Texas Commission on Environmental Quality

Waste Permits Division Correspondence Cover Sheet

Date: 08/15/2023
Facility Name: City of Waco Transfer Station Facility
Permit or Registration No.: _____

Nature of Correspondence:
☐ Initial/New
☒ Response/Revision to TCEQ Tracking No.: 28604235 (from subject line of TCEQ letter regarding initial submission)

Affix this cover sheet to the front of your submission to the Waste Permits Division. Check appropriate box for type of correspondence. Contact WPD at (512) 239-2335 if you have questions regarding this form.

Table 1 - Municipal Solid Waste Correspondence

Applications	Reports and Notifications
☐ New Notice of Intent	☐ Alternative Daily Cover Report
☐ Notice of Intent Revision	☐ Closure Report
☐ New Permit (including Subchapter T)	☐ Compost Report
☐ New Registration (including Subchapter T)	☐ Groundwater Alternate Source Demonstration
☐ Major Amendment	☐ Groundwater Corrective Action
☐ Minor Amendment	☐ Groundwater Monitoring Report
☐ Limited Scope Major Amendment	☐ Groundwater Background Evaluation
☐ Notice Modification	☐ Landfill Gas Corrective Action
☐ Non-Notice Modification	☐ Landfill Gas Monitoring
☐ Transfer/Name Change Modification	☐ Liner Evaluation Report
☐ Temporary Authorization	☐ Soil Boring Plan
☐ Voluntary Revocation	☐ Special Waste Request
☐ Subchapter T Disturbance Non-Enclosed Structure	☐ Other:
☒ Other: S**ubchapter T Development Permit Application**	

Table 2 - Industrial & Hazardous Waste Correspondence

Applications	Reports and Responses
☐ New	☐ Annual/Biennial Site Activity Report
☐ Renewal	☐ CPT Plan/Result
☐ Post-Closure Order	☐ Closure Certification/Report
☐ Major Amendment	☐ Construction Certification/Report
☐ Minor Amendment	☐ CPT Plan/Result
☐ CCR Registration	☐ Extension Request
☐ CCR Registration Major Amendment	☐ Groundwater Monitoring Report
☐ CCR Registration Minor Amendment	☐ Interim Status Change
☐ Class 3 Modification	☐ Interim Status Closure Plan
☐ Class 2 Modification	☐ Soil Core Monitoring Report
☐ Class 1 ED Modification	☐ Treatability Study
☐ Class 1 Modification	☐ Trial Burn Plan/Result
☐ Endorsement	☐ Unsaturated Zone Monitoring Report
☐ Temporary Authorization	☐ Waste Minimization Report
☐ Voluntary Revocation	☐ Other:
☐ 335.6 Notification	
☐ Other:	

August 15, 2023
SCS Project No. 16222063.00

Mr. Asmerom T. Russom
Municipal Solid Waste Permits Section MC-124
Texas Commission on Environmental Quality
12015 Park 35 Circle, Building F, Suite 1201
Austin, Texas 78753

Sent via FedEx

Subject: Subchapter T Development Permit Application for Enclosed Structure
New Building for MSW Transfer Station at City of Waco Landfill, MSW Permit No. 1039
Proposed Development Permit Application No. - TBA
Response to Notice-of-Deficiency (NOD) Email, Dated July 25, 2023
McLennan County, Texas.
Tracking No. 28604235; RN TBA/CN600131940

Dear Mr. Russom:

In response to your July 25, 2023 comments provided by email, we have provided responses to your numbered comments in bold italics below along with revised text and drawings. We have included one (1) original and two (2) unmarked copies (**see Attachment 1**), and one (1) marked copy (**see Attachment 2**) of the revisions. A separate copy of the revisions has been sent to the region office.

1. Section 3.5, Gas Production Potential, indicates landfill production is expected to continue at low to moderate levels in the near future. Provide additional information and explain if a landfill methane gas survey has been conducted at the site to validate the amount of methane present.

   Response:

   A methane gas investigation of the closed landfill site was performed during the geotechnical investigation in October 2022. As such, the Section 3.5 has been revised to include the additional information requested and the results of the methane gas investigation have been included in Appendix A.

2. Section 12.1, Groundwater and Surface Water Statement indicates solid waste and groundwater hydraulic communication. Expand further on whether groundwater contamination exists.

   Response:

   Additional text has been added to Section 12.1 to address this comment, including differentiating between liquid within the landfill and groundwater.

3. Section 12.1, Groundwater and Surface Water Statement, explain the statement that groundwater levels within the landfill may be different from groundwater levels outside the landfill. Provide any additional information, including but not limited to groundwater contours. Provide groundwater resources at the property as required by 30 TAC 330.957(l).

Response:

Additional information has been added to Section 12.1 addressing groundwater levels and groundwater resources. This section has also been revised to indicate that a groundwater monitoring system is not proposed at the site.

4. Section 18.8, Groundwater Monitoring, address groundwater monitoring requirements 30 TAC 330.961(f).

   Response:

   See response to Comment 3. Section 18.8 has been revised to reference Section 12.1, related to why a groundwater monitoring system is not proposed at the site.

5. Section 13, Foundation Plans, Note 1, indicates permeable layer specification as coarse sand or fine gravel. Revise the material to be open-graded consistent with 30 TAC 330.957(m)(1)(A).

   Response:

   The note 1 on drawing 13.1 has been revised to include the requested change.

6. Section 13, Foundation Plans, Scale House Foundation should comply with 30 TAC 330.957(m)(1) foundation design requirements for enclosed structures.

   Response:

   The foundation proposed for the scale house building consists of a reinforced concrete slab with the building elevated above the slab on masonry or concrete block supports. This type of foundation will include a ventilation layer between the floor beams and the slab and as such, will not be subject to the requirements of 330.957(m)(1). Additional information including a cross section has been added to new Drawing 13.2 to clarify these details.

7. Section 13, Foundation Plans, include specifications for the non-woven geotextile on the drawing or as an attachment.

   Response:

   The requested specifications have been added to a new Appendix G in the report, and Section 13 has been revised to include a reference to this appendix.

8. Provide specifications for the 40-mil LLDPE/HDPE Geomembrane.

   Response:

   The requested specifications have been added to a new Appendix G in the report, and Section 13 has been revised to include a reference to this appendix.

9. Provide a cross-section along the edge of the foundation. Cross section B-B' does not seem to be representative of the intended drawing section. Indicate the thickness of the fill material above the 40-mil LLDPE/HDPE Geomembrane.

   Response:

   A new cross section has been added to Drawing 13.1 along the edge of the foundation, as requested. The existing cross sections A-A' and B-B' on Drawing 13.1 are representative of the transfer station building foundation, but has been revised to clarify the thickness of soil fill above the 40-mil LLDPE/HDPE geomembrane per your request.

10. Section 13, Drawing 13.1, provide backfill material specifications. No excavated waste intermixed with soil shall be used as soil backfill.

    Response:

    Section 3.6 and Drawing 13.1 have been revised to include backfill material specifications, as requested.

11. Section 9, Drawing 9.1, the site drawing contains a detention area. Discuss the detention area and the yellow label indicated as proposed erosion protection. Provide cross-sections of structures on the site, including for the proposed citizens' convenience station.

    Response:

    Section 12.2 has been revised to include discussion of the drainage swales, detention area, and erosion protection and cross sections through the scale(s), citizen's collection station, and detention area and discharge weir have been added on new Drawing No. C6.

12. Provide a cross-section of the foundation excavation and include the expected volume of waste to be hauled off from the landfill. Indicate the permitted landfill where the excavated waste will be disposed of.

    Response:

    Cross sections of the foundations were included on Drawing 13.1 and construction plans included in Appendix B (i.e., Drawing C3); new Drawings 13.2 and Appendix B, Drawing C6 have been added in response to this NOD. The slab foundations will be constructed above the final cover within engineered fill (soil backfill) material, as shown on Drawings 13.1, 13.2, and Drawing C3 (Appendix B).

    An estimated amount of solid waste removal has been included in Section 14. In general, the excavated waste material will come from the drilled piers and utility trench excavations, not the construction of the slab foundations. Additional text has been added to Section 14 to address the anticipated landfill that will receive the waste material.

13. Provide site plan drawings that depict utility trenches. Identify the areas for utility trench section (waste encountered), and utility trench sections (no waste encountered) with reference to drawings C2 and C5.

    Response:

    The location of proposed utilities lines are depicted on plan view Drawing C1. Additional information has been added to the drawing that indicates where waste is expected to be encountered. However, there is no feasible way to be sure exactly where that will occur, therefore notes were added to drawing reference the appropriate trench liner details.

14. Appendix A, Site Investigation, Geotechnical Investigation, Drawing 2A indicates a drawing for the Administrative and Maintenance Building. Explain the discrepancy with the site plan drawing (Drawing 9.1).

    Response:

    At the time the geotechnical investigation was performed the site plan included a maintenance building and separate offices. The current plan does not propose a maintenance building, and administrative offices were combined into the scale house

building. No conclusions or recommendations in the geotechnical report were affected by this change.

15. Indicate the location of the holding tank in Drawing C2.

    Response:

    The location of the holding tank has been added to Drawing C2, as requested.

16. Include missing email addresses for the contact information listed under Section 18, Other Governmental Entities Information, of the form TCEQ-20785.

    Response:

    The requested information has been added to the form.

A copy of the NOD response with the revised documents has been sent to the Waco office of the TCEQ Region 9. Should you have any comments or questions after reviewing this request, please call Jeff Arrington at (817) 358-6111.

Sincerely,

Jeff Arrington, P.E.
Project Manager
SCS Engineers
TBPE Registration No. F-3407

Sandeep Saraf, P.E.
Senior Project Manager
SCS Engineers

Attachments: As noted above

cc: TCEQ Region 9, Waco.
Mr. Kody Petillo, City of Waco (e-copy)

Texas Commission on Environmental Quality

Application for Development Permit for Proposed Enclosed Structure Over Closed Municipal Solid Waste Landfill

Application Tracking Information

Applicant Name: City of Waco

Facility Name: City of Waco Transfer Station Facility

Development Permit Number: TBA

Initial Submission Date: 05/03/2023

Revision Date: 08/15/2023

Use this form to apply for a development permit for proposed enclosed structure over a closed municipal solid waste (MSW) landfill. Rules about use of land over a closed MSW landfill are in Title 30, Texas Administrative Code[1], Chapter 330, Subchapter T. Instructions for completing this form are provided in form TCEQ 20785-instr[2]. Include a Core Data Form, available at www.tceq.texas.gov/goto/coredata with the application. If you have questions, contact the Municipal Solid Waste Permits Section by email to mswper@tceq.texas.gov, or by phone at 512-239-2335.

If you have an existing enclosed structure, use form TCEQ-20786[3], Registration for Existing Enclosed Structure Over Closed Municipal Solid Waste Landfill. If you are proposing a non-enclosed structure, use form TCEQ-20787[4], Authorization to Disturb Final Cover Over Closed Municipal Solid Waste Landfill for Non-Enclosed Structure.

Application Data

1. Application Type

☒ New Development Permit ☐ Revisions of Existing Permit

☐ Transfer of an Existing Permit

If existing Permit, indicate the Permit Number: _____

2. Submission Type

☒ Initial Submission ☐ Notice of Deficiency (NOD) Response

[1] www.tceq.texas.gov/goto/view-30tac
[2] www.tceq.texas.gov/downloads/permitting/waste-permits/msw/forms/20785-instr.pdf
[3] www.tceq.texas.gov/downloads/permitting/waste-permits/msw/forms/20786.pdf
[4] www.tceq.texas.gov/downloads/permitting/waste-permits/msw/forms/20787.pdf

3. Application Fee

The application fee for a development permit is $2,500.

☒ Paid by Check

☐ Paid Online

If paid online, ePay Confirmation Number: _____

4. Enrollment in Other TCEQ Programs

Indicate if the site is enrolled in the Voluntary Cleanup Program or other Remediation Program.

☐ Yes ☒ No

If Yes, indicate the program: _____

5. Development Type

Is the development a single-family or double-family home that is not part of a housing subdivision?

☐ Yes ☒ No

If "Yes", the construction is exempt from the development permit requirement.

6. Enclosed Structure Description

Provide a brief description of the proposed enclosed structure for which the development permit is requested.

The proposed facilities will include a new MSW transfer station, scale house building and scales, a citizens' collection station, and a new paved access drive with parking for trucks and vehicles.

7. Soil Tests

Size of the property (acres): 43.482

Was the existence of the landfill determined through:

☐ Test I

☐ Test II

☐ Test III

☒ Other. Please describe: Permitted Landfill (MSW Permit No. 1039)

If soil tests were performed prior to development in accordance with 30 TAC §330.953, the test results shall be included in this application.

8. Notification of MSW Landfill Determination

If soil tests were used to determine the presence of a closed MSW landfill, provide evidence that the engineer who performed the soil tests has notified the following persons of that determination in accordance with 30 TAC §330.953(d).

☐ Each owner and lessee

☐ Executive Director

☐ Local Government Officials

☐ Regional Council of Governments

9. Landfill Permit Status

What is the permit status of the landfill?

☐ Active MSW Permit ■ Landfill in Post-Closure Care

☐ Revoked MSW Permit ☐ Non-Permitted Landfill

If the landfill is still in the post-closure care period subject to an active MSW Permit, this development permit application for proposed enclosed structures shall be accompanied by a Permit Modification application prepared in accordance with 30 TAC §305.70, and by a certification signed by an independent engineer in accordance with 30 TAC §330.957(b)(2).

If the landfill has completed the post-closure care period, but the MSW permit has not been revoked (site affected by an active MSW Permit), a Voluntary Revocation request of the MSW Permit shall be submitted in accordance with 30 TAC §330.465 prior to the submittal of this development permit application for proposed enclosed structures over a closed MSW landfill.

10. Application URL

Enter the URL address of a publicly accessible internet web site where the application and all revisions to that application will be posted in the box below:

https://www.waco-texas.com/Transfer-Station-Permitting

11. Public Place for Copy of Application

Name of the Public Place: Waco - McLennan County Library

Physical Address: 1717 Austin Ave

City: Waco County: McLennan State: TX Zip Code: 76701

Phone Number: (254) 750-5941

Normal Operating Hours: 10:00AM to 9:00PM (Monday to Wednesday), 10: 00AM to 6PM (Thursday to Saturday) & 1:00PM to 5:00PM (Sunday)

12. Party Responsible for Publishing Notice

Indicate who will be responsible for publishing notice:

☐ Applicant ■ Consultant

Contact Name: Jeff Arrington, P.E.

Title: Project Manager

Email Address: JArrington@scsengineers.com

13. Alternative Language Notice

Use the Alternative Language Checklist on Public Notice Verification Form TCEQ-20244-Waste-NAORPM available at www.tceq.texas.gov/permitting/waste_permits/msw_permits/msw_notice.html to determine if an alternative language notice is required.

Is an alternative language notice required for this application?

☐ Yes ■ No

Indicate the alternative language: _____

14. Confidential Documents

Does the application contain confidential documents?

☐ Yes ■ No

If "Yes", cross-reference the confidential documents throughout the application and submit as a separate attachment in a binder clearly marked "CONFIDENTIAL."

15. Permits and Construction Approvals

Mark the following tables to indicate status of other permits or approvals.

Permits and Construction Approvals

Permit or Approval	Received	Pending	Not Applicable
Zoning Approval			X
Preliminary Subdivision Plan			X
Final Plat			X
Fire Inspector's Approval			X
Building Inspector's Approval on Plans			X
Water Service Tap			X
Wastewater Service Tap			x
On-site Wastewater Disposal System Approval			x

Other Environmental Permits

Other Environmental Permits (list)	Received	Pending

16. General Project Information

Facility Name: City of Waco Transfer Station Facility

SubT Development Permit Number (if available): _____

Regulated Entity Reference Number (if issued): **RN**_____

Street or Physical Address: S University Parks Drive

City: Waco County: McLennan State: TX Zip Code: 76712

Phone Number: 254-299-2623

If Regulated Entity Reference Number has not been issued for the facility, complete a Core Data Form (TCEQ-10400) and submit it with this application.

17. Contact Information

Applicant (Lessee/Project Owner)

Name: Kody Petillo

Customer Reference Number (if issued): **CN** 600131940

Mailing Address: P.O. Box 2570

City: Waco County: McLennan State: TX Zip Code: 76702

Phone Number: 254-750-6627

Email Address: KodyP@wacotx.gov

If Customer Reference Number has not been issued, complete a Core Data Form (TCEQ-10400) and submit it with this application. List the Applicant as the Customer.

Property Owner

Name: Same as Site Operator

Mailing Address: _____

City: _____ County: _____ State: _____ Zip Code: _____

Phone Number: _____

Email Address: _____

If the Property Owner is the same as Applicant, indicate "Same as "Applicant".

Consultant (if applicable)

Firm Name: SCS Engineers

Texas Board of Professional Engineers and Land Surveyors Firm Number: F-3407

Mailing Address: 1901 Central Dr. Suite 550

City: Bedford County: Tarrant State: TX Zip Code: 76021

Consultant Name: SCS Engineers

Phone Number: 817-358-6111

Email Address: JArrington@scsengineers.com

Engineer Who Performed Soil Tests

Firm Name: Langerman Engineering

Texas Board of Professional Engineers and Land Surveyors Firm Number: F-13144

Mailing Address: 2000 South 15th Street

City: Waco County: McLennan State: TX Zip Code: 76706

Engineer Name: Scott M. Langerman, P.E.

Phone Number: 254-235-1048

Email Address: slangerman@lfectx.com

18. Other Governmental Entities Information:

Fire Chief, Fire Marshal or Fire Inspector Information

Fire Department Name: Waco Fire Department

Person's Name: Mr. Gregory Summer

Mailing Address: 1016 Columbus Ave

City: Waco County: McLennan State: TX Zip Code: 76702

Phone Number: 254-750-1740

Email Address: gsummer@wactox.gov

Local Floodplain Authority (if applicable)

Authority Name: Floodplain Administrator

Contact Person's Name: Mr. Zane Dunnam

Street or P.O. Box: 215 N. 5th At. Suite 130

City: Waco County: McLennan State: TX Zip Code: 76701

Phone Number: 254-757-5028

Email Address: Engineer@co.mclennan.tx.us

City Mayor Information

City Mayor's Name: Mr. Dillion Meek

Office Address: 300 Austin Ave.

City: Waco County: McLennan State: TX Zip Code: 76702

Phone Number: 254-750-5600

Email Address: Dillion.Meek@wacotx.gov

City Health Authority Information

Contact Person's Name: Ms. LasShonda M. Marley-Horen

Office Address: 225 W. Waco Drive

City: McLennan County: McLennan State: TX Zip Code: 760701

Phone Number: 254-750-5492

Email Address: lasdondam@wacotx.gov

Director of Public Works

Department Name: City of Waco-Director of Public Works

Contact Person's Name: Ms. Amy Burlarley-Hyland, P.E.

