Maverick County El Indio MSW Landfill
Maverick County, Texas
TCEQ Permit No. MSW-2316

Permit Modification Application

Response to Notice of Technical Deficiency 2 Dated April 7, 2025

Prepared for:

Maverick County
500 Quarry Street, Suite 3,
Eagle Pass, Texas 78852
830/773-3824

Prepared by:

SCS ENGINEERS

SCS Project No. 16223092.00 | June 2025

1901 Central Drive, Suite 550
Bedford, Texas 76021
817.571.2288

Texas Commission on Environmental Quality

Waste Permits Division Correspondence Cover Sheet

Date: 06/23/2025
Facility Name: Maverick County El Indio MSW Landfill
Permit or Registration No.: 2316

Nature of Correspondence:
☐ Initial/New
☒ Response/Revision to TCEQ Tracking No.: 31435860 (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:	

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:	

June 23, 2025
SCS Project No. 16224108.00

Ms. Megan Henson
MSW Permits Section Manager, Waste Permits Division
Texas Commission on Environmental Quality
12100 Park 35 Circle Building F
Austin, Texas 78753

Subject: Maverick County El Indio MSW Landfill - Maverick County
Municipal Solid Waste - Permit No. 2316
Response to Technical Notice of Deficiency – 2
Tracking No. 30189555 and 31435860; RN105513030 / CN603354721

Dear Ms. Henson:

On behalf of Maverick County Solid Waste Authority (Authority), SCS Engineers (SCS) is providing this response to the April 21, 2025 Technical Notice of Deficiency (NOD-2) email for the Maverick County El Indio MSW Landfill, related to the Permit Modification Application – Surface Water Drainage, Final Contours, and Geology/Geotechnical.

Attached to this response letter, we have included three (3) original copies, for use as replacement pages in the permit application. Where possible, we have identified changes in response to NOD-2 in a redline/strike-out format (i.e., marked version). Additionally, one (1) copy of this response letter has been sent to TCEQ Regional Office 16.

For ease of review, we have included your original comments from the April 21, 2025 NOD-2 email, followed by our responses and/or revisions in ***bold/italics.***

1. It is noted that the citizen collection center is proposed to be located within the existing buffer zone. Revise the application to comply with the rule requirements of 30 TAC §330.141(a), and ensure that no solid waste unloading, storage, disposal, or processing operations shall occur within any buffer zone. Note that a 125-foot buffer zone should be maintained for a Type I landfill as required by 30 TAC §330.543(b)(2)(A).

   The proposed citizens' collection station (CCS) has been temporarily relocated to be constructed within future landfill Cell 9 until the time landfill operations require liner construction within the cell. It is anticipated that this location will provide the Authority up to 25 years of operational life as landfill disposal operations continue within Phases 1 through 8. At that time, the CCS will be relocated to another future cell to provide the City with additional operational flexibility while maintaining the 125-foot buffer requirement of 30 TAC §330.543(b)(2)(A) for solid waste unloading, storage, disposal, or processing operations. At no time will the CCS be located within 125 feet of the property boundary throughout the development of the landfill. Engineering drawings depicting location of the CCS have been updated and provided with this response letter.

2. Per 30 TAC §330.23(a), provide recommendations from the TxDOT (Texas Department of Transportation) for the proposed primary entrance regarding the adequacy and design capacity of such roadways/entrances to safely accommodate the additional volumes and weights of

traffic generated or expected to be generated by the facility operation. Since TCEQ defers to the TxDOT recommendations for the traffic impacts and adequacy of state-maintained roadways, include a no-objection from the TxDOT.

An approved access permit for the new driveway was received by TxDOT and is included in Exhibit 4 of this letter. Additionally, Part 1, Section B, Section 3.C has been revised to indicate that a new driveway permit was received from TxDOT and is included as Appendix I-F3.

3. Indicate the permitted and the proposed final cover grades to show the changes with redline strikeouts in the final cover profile, including for side slopes on Attachments 2A, 2B1-2B2, 2C, and 2D for Cross Sections A-A', B-B', C-C', and D-D' respectively.

   Attachments 2A, 2B1, 2B2, 2C, and 2D - Cross Sections A-A', B-B', C-C', and D-D' were revised to show the changes with redline strikeouts of permitted final cover grades in the final cover profile.

   Additionally, Attachment 2 has been revised to indicate that cross-section D-D' was relocated to the west of its original location to demonstrate proposed landfill final cover grading.

   A revision table was also included that clarifies the revisions performed on the drawings.

4. In accordance with 30 TAC 330.63(c)(1)(C) and 330.305(a), (i) revise Section 4.0 of Attachment 6.0 to include analysis for the runoff volume, and the peak velocity in addition to peak flow at each of the discharge points under permitted and post-development conditions. See "Section 1.1 Submitting Application" in RG-417;

   Attachment 6 has been revised to include an analysis of the runoff volume, per guidance from NRCS Technical Release 55 (TR-55), and an analysis of the peak velocities at the discharge points.

   (ii) locate runoff discharge points at the permit boundary, and provide design calculations for stormwater runoff collection/conveyance structures (e.g., channels, ponds' inlet/outlets, etc.) for discharging stormwater into the streams, and demonstrate that the existing drainage patterns will not be adversely altered prior to discharging into the streams and after discharging into receiving streams; and

   As discussed with TCEQ on May 21, 2025, the stormwater runoff discharge points are placed at locations consistent with the original permit conditions and were not revised. As such, it was not necessary to revise the discharge points to be located at the permit boundary. A summary table of the comparison of the pre-development conditions and post-development conditions is included in Attachment 6, Section 4.0, which shows that the overall post-development conditions at Discharge Point I +II +III has decreased. Design calculations for the stormwater channels are included in Attachment 6D2, as provided in the original submittal. Detention Ponds A and B were unchanged from the original permit, and design calculations and details are included within Attachment 6E1 for Pond A. Additionally, Pond B is not required for stormwater detention and is only provided for additional water quality control measures, per Attachment 6E2, and as such its outlet does not include design calculations.

(iii) demonstrate that the increased peak flow rate from 94.6 cfs (cubic feet/sec) during existing condition to 197.84 cfs during final condition at the discharge point #II will not adversely alter the drainage pattern. Also, provide design calculations, and cross-sectional drawings for the collection/conveyance structures for this increased flow, including inlets and outlets that are used to discharge the stormwater runoff into the stream.

A summary table of the comparison of the pre-development conditions and post-development conditions is included in Attachment 6, Section 4.0. Discharge points I, II, and III are each part of the unnamed tributary of Saus Creek. The drainage flow associated with this creek leaves the property at Discharge Point I + II + III. As shown, the discharge flow and runoff volume at final buildout conditions at this location is less than the pre-development conditions and will not adversely affect the existing drainage leaving the site. Detention Pond B is unchanged from the original permit. Additionally, Pond B is not required for stormwater detention and is only provided for additional water quality control measures, per Attachment 6E2, and as such its outlet does not include design calculations.

5. Identify each proposed change on the drawing with redline strikeouts for the leachate collection system (Attachment 15C – Leachate Collection System), as stated in the cover letter. Also, include a summary table for details of revisions, as it was indicated in the cover letter.

   The requested changes to Attachment 15C – Leachate Collection System were provided in response to NOD, dated December 2, 2024. No further changes are proposed or depicted with response to NOD-2.

6. Provide redline strikeouts for Attachment 14A – Gas Monitoring Probe Placement to indicate the permitted and the proposed location of the gas probes for the relocated gas probes, GP-5 through GP-11.

