TABLES WAS REDUCED TO THREE (3), THE UNUSED TABLES SHALL BE PLACED ON SITE AS DIRECTED BY THE LICHTERMAN STAFF.
  - ADJUSTABLE STAINLESS STEEL BULLET FEET SHALL BE INSTALLED IN THE BOTTOM OF EACH TABLE LEG.
  - THE CONCTRACTOR SHALL LEVEL THE TABLES.
- INSTALL HANGING BASKET RAILS CENTERED OVER EACH ROW OF TABLES.
  - PIPES SHALL BE 1 3/8 INCH GALVANIZED STEEL PIPES: TWO ROWS AT 34'-0" LONG; ONE ROW 32'-0" LONG.
  - USE AVIATION GRADE 1/8" WIRE ROPE WITH CABLE CLAMPS.
- IRRIGATION SYSTEM SHALL BE DESIGN/BUILD USING NETAFAIM USA SPRINKLER SYSTEM
  - GROWSPHERE CONTROLLER CAPABLE OF CONTROLLING A MINIMUM OF 6 VALVES.
  - IRRIGATION OVER BENCHES (TABLES) TO INCLUDE OVERHEAD MISTERS.
  - SPRINKLERS TO BE DRIPLESS WITH A CHECK VALVE TO PREVENT LINE FROM DRAINING ONTO PLANTS AFTER SHUT DOWN
  - ALL SPRINKLER PARTS CAN BE ASSEMBLED AND DISASSEMBLED IN THE GREENHOUSE WITHOUT TOOLS.
  - SPRINKLERS TO HANG BELOW THE SUPPLY PIPE
  - CONTROL HEAD COMPONENTS TO INCLUDE A VALVE, FILTER AND PRESSURE REGULATOR.
  - THERE WILL BE ONE PROPAGATION ZONE.
- ENVIRONMENTAL CONTROLS: THE ENVIRONMENT CONTROLS FOR THE EXISTING BUILDING HAVE IN THE PAST BEEN CONTROLLED BY A WADSWORTH SYSTEM WHICH HAVE BEEN UPGRADED IN THE PAST. THE SYSTEM CURRENTLY IS NOT FUNCTIONAL.
  - PROVIDE THE GREENHOUSE WITH A WADSWORTH STEP UP AUTOMATIC CONTROL SYSTEM WITH A MINIMUM OF TWO STAGES OF HEATING, SET POINT, ADD FOUR STAGES OF COOLING. REFER TO E1.2 FOR EXISTING CONTROL DIAGRAM.
  - CONTROLLER IS TO BE COMPLETE WITH A CONTACTOR PANEL.
  - PROVIDE A WIRING DIAGRAM.
  - PROVIDE A TAMPER RESISTANCE COVER TO PREVENT UNAUTHORIZED PERSONNEL FOR MAKING ADJUSTMENTS TO THE CONTROLLER.
  - REMOVE ALL UNNECESSARY AND/OR OUTDATED EQUIPMENT.

- 1
- ADD ALTERNATES
- A. SHADE SYSTEM: PROVIDE AN INTERIOR AUTOMATED SHADE/ENERGY CURTAIN SYSTEM
- MOTORIZED SYSTEM THAT WORKS WITH THE GREENHOUSE CONTROL SYSTEM TO OPERATE THE SHADE CURTAIN BASED UPON LIGHT LEVEL AND TEMPERATURE.
  - THE SHADE / ENERGY CURTAIN TO REDUCE ENERGY CONSUMPTION BY UP TO 40% TO 50%.
  - CURTAIN TO CONTROL LIGHT LEVELS WITH SHADE FABRICS THAT RANGE FROM 15% TO 70%.
  - CURTAIN TO BE FLAME RETARDANT.
  - WARRANTY FIVE (5) YEARS UNDER ALL TYPES OF GREENHOUSE COVERING.
  - SUBMIT PLANS TO THE ARCHITECT AND/OR ENGINEER FOR REVIEW AND APPROVAL.
- B. MONITORING SYSTEM: PROVIDE A SENTINEL MONITORING SYSTEM WITH CELLULAR MODEM.
- CELLULAR COMMUNICATION
  - NOTIFIES AB UNLIMITED NUMBER OF PEOPLE BY E-MAIL, TEXT MESSAGE OR VOICE PHONE CALLS IN THE EVENT OF AN ALARM.
  - INCLUDE EXTERNAL ANTENNA.
  - CELLULAR MODEM AND SIM CARD INCLUDED.
  - INCLUDE ONE YEAR'S SUBSCRIPTION COST.