Office Address: 401 Franklin Ave

City: Waco County: McLennan State: TX Zip Code: 760701

Phone Number: 254-750-5440

Email Address: amyb@wacotox.gov

Director of Utilities

Utility Name: City of Waco-Director of Utilities

Contact Person's Name: Ms. Lisa Tyer

Office Address: 200 Concord Avenue

City: Waco County: McLennan State: TX Zip Code: 76701

Phone Number: 254-299-2489

Email Address: lisat@wacotx.gov

Director of Planning

Agency Name: City of Waco-Director of Planning

Contact Person's Name: Mr. Clint Peters

Office Address: 401 Franklin Ave

City: Waco County: McLennan State: TX Zip Code: 76701

Phone Number: 254-750-5624

Email Address: clintp@wacotx.gov

Building Inspector

Agency Name: City of Waco Inspection Services Department

Contact Person's Name: Mr. Chris Valtierra

Office Address: 401 Franklin Ave

City: Waco County: McLennan State: TX Zip Code: 76071

Phone Number: 254-750-5612

Email Address: chrisv@wacotx.gov

County Judge Information

County Judge's Name: Mr. Scott Felton

Office Address: 501 Washington Avenue, Room 214

City: Waco County: McLennan State: TX Zip Code: 76701

Phone Number: 254-757-5049

Email Address: smfelton@co.mclennan.tx.us

County Engineer Information

County Engineer's Name: Mr. Zane Dunnam

County Engineer's P.E. Registration No.: _____

Office Address: 215 N. 5th St. Suite 130

City: Waco County: McLennan State: TX Zip Code: 76701

Phone Number: 254-757-5028

Email Address: zane.dunnam@co.mclennan.tx.us

County Health Authority

Agency Name: Waco-McLennan County Public Health District

Contact Person's Name: Ms. LaShonda M. Marley-Horne

Office Address: 225 W. Waco Drive

City: Waco County: McLennan State: TX Zip Code: 76701

Phone Number: 254-750-5492

Email Address: lashondam@wactox.gov

State Representative Information

District Number: 56

State Representative's Name: Charles Anderson

District Office Address: 900 Austin Avenue, Suite 804

City: Waco County: McLennan State: TX Zip Code: 76701

Phone Number: 512-463-0135

Email Address: Charles.anderson@house.texas.gov

State Senator Information

District Number: 22

State Senator's Name: The Honorable Brian Birdwell

District Office Address: 900 Austin Avenue, Suite 500

City: Waco County: McLennan State: TX Zip Code: 76701

Phone Number: 254-772-6225

Email Address: brian.birdwell@senate.texas.gov

Council of Government (COG)

COG Name: Heart of Texas Council of Governments

COG Representative's Name: Mr. Russell Devorsky

COG Representative's Title: Executive Director

Street Address or P.O. Box: 1514 S. New Road

City: Waco County: McLennan State: TX Zip Code: 76711

Phone Number: 254-292-1800

Email Address: russell.devorsky@hot.cog.tx.us

Local Government Jurisdiction

Is the property located within the limits or in the ETJ of any City?

■ Yes ☐ No

If "Yes" city regulations may apply. Issuance of Development Permit for an Enclosed Structure does not exempt the applicant from complying with city codes and zoning.

Within City Limits of: _____

Within Extraterritorial Jurisdiction of City of: Waco

19. Deed Recordation

■ Verify that the property owner filed a written notice for record in the real property records in the county where the land is located in accordance with 30 TAC §330.962 stating: (a) the former use of the land; (b) the legal description of the tract of land that contains the closed MSW landfill; (c) notice that restrictions on the development or lease of the land exist in the Texas Health and Safety Code and in MSW rules; and (d) the name of the owner.

■ A certified copy of the Notice to Real Property Records is included in this application in accordance with 30 TAC §330.957(p).

20. Notice to Buyers, Lessees, and Occupants of the Structure

Did the property owner give written notice to all prospective buyers, lessees and/or occupants of the structure in accordance with 30 TAC §330.963 stating the land's former use as a landfill, and the structural controls in place to minimize potential future danger posed by the closed MSW landfill?

☐ Yes ■ New Structure Not Yet Constructed

If "Yes" certified copies of the notices shall be submitted to TCEQ in accordance with 30 TAC §330.957(p).

If "New Structure Not Yet Constructed" a draft notice to all prospective buyers, lessees and/or occupants of the proposed structure, and procedures for its implementation upon structure's construction shall be included in this application.

21. Notice of Lease Restrictions on the Property

Is the property leased?

☐ Yes ■ No

If "Yes", verify that the property owner provided written notice to all prospective lessees of the property in accordance with 30 TAC §330.964 concerning:

☐ (a) what is required to bring the property into compliance with 30 TAC Chapter 330, Subchapter T?

☐ (b) the prohibitions or requirements for future disturbance of the final cover?

☐ A certified copy of the notice is included in the application in accordance with 30 TAC §330.957(p).

Professional Engineer's Certification of No Potential Threat to Public Health or the Environment

The applicant's engineer for this project shall complete one of the following certifications:

"I, _____, Texas PE Number _____, certify that the proposed development is necessary to reduce a potential threat to public health or the environment. Further, I certify that the proposed development will not damage the integrity or function of any component of the Closed Municipal Solid Waste Landfill Unit, including, but not limited to, the final cover, containment systems, monitoring system, or liners. This certification includes all documentation of all studies and data on which I relied in making these determinations."

Engineer's seal, with signature and date:

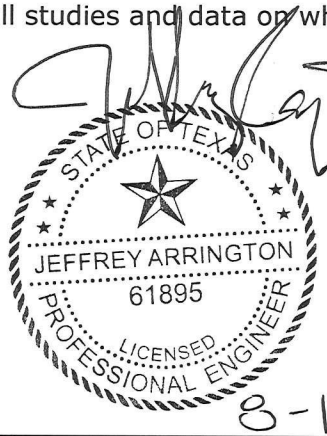
Engineering Firm Name: _____

Texas Board of Professional Engineers and Land Surveyors Firm Number: _____

Or:

" I, Jeff Arrington, Texas PE Number 61895, certify that the proposed development will not increase or create a potential threat to public health or the environment. Further, I certify that the proposed development will not damage the integrity or function of any component of the Closed Municipal Solid Waste Landfill Unit, including, but not limited to, the final cover, containment systems, monitoring system, or liners. This certification includes all documentation of all studies and data on which I relied in making these determinations."

Engineer's seal, with signature and date:



8-15-2023

Engineering Firm Name: SCS Engineers

Texas Board of Professional Engineers and Land Surveyors Firm Number: F-3407

Signature Page

Applicant Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SKA Name: Bradley Ford Title: City Manager

Signature: _____ Date: 8/18/23

Email Address: bradleyf@wacotx.gov

SUBSCRIBED AND SWORN to before me by the said Bradley Ford, City Manager

On this 18 day of August, 2023

My commission expires on the 6th day of April, 2027

Notary's Name: Jolea James

Notary Public in and for

McLennan County, Texas

JOLEA JAMES
My Notary ID # 125824526
Expires April 6, 2027

Property Owner Authorization

To be completed by the property owner if the property owner is not the applicant.

I _____, the owner of the property identified by the address _____, hereby authorize the applicant to proceed with the project described in this application, and to apply for any necessary authorizations in order to conduct this project. I understand that, as property owner, I am responsible for maintaining the integrity of the final cover over the closed MSW landfill.

Property Owner Name: _____

Signature: _____ Date: _____

Email Address: _____

SUBSCRIBED AND SWORN to before me by the said _____

On this _____ day of _____, _____

My commission expires on the _____ day of _____, _____

Notary's Name: _____

Notary Public in and for

_____ County, Texas

Attachments for New Development Permit

Required Attachments

A. Narrative

Attachment	Attachment Number
Proposed Project Description	Section 1
Existing Conditions Summary	Section 3
Legal Authority	Section 4
Evidence of Competency	Section 5
Notice of Engineer Appointment	Section 6
Notices of Coordination with Governmental Agencies and Officials	Section 7
Geology and Soil Statement	Appendix A
Groundwater and Surface Water Statement	Section 12
Foundation Plans	Appendix B
Soil Tests	Appendix A
Closure Plan	Section 17
Structures Gas Monitoring Plan	Section 20
Site Operating Plan	Section 19
Safety and Evacuation Plan	Section 21

B. Maps and Plans

Attachment	Attachment Number
Adjacent Landowners Map	After cover letter
Adjacent Landowners List	After cover letter
Electronic List or Mailing Labels	After cover letter
General Location Map	Section 10
General Topographic Map	Section 10
Site Layout Plan with Limits of Waste Disposal Area	Section 9
Foundation Plans	Section 13
Structure Layout Plan	Section 20
Methane Monitoring Equipment Location Plans	Section 20
Construction Details and Engineering Drawings	Section 20

C. Copies of Legal Documents

Attachment	Attachment Number
Property Legal Description	Section 8
Notice of Landfill Determination	N/A
Notice to Real Property Records	Section 16
Notices to Buyers, Lessees, and Occupants	Section 16
Notices of Lease Restrictions (if applies)	N/A

Additional Attachments as Applicable

Attachment	Attachment Number
☐ TCEQ Core Data Form(s)	N/A
☐ Confidential Documents	N/A
☐ Soil Tests Boring Logs	Appendix A
☐ Other maps, plans and engineering drawings	Appendix B
☐ Methane Monitoring Equipment Specifications	Appendix C
☐ Methane Monitoring Report	Section 20
☐ Waste Disposal Manifests	N/A
☐ Fee Payment Receipt	After cover letter
☐ Final Plat Record of Property	N/A

Attachments for Revisions to Existing Development Permit

Required Attachments

A. Revised Pages

Attachment	Attachment Number
Marked (Redline/Strikeout) Pages	
Unmarked Revised Pages	

B. Narrative

Attachment	Attachment Number
Description of Proposed Revisions	
Foundation Plans (if revised)	
Closure Plan (if revised)	
Site Operating Plan (if revised)	
Structures Gas Monitoring Plan (if revised)	
Safety and Evacuation Plan (if revised)	

C. Maps and Plans

Attachment	Attachment Number
General Location Map	
Site Layout Plan	
Structure Layout Plan	
Methane Monitoring Equipment Location Plans	

Additional Attachments as Applicable

Attachment	Attachment Number

ATTACHMENT 1

UNMARKED VERSION

Subchapter T Development Permit Application (30 TAC §330.957)

City of Waco Transfer Station Facility

501 Schroeder Dr
Waco, Texas 76710

Date: 08/15/2023

SCS ENGINEERS

16222063.00 | May 2023
Revision 1 – June 2023
Revision 2 – August 2023

1901 Central Dr., Suite 550
Bedford, TX 76021
817-571-2288

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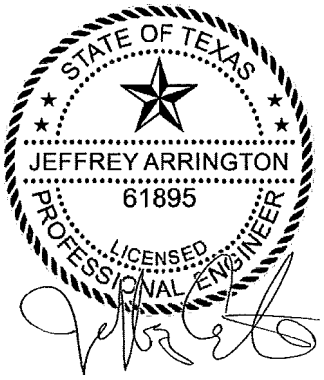
Section Page

Appendices



Date: 08/15/2023

1 INTRODUCTION AND BACKGROUND

The City of Waco is planning to develop a new municipal solid waste (MSW) transfer station over a closed landfill site (MSW Permit No. 1039) located on S. University Parks Dr. in Waco, Texas. The transfer station will be designed to process up to 1,800 tons/day of waste. The proposed facilities include a new MSW transfer station, scale house building and scales, a citizens' collection station (CCS), and a new paved access drive with parking for trucks and vehicles. The proposed transfer station building will be constructed in the northeast corner of the site, approximately 130 feet from the east property line. The City of Waco will initially develop a 180' x 120' size transfer station building (26,100 sf) with the option of expanding it to 180' x 200'(36,000 sf) in future as needed. A new paved access road will be constructed to connect the facility to South University Parks Dr. located along the western boundary of the landfill. Additional paved areas will be constructed around the transfer station to provide for access to the building for collection and transfer trucks. The scale house building will be approximately 1,600 sf. It will be constructed as a non-enclosed structure that will have ventilation below the scale house floor. A new CCS, approximately 150' x 300' (4,500 sf) in size, will be constructed adjacent to the transfer station consisting of additional pavement and retaining walls to enable unloading into open top containers. The proposed improvements will be constructed over the final cover of the landfill and will include two enclosed structures (transfer station and scale house buildings) as defined by Subchapter T rules and, as such, requires the submittal of a development permit application (application).

This application is submitted consistent with the provisions of 30 TAC §330.957 related to construction of an enclosed structure over a closed MSW landfill unit and includes the required technical information outlined under 30 TAC §330.957(a) through (u), including:

- Foundation Plan for Gas Collection and Methane Barrier in Section 13;
- Methane Monitoring Plan in Section 20;
- Operations Plan in Sections 19-21;
- Permit-Level Drawings in Appendix B.

The individual section headings also indicate the regulatory citations within 30 TAC §330.957 that are addressed within the contents of each section. Appendix A contains the geotechnical investigation to determine the nature and thickness of the landfill cover, the investigation for the presence of methane, and recommendations for foundation and pavement construction over the closed landfill. Appendix B also contains permit-level drawings for the proposed improvements, including civil, architectural, and structural drawings. Appendix C contains methane monitoring equipment specifications, and landfill safety requirements are contained in Appendix D. Notice of coordination letters for all local, state, and federal government official and agencies are included Appendix E, and a copy of the certified City Charter is included in Appendix F.

2 ENGINEER'S CERTIFICATION (30 TAC §330.957(b))

Certification of no Potential Threat to Public Health or the Environment:

I, Jeff Arrington, P.E. #61895 certify that the proposed development will not increase or create a potential threat to public health or the environment. Further, I certify that the proposed development will not damage the integrity or function of any component of the Closed Municipal Solid Waste Landfill Unit, including, but not limited to, the final cover, containment systems, monitoring system, or liners. This certification includes all documentation of all studies and data on which I relied in making these determinations.

Signature/Seal

08-15-2023

Date

3.5 Gas Production Potential (30 TAC §330.957(c)(3))

Based on the age of the waste and readings of methane taken in the soil borings during the geotechnical field investigation, landfill gas production is expected to continue at low to moderate levels for near future. A summary of methane concentrations recorded in the soil borings is included in Appendix A following the Geotechnical Report. Nine of the 51 locations had measurable levels of methane. The methane concentrations ranged from 1-100% LEL. As such, methane mitigation measures will be an important component of the proposed structures and site improvements. Proposed improvements will add some impervious layers including concrete pavement and building foundations which are not expected to have an effect on methane gas production at this site.

3.6 Potential Environmental Impacts (30 TAC §330.957(c)(4))

The construction activities that will impact the final cover of the closed landfill consist of the construction of a new single story solid waste transfer station building with roll-up doors. A scale house building will also be constructed between the inbound and outbound scales near the site entrance. The new buildings will be constructed on a reinforced concrete slab foundation that will include installation of drilled piers to a stable bedding layer and a structural concrete slab for the floor. The subgrade will be prepared as outlined in the geotechnical report, provided in Appendix A, and the methane gas ventilation and impermeable barrier will be installed as outlined in Sections 13 and 20.

Grading will generally be limited to the building footprint and pavement areas only as required to achieve the proposed finished floor elevations. Final cover will be restored to its original condition in areas that are disturbed during construction. The soil subgrade elevations for building slabs and paved areas will be constructed with engineered fill (also referred to as soil backfill) placed above the final cover. Engineered fill or soil backfill will be (1) free from chemical contamination, construction material, organics, debris, frozen material, organic matter, or unsuitable material; and (2) shall have a plasticity index (PI) between 5 to 50 percent, at least 10 percent passing the No. 200 sieve, at least 90 percent passing the No. 4 sieve, and no rock greater than 1-inch in size. Engineered fill will be placed in uniform lifts which do not exceed 8 inches in loose thickness and compacted to at least 95 percent of standard Proctor (ASTM D698) density at a moisture content ranging from -2% to +4% of optimum (as determined by ASTM D698). Standard Proctors will be obtained at a minimum of at least once per borrow source, and at least one per visual change in soil type or classification. Excavated waste mixed with soil shall be not be used as soil backfill

The proposed building construction will add impervious surfaces over the closed landfill. The fill areas adjacent to the buildings will be graded to maintain the established grass cover and positive drainage that currently exists at the site. A minimum of 2 foot of clean clay soil cover will be re-established in all areas that will be impacted by grade changes and foundation construction. Clay shall be defined as low plasticity clay (CL) or high plasticity clay (CH) material.

Proposed utility improvements include the installation of water and sewer lines to serve the buildings. Any utilities that are installed below the landfill cover will maintain a minimum of 2 feet of clay soil separation from the waste to the methane protection system underneath. Utility trenches for all water and sanitary sewer lines will be installed with trench liners comprised of 40 mil LLDPE/HDPE geomembrane. Water and sanitary sewer connections to the plumbing for the buildings will also be part of this construction. The proposed construction will not adversely impact the landfill cover since any soil removed or disturbed will be replaced with soil that has similar characteristics.

The construction of the proposed improvements will not endanger the health, safety, or welfare of the public.

12 GROUNDWATER AND SURFACE WATER STATEMENT (30 TAC §330.957(l))

12.1 Groundwater Statement

Based on soil borings performed during the Geotechnical Investigation in 2023 (See Appendix A), liquid was encountered at depths ranging between 6 feet and 23 feet below ground surface.

Groundwater levels outside the landfill are expected to rise and fall on a seasonal basis, and are influenced by rainfall and the level of the Brazos River. Liquid levels within landfills are typically different from groundwater levels outside the respective landfill and do not have any direct correlation with each other. No groundwater wells were installed at this landfill due to its age and closure prior to groundwater monitoring requirements. As such, there is no data available for this site on existing groundwater elevations surrounding the landfill. The water observations conducted for this investigation are short-term and should not be interpreted as a groundwater study. However, the presence of liquids within the landfill will affect construction and long-term performance of the proposed foundations and pavements. The proposed deep foundation will adequately address the presence of liquids and solid waste within the landfill.

A groundwater monitoring system is not proposed for this site based on the age of the landfill and no history of compliance issues related to groundwater at this site. There is no indication that groundwater contamination is present in the vicinity of the closed landfill. In addition the proposed development will reduce infiltration into the final cover due to additional soil fill material and impervious surfaces.

12.2 Surface Water Statement

Surface water will generally sheet flow away from the buildings and pavement into the existing swales along the highway and along the property lines. The existing drainage patterns will be maintained with the proposed improvements, including drainage swales and detention area. A detention area is proposed adjacent to the citizens collection station to collect and control stormwater associated with the addition of impervious surfaces. The drainage swales and detention area will be lined with erosion control blanket or turf reinforcement mat to prevent erosion and maintain vegetation growth. These features are depicted on the civil drawings contained in Appendix B.

The site is located outside the 100-year flood plain for the Brazos River according to FEMA Flood Insurance Map of McLennan County, Texas Map Number 48309C0575D dated 12/20/2019.

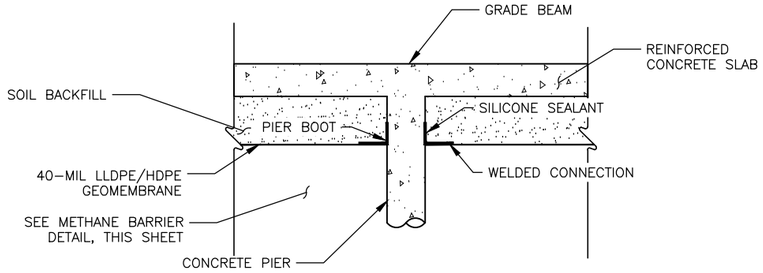
13 FOUNDATIONS PLANS (30 TAC §330.957(m))

The foundation plans for the transfer station building are included in this section. The foundation will consist of a reinforced concrete slab supported by grade beams that will bear directly on concrete pier caps. The entire structure will be supported by drilled shaft piers that extend below the landfill waste layer into the underlying shale formation. Drawing S1.00 to S1.10 in Appendix B provides a foundation plan with sections and details.