   Attachment 14A– Gas Monitoring Probe Placement is revised to indicate the permitted and the proposed location of the gas probes for the relocated gas probes, GP-5 through GP-11, with redline strikeouts. Also, a revision table was included to describe changes that were made to this attachment.

   Additional changes were made to Attachment 14, Section 2.7 (Proposed Landfill Design) and Section 3.1.1 (Monitoring Probe Placement) to reflect number of landfill cells and gas monitoring probes that will be installed at the landfill, respectively.

7. In accordance with 30 TAC §330.103(a), indicate the frequency of waste removal from citizen's collection station. Note that the containers must be emptied at least once per week. Include revisions in Section 4.2.2 of the site operating plan (Part IV) and submit the revised pages.

   Part IV section 4.2.2 indicates that roll-offs containing food waste will typically be removed from the CCS by the end of each day of operation but will not be stored for longer than 48 hours. Additionally, Section 4.2.2. was revised to indicate that roll-offs with other waste will be removed weekly or sooner when containers reach capacity. Lastly, Section 4.6.2 has been revised to indicate that a minimum buffer of 125 feet from the property line will be maintained for operations at the CCS.

8. As required by 30 TAC §330.11(a), describe how waste will be received, stored, and removed from the proposed citizen's collection station. Ensure to include revisions in Part IV, Section 4.2.2 and 4.3, and submit the revised pages.

   As described in Part IV Section 4.2.2 and 4.3, roll-off containers will be situated behind a retaining wall for drop-off of waste such as brush, wood waste, and yard waste, construction and demolition debris (C&D), municipal solid waste (MSW), and scrap metals. Clearly identified roll-offs containers will be provided to receive the waste or recyclables. A Waste Screener will direct citizens to appropriate locations for unloading waste and observe that the respective wastes are unloaded in the correct container. As discussed in Section 4.2, waste stored at the CCS will be disposed of at the working face and recyclables will be transported to an authorized recycling or disposal facility.

9. Per 30 TAC §330.213(a), describe the type and quantity of containers that will be available at the proposed citizen's collection station. Include revisions in Part IV, Section 4.2.2, and submit the revised page.

   Part IV, Section 4.2.2 was revised to indicate that the CCS will have 4, 20 or 40 CY containers, one for each type of waste accepted at the CCS.

10. Provide responsible engineer's seal and signature in compliance with 22 TAC §137.33 (relating to Sealing Procedures). Note that a summary of design calculations must be provided with engineer's seal and signature (e.g., Pages 6D2-2 and 6D2-3, Attachment 6D2/Part III, Attachment 15F, etc.). In addition, the cover page of the attachments/ appendices, in addition to the table of contents may be provided with engineer's seal and signature with range of pages (e.g., From Page no. xx to Page no. xx).

    The responsible engineer's seal and signature was provided for design calculations, including (e.g., Pages 6D2-2 and 6D2-3, Attachment 15F, etc.), the cover page of the attachments/ appendices, and table of contents.

11. Include the provided response of the first technical NODs for Comments #1, #6, #18, #19, #31, #34, #35, #38, #45, #49, etc. into the appropriate sections of the permit application in Parts I through IV, as appropriate.

    Responses provided with technical NOD, dated December 2, 2024, for Comments #1, #6, #18, and #19, have been included in the appropriate sections of the permit application in Parts I through IV. Response to Comments #31, # 34, #35, and #38 were previously included in the appropriate sections of the permit application in response to December 2, 2024, NOD. Lastly, as discussed with TCEQ on May 21, 2025, Comments #45 and #49 were not incorporated within the permit application.

We trust that our responses will assist you in the completion of your technical review. If you or your staff have any questions or need additional information, please do not hesitate to contact Sandeep Saraf, P.E., at 407-923-7013.

Sincerely,

Andrew Ard, P.E.
Senior Project Professional
SCS ENGINEERS
TBPE Registration No. F-3407

Sandeep Saraf P.E.
Project Director
SCS ENGINEERS

Attachments: Table 1 – Summary of changes (No Change)
Permit Modification Form (Revised)
Exhibit 1 – Airspace Evaluation (Marked and Unmarked) (No Change)
Exhibit 2 – Landowner's Map and List (No Change)
Exhibit 3 – Permit Application Fees (No Change)
Exhibit 4 – Copy of correspondence with TxDOT (Revised)
Permit Revisions (Marked)
Permit Revisions (Unmarked)

cc: Mr. Mike Castillo, Maverick County Solid Waste Authority
TCEQ Region Office 16

TABLE 1 – SUMMARY OF CHANGES (NO CHANGE)

PERMIT MODIFICATION APPLICATION FORM

Texas Commission on Environmental Quality

Application Form for Municipal Solid Waste Permit or Registration Modification or Temporary Authorization

Application Tracking Information

Facility Name: Maverick County El Indio MSW Landfill

Permittee or Registrant Name: Maverick County

MSW Authorization Number: 2316

Initial Submission Date: 10/04/2024

Revision Date: 06/23/2025

Instructions for completing this form are provided in form TCEQ-20650-instr[1]. If you have questions, contact the Municipal Solid Waste Permits Section by email to [redacted] or by phone at 512-239-2335.

Application Data

1. Submission Type

☐ Initial Submission ☒ Notice of Deficiency (NOD) Response

2. Authorization Type

☒ Permit ☐ Registration

3. Application Type

☒ Modification with Public Notice ☐ Modification without Public Notice

☐ Temporary Authorization (TA) ☐ Modification for Name Change or Transfer

4. Application Fee

Amount

The application fee for a modification or temporary authorization is $150.

Payment Method

☐ Check

☒ Online through ePay portal www3.tceq.texas.gov/epay/

If paid online, enter ePay Trace Number: 582EA000627516

[1] www.tceq.texas.gov/downloads/permitting/waste-permits/msw/forms/20650-instr.pdf

5. Electronic Versions of Application

For modifications that require notice, TCEQ will publish electronic versions of the application online. Applicants must provide a clean copy of the administratively complete application and technically complete application. TCEQ will also publish electronic versions of NOD responses online.

6. Party Responsible for Mailing Notice

For modifications that require notice, indicate who will be responsible for mailing notice:

☐ Applicant ☐ Agent in Service ☒ Consultant

Contact Name: Sandeep Saraf

Title: Project Director

Email Address: [redacted]

7. Confidential Documents

Does the application contain confidential documents?

☐ Yes ☒ No

If "Yes", reference the confidential documents in the application, but submit the confidential documents as an attachment in a separate binder marked "CONFIDENTIAL."

8. Facility General Information

Facility Name: Maverick County El Indio MSW Landfill

Contact Name: Mike Castillo Title: Landfill Manager

MSW Authorization Number (if existing): 2316

Regulated Entity Reference Number: **RN** 105513030

Physical or Street Address: 16179 FM 1021

City: El Indio County: Maverick State: TX Zip Code: 78860

Phone Number: (830) 757-8191

Latitude (Degrees, Minutes, Seconds): 28° 32' 30"

Longitude (Degrees, Minutes, Seconds): 100° 19' 23"

9. Facility Types

☒ Type I ☐ Type IV ☐ Type V

☐ Type IAE ☐ Type IVAE ☐ Type VI

10. Description of the Revisions to the Facility

Provide a brief description of revisions to permit or registration conditions and supporting documents referred to by the permit or registration, and a reference to the specific provisions under which the modification or temporary authorization application is being made. Also, provide an explanation of why the modification or temporary authorization is needed:

This permit modification is being submitted to redesign the perimeter drainage system; to modify the permitted 4.5H:1V final grades of the existing and future landfill cells to have a final cover side slope of 3H:1V with no height or capacity increase, and with no impact to off-site drainage; to relocate primary entrance into the facility; and to construct and operate a citizens' convenience center (CCS). As a result of the revised final cover side slopes, permitted Cells 15, 16A, and 16B will no longer be developed.