D4	GREENHOUSE INTERIOR RESTORATION
NTS	RECONDITIONING TASKS



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CONSTRUCTION  
DOCUMENTS

REVISIONS	
1	04/28/2025 ADD #1

PROJECT NO.	DATE
21513	04/28/2025
DRAWN	CHECKED
CAW	DMS

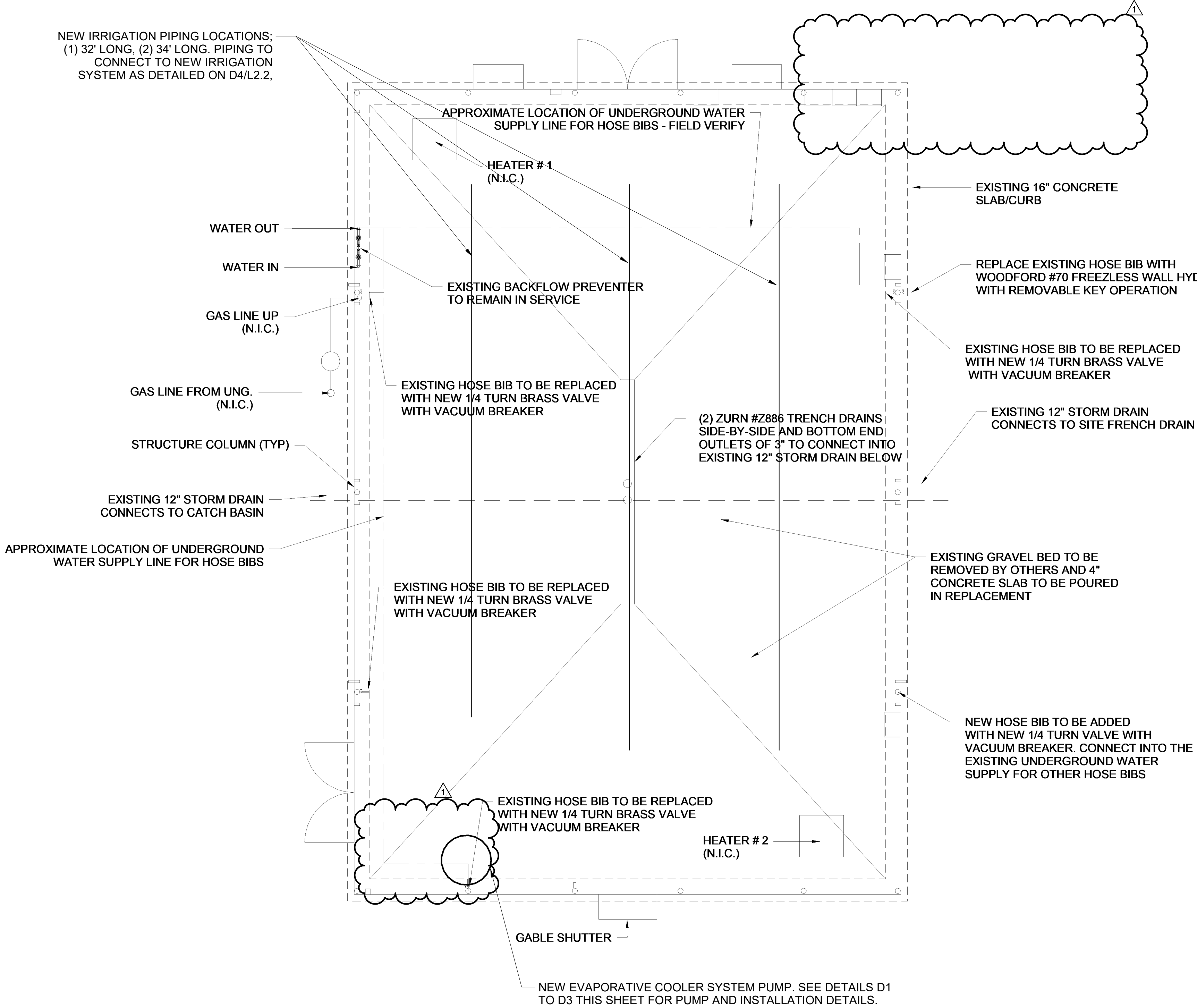
GREENHOUSE NOTES

L2.2





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PLUMBING LEGEND	
SYMBOL	DESCRIPTION
---	SOIL OR WASTE
---COND---	A/C CONDENSATE
--- -- -- --	VENT
V.T.R.	VENT THRU ROOF
--- SD ---	STORM DRAIN (ABOVE SLAB)
---SD---	STORM DRAIN (BELOW SLAB)
--- ESD ---	EMERGENCY STORM DRAIN
---	COLD WATER (CW)
---	HOT WATER (HW)
---	HOT WATER RETURN (HWR)
---	CUTOFF VALVE
---	CHECK VALVE
---	TRAP PRIMER - 1/2" CW BELOW SLAB
---	CONNECT TO EXISTING
---	KEYNOTE SYMBOL

#### A4 1/8" = 1'-0"

### PLUMBING LEGEND

#### PRODUCTS

##### A. SANITARY SEWER PIPING, BURIED

- PVC PIPE: ASTM D-2665, D-1785, SCHEDULE 40 PVC DWV.
  - FITTINGS: PVC DWV
  - JOINTS: ASTM D2855, SOLVENT WELD WITH ASTM D2564 SOLVENT CEMENT.

- CAST IRON PIPE: ASTM A74, SERVICE WEIGHT.  
ALL PIPE AND FITTINGS SHALL BE MARKED WITH THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE AND LISTED BY NSF INTERNATIONAL.
  - FITTINGS: CAST IRON.
  - JOINTS: ASTM C-564, NEOPRENE GASKETING SYSTEM.