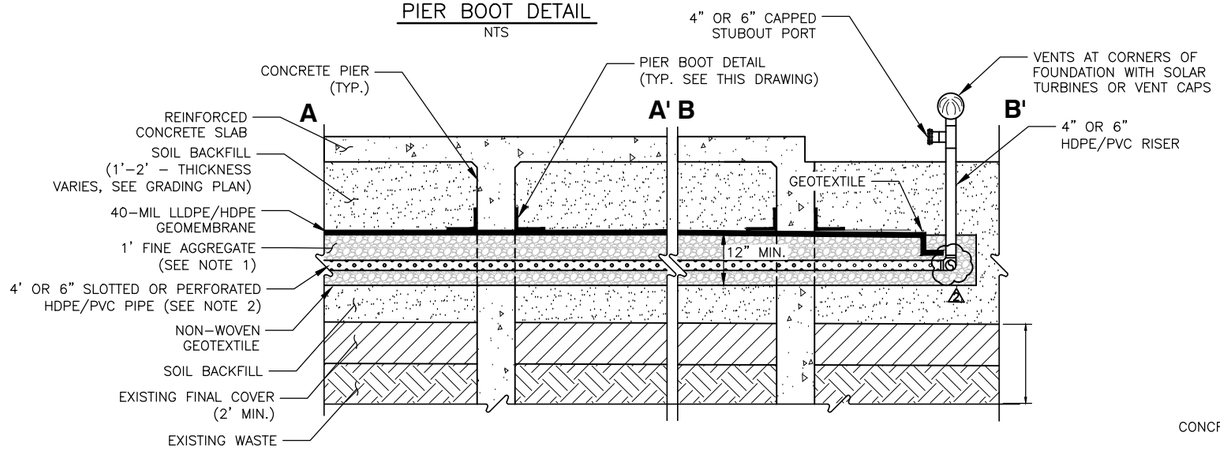
Drawing 13.1 is a layout and typical section of the subsurface methane barrier and gas ventilation system (system) that will be installed beneath the structural slab and beams. To comply with the requirements of 30 TAC 330.957(m)(1)(A) and (B), the system includes a minimum 40-mil LLDPE/HDPE geomembrane liner underlain by a 12-inch thick layer of drainage aggregate and a non-woven geotextile to prevent intrusion of soil into the permeable layer. The geomembrane will be installed around the concrete peers using pipe boots or collars to seal the annular spacing between the drilled shafts and geomembrane. See Appendix G for geosynthetic specifications, including non-woven geotextile and geomembrane. Perforated PVC or HDPE piping will be installed within the aggregate layer to extend beneath the structure and around the building. Riser vents will provide points to allow surface venting of gas collected by the piping to comply with the requirements of 30 TAC §330.957(m)(1)(C),(D) and (E). The riser pipes will be equipped with ports that could be used to connect an induced-draft exhaust system, if needed, in the future.

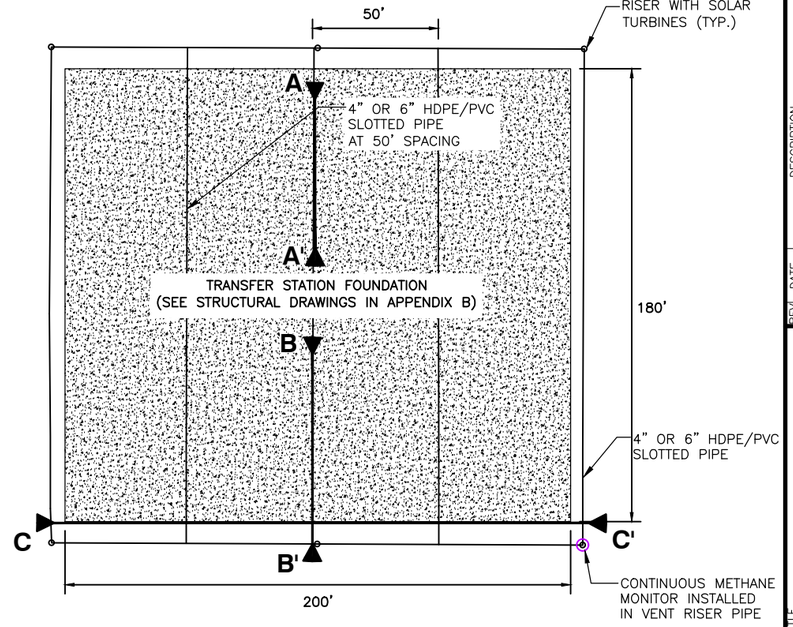
The scale house structure will be constructed with a ventilation layer between the floor beams and slab foundation to maintain status as a non-enclosed structure. A layout and typical section of the scale house foundation is depicted on Drawing 13.2.

Consistent with 30 TAC §330.957(m)(1)(F), both proposed buildings will be equipped with multiple methane sensors that will produce both an audible and visual alarm if concentrations of methane exceed 1% by volume (BV) or 20% of the lower explosive limit (LEL). In the event of this alarm the procedures in Section 20 shall be implemented by designated safety coordinators.



PIER BOOT DETAIL
NTS





PIPING PLAN
NTS

NOTES:

1. FINE AGGREGATE SHALL BE COARSE SAND OR FINE GRAVEL THAT IS AN OPEN GRADED CLEAN MATERIAL.
2. SLOTTED OR PERFORATED PIPING SHALL EXTEND AROUND THE BUILDING PERIMETER AND BENEATH SLAB AS SHOWN ON PIPING PLAN DETAIL.
3. PROVIDE FITTED HDPE BOOTS FOR A1C FOUNDATION PIERS (SEE PIER BOOT DETAIL, THIS SHEET)
4. CONTINUOUS METHANE MONITORS SHALL BE INSTALLED IN THE VENT PIPE RISER. REFERENCE PIPING PLAN (THIS PAGE) FOR VENT RISERS AND METHANE MONITOR LOCATIONS.
5. PROVIDE 4" OR 6" CAPPED PORT FOR FUTURE BLOWER IF NEEDED.
6. PIERS SHALL EXTEND INTO UNDERLYING BEDROCK AS INDICATED ON STRUCTURAL PLANS S1–S5 IN APPENDIX B.
7. EXCAVATED WASTE THAT IS MIXED WITH SOIL SHALL NOT BE USED AS SOIL BACKFILL.

METHANE BARRIER DETAILS
NTS

FOR PERMITTING PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
1	6/16/23	REMOVED REFERENCES TO SITE'S PREVIOUS PERMIT NO. AND UPDATED FACILITY NAME	JA
2	8/11/23	REVISED DETAILS AND UPDATED TITLE	JA

TEXAS BOARD OF PROFESSIONAL ENGINEERS REG. NO. F-3407

DRAWING TITLE
TRANSFER STATION FOUNDATION/METHANE BARRIER AND GAS VENTILATION DETAILS

PROJECT TITLE
CITY OF WACO
TRANSFER STATION FACILITY
DEVELOPMENT PERMIT APPLICATION

CLIENT
CITY OF WACO
6165 - 5733 FM 3400
WACO, TEXAS, 76706

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
1901 CENTRAL DRIVE, SUITE 550, BEDFORD, TX 76021
PH (817) 571-2288 FAX NO. (817) 571-2168

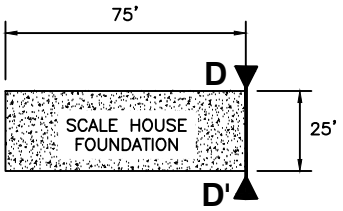
PROJ. NO.	DWN. BY:	CHK. BY:	D/A RVW BY:	APP. BY:
16222063.00	BGC	SDS	REK	JA
DSN. BY: JA				

CADD FILE: 13.1–13.2 – METHANE BARRIER DETAIL

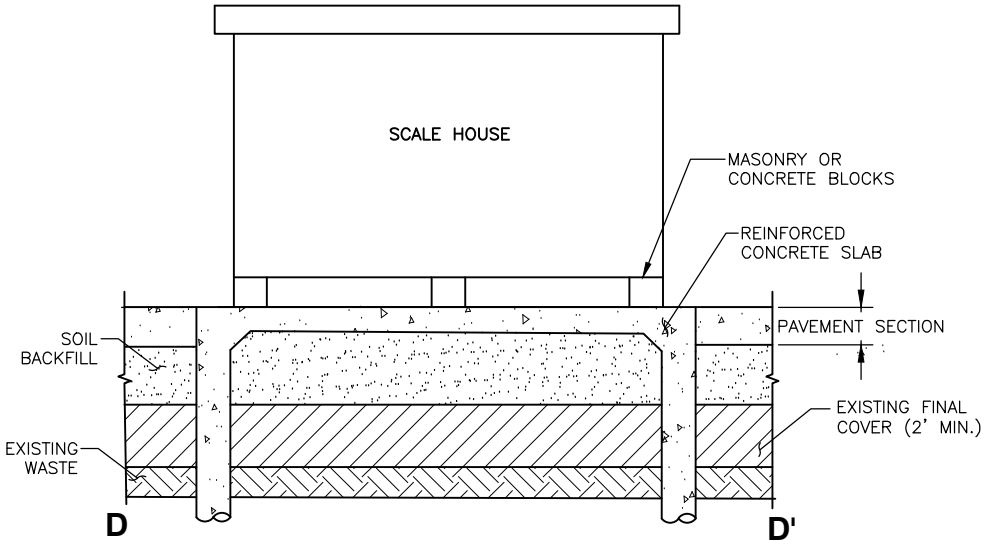
DATE: 06/2023

SCALE: AS SHOWN

DRAWING NO. **13.1**



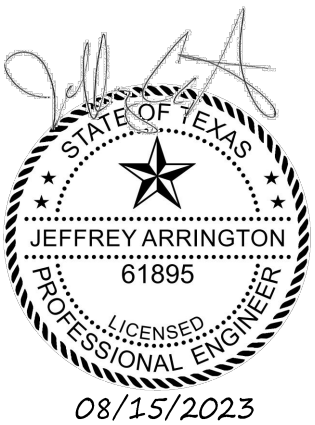
PLAN VIEW
NTS



NOTES:

1. SCALEHOUSE BUILDING WILL BE SUPPORTED BY BLOCKS ABOVE THE SLAB FOUNDATION.
2. A FIXED HEIGHT VENTILATION LAYER OF 6" MINIMUM SHALL BE MAINTAINED BETWEEN BUILDING FLOOR BEAMS AND SLAB.
3. A VENTILATOR FAN WILL BE INSTALLED TO PROVIDE AIR FLOW IN THIS SPACE.
4. PIERS SHALL EXTEND INTO UNDERLYING BEDROCK.
5. EXCAVATED WASTE THAT IS MIXED WITH SOIL SHALL NOT BE USED AS SOIL BACKFILL.

VENTILATION DETAIL
NTS



08/15/2023

FOR PERMITTING PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
1			
2			
3			
4			
5			

TEXAS BOARD OF PROFESSIONAL ENGINEERS REG. NO. F-3407

DRAWING TITLE
SCALE HOUSE FOUNDATION/
VENTILATION DETAILS

PROJECT TITLE
CITY OF WACO
TRANSFER STATION FACILITY
DEVELOPMENT PERMIT APPLICATION

CLIENT
CITY OF WACO
6165 - 5733 FM 3400
WACO, TEXAS, 76706

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PROJ. NO. 16222063.00
DSN. BY: JA
DWN. BY: BGC
CHK. BY: SDS
Q/A RVW BY: RRK
APP. BY: JA

CADD FILE: 13.1-13.2 - METHANE BARRIER DETAIL

DATE: 08/2023

SCALE: AS SHOWN

DRAWING NO.
13.2

14 OTHER PLANS (30 TAC §330.957(n))

14.1 Grading, Paving And Utility Plans (30 TAC §330.957(n)(1))

Civil, architectural, structural, and mechanical-electrical-plumbing (MEP) plans are included herein and in Appendix B. The architectural, structural and MEP plans provide construction information for the proposed buildings. The following list provides general content descriptions of the applicable plan sheets for this permit:

Waco Transfer Station Site Work and Building Plans

C1 – C6 Civil Plans

These drawings provide layout and details for the grading, paving, and utilities proposed for the project.

A2.1 Building Floor Plan

These drawings provide overall floor plans for the transfer station building.

A3.1 Building Elevation

Building elevations are provided for the transfer station and scale house buildings.

S1.01

This is the overall foundation plan for the transfer station building.

Landscaping

The only landscaping proposed for this project involves re-establishment of turf grass in disturbed areas outside of the paved areas and building foundations.

Excavated Waste Material Disposal and Contaminated Water Management

The contractor will manage any contaminated water or solid waste encountered during construction.

The construction activities associated with the proposed site work and utility construction may result in the generation of solid waste material from proposed site grading or trench excavation. Although some of the work associated with the project will take place outside the landfill limits of waste, most of the construction activity will take place within the limits of waste over the closed landfill.

If solid waste is encountered during these or any other construction activities, the waste will be separated from other clean excavated material and placed on plastic sheeting unless it is loaded directly into trucks, trailers, or containers and removed from the site for disposal. If the waste needs to be stored on-site for more than 24 hours, it will be covered with an impermeable synthetic material to prevent contact with rainfall. All solid waste will be disposed at a TCEQ permitted MSW landfill. It is anticipated that the excavated solid waste will be disposed in the City of Waco's existing landfill (MSW-948A).

If excavation activities result in exposed waste, the exposed waste area will be covered with clean soil or other materials as soon as practical, but no later than the end of the day. If an area of exposed waste will remain exposed for more than 24 hours, the contractor will provide adequate temporary

cover consisting of a minimum of 6 inches of soil or an impermeable membrane material to prevent rainfall from contacting the waste. Diversion berms will be installed around the exposed waste area to prevent stormwater from contacting the waste. It is anticipated that solid waste from excavations will be predominantly generated from the drilled piers and trenching for water and electrical lines. It is estimated that approximately 450 to 500 cubic yards of waste will be generated from pier construction and 400 to 500 cubic yards of waste material will be generated from trenching for installation of the utilities.

Improvements proposed at the landfill include, but are not limited to:

- Trenching for electrical, water, wastewater, and drainage swales
- Site Grading;
- Paving Construction; and
- Construction of manholes, valve boxes and oil/water separator and grit traps.

If waste is exposed during construction of proposed improvements, then a minimum of a 2-foot thick clay (CL or CH) soil layer will be placed and compacted over the exposed area. In areas where grading reduces cap thickness to less than 2 feet, the cap will be restored to a minimum of 2 feet with CH or CL soil material.

Stormwater runoff control measures will be used to minimize contaminated water generation. Temporary diversion berms will be used upslope of all excavations where waste will be exposed to minimize the amount of surface water coming into contact with waste materials. In addition, temporary containment berms will be constructed around areas of exposed waste to collect surface water. The diversion berms and containment berms will be appropriately installed in areas where waste material will be exposed due to excavation or other construction activities. At no time will contaminated water be allowed to discharge to surface waters.

In view of the management procedures described above, especially the covering of waste and precautions implemented in advance of inclement weather, the generation of leachate or contaminated water is expected to be minimal. However, if leachate or contaminated water is generated, the water will be collected and disposed of in accordance with standards set forth herein and in accordance with City and State requirements for disposal of such water. The following are methods (or a combination) that will be used to handle any leachate or contaminated water encountered or generated during construction:

- On-site storage and disposal in the sanitary sewer – will require analysis of the leachate or contaminated water to compare with the acceptable limits at the local wastewater treatment plant, as approved by the City of Waco, regarding discharge limits.
- On-site storage and disposal off-site via vacuum truck transport – will require a vacuum truck to transport the leachate/contaminated water to an approved wastewater treatment facility. This option will likely only be utilized if discharging into the sewer system, proves not to be feasible.
- In areas where waste is excavated, all waste will be properly transported to an approved MSW landfill. No waste will be left exposed overnight.

The contractor will be required to comply with TCEQ's general stormwater permit for construction activities of the Texas Pollutant Discharge Elimination System (TPDES) prior to beginning work. As part of the coverage under TPDES, the contractor will file a Notice of Intent (NOI), prepare a Storm Water Pollution Prevention Plan (SWPPP), and install appropriate erosion control devices in accordance with the SWPPP, which must be in place prior to filing of the NOI.

The provisions of the SWPPP will include measures to control sediment discharge during construction including, but not be limited to the use of earthen berms, hay bales, and silt fencing down-gradient of slopes which may experience erosion (including material stockpiles). Erosion damage from rainfall events will be repaired by the contractor after such events. All erosion control measures will also be inspected and maintained throughout the redevelopment process.

As discussed above, drainage control measures will be put in place to minimize the amount of contaminated water generated during the project and to collect any leachate from the excavation process. Berms, when used for contaminated water generation control, will also be maintained as necessary to meet SWPPP requirements and to control erosion.

The contractor will pay special attention to erosion on soil cover over waste materials. Any cover damage to the existing landfill, or in areas where cover must be maintained over solid waste materials that are part of construction, will be repaired immediately and steps taken to prevent a recurrence of that type of damage.

Construction Safety Issues

The contractor and all subcontractors will be required to follow safety procedures outlined in this document and the specifications in Appendix D, and will be expected to be prepared to encounter waste and adhere to provisions of this plan. The contractor will be required to address, at a minimum, the following safety issues:

- **Landfill gas safety issues** – Workers will follow the safety procedures that are contained in the Contractor's Site Safety Plan (SSP) required for construction and procedures contained in this document. Construction of this project will be performed in and near buried wastes. As these buried materials decompose, they will generate landfill gas, which normally consists of carbon dioxide, methane, and occasionally hydrogen sulfide, as well as other trace gases, depending on the composition of the buried materials. These gases usually vent to the atmosphere through the cover soil, but may also migrate laterally to adjacent areas depending on site and weather conditions. Landfill gases may cause an oxygen deficiency in underground trenches, vaults, conduits, and structures. The contractor and/or the City will conduct air monitoring in excavation areas and other locations of construction activity where landfill gas is likely to accumulate. Monitoring equipment shall be calibrated to detect small amounts of methane and be recalibrated periodically in accordance with manufacturers' recommendations and the SSP. Monitoring of air for methane gas (and other gases, as determined by the SSP) shall be performed during working hours whenever open trenches, excavations, or waste handling/disposal is taking place, when the contractor is working on or near exposed refuse, or when landfill gas is likely to be present.

- In addition, the SSP to be developed for the project by the selected contractor will address construction workers safety. Also, the selected contractor will be advised of the possibility of landfill gas and to take the necessary precautions associated with construction activities at this site. To monitor concentrations of methane, an on-site representative of the contractor will be required to continuously wear a personal gas monitor which will detect concentrations of methane and emit an audible alarm when methane concentration reaches 20% of the lower

explosive limit. If this were to happen, the representative will immediately advise all personnel to vacate the area of concern and not return until methane concentrations have returned to acceptable levels. While such conditions that would allow methane to accumulate to levels of concern are not anticipated, the representative will, nonetheless, monitor the excavation process on a routine basis to provide suitable oversight of methane concentrations.

City of Waco will designate a Professional Engineer to provide guidance and oversight of the Contractor's methane monitoring program during construction. Consistent with the SSP, the responsible engineer will determine the appropriate levels of monitoring for the proposed construction activities.

- Potential fire control and management – Fires and explosions may occur from the presence of methane gas. Methane is explosive in approximate concentrations of 5 to 15 percent by volume in air and will be present in landfill gas at the site. Soil shall be stockpiled adjacent to work space in areas of exposed refuse for firefighting purposes and water will be available at all times on-site for potential fire suppression. Fire extinguishers with a rating of at least A, B, or C will be available at all times on the site. Welding, smoking, and startup and shutdown of equipment will not be permitted in areas of exposed waste and smoking will not be allowed at any time within the construction area. The local fire department will be notified prior to the commencement of construction and its contact information will be kept available by all supervising project personnel, one of which will be on-site during all working hours.

- Procedures for working with MSW – Landfill materials (solids and liquids) have the potential to contain pathogens, fungus, viruses, infectious materials, sharp, puncturing, and cutting objects, and other hazards. Dust control during waste excavation is important with respect to controlling dust-borne transmission of harmful elements. Preventing dermal contact with waste by workers, including unnecessary walking over, or in, exposed waste, will also reduce the risks of worker exposure. Dust control and worker exposure during excavation will be addressed in the contractor's SSP plan, as will be required by the bid documents for this project.

Variance Request for Water, Sanitary Sewer Piping Requirements

On behalf of the City of Waco, SCS Engineers is requesting that TCEQ grant a variance from the requirements of 30 TAC §330.961(g) that requires conduits carrying liquids over closed landfill waste cells to be double-contained. This subsection addresses the variance request for the water, and wastewater piping. As described in this section, the proposed development consists of site improvements including utilities that will serve the new transfer station and scale house buildings that will be constructed after obtaining approval from TCEQ. This variance request is intended to address the use of trench liners in lieu of double-contained piping.