11. Facility Contact Information

Site Operator (Permittee or Registrant)

Name: Maverick County

Customer Reference Number: **CN** 600640015

Contact Name: Ramsey English Cantu Title: Judge

Mailing Address: 500 Quarry Stree, Suite 3

City: Eagle Pass County: Maverick State: TX Zip Code: 78852

Phone Number: (830) 773-3824

Email Address: [redacted]

Texas Secretary of State (SOS) Filing Number:

Operator (if different from *Site Operator*)

Name: Maverick County Soild Waste Authority

Customer Reference Number: **CN** 606226801

Contact Name: Mike Castillo Title: Landfill Manager

Mailing Address: PO Box 10

City: El Indio County: Maverick State: TX Zip Code: 78860

Phone Number: (830) 757-8191

Email Address: [redacted]

Texas Secretary of State (SOS) Filing Number:

Consultant (if applicable)

Firm Name: SCS Engineers

Consultant Name: SCS Engineers

Texas Board of Professional Engineers Firm Registration Number: F-3407

Contact Name: Sandeep Saraf Title: Project Director

Mailing Address: 1901 Central Drive, Suite 550

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

Phone Number: (407) 923-7013

Email Address: [redacted]

Agent in Service (required for out-of-state applicants)

Name: _____

Mailing Address: _____

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

Phone Number: _____

Email Address: _____

12. Ownership Status of the Facility

Is this a modification that changes the legal description, the property owner, or the Site Operator (Permittee or Registrant)?

☐ Yes ☒ No

If the answer is "No", skip this section.

Does the Site Operator (Permittee or Registrant) own all the facility units and all the facility property?

☒ Yes ☐ No

If "No", provide the following information for other owners.

Owner Name: _____

Mailing Address: _____

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

Phone Number: _____

Email Address: _____

Signature Page

Site Operator or Authorized Signatory

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.

Name: Ramsey English Cantu Title: Judge

Email Address: [redacted]

Signature: _____ Date: June 23, 2025

Operator or Principal Executive Officer Designation of Authorized Signatory

To be completed by the operator if the application is signed by an authorized representative for the operator.

I hereby designate _____ as my representative and hereby authorize said representative to sign any application, submit additional information as may be requested by the Commission; and/or appear for me at any hearing or before the Texas Commission on Environmental Quality in conjunction with this request for a Texas Water Code or Texas Solid Waste Disposal Act permit. I further understand that I am responsible for the contents of this application, for oral statements given by my authorized representative in support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

Operator or Principal Executive Officer Name: _____

Email Address: _____

Signature: _____ Date: _____

Notary

SUBSCRIBED AND SWORN to before me by the said RAMSEY ENGLISH CANTU

On this 23 day of JUNE, 2025

My commission expires on the 2 day of AUGUST, 2025

GMomero

Notary Public in and for

MAVERICK County, Texas

GUILLERMINA ROMERO
Notary Public, State of Texas
Comm. Expires 08-02-2025
Notary ID 133245353

Note: Application Must Bear Signature and Seal of Notary Public

Attachments for Permit or Registration Modification with Public Notice

Refer to instruction document **200650-instr** for professional engineer seal requirements.

Attachments Table 1. Required attachments.

Required Attachments	Attachment Number
Land Ownership Map	
Landowners List	
Marked (Redline/Strikeout) Pages	X
Unmarked Revised Pages	X

Attachments Table 2. Additional attachments as applicable.

Additional Attachments as Applicable (select all that apply and add others as needed)	Attachment Number
☐ TCEQ Core Data Form(s)	
■ Signatory Authority Delegation	
■ Fee Payment Receipt	
☐ Confidential Documents	

EXHIBIT 1 – AIRSPACE EVALUATION (NO CHANGE)

EXHIBIT 2 – LANDOWNER'S MAP AND LIST (NO CHANGE)

EXHIBIT 3 – PERMIT APPLICATION FEES (NO CHANGE)

EXHIBIT 4 – COPY OF CORRESPONDENCE WITH TXDOT (REVISED)

Permit to Construct Access Driveway Facilities on Highway Right of Way

PERMIT NUMBER: TxDOT ENTER PERMIT NUMBER HERE 2025061301			
	GPS*	ROADWAY	
REQUESTOR	LATITUDE, LONGITUDE	HWY NAME	FM1021
	28.5416278, -100.3232694	FOR TxDOT'S USE	
		CONTROL	4-DIGIT
NAME	Maverick County - Municipal Solid Waste Facility #2316	SECTION	2-DIGIT EX. 01
MAILING ADDRESS	16179 FM 1021, P.O. Box 10		
CITY, STATE, ZIP	El Indio, Texas 78860		
PHONE NUMBER	(830) 787-8191		
*GLOBAL POSITIONING SYSTEM COORDINATES AT INTERSECTION OF DRIVEWAY CENTERLINE WITH ABUTTING ROADWAY			

The Texas Department of Transportation, hereinafter called the State, hereby authorizes El Indio Landfill (MSW Permit #2316), hereinafter called the Permittee, to ☒ construct / ☐ reconstruct a South Primary Entrance Road (residential, convenience store, retail mall, farm, etc.) access driveway on the highway right of way abutting highway number FM 1021 in Maverick County, located at 16179 FM 1021, El Indio, TX 78860.

USE ADDITIONAL SHEETS AS NEEDED

Is this parcel in current litigation with the State of Texas? ☒ YES ☐ NO

Is the Permittee or a family member of Permittee an employee or official of the Texas Department of Transportation? ☐ YES ☒ NO

Does an employee or official of the Texas Department of Transportation serve as an employee or officer of Permittee or own a controlling interest in Permittee? ☐ YES ☒ NO

This permit is subject to the Access Driveway Policy described on page 2 and the following:

1. The undersigned hereby agrees to comply with the terms and conditions set forth in this permit for construction and maintenance of an access driveway on the state highway right of way.
2. The Permittee represents that the design of the facilities, as shown in the attached sketch, is in accordance with the Roadway Design Manual, Hydraulic Design Manual and the access management standards set forth in the Access Management Manual (except as otherwise permitted by an approved variance).
3. Construction of the driveway shall be in accordance with the attached design sketch, and is subject to inspection and approval by the State.
4. Maintenance of facilities constructed hereunder shall be the responsibility of the Permittee, and the State reserves the right to require any changes, maintenance or repairs as may be necessary to provide protection of life or property on or adjacent to the highway. Changes in design will be made only with prior written approval of the State.
5. The Permittee shall hold harmless the State and its duly appointed agents and employees against any action for personal injury or property damage related to the driveway permitted hereunder.
6. Except for regulatory and guide signs at county roads and city streets, the Permittee shall not erect any sign on or extending over any portion of the highway right of way. The Permittee shall ensure that any vehicle service fixtures such as fuel pumps, vendor stands, or tanks shall be located at least 12 feet from the right of way line to ensure that any vehicle services from these fixtures will be off the highway right of way.
7. The State reserves the right to require a new access driveway permit in the event of: (i) a material change in land use, driveway traffic volume or vehicle types using the driveway, or (ii) reconstruction or other modification of the highway facility by the State.
8. The State may revoke this permit upon violation of any provision of this permit by the Permittee.
9. This permit will become null and void if the above-referenced driveway facilities are not constructed within six (6) months from the issuance date of this permit.
10. The Permittee will contact the State's representative Charles Fite Maintenance supervisor telephone, (860) 776-0506, at least twenty-four (24) hours prior to beginning the work authorized by this permit.
11. The requesting Permittee will be provided instructions on the appeal process if this permit request is denied by the State.