##### B. SANITARY SEWER PIPING, ABOVE GRADE

- PVC PIPE: ASTM D-2665, D-1785, SCHEDULE 40 PVC DWV.
  - FITTINGS: PVC
  - JOINTS: ASTM D2855, SOLVENT WELD WITH ASTM D2564 SOLVENT CEMENT.

- CAST IRON PIPE: CISPI 301, ASTM A 888, HUBLESS, SERVICE WEIGHT.  
ALL PIPE AND FITTINGS SHALL BE MARKED WITH THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE AND LISTED BY NSF INTERNATIONAL.
  - FITTINGS: CAST IRON.
  - JOINTS: NEOPRENE GASKETS AND S/S CLAMP AND SHIELD ASSEMBLIES.

##### C. WATER PIPING ABOVE GRADE

- COPPER TUBING: ASTM B88, TYPE L, HARD DRAWN.
  - FITTINGS: ASME B16.18, CAST BRONZE, OR ASME B16.22, WROUGHT COPPER AND BRONZE.
  - JOINTS: ASTM B32, SOLDER, GRADE 95TA.

##### D. CONDENSATE EQUIPMENT DRAINS AND OVERFLOWS

- COPPER TUBING: SEAMLESS COPPER DRAINAGE TUBE (DWV), MINIMUM 1-1/4" SIZE.
  - FITTINGS: ANSI/ASME B16.23 CAST BRASS, OR ANSI/ASME B16.29 SOLDER WROUGHT COPPER WITH WYE AND BRASS CLEANOUT PLUG AT ALL CHANGES IN DIRECTION.
  - JOINTS: ASTM B32, SOLDER, GRADE 95TA.
  - TRAPS: FACTORY FABRICATED, DEEP SEAL TYPE.

##### E. GLASS FIBER PIPE INSULATION:

- INSULATION: ASTM C547; RIGID MOLDED, NON COMBUSTIBLE. WITH ALL SERVICE JACKET. "K" VALUE = .024 @ 75° F.
- VAPOR BARRIER JACKET: ASTM C921, WHITE KRAFT PAPER REINFORCED WITH GLASS FIBER YARN AND BONDED TO ALUMINIZED FILM.