In support of this variance request we are including the following:

- Plans for the water, waste water – Appendix B

- Narrative description of the proposed system – This Section

This variance request is being made to facilitate the design and operation of the utilities at this closed landfill in Waco. The reasons for this variance include:

- To provide a cost-effective alternative to the double-contained piping (pipe in pipe) requirement for conduits carrying fluids over closed landfills. The use of double-contained piping for utility lines adds cost and complicates the maintenance and repairs for the system

that includes valve boxes, manholes, fire hydrants and other features that make the use of double-contained piping systems not feasible.

- To avoid implementation of a cost prohibitive design standard that may result in significant additional cost to the City of Waco and its citizens. Similar trench liner systems have been approved at closed landfills for the Baylor Golf Practice facility, Football Operations Improvements and also at closed landfill sites in Dallas and Mesquite, Texas.

The proposed alternative to double-contained piping for water, and wastewater involves the use of 40-mil LLDPE/HDPE trench liners that will be installed in the pipe trenches for the utility lines. The water and wastewater lines will include leak detection manholes at the beginning and end of the proposed new lines. The trench liners will be connected to the leak detection manholes to complete the system of leak containment. No storm drainage piping is proposed with the site. Sensors will be installed in the leak detection manholes that provide an alarm for liquid levels to indicate potential leak in the lines. Details of the proposed trench liners and leak detection manhole are provided on drawing C5.

The project construction is scheduled to begin in the first quarter of 2024 and is expected to be completed by the end of 2024.

14.2 Irrigation System Plans (30 TAC §330.957(n)(2))

No irrigation system is proposed to be installed at the landfill with this development permit application.

18 OPERATIONAL REQUIREMENTS PLAN (30 TAC §330.957(r)) AND (30 TAC §330.961)

18.1 Operational Requirements Plan General Information (30 TAC §330.961(a))

The site operating plan, structures gas monitoring plan (Section 20), closure plan (Section 17), and safety and evacuation plan (Section 21) will be considered part of the operating record for the development permit. A copy of this information will be maintained in an office at the scale house building throughout the life of the facility. City of Waco will notify the executive director and other entities that have requested notification in the event of any incident involving the facility related to the development permit for remediation of the incident. Any deviation from the development permit and incorporated plans or other related documents associated with the development permit will be approved by the executive director.

18.2 Landfill Gas Control (30 TAC §330.961(b))

The structures gas monitoring plan, in Section 20 of this application, provides detailed requirements and procedures for the monitoring systems to be installed and maintained in the transfer station and scale house buildings. The plan details the type and number of monitoring equipment as well as the locations and frequency of monitoring for the buildings. The plan will be updated as needed to reflect modifications to the buildings that may warrant changes to the monitoring plan.

18.3 Landfill Gas Monitoring (30 TAC §330.961(b)(1))

City of Waco will perform landfill monthly gas monitoring of on-site structures, including, but not limited to, scale house and transfer station buildings, utilities, or any other areas where potential gas buildup would be of concern. Consistent with 30 TAC §330.957(m)(1)(F), both proposed buildings will be equipped with multiple methane sensors that will produce both an audible and visual alarm if concentrations of methane exceed 1% BV or 20% of the LEL. In the event of this alarm the procedures in Section 20 shall be implemented by designated safety coordinators. Areas of the on-site structures where gas may accumulate will be monitored and include, but are not limited to, areas in, under, beneath, and around basements, crawl spaces, floor seams or cracks, and subsurface utility connections. Lastly, the structures gas monitoring plan will be modified as needed to reflect any future modifications to the on-site structures.

18.4 Reporting (30 TAC §330.961(b)(2))

All monthly sampling results will be placed in the site operating record in accordance with 30 TAC §330.125(b)(3) and will be available for inspection by the executive director. If methane gas levels exceed the limits specified in the structures gas monitoring plan, City of Waco will notify the TCEQ in accordance with 30 TAC §330.371(c).

18.5 Air Criteria (30 TAC §330.961(c))

No open burning will be allowed at this facility and City of Waco will comply with all federal, state, and local regulations related to air pollution and the state implementation plan. Additionally, proposed enclosed on-site structures will be equipped with ventilation in accordance with all appropriate TCEQ rules. The transfer station building has roll-up doors and exhaust fans. The scale house building has a

HVAC system that provides fresh air into the buildings. Both structures will have under-slab ventilation for potential methane gas migration.

18.6 Ponded Water (30 TAC §330.961(d))

The proposed grading and drainage plans, provided in Appendix B, will promote positive drainage and will not result in any ponding of water over the closed MSW landfill.

18.7 Water Pollution Control (30 TAC §330.961(e))

As discussed above, the site will be graded to promote positive drainage of surface water generated on the landfill and routed to existing and proposed perimeter swales for off-site sheet flow to maintain pre-development drainage patterns. The onsite stormwater detention area is proposed to mitigate the effects of proposed impervious areas.

Additionally, all wastewater generated from facility operations will be collected and stored in on-site holding tanks for periodic removal to the Publicly Owned Treatment Works (POTW) operated by the Brazos River Authority. The City may discharge wastewater directly to sanitary sewer offsite if that becomes feasible for this facility. The direct discharge of contaminated water into the sanitary sewer system will comply with POTW pre-treatment and discharge requirements for this type of wastewater. Sanitary sewer conduits shall comply with all requirements of this development permit including trench liners and leak detection manholes.

18.8 Groundwater Monitoring (30 TAC §330.961(f))

The closed MSW landfill unit does not have a groundwater monitoring system and no groundwater monitoring is proposed with this application, as described in Section 12.1.

18.9 Conduits (30 TAC §330.961(g))

All water, waste water, or storm drainage piping serving the building located over waste will either be constructed with double-contained piping as required by 30 TAC §330.961(g) or, as discussed in Section 14, utilities proposed for the facility will be constructed with trench liners and leak detection manholes.

18.10 Recordkeeping Requirements (30 TAC §330.961(h))

City of Waco will record and retain the following information:

- All gas monitoring results and any remediation plans associated with landfill gases.
- All design documentation for the landfill gas monitoring and venting system.
- All operations and maintenance documents pertaining to systems as they relate to this development permit.
- All other documents required by the permit or the executive director.

The owner, operator, will provide written notification to the executive director, and any local pollution agency with jurisdiction that has requested to be notified, for each occurrence that documents listed in subsection (h) of this section are placed into or added to the operating record. All information contained in the operating record will be furnished upon request to the executive director and will be made available at all reasonable times for inspection by the executive director or his representative.

20 STRUCTURES GAS MONITORING PLAN (30 TAC §330.957(t))

20.1 Structures Gas Monitoring Plan General Information (30 TAC §330.957(t)(1))

This structures gas monitoring plan fulfills the requirements of 30 TAC §330.957(t) and will be considered part of the operating record for the development permit. A copy of this information will be maintained on-site throughout the life of the facility. City of Waco will notify the executive director and other entities that have requested notification in the event of any incident involving the facility related to the development permit, related to gas remediation.

The structures gas monitoring plan includes two key components. The first is a gas ventilation system with an impermeable barrier installed below the transfer station building foundation with vent risers located adjacent to the building. This system will allow methane, that migrates though the landfill final cover and engineered fill, to be collected and vented outside of the structure, as described in Section 13. The second component is a monitoring system inside the transfer station and scale house buildings that includes controller units and remote sensors that are capable of detecting methane and other explosive gases at concentrations below 1% BV or 20% of LEL. This system will have audible and visual alarms that will trigger in the event that methane concentrations exceed 1%. The monitoring system is intended to confirm that the concentration of methane gas within the facility structure does not exceed 20% of the LEL.

20.2 Facility Characteristics And Potential Migration Pathways (330.957(t)(2)(A))

As discussed in Section 19, the transfer station building will be a single story clear span steel framed structure with roll-up bay doors. The scale house building will be a single story wood or metal stud framed structure. Both buildings will be constructed over a reinforced concrete slab that is supported by grade beams and drilled shaft piers. The piers will extend below the waste layer into the underlying shale formation. The existing final cover elevations at the proposed buildings range between approximately 410.0 to 414.0 for the transfer station and 417.0 to 418.0 for the scale house. The final cover in this area is approximately two feet deep. The proposed finished floor elevation of the transfer station building is 416.0 feet. Approximately 2 to 6 feet of engineered fill will be placed over the final cover in the vicinity of the building to establish the proposed elevations for the building slab and paving and to provide additional buffer between the building slab and top of final cover. The proposed finished floor for the scale house building will be 420.0, which is approximately 2 to 3 feet above the final cover grades. Proposed facility layout and grading plan are included in Appendix B.

The nature and age of the waste is discussed in detail in Section 3 of the permit. The age of the waste and the geotechnical field investigation provided in Appendix A indicate that the landfill is in the later stages of decomposition and gas production is limited but still ongoing. Due to the presence of landfill gas, various protective measures have been incorporated into the design of the structure. These are described in the following section.

The scale house building will be used by scale attendants and will also include office space, break room and meeting room. Restrooms will be included in the building for Waco employees only. The expected occupancy of the building will range between 10 to 20 people during training and meetings. The typical duration of occupation will be between 8-10 hours for most individuals.

Appendix A

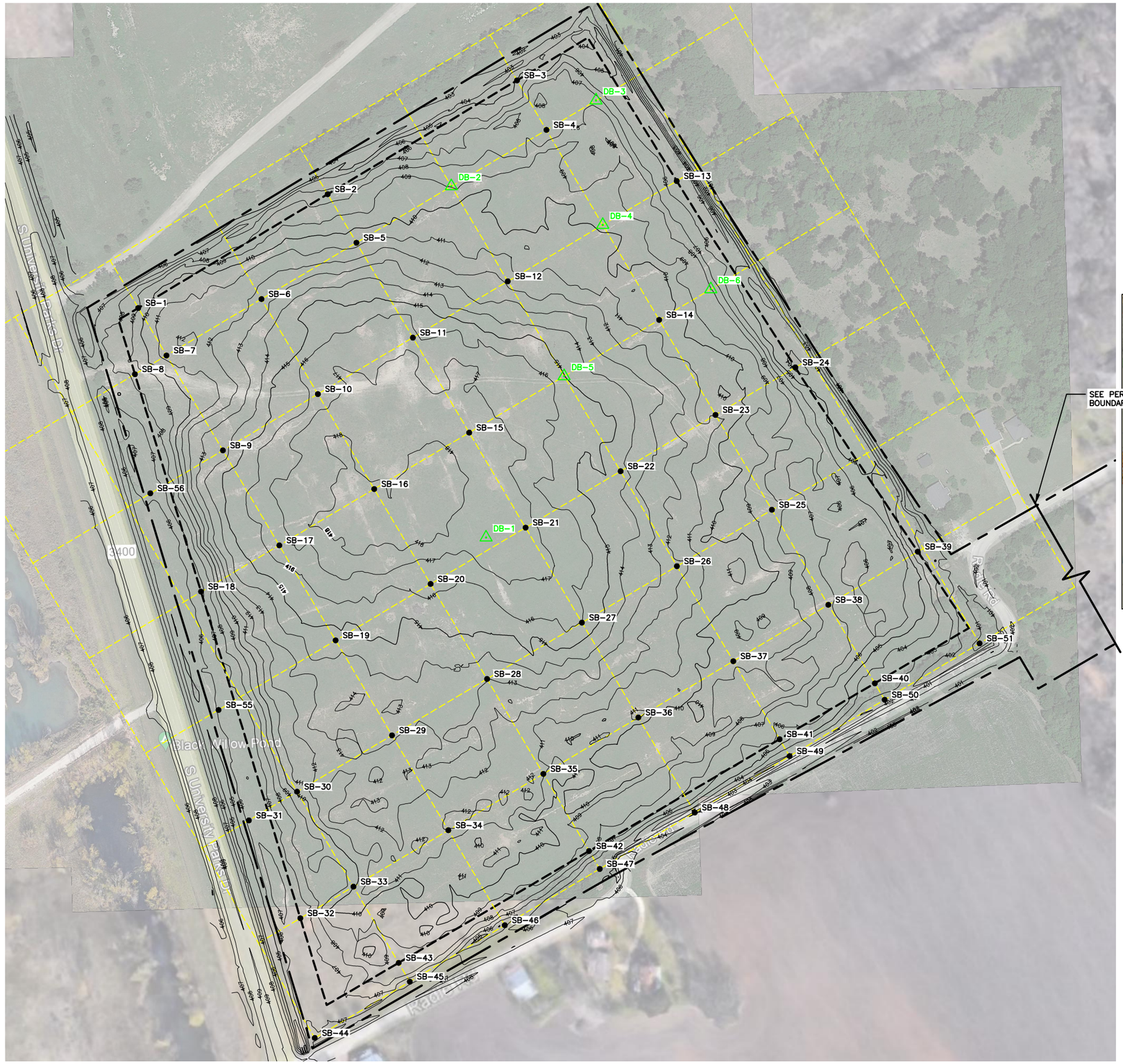
Site Investigation

- Geotechnical Investigation – January 2023

October 2022 Methane Investigation and Boring Plan

Boring Location	Date Drilled	Final Cover Thickness (Feet)	Methane (% LEL) Surface	Methane (% LEL) In Hole
SB-1	10/5/2022	3	0	0
SB-2	10/5/2022	2	0	0
SB-3	10/5/2022	2	0	0
SB-4	10/5/2022	4.5	0	0
SB-5	10/5/2022	5	0	0
SB-6	10/5/2022	8.75	0	0
SB-7	10/5/2022	1.5	0	0
SB-8	10/5/2022	5	0	57
SB-56	10/5/2022	No LF Material	0	0
SB-9	10/5/2022	1	0	1
SB-10	10/5/2022	3.5	0	0
SB-11	10/5/2022	5	0	13
DB-4	10/6/2022	2	0	0 at 4', 1 at 6'
DB-3	10/6/2022	2	0	0
DB-2	10/7/2022	2	0	0
DB-5	10/7/2022	4.5	0	2 at 10-12', 100 at 15'
DB-1	10/12/2022	7.5	0	0 at 8',0 at 25', 0 at 50'
SB-12	10/12/2022	1.5	0	38
SB-13	10/12/2022	2	0	0
SB-14	10/12/2022	2	0	0
SB-15	10/12/2022	3.5	0	9
SB-16	10/12/2022	2	0	0
SB-17	10/12/2022	2	0	100
SB-18	10/12/2022	2	0	0
SB-55	10/12/2022	2	0	0
SB-19	10/12/2022	2	0	0
SB-55R	10/12/2022	No LF Material	0	0
SB-31	10/12/2022	No LF Material	0	0
SB-20	10/12/2022	3	0	100
SB-21	10/12/2022	3	0	0
SB-22	10/12/2022	3.5	0	0
SB-23	10/13/2022	No LF Material	0	0
SB-24	10/13/2022	4.5	0	0
SB-25	10/13/2022	3	0	0
SB-26	10/13/2022	4	0	0
SB-27	10/13/2022	6-6.5	0	0
SB-28	10/13/2022	2	0	0
SB-29	10/13/2022	2	0	0
SB-30	10/13/2022	2.5	0	0
SB-32	10/13/2022	3	0	0
SB-33	10/13/2022	2	0	0
SB-34	10/13/2022	2	0	0
SB-35	10/13/2022	2	0	0

Boring Location	Date Drilled	Final Cover Thickness (Feet)	Methane (% LEL) Surface	Methane (% LEL) In Hole
SB-36	10/13/2022	2	0	0
SB-37	10/13/2022	2	0	0
SB-38	10/13/2022	2	0	0
SB-39	10/13/2022	No LF Material	0	0
SB-40	10/13/2022	2	0	0
SB-41	10/13/2022	2	0	0
SB-42	10/13/2022	3	0	0
SB-43	10/13/2022	6	0	0
SB-44	10/13/2022	No LF Material	0	0
SB-45	10/13/2022	No LF Material	0	0
SB-46	10/13/2022	No LF Material	0	0
SB-47	10/13/2022	3.5	0	0
SB-48	10/13/2022	6	0	0
SB-49	10/13/2022	No LF Material	0	0
SB-50	10/13/2022	No LF Material	0	0
SB-51	10/13/2022	No LF Material	0	0



N

0 100 200

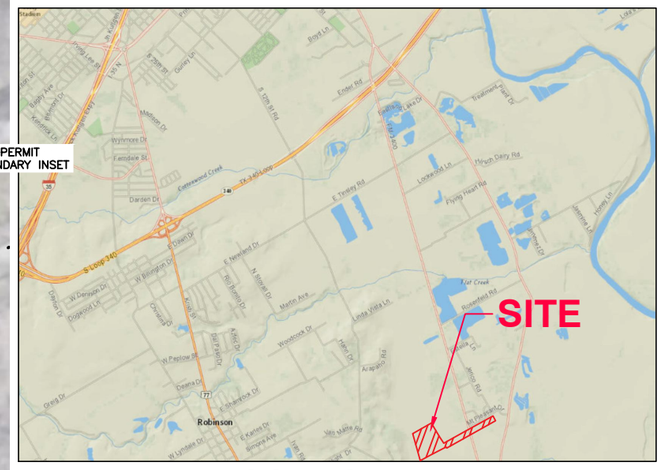
SCALE IN FEET

LEGEND

- PERMIT BOUNDARY
- APPROX. LIMITS OF WASTE (SEE NOTE 3)
- 210' X 210' GRID
- 400 EXISTING GRADE CONTOURS (SEE NOTE 1)
- 410.3 EXISTING GRADE SPOT ELEVATIONS
- EXISTING FENCE
- SB-33 PROPOSED SHALLOW BORING
- DB-1 PROPOSED DEEP BORING

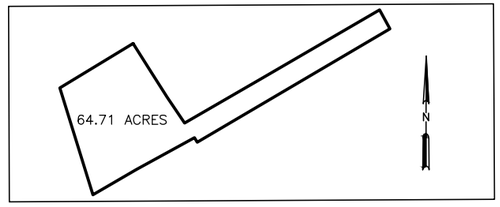
NOTE:

1. EXISTING GRADE CONTOURS WERE OBTAINED FROM AN AERIAL SURVEY PERFORMED IN 2022 BY WALKER PARTNERS.
2. AERIAL PHOTO OBTAINED FROM GOOGLE EARTH IN MAY, 2021.
3. APPROXIMATE LIMITS OF WASTE ARE ASSUMED TO BE 50' OFFSET FROM THE 44.74 ACRE PROPERTY BOUNDARY WHERE WASTE DISPOSAL TOOK PLACE.