The undersigned hereby agrees to comply with the terms and conditions set forth in this permit for construction and maintenance of an access driveway on the highway right of way.

Date: 2/13/25 Signed: _____
(Property Owner or owner's representative)

6/16/2025	DocuSigned by: Vanessa Rosales-Herrera 70CAB6EA0F3B42B...
Date of Issuance	District Engineer, or designee Approval
Date of Issuance as per Variance to AMM	District Engineer, or designee Approval
Date of Denial	District Engineer Denial (No Delegation)

Access Driveway Policy

Title 43 Texas Administrative Code (Transportation), Chapter 11 (Design), Subchapter C (Access Connections To State Highways) and the "Access Management Manual" establish policy for the granting of access and the design, materials, and construction of driveways connecting to state highways. All driveway facilities must follow this policy. To the extent there is any conflict between this permit and the policy, the policy shall control. If a proposed driveway does not comply with the access management standards, the owner may seek a variance to a requirement contained in the access management standards by contacting the local TxDOT office.

TxDOT Driveway Permit Request Contact

For a local contact for your TxDOT Driveway Permit Request or variance request, visit: http://www.txdot.gov/inside-txdot/district.html. You can click on the section of the map closest to your location to find the local TxDOT office. You can also click on the drop down box below the map to find the district for your county.

Other Conditions

In addition to Items 1 thru 11 on page 1 of this permit, the facility shall also be in accordance with the attached sketch and subject to the following additional conditions stated below:

See attached "Sketch of Installation" Sheet and "Site Plan" for additional information. A summary of proposed road is as follows:
1. Proposed radii: 75',
2. Throat Width: 30',
3. Throat Length: 70',
4. Entry Width: 180', and
5. 8" Reinforced concrete pavement with #4 rebar @ 9" OCEW.

Variance Documentation Justification

For a Variance request, please indicate which of the below are applicable, as required by TAC §11.52(e):

☐ a significant negative impact to the owner's real property or its use will likely result from the denial of its request for the variance, including the loss of reasonable access to the property or undue hardship on a business located on the property.

☐ an unusual condition affecting the property exists that was not caused by the property owner and justifies the request for the variance.

For the conditions selected above, provide written justification below. (Attach additional sheets, if needed)

For TXDOT use below:

For Variance denials, please indicate which of the below conditions, as provided in TAC §11.52(e), were determined:

☐ adversely affect the safety, design, construction, mobility, efficient operation, or maintenance of the highway; or

☐ likely impair the ability of the state or the department to receive funds for highway construction or maintenance from the federal government.

Attachments:

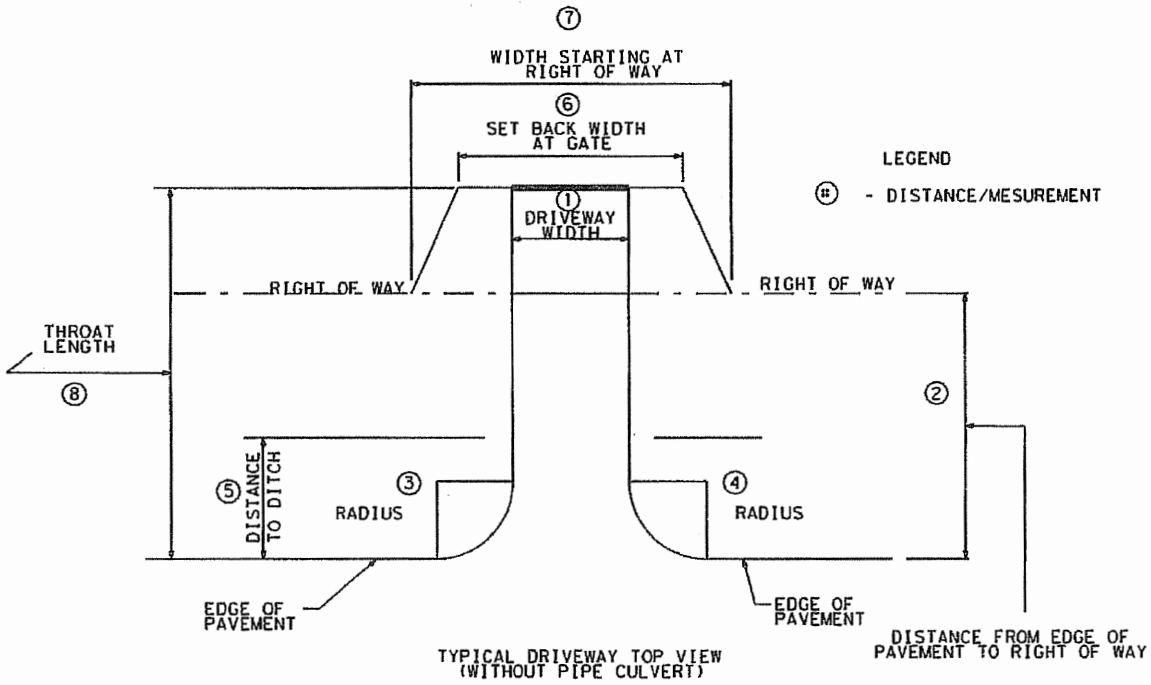
Sketch of Installation

All Variance Documentation

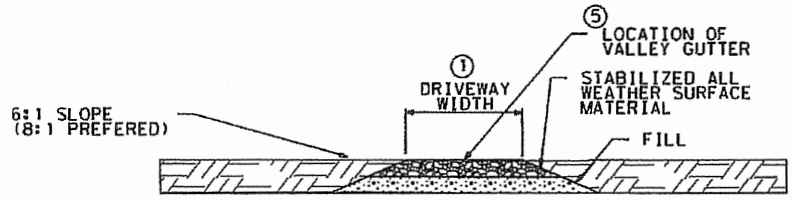
Sketch of Installation

Requestor:	Maverick County Landfill			**Hwy No.:**	F.M. 1021	**Permit No.:**	
County:	Maverick	**Control:**			**Section:**		
Driveway Type: (Rural Locations)	**Farm/Ranch** ☐	**Field** ☐	**Residential** ☐	**Service** ☒			

Driveway Dimensions



TYPICAL DRIVEWAY TOP VIEW
(WITHOUT PIPE CULVERT)



TYPICAL DRIVEWAY CROSS SECTION
(WITHOUT PIPE CULVERT)

Driveway Utilizing Valley Gutter and Gate Set Back of Right of Way Line

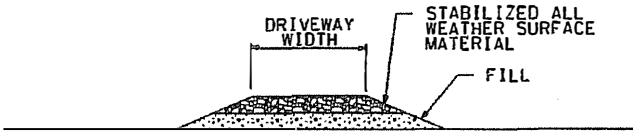
Sketch of Installation

Requestor:	Maverick County Landfill	**Hwy No.:**	F.M. 1021	**Permit No.:**	
County:	Maverick	**Control:**		**Section:**	
Driveway Type: (Rural Locations)	**Farm/Ranch** ☐	**Field** ☐	**Residential** ☐	**Service** ☒	

Driveway Dimensions

1. Driveway Width = 30 ft.
2. Distance from edge of pavement to right of way = 35 ft.
3. Radius = 75 ft.
4. Radius = 75 ft.
5. Distance to Ditch = N/A ft.
6. Set Back Width @ Gate= 30 ft.
7. Width starting at right of way = 53 ft.
8. Throat Length = 71 ft.