INSULATION SCHEDULE:	PIPE SIZE	THICKNESS
DOMESTIC HOT WATER SUPPLY	ALL	1"
DOMESTIC COLD WATER SUPPLY	ALL	1/2"
CONDENSATE DRAINS	ALL	1/2"

##### F. PIPE HANGERS AND SUPPORTS

- PLUMBING PIPING - DWV & WATER PIPING.
  - CONFORM TO ASME B31.9.
  - HANGERS FOR PIPE SIZES 1/2" TO 1-1/2": MALLEABLE IRON, ADJUSTABLE SWIVEL, CLEVIS.
- PROVIDE SHEET METAL SHIELDS AT HANGER LOCATIONS.

##### 3 SCHEDULES

PIPE SIZE	MAX. SUPPORT BRACING ) (FEET)	HANGER ROD DIAMETER
1/2" TO 1-1/4"	6.5'	3/8"
1-1/2" TO 2"	10'	3/8"

#### C4 N.T.S.

### PLUMBING SPECIFICATIONS

- THESE DRAWINGS ARE DIAGRAMMATIC AND SHOW GENERAL PLUMBING LAYOUTS AND PIPE ROUTING FOR BIDDING PURPOSES ONLY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PREPARE DETAILED SHOP DRAWINGS AND TO CONFIRM SPACE ALLOCATIONS.
- SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR ALL BUILDING DIMENSIONS, DETAILS, ELEVATIONS, AND EXACT LOCATION OF FIXTURES.
- CONTRACTOR SHALL VERIFY ALL FLOW LINES PRIOR TO ROUGHING IN.
- ALL WORK SHALL CONFORM TO THE LOCAL PLUMBING CODE, LOCAL BUILDING CODES, AND STATE HEALTH REGULATIONS HAVING JURISDICTION. PLUMBING CONTRACTOR SHALL REVIEW ARCHITECTURAL, STRUCTURAL, ELECTRICAL, AND MECHANICAL DRAWINGS AND COORDINATE THEIR WORK WITH ALL OTHER TRADES FOR PIPE ROUTING AND EQUIPMENT PLACEMENT. AVOID INTERFERENCE WITH ARCHITECTURAL FEATURES, BEAMS, FOOTINGS, WINDOWS, NOTIFY ARCHITECT OF ANY CONFLICTS.
- CONTRACTOR MAY RE-ROUTE PLUMBING TO AVOID CONFLICT WITH OTHER TRADES AFTER FIRST RECEIVING THE APPROVAL OF THE ARCHITECT / ENGINEER.
- PLUMBING CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR ALL VOLTAGES, ELECTRICAL LOADS, ETC. OF ELECTRICALLY OPERATED EQUIPMENT PRIOR TO ORDERING. ALL WIRING BY ELECTRICAL CONTRACTOR.
- ALL VALVES AND SHOCKSTOPS SHALL BE ACCESSIBLE.
- SLEEVES SHALL BE INSTALLED WHERE PIPING PASSES THROUGH STRUCTURE.
- ALL PENETRATIONS THRU RATED WALLS OR FLOORS SHALL BE SEALED WITH AN APPROVED U.L. LISTED FIREPROOFING TO MAINTAIN THE INTEGRITY OF THE WALL OR FLOOR.
- UPON COMPLETION OF WORK COVERED BY THIS CONTRACT, FURNISH THE OWNER WITH ONE (1) SET OF REPRODUCIBLE "AS-BUILT" DRAWINGS WHICH SHOW ALL PLUMBING INSTALLED UNDER THIS CONTRACT.
- FOR DEMOLITION AND/OR RENOVATIONS, ALL HOLES THRU CONCRETE SHALL BE CORE-DRILLED. SAW-CUT ALL CONCRETE AND ASPHALT BEFORE BREAKING AND REMOVING.
- INFORMATION OF EXISTING SERVICES WAS TAKEN FROM OWNER'S DRAWINGS. FIELD LOCATE ALL EXISTING SERVICES PRIOR TO STARTING ANY WORK.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL WATER DISTRIBUTION PIPING IS ROUTED IN AREAS THAT ARE NOT SUBJECT TO FREEZING TEMPERATURES. IF PIPING IS SHOWN ROUTED IN SUCH AREAS AND NO PROVISION FOR FREEZE PROTECTION IS INDICATED, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT / ENGINEER IMMEDIATELY.
- PRIOR TO ANY DEMOLITION, CONTRACTOR SHALL LOCATE PIPING, ELECTRICAL CONDUIT, OR OTHER EQUIPMENT. ANY DAMAGE INCURRED BY THE GENERAL CONTRACTOR/SUB-CONTRACTOR IS TO BE REPAIRED/RESTORED AT NO EXPENSE TO THE OWNER OR ENGINEER.
- ALL PLUMBING INSTALLATIONS SHALL CONFORM TO THE 2021 IPC WITH LOCAL AMENDMENTS. ALL PLUMBING WORK TO BE SUBJECT TO FIELD INSPECTOR'S APPROVAL.