LOCATION MAP

SCALE: 1" = 8000'



PERMIT BOUNDARY INSET

SCALE: 1" = 1000'

STATE OF TEXAS
JEFFREY ARRINGTON
61895
LICENSED
PROFESSIONAL ENGINEER
06/28/2022

FOR PERMITTING PURPOSES ONLY

REV	DATE	DESCRIPTION	BY

TEXAS BOARD OF PROFESSIONAL ENGINEERS REG. NO. F-3407

DRAWING TITLE: SOIL BORING PLAN

PROJECT TITLE: CITY OF WACO
TCEQ PERMIT NO. MSW - 1039
MSW PERMIT MODIFICATION

CLIENT: CITY OF WACO - MSW 1039
6165 - 5733 FM 3400
WACO, TEXAS, 76706

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
1901 CENTRAL DRIVE, SUITE 550, BEDFORD, TX 76021
PH (817) 571-2288 FAX NO. (817) 571-2188

PROJ. NO. 16221085.00
DSN. BY: JA
DWN. BY: EGC
CHK. BY: SS
O/A RVW BY: RRK
APP. BY: JA

CADD FILE: 1039 TS – SITE LAYOUT (06-28-22)

DATE: 6/2022

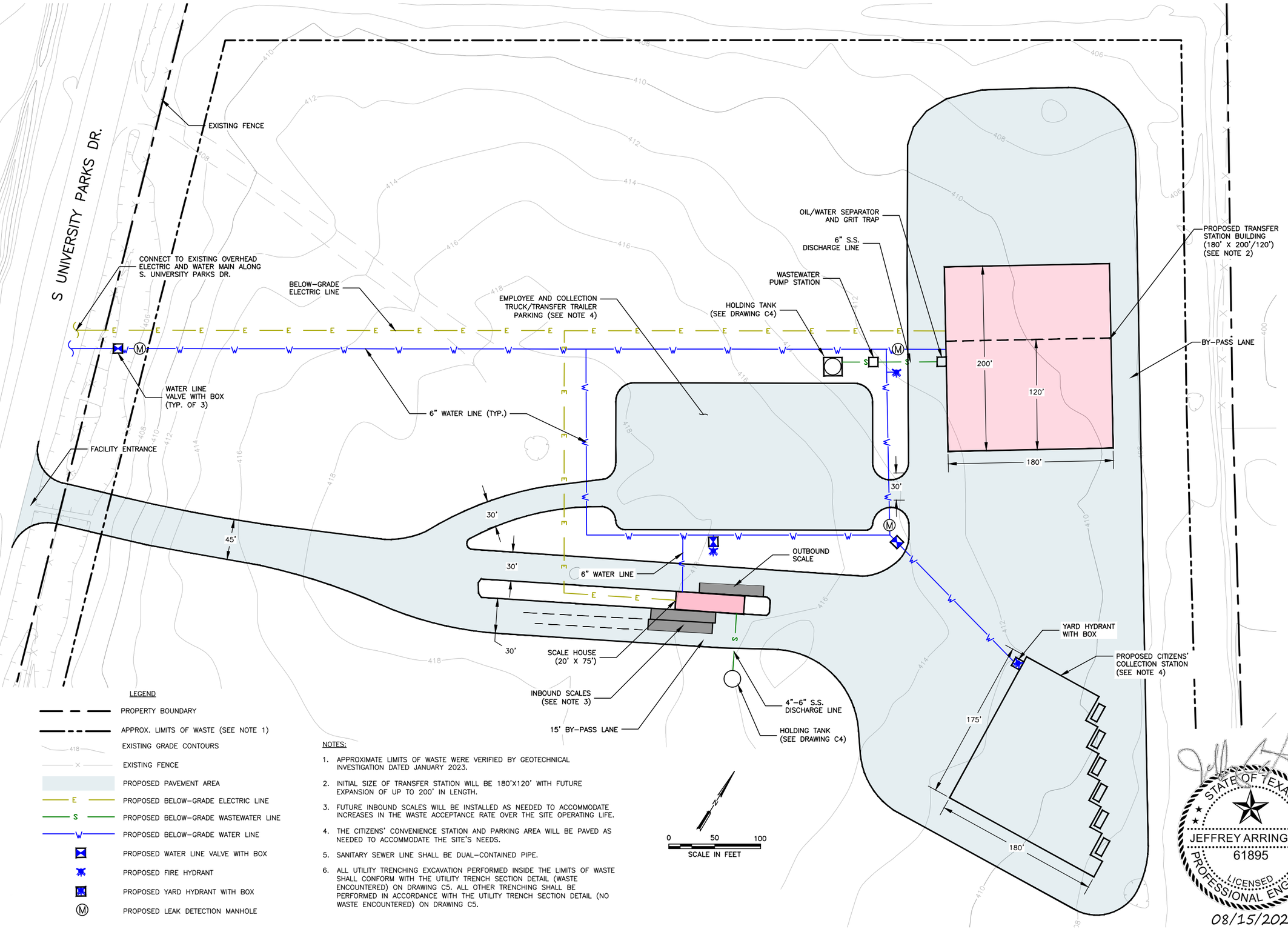
SCALE: AS SHOWN

DRAWING NO. 1

6/28/2022 2:35 PM G:\WACO\16221085.00 Task 23 – On Call Eng\1039 TS – SITE LAYOUT (06-28-22)

Appendix B

Construction Plans



LEGEND

- PROPERTY BOUNDARY
- APPROX. LIMITS OF WASTE (SEE NOTE 1)
- EXISTING GRADE CONTOURS
- EXISTING FENCE
- PROPOSED PAVEMENT AREA
- PROPOSED BELOW-GRADE ELECTRIC LINE
- PROPOSED BELOW-GRADE WASTEWATER LINE
- PROPOSED BELOW-GRADE WATER LINE
- PROPOSED WATER LINE VALVE WITH BOX
- PROPOSED FIRE HYDRANT
- PROPOSED YARD HYDRANT WITH BOX
- PROPOSED LEAK DETECTION MANHOLE

NOTES:

1. APPROXIMATE LIMITS OF WASTE WERE VERIFIED BY GEOTECHNICAL INVESTIGATION DATED JANUARY 2023.
2. INITIAL SIZE OF TRANSFER STATION WILL BE 180'X120' WITH FUTURE EXPANSION OF UP TO 200' IN LENGTH.
3. FUTURE INBOUND SCALES WILL BE INSTALLED AS NEEDED TO ACCOMMODATE INCREASES IN THE WASTE ACCEPTANCE RATE OVER THE SITE OPERATING LIFE.
4. THE CITIZENS' CONVENIENCE STATION AND PARKING AREA WILL BE PAVED AS NEEDED TO ACCOMMODATE THE SITE'S NEEDS.
5. SANITARY SEWER LINE SHALL BE DUAL-CONTAINED PIPE.
6. ALL UTILITY TRENCHING EXCAVATION PERFORMED INSIDE THE LIMITS OF WASTE SHALL CONFORM WITH THE UTILITY TRENCH SECTION DETAIL (WASTE ENCOUNTERED) ON DRAWING C5. ALL OTHER TRENCHING SHALL BE PERFORMED IN ACCORDANCE WITH THE UTILITY TRENCH SECTION DETAIL (NO WASTE ENCOUNTERED) ON DRAWING C5.

STATE OF TEXAS
JEFFREY ARRINGTON
61895
LICENSED
PROFESSIONAL ENGINEER
08/15/2023

FOR PERMITTING PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
1	6/16/23	REMOVED REFERENCES TO SITE'S PREVIOUS PERMIT NO., UPDATED FACILITY NAME, AND UPDATED CCS CALLOUT	JA
2	8/11/23	ADDED NOTE 6 REFERENCING TRENCHING DETAILS	JA

TEXAS BOARD OF PROFESSIONAL ENGINEERS REG. NO. F-3407

DRAWING TITLE: **PAVING AND UTILITY PLAN**

PROJECT TITLE: **CITY OF WACO TRANSFER STATION FACILITY DEVELOPMENT PERMIT APPLICATION**

CLIENT: **CITY OF WACO**
6165 - 5733 FM 3400
WACO, TEXAS, 76706

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PROJ. NO. 165/27063.00 | DSN. BY: RGC | D/A RVW BY: RRK | APP. BY: JA | CHK. BY: SDS | DSN. BY: JA

CADD FILE: C1 - PAVING AND UTILITY PLAN

DATE: 06/2023

SCALE: AS SHOWN

DRAWING NO. **C1**

8/15/2023 11:35 AM G:\WACO\165227063.00 Task 2 - Site 1039 - Transfer Station Engineering and Permit\WDO 8X11 - C1 - PAVING AND UTILITY PLAN

S UNIVERSITY PARKS DR

EXISTING FENCE

FACILITY ENTRANCE

DRAINAGE SWALE

DRAINAGE SWALE

PROPOSED TRANSFER STATION BUILDING (180' X 200'/120') (SEE NOTE 2)

EMPLOYEE AND COLLECTION TRUCK/TRANSFER TRAILER PARKING (SEE NOTE 4)

HOLDING TANK (SEE DRAWING C4)

PROPOSED FINISHED FLOOR (ELEV. 416.0)

BY-PASS LANE

SCALE HOUSE

OUTBOUND SCALE

PROPOSED FINISHED FLOOR (ELEV. 420.0)

INBOUND SCALES (SEE NOTE 3)

15' BY-PASS LANE

DRAINAGE SWALE

DRAINAGE WEIR

DETENTION AREA

PROPOSED CITIZENS' COLLECTION STATION (SEE NOTE 4)

A A' B B' C C' D D' E E'

LEGEND

- PROPERTY BOUNDARY
- APPROX. LIMITS OF WASTE (SEE NOTE 1)
- EXISTING GRADE CONTOURS
- EXISTING FENCE
- PROPOSED GRADE CONTOURS
- TOE–TOP OF SLOPE
- PROPOSED EROSION PROTECTION
- PROPOSED DRAINAGE WEIR
- SURFACE WATER FLOW ARROWS

0 50 100
SCALE IN FEET

NOTES:

1. APPROXIMATE LIMITS OF WASTE WERE VERIFIED BY GEOTECHNICAL INVESTIGATION DATED JANUARY 2023.
2. INITIAL SIZE OF TRANSFER STATION WILL BE 180'X120' WITH FUTURE EXPANSION OF UP TO 200' IN LENGTH.
3. FUTURE INBOUND SCALES WILL BE INSTALLED AS NEEDED TO ACCOMMODATE INCREASES IN THE WASTE ACCEPTANCE RATE OVER THE SITE OPERATING LIFE.
4. THE CITIZENS' CONVENIENCE STATION AND PARKING AREA WILL BE PAVED AS NEEDED TO ACCOMMODATE THE SITE'S NEEDS.

STATE OF TEXAS
JEFFREY ARRINGTON
61895
LICENSED PROFESSIONAL ENGINEER
08/15/2023

FOR PERMITTING PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
1	6/16/23	REMOVED REFERENCES TO SITE'S PREVIOUS PERMIT NO., UPDATED FACILITY NAME, AND UPDATED CCS CALLOUT	JA
2	8/11/23	ADDED HOLDING TANK AND CROSS SECTIONS AND ADJUSTED WEIR LOCATION	JA

TEXAS BOARD OF PROFESSIONAL ENGINEERS REG. NO. F-3407

DRAWING TITLE
GRADING AND DRAINAGE PLAN

PROJECT TITLE
CITY OF WACO
TRANSFER STATION FACILITY
DEVELOPMENT PERMIT APPLICATION

CLIENT
CITY OF WACO
6165 - 5733 FM 3400
WACO, TEXAS, 76706

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PROJ. NO.	162/2063.00
DSN. BY:	JA
DWN. BY:	RGC
CHK. BY:	SDS
QA REVIEW BY:	RRK
APP. BY:	JA

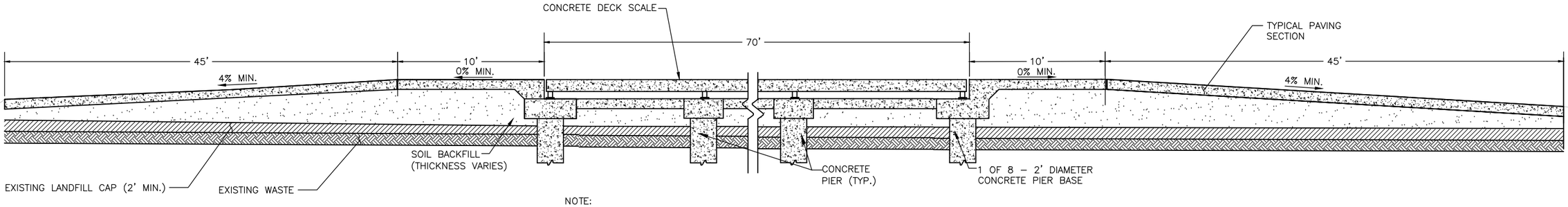
CADD FILE:
C2–C3 – GRADING AND DRAINAGE PLAN AND X–SECTIONS

DATE:
06/2023

SCALE:
AS SHOWN

DRAWING NO.
C2

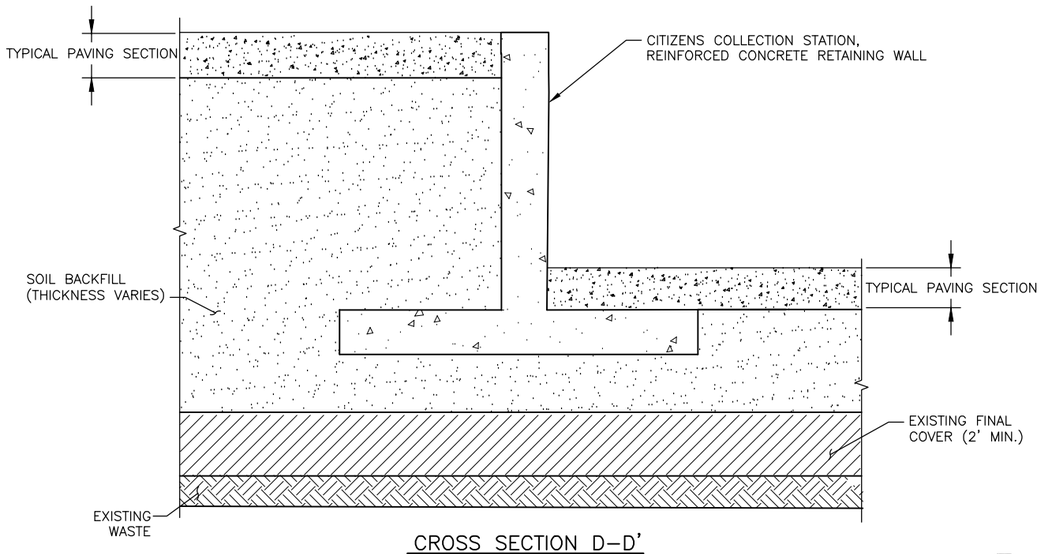
8/15/2023 11:38 AM C:\WACO\162\2063.00 Task 2 – Site 1039 – Transfer Station Engineering and Permit\VOD #2\C2–C3 – GRADING AND DRAINAGE PLAN AND X–SECTIONS



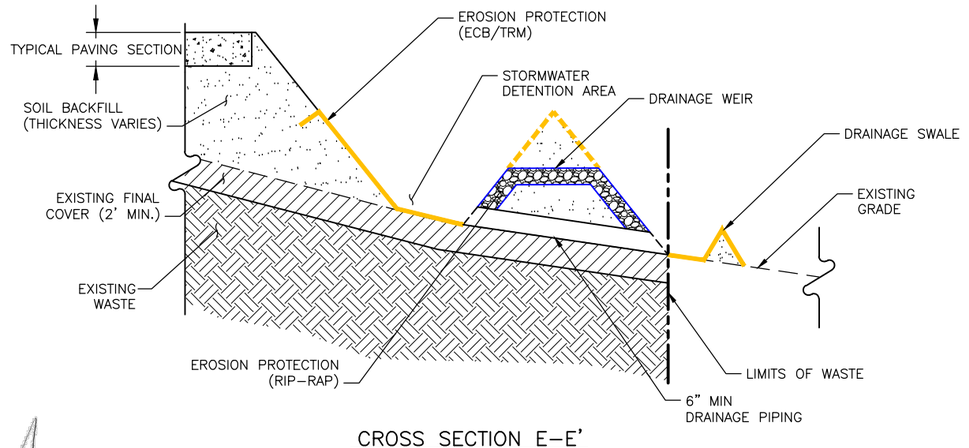
NOTE:

1. THIS IS A TYPICAL SECTION FOR EITHER INBOUND OR OUTBOUND SCALES.

CROSS SECTION C–C'
NTS



CROSS SECTION D–D'
NTS



CROSS SECTION E–E'
NTS

08/15/2023

FOR PERMITTING PURPOSES ONLY

REV	DATE	DESCRIPTION	BY

TEXAS BOARD OF PROFESSIONAL ENGINEERS REG. NO. F-3407

DRAWING TITLE: **DETAILS - 3**

PROJECT TITLE: **CITY OF WACO**
TRANSFER STATION FACILITY
DEVELOPMENT PERMIT APPLICATION

CLIENT: **CITY OF WACO**
6165 - 5733 FM 3400
WACO, TEXAS, 76706

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
1901 CENTRAL DRIVE, SUITE 550, BEDFORD, TX 76021
PH (817) 571-2288 FAX NO. (817) 571-2188

PROJ. NO. 16222063.00 | DSN. BY: JA | DWN. BY: RGC | CHK. BY: SDS | QA/QA RVW BY: RRK | APP. BY: JA

CADD FILE: C4–C6 – DETAILS

DATE: 06/2023

SCALE: AS SHOWN

DRAWING NO. **C6**

Appendix G

Geosynthetic Specifications

GEOSYNTHETIC SPECIFICATIONS

1 INTRODUCTION

This appendix describes in the material and installation specifications for non-woven geotextile and geomembrane materials used for construction of the methane barrier layer below the transfer station building foundation or trench liners for water and sanitary sewer lines that are not dual-contained.

2 NON-WOVEN GEOTEXTILE

The non-woven geotextile will be an 8-oz/sy fabric made from polypropylene fibers, generally installed in accordance with manufacture's recommendations and the criteria below.

2.1 DELIVERY

During delivery the following will be verified:

- Unloading equipment does not damage the geotextile rolls.
- Geotextile rolls are wrapped in impermeable and opaque protection covers.
- Care is used when unloading the rolls.
- Each roll is marked or tagged with the manufacturer's name, lot number, roll number, and roll dimensions.
- Materials are stored in a location that will protect the rolls from precipitation, mud, dirt, dust, puncture, cutting, impact forces, or any other damaging or deleterious conditions.

Any damaged rolls will be rejected and removed from the site or stored at a location separate from accepted rolls, designated by the Owner. All rolls which do not have proper manufacturer's documentation must also be stored at a separate location until all documentation has been received and approved.

2.2 QUALITY CONTROL TESTING

The geotextile manufacturer (or supplier), will conduct quality control testing in accordance with the manufacturer's quality control program and certify that all materials delivered comply with the engineer's specifications. The minimum frequencies and test methods for manufacturer's quality control testing for geotextiles are presented in Table 2-1. The material certifications shall be reviewed by the engineer and approved for the project prior to acceptance of any of the material.

Table 2-1. Manufacturer's Testing Schedule for Geotextile

TEST	METHOD	MINIMUM FREQUENCY
Mass/Area	ASTM D5261	1 per 100,000 ft^2 and every resin lot
Grab Tensile Strength	ASTM D4632	
Trapezoidal Tear Strength	ASTM D4533	
Apparent Opening Size	ASTM D4751	
Permittivity	ASTM D4491	

2.3 INSTALLATION

2.3.1 Placement

During placement, the following will be verified:

- Observe the geotextile as it is deployed and verify the disposition of all identified defects (panel rejected, patch installed, etc.). All repairs are to be made in accordance with the specifications.
- Observe that equipment used does not damage the geotextile by handling, equipment transit, leakage of hydrocarbons, or other means.
- Observe that people working on the geotextile do not smoke, wear shoes that could damage the material, or engage in activities that could damage the material.
- Observe that the geotextile is securely anchored as applicable, and temporarily anchored as necessary to prevent movement by the wind.
- Observe that the panels are overlapped in accordance with the engineer's specifications and manufacturer's recommendations.
- Examine the geotextile after installation to confirm that no potentially harmful foreign objects or damage are present.
- Observe that seams (where required) are continuously sewn or thermal bonded in accordance with the manufacturer's recommendations.

2.3.2 Repairs

Repair procedures include the following:

- Patching - used to repair holes, tears and large defects.
- Removal - used to replace areas with large defects where the preceding method is not appropriate.

Holes, tears, and defects must be repaired in the following manner. Soil or other material which may have penetrated the defect must be removed completely prior to repair. Should any tear, hole, or defect exceed 10 percent of the width of the panel, the panel must be removed and replaced. Patches must be made using the same type of material and placed with a minimum of 24 inches overlap in all directions. All geotextile patches should be thermal bonded in place.

3 GEOMEMBRANE

3.1 Manufacturer Quality Control Testing

Prior to the installation of the geomembrane (40-mil LLDPE or HDPE), the manufacturer or installer will provide the engineer with quality control certificates signed by a responsible party employed by the manufacturer. Each quality control certificate will include roll identification numbers, testing procedures, and results of quality control tests. The quality control tests will be performed in accordance with project-specific testing methods and subject to one test per 100,000 square feet of material or a minimum of one test per resin lot, whichever is greater.