Pavement Structure



TYPICAL DRIVEWAY CROSS SECTION (WITHOUT PIPE CULVERT)

Pavement Structure			
	material selection	thickness, in.	comment
concrete	Portland Cement Concrete	6" min.	
asphalt	N/A		
flexbase	N/A		
fill material	Sand Bedding	2" min.	

Driveway Utilizing Valley Gutter and Gate Set Back of Right of Way Line

SITE LAYOUT

EXISTING CELL 1

EXISTING CELL 2

EXISTING CELL 3

FUTURE CELL 4

FUTURE CELL 5

FUTURE CELL 6

FUTURE CELL 7

FUTURE CELL 8

FUTURE CELL 9

FUTURE CELL 10

FUTURE CELL 11

FUTURE CELL 12

FUTURE CELL 13

FUTURE CELL 14

EXISTING FACILITY ENTRANCE

EXISTING OFFICE BUILDING

PROPOSED OFFICE BUILDING

PROPOSED SCALES/ SCALEHOUSE

PROPOSED FACILITY ENTRANCE

SEE FIGURE 2

PROPOSED CITIZEN'S CONVENIENCE STATION

N

0 150 300

SCALE IN FEET

LEGEND

- PERMIT BOUNDARY
- PERMIT BOUNDARY
- LIMITS OF WASTE
- CELL/UNIT LIMITS
- FENCE

STATE OF TEXAS
SANDEEP D. SARAF
136850
LICENSED PROFESSIONAL ENGINEER
2-12-25

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
1			
2			
3			
4			
5			
6			
7			

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

DRAWING: OVERALL FACILITY LAYOUT

PROJECT: MAVERICK COUNTY LANDFILL DRIVEWAY PERMIT APPLICATION

CLIENT: MAVERICK COUNTY SOLID WASTE AUTHORITY
16179 FM 1021
EL INDIO, TEXAS

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.	DSN. BY:	CHK. BY:	CA/K &W BY:	APP. BY:
16221076.00	SS	JC	SDS	SDS

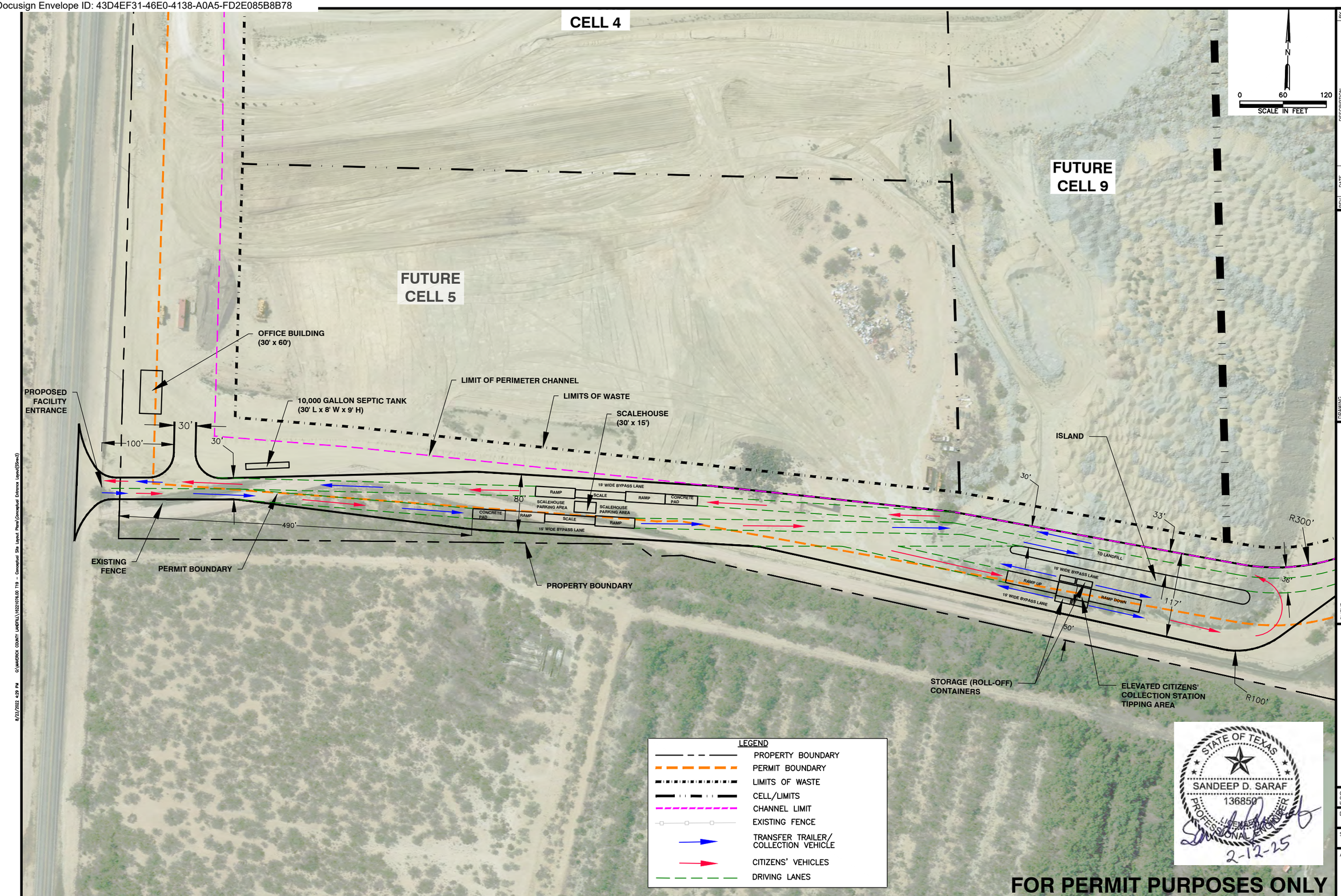
CADD FILE: CONCEPTUAL ENTRANCE LAYOUT(SSREV3)

DATE: 8/2022

SCALE: AS SHOWN

ATTACHMENT NO. 1

8/23/2022 4:27 PM G:\MAVERICK COUNTY LANDFILL\16221076.00 T19 - Conceptual Site Layout Plans\Conceptual Entrance Layout(SSrev3)



FOR PERMIT PURPOSES ONLY

STATE OF TEXAS
SANDEEP D. SARAF
136850
LICENSED PROFESSIONAL ENGINEER
2-12-25

REV | DATE | DESCRIPTION | BY

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

DRAWING: PROPOSED ENTRANCE ROAD LAYOUT

PROJECT: MAVERICK COUNTY LANDFILL DRIVEWAY PERMIT APPLICATION

CLIENT: MAVERICK COUNTY SOLID WASTE AUTHORITY 16179 FM 1021 EL INDIO, TEXAS

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.	16221076.00
DSN. BY:	SS
DWN. BY:	LC
CHK. BY:	SDS
Q/A RVW BY:	SDS
APP. BY:	SDS

CADD FILE: CONCEPTUAL ENTRANCE LAYOUT(SSREV3)