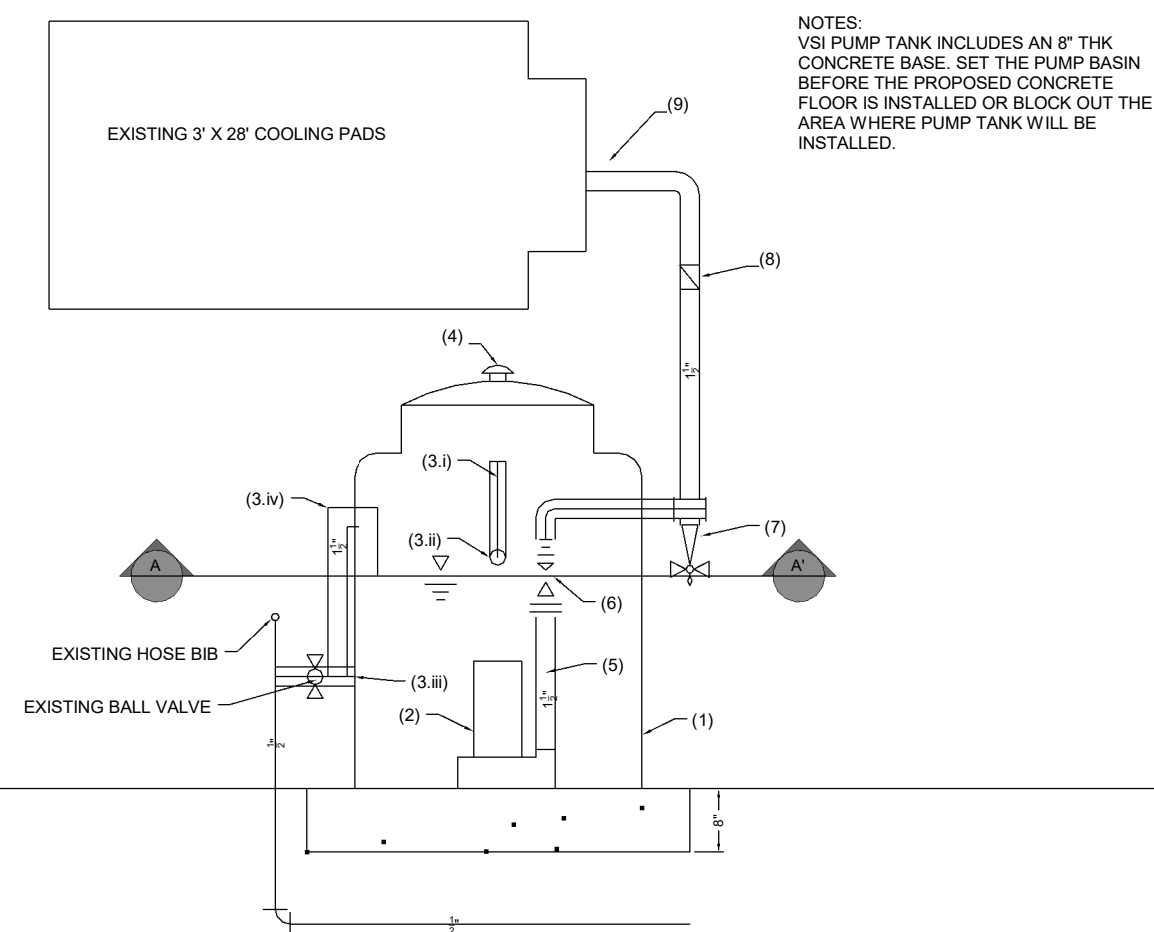
#### B5 1/8" = 1'-0"