All geomembrane properties must meet the minimum values set forth in the most recent version of Geosynthetic Research Institute (GRI) standard GM-13 for 40-mil HDPE or GM-17 for 40-mil LLDPE.

The engineer will review the test results prior to acceptance of the geomembrane to assure that the certified minimum properties meet specified values.

3.2 Conformance Testing

Conformance testing shall be performed by a third-party independent laboratory. Conformance testing methods and frequencies will be performed in accordance with Table 3-1.

Table 3-1. Geomembrane Conformance Testing

TEST	METHOD	MINIMUM FREQUENCY
Thickness	ASTM D5199 (1) or D5994	1 per 100,000 ft^2 and every resin lot
Density	ASTM D1505 or D792	
Carbon black content	ASTM D1603	
Carbon black dispersion	ASTM D5596	
Tensile properties (2)	ASTM D638 or D6693	

1. ASTM D5994 for textured geomembrane, D5199 for smooth.
2. 2-inch initial gauge length assumed for elongation at break at 2.0 in/min.

3.3 Installation Monitoring and Testing

Upon delivery of geosynthetic material, it will be observed that the materials are handled and stored in accordance with manufacturer's recommendations.

Field seaming of the geomembrane will be performed in strict accordance with methods approved by the manufacturer. This usually includes fusion welding or extrusion welding. Tack welds (if used) will use heat only. No double-sided tape, glue, or other method will be permitted when extrusion or fusion welding is used for bonding.

Each day prior to commencing field seaming, trial seams will be made on pieces of geomembrane material to verify that conditions are adequate for production seaming. Each trial test seam will be at least 3 feet long by 1-foot wide. Four adjoining one-inch wide specimens will be die-cut from the test seam sample. Two specimens will be tested in the field for shear and 2 for peel.

The failure criteria are the same as that for destructive seam testing as described below. The test specimens must exhibit a Film Tear Bond (FTB). If one test seam fails, the trial seam will be repeated. If this trial seam fails, then 2 more trial seams must be constructed and tested. This process must continue and no welding can begin for the machine or welder until all test seams are passing. Additional trial seams will be made for all of the following:

- At the beginning of each seaming period for each seaming apparatus used that day (the beginning of each seaming period is considered to be morning, and immediately after a break);
- Each occurrence of significantly different environmental conditions (i.e., temperature, humidity, dust, etc.);
- Any time the machine is turned off for more than 30 minutes; and
- When seaming different geomembranes (i.e. tie-ins and smooth to textured).

Both the welder and the machine must be tested for each new trial seam when extrusion welding. Only the machine needs to be tested for each new trial seam when fusion welding since the machine

is not as operator dependent. Each individual seaming will make at least one test seam each day he/she actually performs seaming.

3.4 Non-Destructive Testing

Continuous, non-destructive testing will be performed on all seams by the installer. Air pressure testing on dual-track fusion welds and vacuum-box testing for extrusion welds are the only acceptable methods. All leaks must be isolated and repaired by the following procedures:

1. Air-Pressure Testing (GRI GM6) - The ends of the air channel of the dual-track fusion weld must be sealed and pressured to approximately 30 psi, if possible. The air pump must then be shut off and the air pressure observed after 5 minutes. A loss of less than 4 psi is acceptable if it is determined that the air channel is not blocked between the sealed ends. A loss of 4 psi or more indicates the presence of a seam leak that must then be isolated and repaired by following the procedures described under "Seam Failure Repairs and Retesting."

2. Vacuum-Box Testing (ASTM D4437) - A suction value of approximately 3 to 5 inches of gauge vacuum must be applied to all extrusion welded seams that can be tested in this manner. Examples of extrusion welded seams that do not easily lend themselves to vacuum testing would be around boots, appurtenances, etc. The seam must be observed for leaks at least ten seconds while subjected to this vacuum.

3.5 Destructive Seam Testing

Destructive seam testing will be performed in accordance with ASTM D6392. Destructive samples will be taken at a minimum of one strategic location for every 1,000 linear feet of seaming or major fraction thereof. The total footage of individual repairs of leaks of more than 10 feet in seaming length and individual repairs of more than 10 feet in seaming length for failed seams must also be counted and destructively tested using the same frequency of testing described above. At a minimum, a destructive test must be done for each welding machine used for seaming or repairs. A sufficient amount of the seam must be removed in order to conduct field testing, independent laboratory testing, and archiving of enough material in order to retest the seam, if necessary. Field testing will include at least 2 peel test specimens. Destructive seam-testing locations will be cap-stripped and the cap completely seamed by extrusion welding to the geomembrane. Capped sections will be non-destructively tested.

All field-tested specimens from a destructive-test location must be passing in both shear and peel for the seam to be considered as passing. Field tested specimens, are determined as passing if the specimen tested in peel fails in FTB and all test specimens meet the criteria listed in the Table 3-2. The independent laboratory testing must confirm these field results. The minimum passing criteria for independent laboratory testing are all three of the following:

- Five of five specimens tested in the peel mode must fail in FTB.
- Five of five specimens from each peel and shear determination must meet the minimum specified value in Table 3-2.
- All 5 specimens for shear determination should meet the minimum percent elongation at break value in Table 3-2.

The above criteria apply to both tracks from each dual-track fusion welded seam before it is considered as passing. It should be noted that geomembrane manufacturers may have differing values for their geomembrane sheets and therefore, the specific values are not meant to be minimum or maximum values as construction materials and specifications may vary between manufacturers and throughout

the life of the site. Consequently, the manufacturer's sheet-strength values must be provided in order to determine if the test results are passing.

Table 3-2. Geomembrane Seam Strength

Property	Qualifier	Unit	Specified Value		Test
			40-mil HDPE	40-mil LLDPE	
Shear Strength	Min.	lb/in	80	60	ASTM D6392
	Min.	%	50	50	
Peel Strength:					ASTM D6392
Fusion	Min	lb/in	60	50	
Extrusion	Min.	lb/in	52	44	

3.6 Seam Failure Delineation

In the event failing tests are obtained at a destructive test location, new destructive test samples will be obtained, a minimum of 10 feet in either direction of the failing test. If one, but not both, of the additional tests fail, further additional destructive testing will be required until passing tests are obtained at both ends of the original destructive test location. A cap will be required for the areas subject to destructive testing, and testing of the cap will be placed in accordance with Section 3.7.

In the event more than one failing destructive test are observed for a single welding apparatus, new (passing) trial welds will be required prior to resuming geomembrane welding or seaming with the apparatus.

3.7 Seam Failure Repairs and Retesting

Any portion of the geomembrane with a detected flaw, or which fails a nondestructive or destructive test, or where destructive tests were cut, or where nondestructive tests left cuts or holes, must be repaired. Repair techniques include the following:

- Patching - used to repair holes, tears, large panel defects, undispersed raw materials, contamination by foreign matter, and destructive sample locations.
- Extrusion - used to repair small defects in the panels and seams. In general, this procedure should be used for defects less than 3/8-inch in the largest dimension.
- Capping - used to repair failed welds or to cover seams where welds or bonded sections cannot be nondestructively tested.
- Removal - used to replace areas with large defects where the preceding methods are not appropriate. Also used to remove excess material (wrinkles, fishmouths, intersections, etc.) from the installed geomembrane. Areas of removal shall be patched or capped.

For any repair method, the following provisions will be satisfied:

- Surfaces of the geomembrane which are to be repaired using extrusion methods will be ground no more than one hour prior to the repair;
- All surface will be clean and dry at the time of repair;
- Patches or caps will extend at least 6 inches beyond the edge of the defect, and all corners of patches will be rounded with a radius of approximately 3 inches or more;
- All repairs will be nondestructively tested as previously described; and
- All seaming equipment, personnel, and operation procedures used in repair work will meet the same requirements as for new seaming operations.

Repairs that pass the non-destructive tests will be taken as an indication of an adequate repair. Repairs more than 150 ft long will also be required to have a destructive test performed. Repairs that fail the initial retest will be redone and retested until a passing test result. All work and testing of repairs will be fully documented in a repair log.

ATTACHMENT 2

MARKED VERSION

Subchapter T Development Permit Application (30 TAC §330.957)

City of Waco Transfer Station Facility

501 Schroeder Dr
Waco, Texas 76710

Date: 08/15/2023

SCS ENGINEERS

16222063.00 | May 2023
Revision 1 – June 2023
Revision 2 – August 2023

1901 Central Dr., Suite 550
Bedford, TX 76021
817-571-2288

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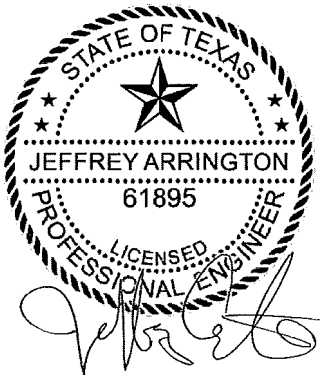
Appendices



Date: 08/15/2023

1 INTRODUCTION AND BACKGROUND

The City of Waco is planning to develop a new municipal solid waste (MSW) transfer station over a closed landfill site (MSW Permit No. 1039) located on S. University Parks Dr. in Waco, Texas. The transfer station will be designed to process up to 1,800 tons/day of waste. The proposed facilities include a new MSW transfer station, scale house building and scales, a citizens' collection station (CCS), and a new paved access drive with parking for trucks and vehicles. The proposed transfer station building will be constructed in the northeast corner of the site, approximately 130 feet from the east property line. The City of Waco will initially develop a 180' x 120' size transfer station building (26,100 sf) with the option of expanding it to 180' x 200'(36,000 sf) in future as needed. A new paved access road will be constructed to connect the facility to South University Parks Dr. located along the western boundary of the landfill. Additional paved areas will be constructed around the transfer station to provide for access to the building for collection and transfer trucks. The scale house building will be approximately 1,600 sf. It will be constructed as a non-enclosed structure that will have ventilation below the scale house floor. A new CCS, approximately 150' x 300' (4,500 sf) in size, will be constructed adjacent to the transfer station consisting of additional pavement and retaining walls to enable unloading into open top containers. The proposed improvements will be constructed over the final cover of the landfill and will include two enclosed structures (transfer station and scale house buildings) as defined by Subchapter T rules and, as such, requires the submittal of a development permit application (application).

This application is submitted consistent with the provisions of 30 TAC §330.957 related to construction of an enclosed structure over a closed MSW landfill unit and includes the required technical information outlined under 30 TAC §330.957(a) through (u), including:

- Foundation Plan for Gas Collection and Methane Barrier in Section 13;
- Methane Monitoring Plan in Section 20;
- Operations Plan in Sections 19-21;
- Permit-Level Drawings in Appendix B.

The individual section headings also indicate the regulatory citations within 30 TAC §330.957 that are addressed within the contents of each section. Appendix A contains the geotechnical investigation to determine the nature and thickness of the landfill cover, the investigation for the presence of methane, and recommendations for foundation and pavement construction over the closed landfill. Appendix B also contains permit-level drawings for the proposed improvements, including civil, architectural, and structural drawings. Appendix C contains methane monitoring equipment specifications, and landfill safety requirements are contained in Appendix D. Notice of coordination letters for all local, state, and federal government official and agencies are included Appendix E, and a copy of the certified City Charter is included in Appendix F.

2 ENGINEER'S CERTIFICATION (30 TAC §330.957(b))

Certification of no Potential Threat to Public Health or the Environment:

I, Jeff Arrington, P.E. #61895 certify that the proposed development will not increase or create a potential threat to public health or the environment. Further, I certify that the proposed development will not damage the integrity or function of any component of the Closed Municipal Solid Waste Landfill Unit, including, but not limited to, the final cover, containment systems, monitoring system, or liners. This certification includes all documentation of all studies and data on which I relied in making these determinations.

Signature/Seal

08-15-2023
Date

3.5 Gas Production Potential (30 TAC §330.957(c)(3))

Based on the age of the waste and readings of methane taken in the soil borings during the geotechnical field investigation, landfill gas production is expected to continue at low to moderate levels for near future. A summary of methane concentrations recorded in the soil borings is included in Appendix A following the Geotechnical Report. Nine of the 51 locations had measurable levels of methane. The methane concentrations ranged from 1-100% LEL. As such, methane mitigation measures will be an important component of the proposed structures and site improvements. Proposed improvements will add some impervious layers including concrete pavement and building foundations which are not expected to have an effect on methane gas production at this site.

3.6 Potential Environmental Impacts (30 TAC §330.957(c)(4))

The construction activities that will impact the final cover of the closed landfill consist of the construction of a new single story solid waste transfer station building with roll-up doors. A scale house building will also be constructed between the inbound and outbound scales near the site entrance. The new buildings will be constructed on a reinforced concrete slab foundation that will include installation of drilled piers to a stable bedding layer and a structural concrete slab for the floor. The subgrade will be prepared as outlined in the geotechnical report, provided in Appendix A, and the methane gas ventilation and impermeable barrier will be installed as outlined in Sections 13 and 20.

Grading will generally be limited to the building footprint and pavement areas only as required to achieve the proposed finished floor elevations. Final cover will be restored to its original condition in areas that are disturbed during construction. The soil subgrade elevations for building slabs and paved areas will be constructed with engineered fill (also referred to as soil backfill) placed above the final cover. Engineered fill or soil backfill will be (1) free from chemical contamination, construction material, organics, debris, frozen material, organic matter, or unsuitable material; and (2) shall have a plasticity index (PI) between 5 to 50 percent, at least 10 percent passing the No. 200 sieve, at least 90 percent passing the No. 4 sieve, and no rock greater than 1-inch in size. Engineered fill will be placed in uniform lifts which do not exceed 8 inches in loose thickness and compacted to at least 95 percent of standard Proctor (ASTM D698) density at a moisture content ranging from -2% to +4% of optimum (as determined by ASTM D698). Standard Proctors will be obtained at a minimum of at least once per borrow source, and at least one per visual change in soil type or classification. Excavated waste mixed with soil shall be not be used as soil backfill

The proposed building construction will add impervious surfaces over the closed landfill. The fill areas adjacent to the buildings will be graded to maintain the established grass cover and positive drainage that currently exists at the site. A minimum of 2 foot of clean clay soil cover will be re-established in all areas that will be impacted by grade changes and foundation construction. Clay shall be defined as low plasticity clay (CL) or high plasticity clay (CH) material.

Proposed utility improvements include the installation of water and sewer lines to serve the buildings. Any utilities that are installed below the landfill cover will maintain a minimum of 2 feet of clay soil separation from the waste to the methane protection system underneath. Utility trenches for all water and sanitary sewer lines will be installed with trench liners comprised of 40 mil LLDPE/HDPE geomembrane. Water and sanitary sewer connections to the plumbing for the buildings will also be part of this construction. The proposed construction will not adversely impact the landfill cover since any soil removed or disturbed will be replaced with soil that has similar characteristics.

The construction of the proposed improvements will not endanger the health, safety, or welfare of the public.

12 GROUNDWATER AND SURFACE WATER STATEMENT (30 TAC §330.957(l))

12.1 Groundwater Statement

Based on soil borings performed during the Geotechnical Investigation in 2023 (See Appendix A), ~~groundwater~~liquid was encountered at depths ranging between 6 feet and 23 feet below ground surface.

Groundwater levels outside the landfill are expected to rise and fall on a seasonal basis, and are influenced by rainfall and the level of the Brazos River. ~~Groundwater~~ Liquid levels within ~~the~~ landfills are typically ~~may be~~ different from groundwater levels outside the respective landfill and do not have any direct correlation with each other. No groundwater wells were installed at this landfill due to its age and closure prior to groundwater monitoring requirements. As such, there is no data available for this site on existing groundwater elevations surrounding the landfill. The water observations conducted for this investigation are short-term and should not be interpreted as a groundwater study. However, the presence of ~~groundwater~~ liquids within the landfill will affect construction and long-term performance of the proposed foundations and pavements. The proposed deep foundation will adequately address the presence of ~~ground water~~ liquids and solid waste within the landfill.

A groundwater monitoring system is not proposed for this site based on the age of the landfill and no history of compliance issues related to groundwater at this site. There is no indication that groundwater contamination is present in the vicinity of the closed landfill. In addition the proposed development will reduce infiltration into the final cover due to additional soil fill material and impervious surfaces.

12.2 Surface Water Statement

Surface water will generally sheet flow away from the buildings and pavement into the existing swales along the highway and along the property lines. The existing drainage patterns will be maintained with the proposed improvements, including drainage swales and detention area. A detention area is proposed adjacent to the citizens collection station to collect and control stormwater associated with the addition of impervious surfaces. The drainage swales and detention area will be lined with erosion control blanket or turf reinforcement mat to prevent erosion and maintain vegetation growth. These features are depicted on the civil drawings contained in Appendix B.

The site is located outside the 100-year flood plain for the Brazos River according to FEMA Flood Insurance Map of McLennan County, Texas Map Number 48309C0575D dated 12/20/2019.

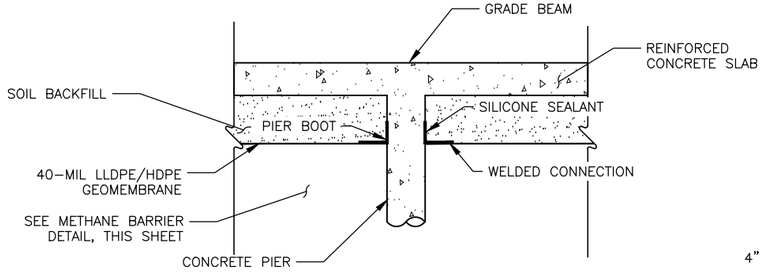
13 FOUNDATIONS PLANS (30 TAC §330.957(m))

The foundation plans for the transfer station building are included in this section. The foundation will consist of a reinforced concrete slab supported by grade beams that will bear directly on concrete pier caps. The entire structure will be supported by drilled shaft piers that extend below the landfill waste layer into the underlying shale formation. Drawing S1.00 to S1.10 in Appendix B provides a foundation plan with sections and details.

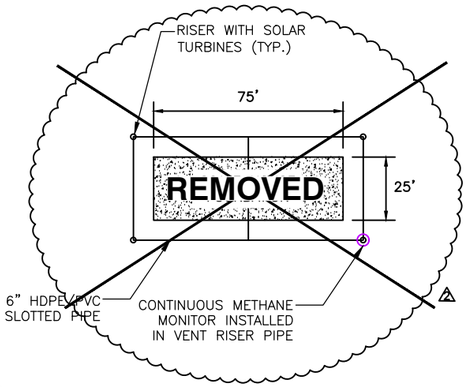
Drawing 13.1 is a layout and typical section of the subsurface methane barrier and gas ventilation system (system) that will be installed beneath the structural slab and beams. To comply with the requirements of 30 TAC 330.957(m)(1)(A) and (B), the system includes a minimum 40-mil LLDPE/HDPE geomembrane liner underlain by a 12-inch thick layer of drainage aggregate and a non-woven geotextile to prevent intrusion of soil into the permeable layer. The geomembrane will be installed around the concrete peers using pipe boots or collars to seal the annular spacing between the drilled shafts and geomembrane. See Appendix G for geosynthetic specifications, including non-woven geotextile and geomembrane. Perforated PVC or HDPE piping will be installed within the aggregate layer to extend beneath the structure and around the building. Riser vents will provide points to allow surface venting of gas collected by the piping to comply with the requirements of 30 TAC §330.957(m)(1)(C),(D) and (E). The riser pipes will be equipped with ports that could be used to connect an induced-draft exhaust system, if needed, in the future.