DATE: 8/2022

SCALE: AS SHOWN

ATTACHMENT NO. 2

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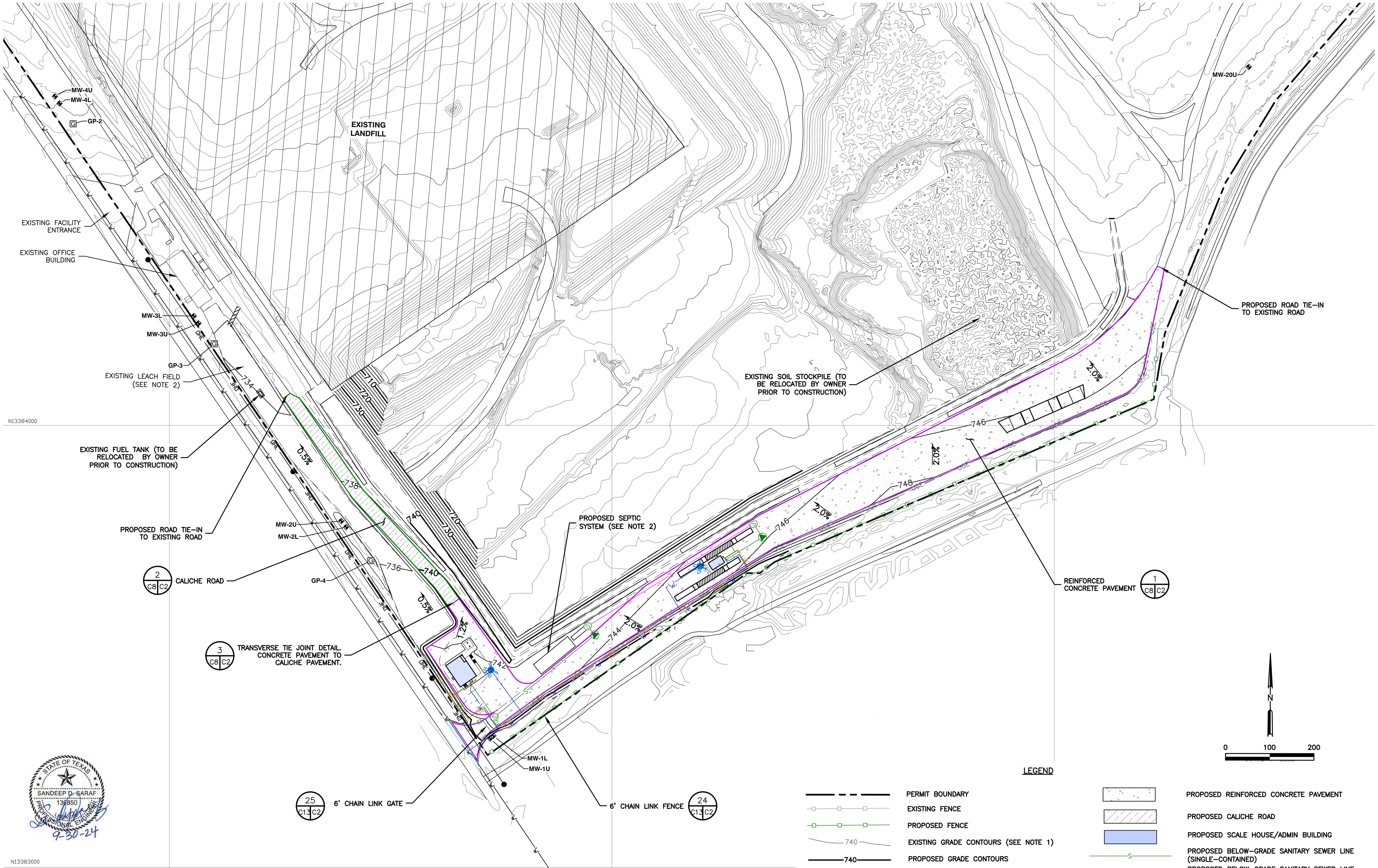


NOTES:

1. EXISTING CONTOURS ARE REPRESENTATIVE OF AN AERIAL SURVEY FLOWN ON 08/16/2023 BY DAS GEOSPATIAL.
2. SEPTIC SYSTEM (TANK AND ABSORPTION FIELD) SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER/SEPTIC SYSTEM DESIGNER IN THE STATE OF TEXAS AND INSTALLED BY A LICENSED SEPTIC SYSTEM INSTALLER IN THE STATE OF TEXAS. CONTRACTOR IS RESPONSIBLE FOR CONTRACTING THE DESIGN AND BUILD OF THE SEPTIC SYSTEM. NO SEPTIC DESIGN HAS BEEN PROVIDED. CONTRACTOR SHALL COORDINATE WITH MEP IN REGARDS TO DESIGN FLOWS FOR THE SEPTIC SYSTEM.

DETAIL NO. / DETAIL SHEET NO. / DETAIL SHEET REFERENCE

STATE OF TEXAS — SANDEEP D. SARAF — 136850 — PROFESSIONAL ENGINEER — 9-30-24

LEGEND

PERMIT BOUNDARY	PROPOSED REINFORCED CONCRETE PAVEMENT
EXISTING FENCE	PROPOSED CALICHE ROAD
PROPOSED FENCE	PROPOSED SCALE HOUSE/ADMIN BUILDING
EXISTING GRADE CONTOURS (SEE NOTE 1)	PROPOSED BELOW-GRADE SANITARY SEWER LINE (SINGLE-CONTAINED)
PROPOSED GRADE CONTOURS	PROPOSED BELOW-GRADE SANITARY SEWER LINE (DUAL-CONTAINED)
TOE-TOP OF SLOPE	PROPOSED BELOW-GRADE WATER LINE
EXISTING POWER LINE	PROPOSED BELOW-GRADE ELECTRIC LINE
EXISTING WATER LINE	PROPOSED BELOW-GRADE COMMUNICATION LINE
PROPOSED EDGE OF CONCRETE PAVEMENT	PROPOSED SANITARY SEWER CLEANOUT
PROPOSED EDGE OF CALICHE ROAD	PROPOSED SANITARY SEWER MANHOLE
GP-4 EXISTING GAS PROBE	PROPOSED FIRE HYDRANT
MW-4L EXISTING MONITORING WELL	