### PLUMBING GENERAL NOTES

THESE DRAWINGS ARE DIAGRAMMATIC COORDINATION OF ALL TRADES AND COMPLIANCE WITH DIMENSIONS ON ARCHITECTURAL AND STRUCTURAL DRAWINGS ARE REQUIRED

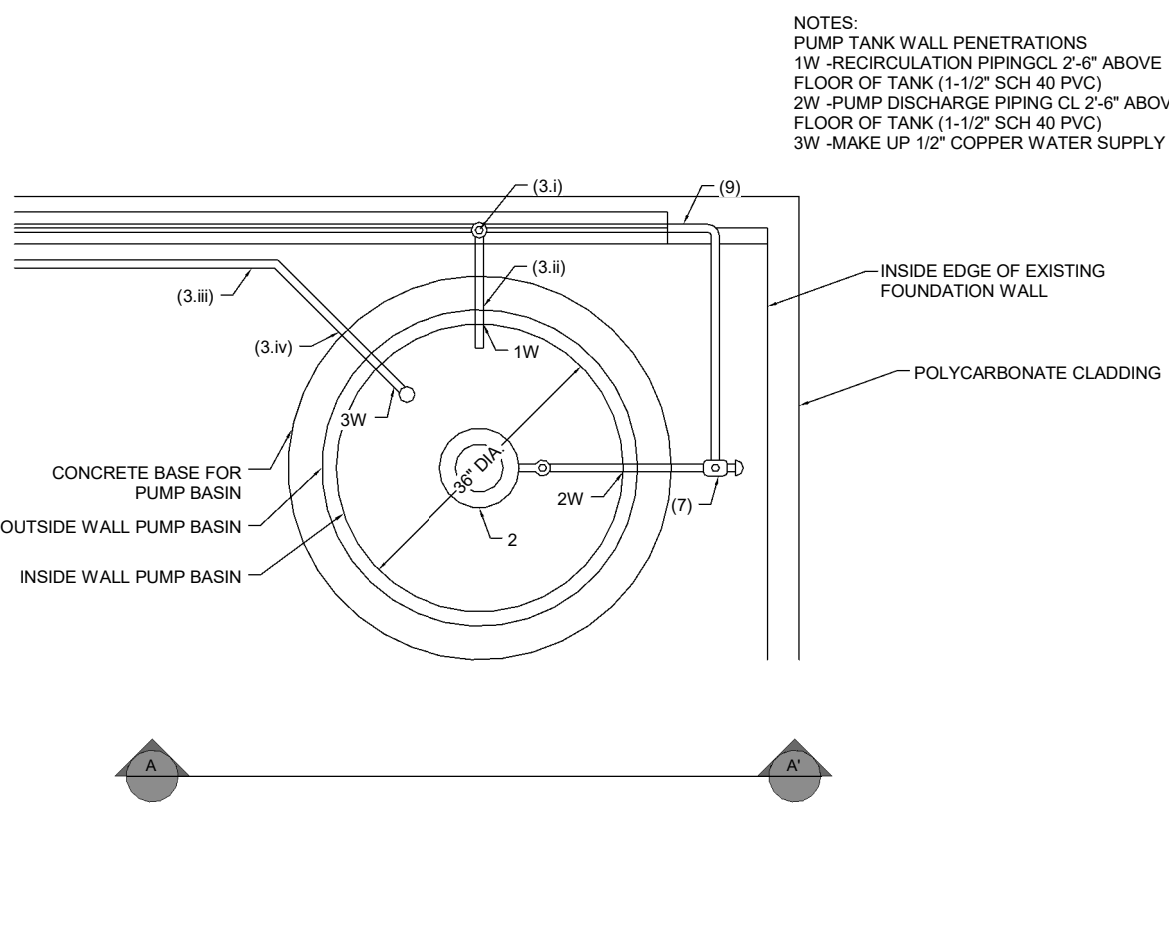
#### C1 N.T.S.