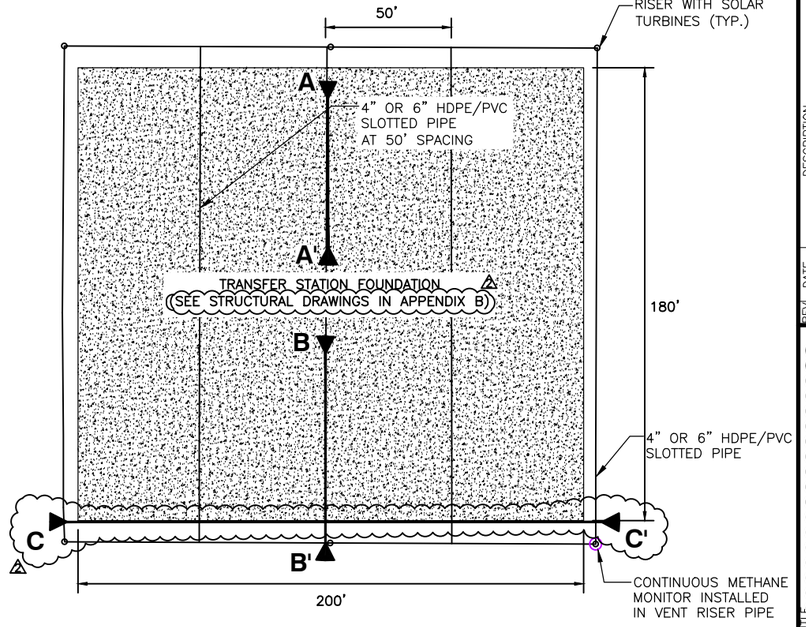
The scale house structure will be constructed with a ventilation layer between the floor beams and slab foundation to maintain status as a non-enclosed structure. A layout and typical section of the scale house foundation is depicted on Drawing 13.2.

Consistent with 30 TAC §330.957(m)(1)(F), both proposed buildings will be equipped with multiple methane sensors that will produce both an audible and visual alarm if concentrations of methane exceed 1% by volume (BV) or 20% of the lower explosive limit (LEL). In the event of this alarm the procedures in Section 20 shall be implemented by designated safety coordinators.



PIER BOOT DETAIL
NTS





PIPING PLAN
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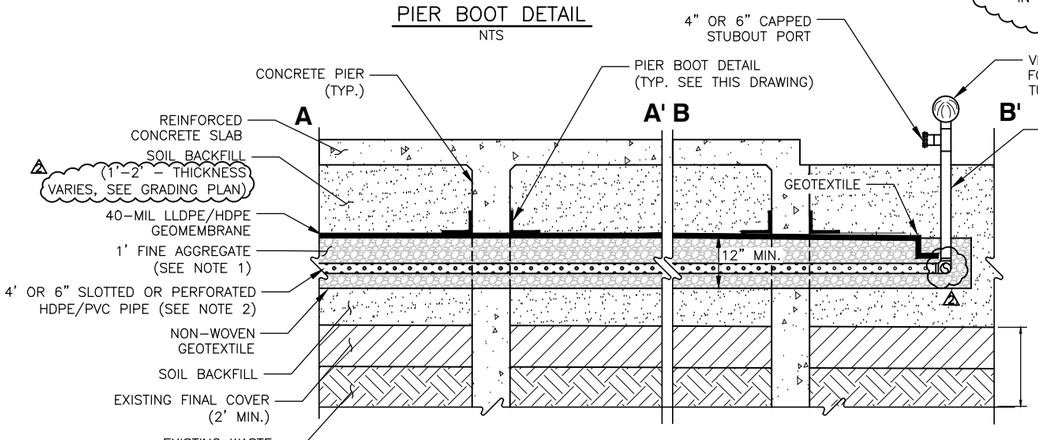
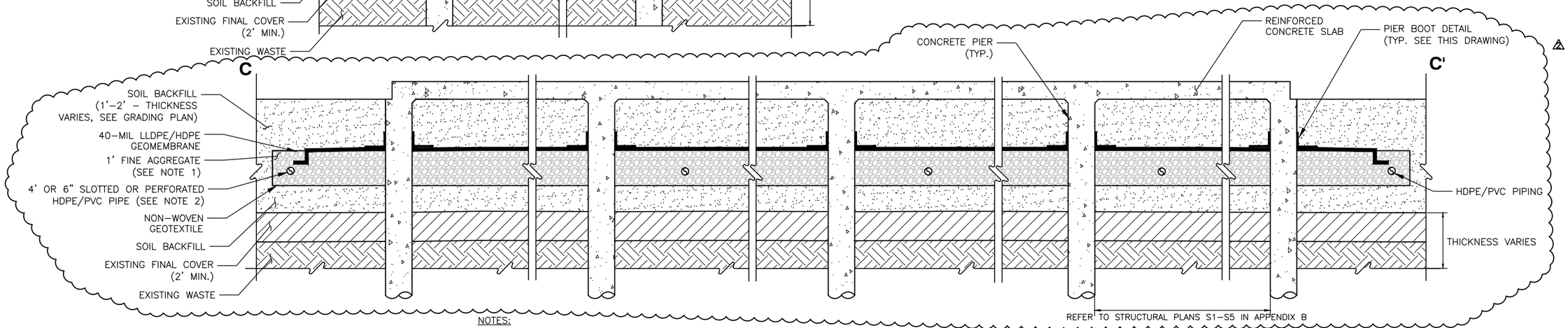




NOTES:

1. FINE AGGREGATE SHALL BE COARSE SAND OR FINE GRAVEL THAT IS AN OPEN GRADED CLEAN MATERIAL.
2. SLOTTED OR PERFORATED PIPING SHALL EXTEND AROUND THE BUILDING PERIMETER AND BENEATH SLAB AS SHOWN ON PIPING PLAN DETAIL.
3. PROVIDE FITTED HDPE BOOTS FOR A1C FOUNDATION PIERS (SEE PIER BOOT DETAIL, THIS SHEET)
4. CONTINUOUS METHANE MONITORS SHALL BE INSTALLED IN THE VENT PIPE RISER. REFERENCE PIPING PLAN (THIS PAGE) FOR VENT RISERS AND METHANE MONITOR LOCATIONS.
5. PROVIDE 4" OR 6" CAPPED PORT FOR FUTURE BLOWER IF NEEDED.
6. PIERS SHALL EXTEND INTO UNDERLYING BEDROCK AS INDICATED ON STRUCTURAL PLANS S1–S5 IN APPENDIX B.
7. EXCAVATED WASTE THAT IS MIXED WITH SOIL SHALL NOT BE USED AS SOIL BACKFILL.

METHANE BARRIER DETAILS
NTS

STATE OF TEXAS
JEFFREY ARRINGTON
61895
LICENSED PROFESSIONAL ENGINEER
08/15/2023

FOR PERMITTING PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
1	6/16/23	REMOVED REFERENCES TO SITE'S PREVIOUS PERMIT NO. AND UPDATED FACILITY NAME	JA
2	8/11/23	REVISED DETAILS AND UPDATED TITLE	JA

TEXAS BOARD OF PROFESSIONAL ENGINEERS REG. NO. F-3407

DRAWING TITLE
TRANSFER STATION FOUNDATION/METHANE BARRIER AND GAS VENTILATION DETAILS

PROJECT TITLE
CITY OF WACO
TRANSFER STATION FACILITY
DEVELOPMENT PERMIT APPLICATION

CLIENT
CITY OF WACO
6165 - 5733 FM 3400
WACO, TEXAS, 76706

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
1901 CENTRAL DRIVE, SUITE 550, BEDFORD, TX 76021
PH (817) 571-2288 FAX NO. (817) 571-2188

PROJ. NO. 162220613.00 | DSN. BY: BGC | CHK. BY: SDS | D/A R/W BY: RRK | APP. BY: JA | DSN. BY: JA

CADD FILE: 13.1–13.2 – METHANE BARRIER DETAIL

DATE: 06/2023

SCALE: AS SHOWN

DRAWING NO. **13.1**

8/15/2023 11:34 AM G:\WACO\162220613.00 Task 2 - Site 1039 - Transfer Station Engineering and Permit\WGO #A13.1-13.2 - METHANE BARRIER DETAIL

14 OTHER PLANS (30 TAC §330.957(n))

14.1 Grading, Paving And Utility Plans (30 TAC §330.957(n)(1))

Civil, architectural, structural, and mechanical-electrical-plumbing (MEP) plans are included herein and in Appendix B. The architectural, structural and MEP plans provide construction information for the proposed buildings. The following list provides general content descriptions of the applicable plan sheets for this permit:

Waco Transfer Station Site Work and Building Plans

C1 – C~~5~~6 Civil Plans

These drawings provide layout and details for the grading, paving, and utilities proposed for the project.

A2.1 Building Floor Plan

These drawings provide overall floor plans for the transfer station building.

A3.1 Building Elevation

Building elevations are provided for the transfer station and scale house buildings.

S1.01

This is the overall foundation plan for the transfer station building.

Landscaping

The only landscaping proposed for this project involves re-establishment of turf grass in disturbed areas outside of the paved areas and building foundations.

Excavated Waste Material Disposal and Contaminated Water Management

The contractor will manage any contaminated water or solid waste encountered during construction.

The construction activities associated with the proposed site work and utility construction may result in the generation of solid waste material from proposed site grading or trench excavation. Although some of the work associated with the project will take place outside the landfill limits of waste, most of the construction activity will take place within the limits of waste over the closed landfill.

If solid waste is encountered during these or any other construction activities, the waste will be separated from other clean excavated material and placed on plastic sheeting unless it is loaded directly into trucks, trailers, or containers and removed from the site for disposal. If the waste needs to be stored on-site for more than 24 hours, it will be covered with an impermeable synthetic material to prevent contact with rainfall. All solid waste will be disposed at ~~an authorized~~ a TCEQ permitted MSW landfill. It is anticipated that the excavated solid waste will be disposed in the City of Waco's existing landfill (MSW-948A).

If excavation activities result in exposed waste, the exposed waste area will be covered with clean soil or other materials as soon as practical, but no later than the end of the day. If an area of exposed waste will remain exposed for more than 24 hours, the contractor will provide adequate temporary

cover consisting of a minimum of 6 inches of soil or an impermeable membrane material to prevent rainfall from contacting the waste. Diversion berms will be installed around the exposed waste area to prevent stormwater from contacting the waste. It is anticipated that solid waste from excavations will be predominantly generated from the drilled piers and trenching for water and electrical lines. It is estimated that approximately 450 to 500 cubic yards of waste will be generated from pier construction and 400 to 500 cubic yards of waste material will be generated from trenching for installation of the utilities.

Improvements proposed at the landfill include, but are not limited to:

- Trenching for electrical, water, wastewater, and drainage swales
- Site Grading;
- Paving Construction; and
- Construction of manholes, valve boxes and oil/water separator and grit traps.

If waste is exposed during construction of proposed improvements, then a minimum of a 2-foot thick clay (CL or CH) soil layer will be placed and compacted over the exposed area. In areas where grading reduces cap thickness to less than 2 feet, the cap will be restored to a minimum of 2 feet with CH or CL soil material.

Stormwater runoff control measures will be used to minimize contaminated water generation. Temporary diversion berms will be used upslope of all excavations where waste will be exposed to minimize the amount of surface water coming into contact with waste materials. In addition, temporary containment berms will be constructed around areas of exposed waste to collect surface water. The diversion berms and containment berms will be appropriately installed in areas where waste material will be exposed due to excavation or other construction activities. At no time will contaminated water be allowed to discharge to surface waters.

In view of the management procedures described above, especially the covering of waste and precautions implemented in advance of inclement weather, the generation of leachate or contaminated water is expected to be minimal. However, if leachate or contaminated water is generated, the water will be collected and disposed of in accordance with standards set forth herein and in accordance with City and State requirements for disposal of such water. The following are methods (or a combination) that will be used to handle any leachate or contaminated water encountered or generated during construction:

- On-site storage and disposal in the sanitary sewer – will require analysis of the leachate or contaminated water to compare with the acceptable limits at the local wastewater treatment plant, as approved by the City of Waco, regarding discharge limits.
- On-site storage and disposal off-site via vacuum truck transport – will require a vacuum truck to transport the leachate/contaminated water to an approved wastewater treatment facility. This option will likely only be utilized if discharging into the sewer system, proves not to be feasible.
- In areas where waste is excavated, all waste will be properly transported to an approved MSW landfill. No waste will be left exposed overnight.

The contractor will be required to comply with TCEQ's general stormwater permit for construction activities of the Texas Pollutant Discharge Elimination System (TPDES) prior to beginning work. As part of the coverage under TPDES, the contractor will file a Notice of Intent (NOI), prepare a Storm Water Pollution Prevention Plan (SWPPP), and install appropriate erosion control devices in accordance with the SWPPP, which must be in place prior to filing of the NOI.

The provisions of the SWPPP will include measures to control sediment discharge during construction including, but not be limited to the use of earthen berms, hay bales, and silt fencing down-gradient of slopes which may experience erosion (including material stockpiles). Erosion damage from rainfall events will be repaired by the contractor after such events. All erosion control measures will also be inspected and maintained throughout the redevelopment process.

As discussed above, drainage control measures will be put in place to minimize the amount of contaminated water generated during the project and to collect any leachate from the excavation process. Berms, when used for contaminated water generation control, will also be maintained as necessary to meet SWPPP requirements and to control erosion.

The contractor will pay special attention to erosion on soil cover over waste materials. Any cover damage to the existing landfill, or in areas where cover must be maintained over solid waste materials that are part of construction, will be repaired immediately and steps taken to prevent a recurrence of that type of damage.

Construction Safety Issues

The contractor and all subcontractors will be required to follow safety procedures outlined in this document and the specifications in Appendix D, and will be expected to be prepared to encounter waste and adhere to provisions of this plan. The contractor will be required to address, at a minimum, the following safety issues:

- **Landfill gas safety issues** – Workers will follow the safety procedures that are contained in the Contractor's Site Safety Plan (SSP) required for construction and procedures contained in this document. Construction of this project will be performed in and near buried wastes. As these buried materials decompose, they will generate landfill gas, which normally consists of carbon dioxide, methane, and occasionally hydrogen sulfide, as well as other trace gases, depending on the composition of the buried materials. These gases usually vent to the atmosphere through the cover soil, but may also migrate laterally to adjacent areas depending on site and weather conditions. Landfill gases may cause an oxygen deficiency in underground trenches, vaults, conduits, and structures. The contractor and/or the City will conduct air monitoring in excavation areas and other locations of construction activity where landfill gas is likely to accumulate. Monitoring equipment shall be calibrated to detect small amounts of methane and be recalibrated periodically in accordance with manufacturers' recommendations and the SSP. Monitoring of air for methane gas (and other gases, as determined by the SSP) shall be performed during working hours whenever open trenches, excavations, or waste handling/disposal is taking place, when the contractor is working on or near exposed refuse, or when landfill gas is likely to be present.

- In addition, the SSP to be developed for the project by the selected contractor will address construction workers safety. Also, the selected contractor will be advised of the possibility of landfill gas and to take the necessary precautions associated with construction activities at this site. To monitor concentrations of methane, an on-site representative of the contractor will be required to continuously wear a personal gas monitor which will detect concentrations of methane and emit an audible alarm when methane concentration reaches 20% of the lower

explosive limit. If this were to happen, the representative will immediately advise all personnel to vacate the area of concern and not return until methane concentrations have returned to acceptable levels. While such conditions that would allow methane to accumulate to levels of concern are not anticipated, the representative will, nonetheless, monitor the excavation process on a routine basis to provide suitable oversight of methane concentrations.

City of Waco will designate a Professional Engineer to provide guidance and oversight of the Contractor's methane monitoring program during construction. Consistent with the SSP, the responsible engineer will determine the appropriate levels of monitoring for the proposed construction activities.

- Potential fire control and management – Fires and explosions may occur from the presence of methane gas. Methane is explosive in approximate concentrations of 5 to 15 percent by volume in air and will be present in landfill gas at the site. Soil shall be stockpiled adjacent to work space in areas of exposed refuse for firefighting purposes and water will be available at all times on-site for potential fire suppression. Fire extinguishers with a rating of at least A, B, or C will be available at all times on the site. Welding, smoking, and startup and shutdown of equipment will not be permitted in areas of exposed waste and smoking will not be allowed at any time within the construction area. The local fire department will be notified prior to the commencement of construction and its contact information will be kept available by all supervising project personnel, one of which will be on-site during all working hours.

- Procedures for working with MSW – Landfill materials (solids and liquids) have the potential to contain pathogens, fungus, viruses, infectious materials, sharp, puncturing, and cutting objects, and other hazards. Dust control during waste excavation is important with respect to controlling dust-borne transmission of harmful elements. Preventing dermal contact with waste by workers, including unnecessary walking over, or in, exposed waste, will also reduce the risks of worker exposure. Dust control and worker exposure during excavation will be addressed in the contractor's SSP plan, as will be required by the bid documents for this project.

Variance Request for Water, Sanitary Sewer Piping Requirements

On behalf of the City of Waco, SCS Engineers is requesting that TCEQ grant a variance from the requirements of 30 TAC §330.961(g) that requires conduits carrying liquids over closed landfill waste cells to be double-contained. This subsection addresses the variance request for the water, and wastewater piping. As described in this section, the proposed development consists of site improvements including utilities that will serve the new transfer station and scale house buildings that will be constructed after obtaining approval from TCEQ. This variance request is intended to address the use of trench liners in lieu of double-contained piping.

In support of this variance request we are including the following:

- Plans for the water, waste water – Appendix B

- Narrative description of the proposed system – This Section

This variance request is being made to facilitate the design and operation of the utilities at this closed landfill in Waco. The reasons for this variance include:

- To provide a cost-effective alternative to the double-contained piping (pipe in pipe) requirement for conduits carrying fluids over closed landfills. The use of double-contained piping for utility lines adds cost and complicates the maintenance and repairs for the system

that includes valve boxes, manholes, fire hydrants and other features that make the use of double-contained piping systems not feasible.

- To avoid implementation of a cost prohibitive design standard that may result in significant additional cost to the City of Waco and its citizens. Similar trench liner systems have been approved at closed landfills for the Baylor Golf Practice facility, Football Operations Improvements and also at closed landfill sites in Dallas and Mesquite, Texas.

The proposed alternative to double-contained piping for water, and wastewater involves the use of 40-mil LLDPE/HDPE trench liners that will be installed in the pipe trenches for the utility lines. The water and wastewater lines will include leak detection manholes at the beginning and end of the proposed new lines. The trench liners will be connected to the leak detection manholes to complete the system of leak containment. No storm drainage piping is proposed with the site. Sensors will be installed in the leak detection manholes that provide an alarm for liquid levels to indicate potential leak in the lines. Details of the proposed trench liners and leak detection manhole are provided on drawing C5.

The project construction is scheduled to begin in the first quarter of 2024 and is expected to be completed by the end of 2024.

14.2 Irrigation System Plans (30 TAC §330.957(n)(2))

No irrigation system is proposed to be installed at the landfill with this development permit application.

18 OPERATIONAL REQUIREMENTS PLAN (30 TAC §330.957(r)) AND (30 TAC §330.961)

18.1 Operational Requirements Plan General Information (30 TAC §330.961(a))

The site operating plan, structures gas monitoring plan (Section 20), closure plan (Section 17), and safety and evacuation plan (Section 21) will be considered part of the operating record for the development permit. A copy of this information will be maintained in an office at the scale house building throughout the life of the facility. City of Waco will notify the executive director and other entities that have requested notification in the event of any incident involving the facility related to the development permit for remediation of the incident. Any deviation from the development permit and incorporated plans or other related documents associated with the development permit will be approved by the executive director.

18.2 Landfill Gas Control (30 TAC §330.961(b))

The structures gas monitoring plan, in Section 20 of this application, provides detailed requirements and procedures for the monitoring systems to be installed and maintained in the transfer station and scale house buildings. The plan details the type and number of monitoring equipment as well as the locations and frequency of monitoring for the buildings. The plan will be updated as needed to reflect modifications to the buildings that may warrant changes to the monitoring plan.