ISSUED FOR BIDDING

REV | DATE | DESCRIPTION | BY

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

DRAWING TITLE: **PAVING PLAN**

PROJECT TITLE: MAVERICK COUNTY LANDFILL ENTRANCE ROAD, BUILDINGS, AND CCS CONSTRUCTION PLANS

CLIENT: MAVERICK COUNTY SOLID WASTE AUTHORITY 16179 FM 1021 EL INDIO, TEXAS 78860

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

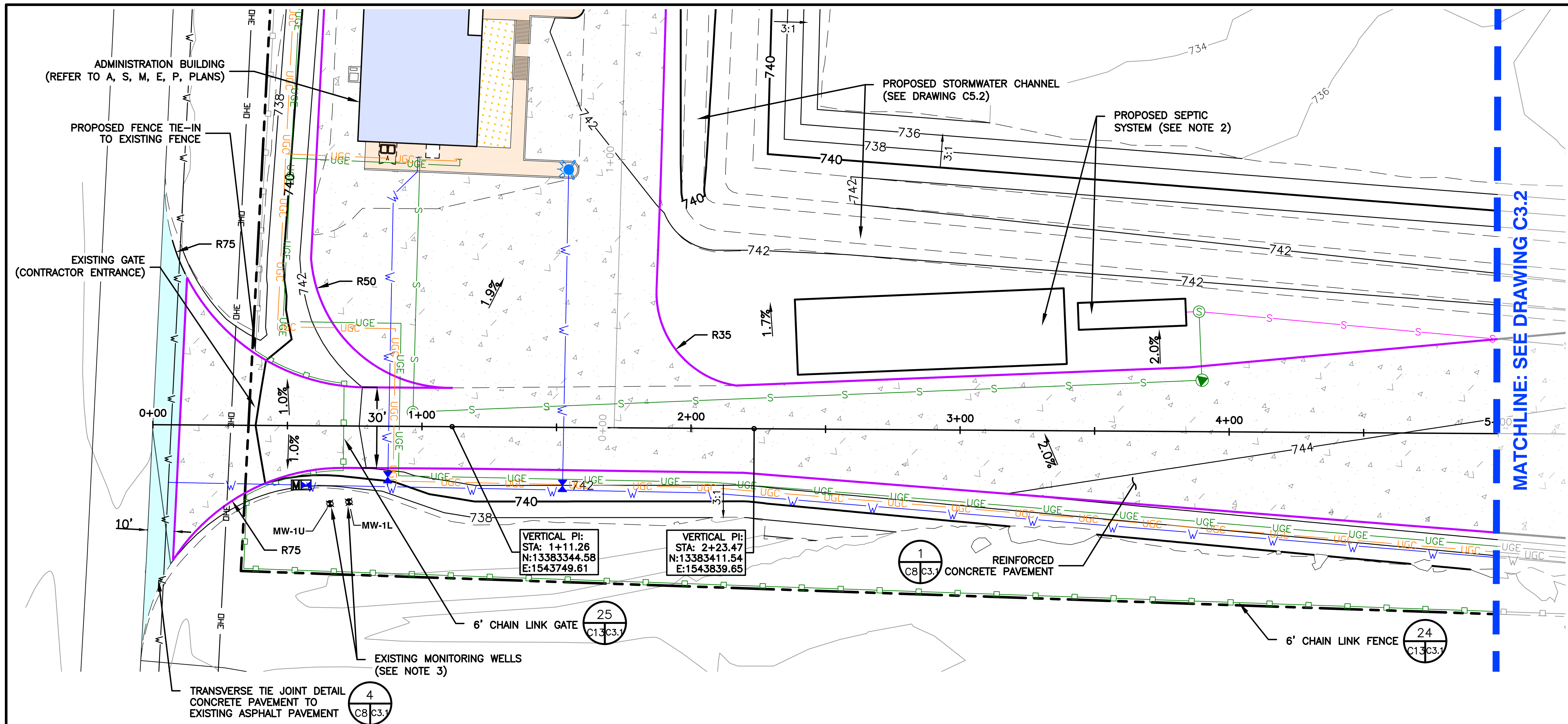
PROJ. NO. 16223092.00 | DSN. BY: SS | DWN. BY: XW | CHK. BY: SS | Q/A RVW BY: RRK | APP. BY: RRK

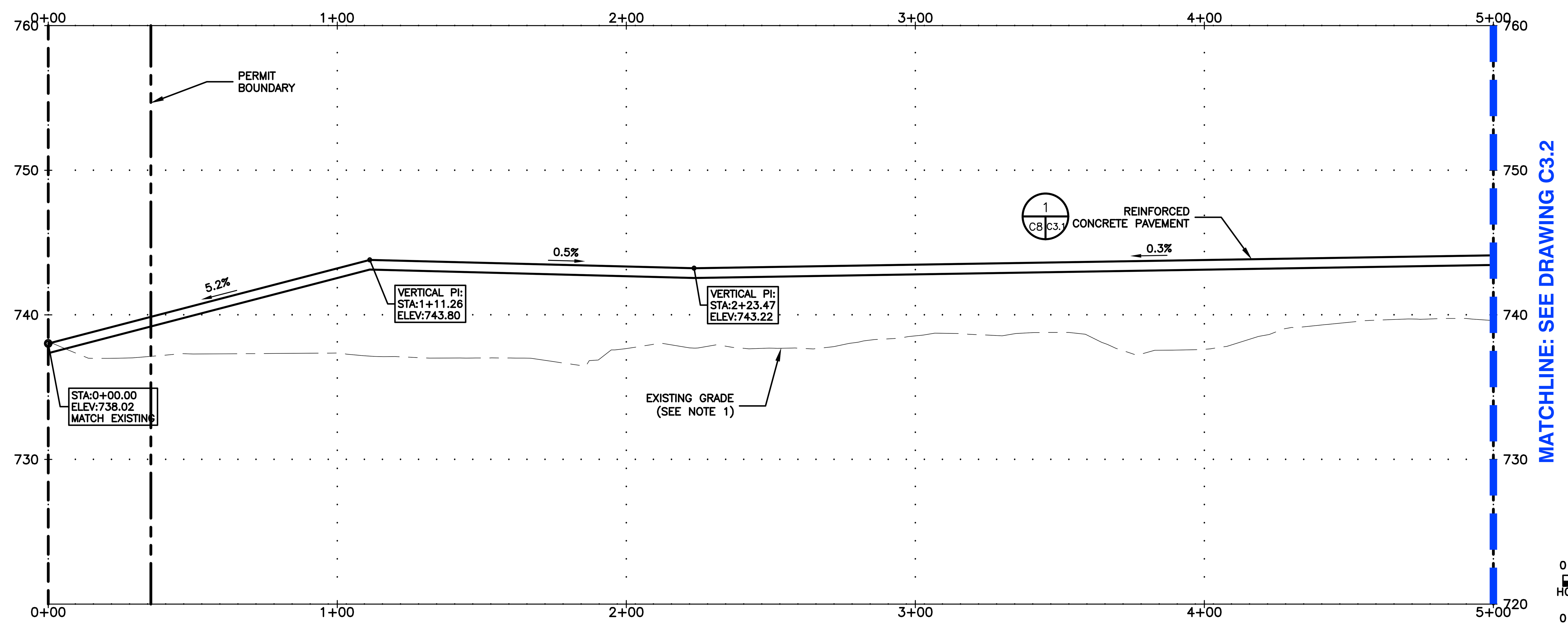
CADD FILE: C1 - SITE LAYOUT PLAN AND PROFILES

DATE: 10/2024

SCALE: AS SHOWN

DRAWING NO. **C2**





ENTRANCE ROAD PLAN AND PROFILE STA 0+00 TO 5+00

LEGEND

- PERMIT BOUNDARY
- PROPOSED FENCE
- EXISTING GRADE CONTOURS (SEE NOTE 1)
- EXISTING MONITORING WELL
- PROPOSED GRADE CONTOURS
- TOE-TOP OF SLOPE
- EXISTING POWER LINE
- EXISTING WATER LINE
- PROPOSED EDGE OF CONCRETE PAVEMENT
- PROPOSED REINFORCED CONCRETE PAVEMENT
- PROPOSED TRANSVERSE TIE JOINT
- PROPOSED SCALE HOUSE/ADMIN BUILDING
- PROPOSED SIDEWALK
- PROPOSED GRASSED AREA
- PROPOSED BELOW-GRADE SANITARY SEWER LINE (SINGLE-CONTAINED)
- PROPOSED BELOW-GRADE SANITARY SEWER LINE (DUAL-CONTAINED)
- PROPOSED BELOW-GRADE WATER LINE
- PROPOSED BELOW-GRADE ELECTRIC LINE
- PROPOSED BELOW-GRADE COMMUNICATION LINE
- PROPOSED SANITARY SEWER CLEANOUT
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED FIRE HYDRANT
- PROPOSED WATER LINE VALVE WITH BOX
- PROPOSED WATER LINE METER AND VALVE WITH BOX