### GREENHOUSE DRAINAGE FLOOR PLAN



#### D1 N.T.S.

### PUMP TANK A'-A'



#### D2 N.T.S.

### PUMP TANK SECTION A-A

#### REFURBISH EVAPORATIVE COOLING SYSTEM

- REMOVE AND DISPOSE OF ALL EXISTING CRAFT PAPER COOLING PADS.
- FLUSH EXISTING PIPING FOR SYSTEM.
- PRESSURE WASH THE DISTRIBUTER HEAD AND RETURN TROUGH. MAKE SURE THAT ALL OUTLET HOLES ARE OPEN AND FREE FLOWING BY RUNNING WATER THROUGH THE SYSTEM. USE WIRE BRUSH IF NECESSARY TO CLEAR OPENING. AFTER ALL HOLES ARE FREE FLOWING FLUSH THE SYSTEM AGAIN.
- DISCONNECT EXISTING PUMP AND DISCARD.
- DISCONNECT EXISTING WATER SUPPLY TO 100 GALLON RUBBERMAID TANK. TURN TANK OVER TO THE LICHTERMAN CENTER PERSONNEL.
- INSTALL NEW PUMP TANK AND PUMP (SEE PIPING DIAGRAM)
  - INSTALL 3" DIAMETER X 3' TALL PUMP TANK BY VSI ( WWW.VSI-SUPPLY.COM)
  - INSTALL LIBERTY PUMP 237 1/3 HP, 115V, 5.2a., 60Hz
  - ATTACH 1 1/2" PVC RETURN PIPING TO OUTLET FOR RETURN TROUGH.
    - CONNECT RETURN PIPING TO PUMP TANK.
    - CONNECT NEW 1/2" COPPER WATER SUPPLY LINE DOWNSTREAM OF EXISTING BALL VALVE.
    - EXTEND NEW COPPER PIPE THROUGH SIDEWALL OF PUMP TANK.
    - INSTALL 1 1/2" PVC MUSHROOM STYLE TANK VENT GAP WITH MESH OPENING. DRILL AND PROVIDE LOCK NUT.
    - INSTALL 1 1/2" PVC SCHEDULE 40 WATER PIPE TO OUTLET PIPE TO PUMP.
    - INSTALL A PVC TRUE UNION 1 1/2" BALL VALVE.
    - INSTALL VU-FLOW SEDIMENT SCREEN FILTER. 1 1/2" T" STYLE -STAINLESS STEEL 60 MESH, CLEAR COVER, DRAIN OUTLET TO ALLOW PURGE CLEANING.
    - INSTALL 1 1/2" PVC GF 562 TRUE UNION CHECK VALVE WITH STAINLESS STEEL SPRINGS AND EPDM SEALS.
  - CONNECT NEW 1 1/2" WATER PIPING FROM PUMP TO DISTRIBUTOR PIPE.
- INSTALL NEW COOLING PADS. PADS SHALL HAVE THE FOLLOWING CHARACTERISTICS:
  - MADE OF 90LB VIRGIN KRAFT PAPER
  - IMPREGNATED WITH INSOLUBLE ANTI-ROT SALTS
  - SELF SUPPORTING CROSS-FLUTED DESIGN
  - ONE SIDE DURA PRO EDGE COATING (ORIENTATE TO THE INTAKE SIDE)

#### D3 N.T.S.

### EVAPORATIVE SYSTEM COOLING NOTES

4/28/2025 4:43:27 PM  
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**A2H** ENGINEERS  
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CONSTRUCTION  
DOCUMENTS

REVISIONS  
1 04/28/2025 Add #1

PROJECT NO.	DATE
21513	April 4, 2025
DRAWN	CHECKED
JCS	NDS

PLUMBING FLOOR PLAN

P1.1