18.3 Landfill Gas Monitoring (30 TAC §330.961(b)(1))

City of Waco will perform landfill monthly gas monitoring of on-site structures, including, but not limited to, scale house and transfer station buildings, utilities, or any other areas where potential gas buildup would be of concern. Consistent with 30 TAC §330.957(m)(1)(F), both proposed buildings will be equipped with multiple methane sensors that will produce both an audible and visual alarm if concentrations of methane exceed 1% BV or 20% of the LEL. In the event of this alarm the procedures in Section 20 shall be implemented by designated safety coordinators. Areas of the on-site structures where gas may accumulate will be monitored and include, but are not limited to, areas in, under, beneath, and around basements, crawl spaces, floor seams or cracks, and subsurface utility connections. Lastly, the structures gas monitoring plan will be modified as needed to reflect any future modifications to the on-site structures.

18.4 Reporting (30 TAC §330.961(b)(2))

All monthly sampling results will be placed in the site operating record in accordance with 30 TAC §330.125(b)(3) and will be available for inspection by the executive director. If methane gas levels exceed the limits specified in the structures gas monitoring plan, City of Waco will notify the TCEQ in accordance with 30 TAC §330.371(c).

18.5 Air Criteria (30 TAC §330.961(c))

No open burning will be allowed at this facility and City of Waco will comply with all federal, state, and local regulations related to air pollution and the state implementation plan. Additionally, proposed enclosed on-site structures will be equipped with ventilation in accordance with all appropriate TCEQ rules. The transfer station building has roll-up doors and exhaust fans. The scale house building has a

HVAC system that provides fresh air into the buildings. Both structures will have under-slab ventilation for potential methane gas migration.

18.6 Ponded Water (30 TAC §330.961(d))

The proposed grading and drainage plans, provided in Appendix B, will promote positive drainage and will not result in any ponding of water over the closed MSW landfill.

18.7 Water Pollution Control (30 TAC §330.961(e))

As discussed above, the site will be graded to promote positive drainage of surface water generated on the landfill and routed to existing and proposed perimeter swales for off-site sheet flow to maintain pre-development drainage patterns. The onsite stormwater detention area is proposed to mitigate the effects of proposed impervious areas.

Additionally, all wastewater generated from facility operations will be collected and stored in on-site holding tanks for periodic removal to the Publicly Owned Treatment Works (POTW) operated by the Brazos River Authority. The City may discharge wastewater directly to sanitary sewer offsite if that becomes feasible for this facility. The direct discharge of contaminated water into the sanitary sewer system will comply with POTW pre-treatment and discharge requirements for this type of wastewater. Sanitary sewer conduits shall comply with all requirements of this development permit including trench liners and leak detection manholes.

18.8 Groundwater Monitoring (30 TAC §330.961(f))

The closed MSW landfill unit does not have a groundwater monitoring system and no groundwater monitoring is proposed with this application, as described in Section 12.1.

18.9 Conduits (30 TAC §330.961(g))

All water, waste water, or storm drainage piping serving the building located over waste will either be constructed with double-contained piping as required by 30 TAC §330.961(g) or, as discussed in Section 14, utilities proposed for the facility will be constructed with trench liners and leak detection manholes.

18.10 Recordkeeping Requirements (30 TAC §330.961(h))

City of Waco will record and retain the following information:

- All gas monitoring results and any remediation plans associated with landfill gases.
- All design documentation for the landfill gas monitoring and venting system.
- All operations and maintenance documents pertaining to systems as they relate to this development permit.
- All other documents required by the permit or the executive director.

The owner, operator, will provide written notification to the executive director, and any local pollution agency with jurisdiction that has requested to be notified, for each occurrence that documents listed in subsection (h) of this section are placed into or added to the operating record. All information contained in the operating record will be furnished upon request to the executive director and will be made available at all reasonable times for inspection by the executive director or his representative.

20 STRUCTURES GAS MONITORING PLAN (30 TAC §330.957(t))

20.1 Structures Gas Monitoring Plan General Information (30 TAC §330.957(t)(1))

This structures gas monitoring plan fulfills the requirements of 30 TAC §330.957(t) and will be considered part of the operating record for the development permit. A copy of this information will be maintained on-site throughout the life of the facility. City of Waco will notify the executive director and other entities that have requested notification in the event of any incident involving the facility related to the development permit, related to gas remediation.

The structures gas monitoring plan includes two key components. The first is a gas ventilation system with an impermeable barrier installed below the transfer station building foundations with vent risers located adjacent to the building. This system will allow methane, that migrates though the landfill final cover and engineered fill, to be collected and vented outside of the structure, as described in Section 13. The second component is a monitoring system inside the transfer station and scale house buildings that includes controller units and remote sensors that are capable of detecting methane and other explosive gases at concentrations below 1% BV or 20% of LEL. This system will have audible and visual alarms that will trigger in the event that methane concentrations exceed 1%. The monitoring system is intended to confirm that the concentration of methane gas within the facility structure does not exceed 20% of the LEL.

20.2 Facility Characteristics And Potential Migration Pathways (330.957(t)(2)(A))

As discussed in Section 19, the transfer station building will be a single story clear span steel framed structure with roll-up bay doors. The scale house building will be a single story wood or metal stud framed structure. Both buildings will be constructed over a reinforced concrete slab that is supported by grade beams and drilled shaft piers. The piers will extend below the waste layer into the underlying shale formation. The existing final cover elevations at the proposed buildings range between approximately 410.0 to 414.0 for the transfer station and 417.0 to 418.0 for the scale house. The final cover in this area is approximately two feet deep. The proposed finished floor elevation of the transfer station building is 416.0 feet. Approximately 2 to 6 feet of engineered fill will be placed over the final cover in the vicinity of the building to establish the proposed elevations for the building slab and paving and to provide additional buffer between the building slab and top of final cover. The proposed finished floor for the scale house building will be 420.0, which is approximately 2 to 3 feet above the final cover grades. Proposed facility layout and grading plan are included in Appendix B.

The nature and age of the waste is discussed in detail in Section 3 of the permit. The age of the waste and the geotechnical field investigation provided in Appendix A indicate that the landfill is in the later stages of decomposition and gas production is limited but still ongoing. Due to the presence of landfill gas, various protective measures have been incorporated into the design of the structure. These are described in the following section.

The scale house building will be used by scale attendants and will also include office space, break room and meeting room. Restrooms will be included in the building for Waco employees only. The expected occupancy of the building will range between 10 to 20 people during training and meetings. The typical duration of occupation will be between 8-10 hours for most individuals.

Appendix A

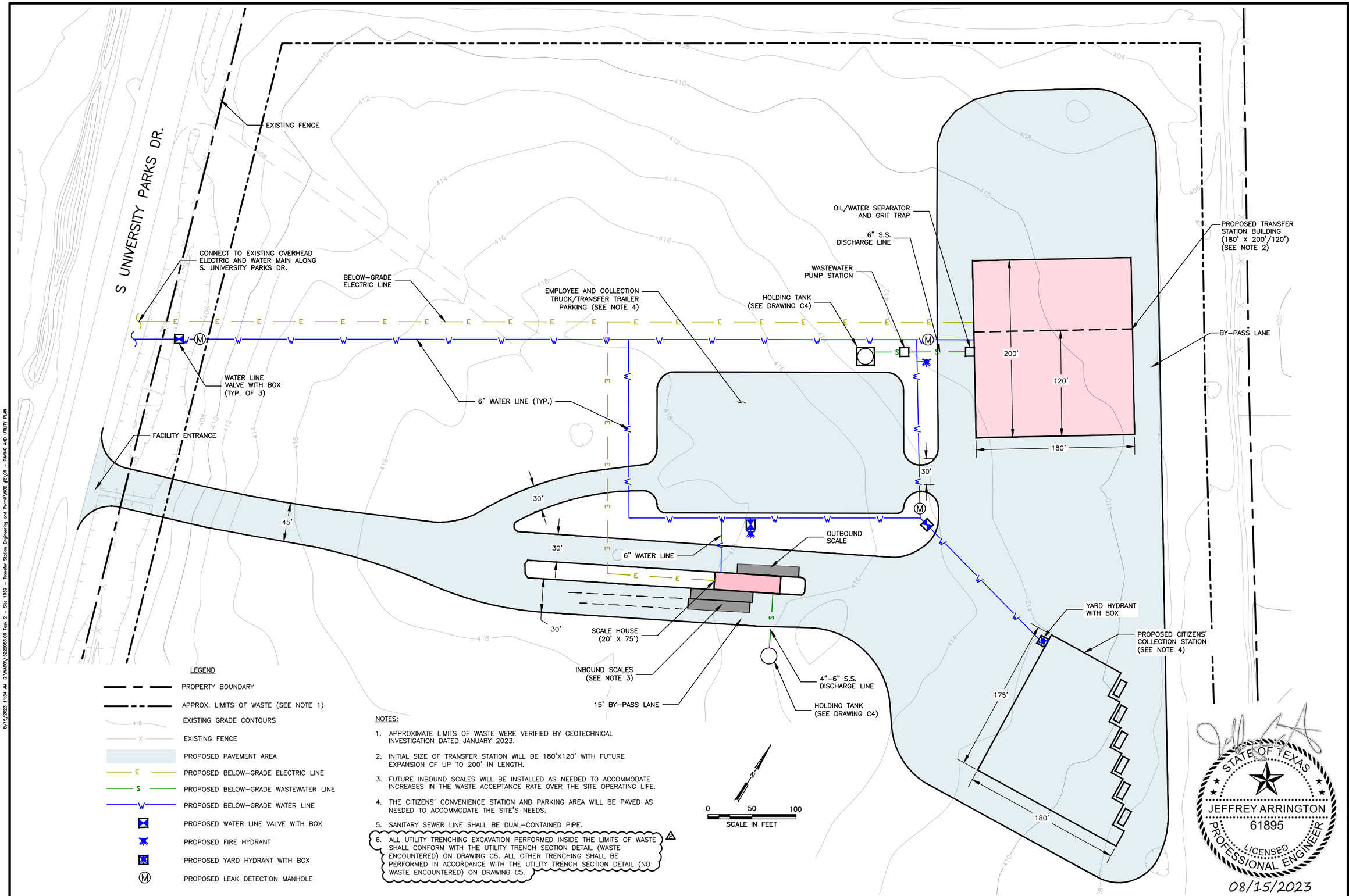
Site Investigation

- Geotechnical Investigation – January 2023

October 2022 Methane Investigation and Boring Plan

Appendix B

Construction Plans



LEGEND

- PROPERTY BOUNDARY
- APPROX. LIMITS OF WASTE (SEE NOTE 1)
- EXISTING GRADE CONTOURS
- EXISTING FENCE
- PROPOSED PAVEMENT AREA
- E — PROPOSED BELOW-GRADE ELECTRIC LINE
- S — PROPOSED BELOW-GRADE WASTEWATER LINE
- W — PROPOSED BELOW-GRADE WATER LINE
- PROPOSED WATER LINE VALVE WITH BOX
- PROPOSED FIRE HYDRANT
- PROPOSED YARD HYDRANT WITH BOX
- Ⓜ PROPOSED LEAK DETECTION MANHOLE

NOTES:

1. APPROXIMATE LIMITS OF WASTE WERE VERIFIED BY GEOTECHNICAL INVESTIGATION DATED JANUARY 2023.
2. INITIAL SIZE OF TRANSFER STATION WILL BE 180'X120' WITH FUTURE EXPANSION OF UP TO 200' IN LENGTH.
3. FUTURE INBOUND SCALES WILL BE INSTALLED AS NEEDED TO ACCOMMODATE INCREASES IN THE WASTE ACCEPTANCE RATE OVER THE SITE OPERATING LIFE.
4. THE CITIZENS' CONVENIENCE STATION AND PARKING AREA WILL BE PAVED AS NEEDED TO ACCOMMODATE THE SITE'S NEEDS.
5. SANITARY SEWER LINE SHALL BE DUAL-CONTAINED PIPE.
6. ALL UTILITY TRENCHING EXCAVATION PERFORMED INSIDE THE LIMITS OF WASTE SHALL CONFORM WITH THE UTILITY TRENCH SECTION DETAIL (WASTE ENCOUNTERED) ON DRAWING C5. ALL OTHER TRENCHING SHALL BE PERFORMED IN ACCORDANCE WITH THE UTILITY TRENCH SECTION DETAIL (NO WASTE ENCOUNTERED) ON DRAWING C5. △6

STATE OF TEXAS
JEFFREY ARRINGTON
61895
LICENSED PROFESSIONAL ENGINEER
08/15/2023

FOR PERMITTING PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
1	6/16/23	REMOVED REFERENCES TO SITE'S PREVIOUS PERMIT NO., UPDATED FACILITY NAME, AND UPDATED CCS CALLOUT	JA
2	8/11/23	ADDED NOTE 6 REFERENCING TRENCHING DETAILS	JA

TEXAS BOARD OF PROFESSIONAL ENGINEERS REG. NO. F-3407

DRAWING TITLE: **PAVING AND UTILITY PLAN**

PROJECT TITLE: **CITY OF WACO TRANSFER STATION FACILITY DEVELOPMENT PERMIT APPLICATION**

CLIENT: **CITY OF WACO**
6165 - 5733 FM 3400
WACO, TEXAS, 76706

SCS ENGINEERS
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PROJ. NO.	DSN. BY:	D/A RVW BY:	APP. BY:
165/22063.00	RGC	RRK	JA
DSN. BY:	CHK. BY:	SDS	
JA			

CADD FILE: C1 - PAVING AND UTILITY PLAN

DATE: 06/2023

SCALE: AS SHOWN

DRAWING NO. **C1**

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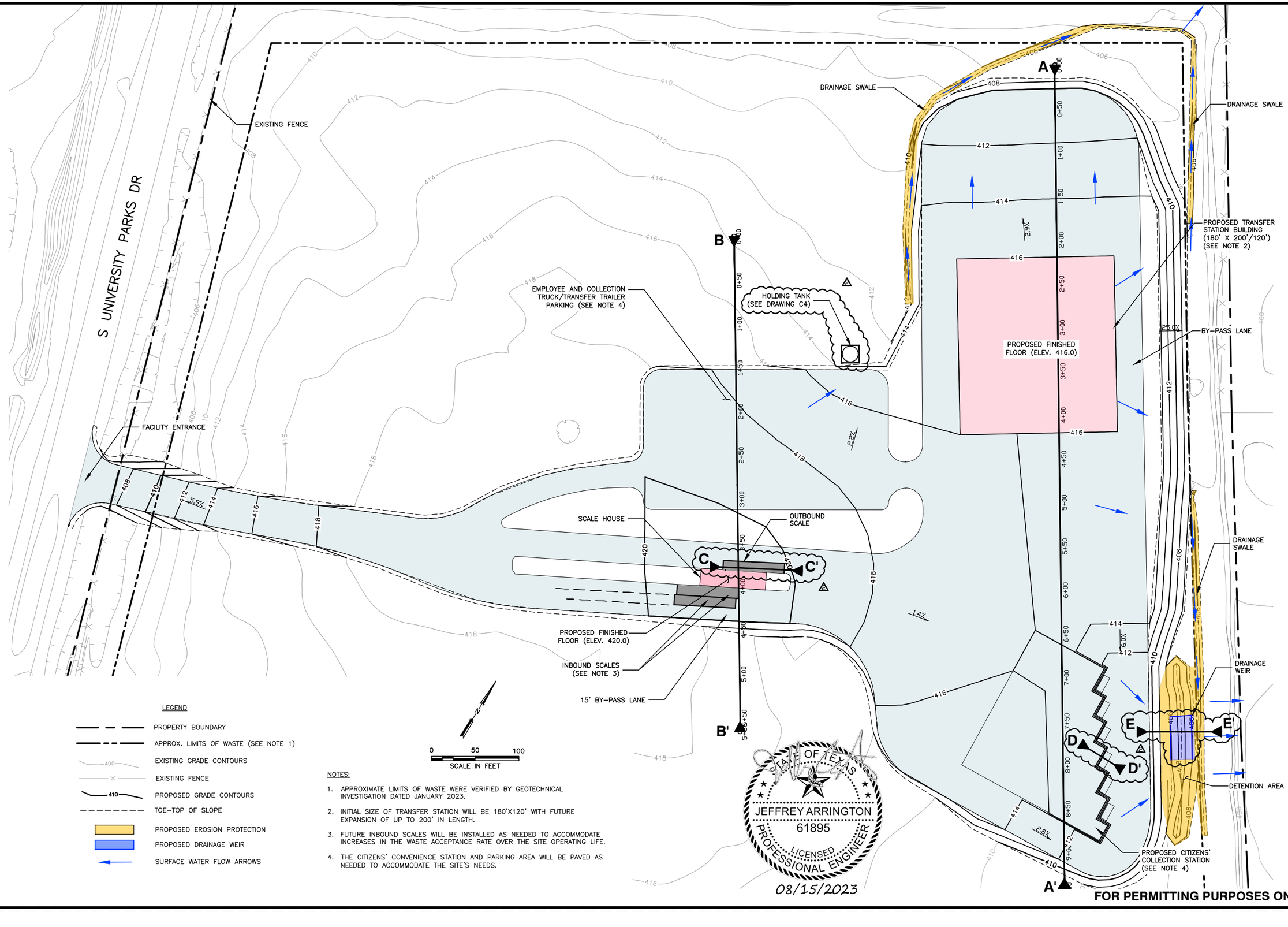

LEGEND

- PROPERTY BOUNDARY
- APPROX. LIMITS OF WASTE (SEE NOTE 1)
- EXISTING GRADE CONTOURS
- EXISTING FENCE
- PROPOSED GRADE CONTOURS
- TOE–TOP OF SLOPE
- PROPOSED EROSION PROTECTION
- PROPOSED DRAINAGE WEIR
- SURFACE WATER FLOW ARROWS

0 50 100
SCALE IN FEET

NOTES:

1. APPROXIMATE LIMITS OF WASTE WERE VERIFIED BY GEOTECHNICAL INVESTIGATION DATED JANUARY 2023.
2. INITIAL SIZE OF TRANSFER STATION WILL BE 180'X120' WITH FUTURE EXPANSION OF UP TO 200' IN LENGTH.
3. FUTURE INBOUND SCALES WILL BE INSTALLED AS NEEDED TO ACCOMMODATE INCREASES IN THE WASTE ACCEPTANCE RATE OVER THE SITE OPERATING LIFE.
4. THE CITIZENS' CONVENIENCE STATION AND PARKING AREA WILL BE PAVED AS NEEDED TO ACCOMMODATE THE SITE'S NEEDS.

STATE OF TEXAS
JEFFREY ARRINGTON
61895
LICENSED PROFESSIONAL ENGINEER
08/15/2023

FOR PERMITTING PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
1	6/16/23	REMOVED REFERENCES TO SITE'S PREVIOUS PERMIT NO., UPDATED FACILITY NAME, AND UPDATED CCS CALLOUT	JA
2	8/11/23	ADDED HOLDING TANK AND CROSS SECTIONS AND ADJUSTED WEIR LOCATION	JA

TEXAS BOARD OF PROFESSIONAL ENGINEERS REG. NO. F-3407

DRAWING TITLE
GRADING AND DRAINAGE PLAN

PROJECT TITLE
CITY OF WACO
TRANSFER STATION FACILITY
DEVELOPMENT PERMIT APPLICATION

CLIENT
CITY OF WACO
6165 - 5733 FM 3400
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PROJ. NO.	162272063.00
DSN. BY:	JA
DWN. BY:	RGC
CHK. BY:	SDS
QA REVIEW BY:	RRK
APP. BY:	JA

CADD FILE:
C2-C3 – GRADING AND DRAINAGE PLAN AND X-SECTIONS

DATE:
06/2023

SCALE:
AS SHOWN

DRAWING NO.
C2

8/15/2023 11:38 AM C:\WACO\162272063.00 Task 2 – Site 1039 – Transfer Station Engineering and Permit\VOD #2\C2-C3 – GRADING AND DRAINAGE PLAN AND X-SECTIONS

Appendix G

Geosynthetic Specifications