NOTES:

1. EXISTING CONTOURS ARE REPRESENTATIVE OF AN AERIAL SURVEY FLOWN ON 08/16/2023 BY DAS GEOSPATIAL.
2. SEPTIC SYSTEM (TANK AND ABSORPTION FIELD) SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER/SEPTIC SYSTEM DESIGNER IN THE STATE OF TEXAS AND INSTALLED BY A LICENSED SEPTIC SYSTEM INSTALLER IN THE STATE OF TEXAS. CONTRACTOR IS RESPONSIBLE FOR CONTRACTING THE DESIGN AND BUILD OF THE SEPTIC SYSTEM. NO SEPTIC DESIGN HAS BEEN PROVIDED. CONTRACTOR SHALL COORDINATE WITH MEP IN REGARDS TO DESIGN FLOWS FOR THE SEPTIC SYSTEM.
3. CONTRACTOR SHALL PROVIDE PROTECTION FOR ALL WELLS, PIEZOMETERS, GAS PROBES, LEACH FIELD, AND OTHER UTILITIES AND STRUCTURES, AND SHALL REPAIR OR REPLACE ANY OF THESE WHICH ARE DAMAGED DURING THE EXECUTION OF THE WORK AT THE EXPENSE OF THE CONTRACTOR.

DETAIL NO. — DETAIL SHEET NO. — DETAIL SHEET REFERENCE

STATE OF TEXAS — SANDEEP D. SARAF — 136850 — PROFESSIONAL ENGINEER — 9-30-24

ISSUED FOR BIDDING

REV | DATE | DESCRIPTION | BY

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

DRAWING TITLE: ENTRANCE ROAD PLAN AND PROFILE - 1

PROJECT TITLE: MAVERICK COUNTY LANDFILL ENTRANCE ROAD, BUILDINGS, AND CCS CONSTRUCTION PLANS

CLIENT: MAVERICK COUNTY SOLID WASTE AUTHORITY 16179 FM 1021 EL INDIO, TEXAS 78860

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. 16223092.00 | DSN. BY: XW | Q/A RVW BY: RRK
CHK. BY: SS | CHK. BY: SS | APP. BY: RRK

CADD FILE: C3 - ROAD PROFILE

DATE: 10/2024

SCALE: AS SHOWN

DRAWING NO. C3.1

0 25 50
SCALE IN FEET

LEGEND

- MAVERICK COUNTY PROPERTY BOUNDARY
- PROPOSED EDGE OF CONCRETE PAVEMENT
- TRACTOR TRAILER FRONT AXLE TRACKING
- TRACTOR TRAILER REAR AXLE TRACKING

STATE OF TEXAS
SANDEEP D. SARAF
136550
LICENSED
PROFESSIONAL ENGINEER
5-7-25

FOR PERMITTING PURPOSES ONLY

REV	DATE	DESCRIPTION	BY

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

DRAWING TITLE: ENTRANCE ROAD PLAN

PROJECT TITLE: MAVERICK COUNTY LANDFILL ENTRANCE ROAD

CLIENT: MAVERICK COUNTY SOLID WASTE AUTHORITY
16179 FM 1021
EL INDIO, TEXAS 78860

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
1500 CENTRAL PARK DRIVE, SUITE 150, BEDFORD, TX 76021
PH (817) 571-2288 FAX NO. (817) 571-2188

PROJ. NO. 02224108.00
DSN. BY: SS
DWN. BY: XW
CHK. BY: SS
QA REW BY: RRK
APP. BY: RRK

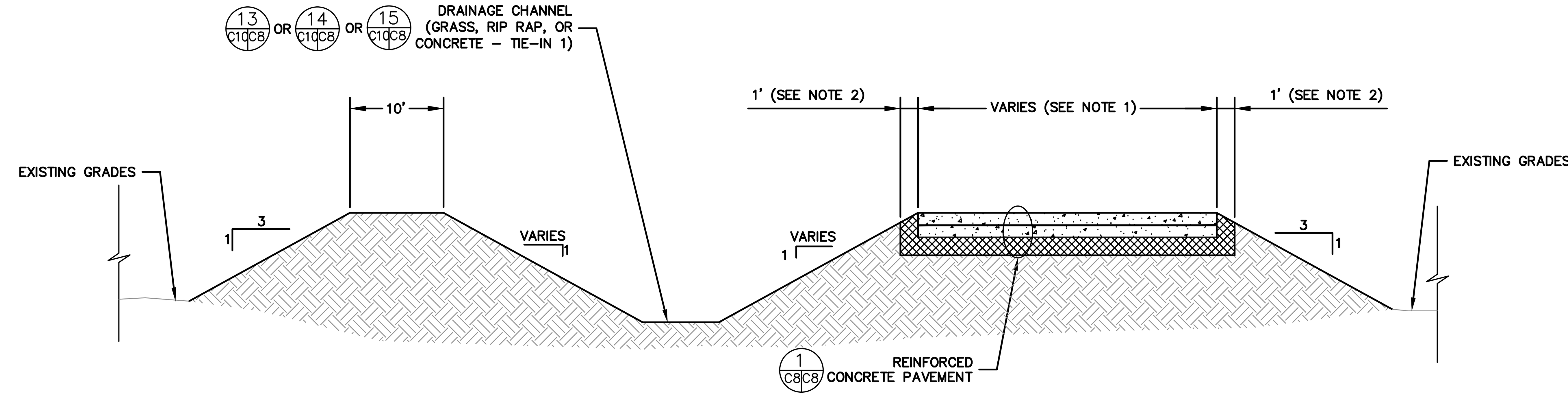
CADD FILE: C3 – ROAD PROFILE

DATE: 05/2025

SCALE: AS SHOWN

DRAWING NO. 1

5/7/2025 1:39 PM O:\MAVERICK COUNTY LANDFILL\162\224108.00 TIB – TxDOT application\Exhibit for TxDOT\C3 – Road Profile

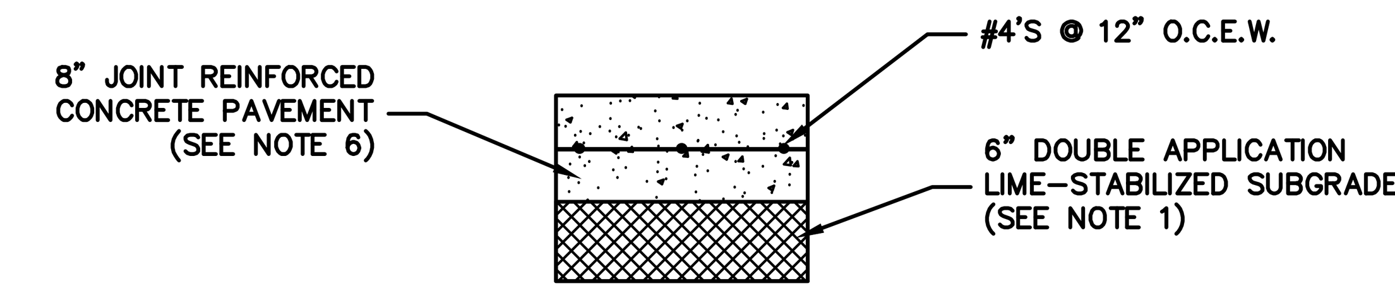


NOTES:

1. SEE DRAWINGS C3.1–C3.4 FOR ROAD LAYOUT.
2. LIME STABILIZED SUBGRADE SHALL EXTEND FROM 1-FT BEYOND THE PROPOSED BACK OF CURB OR EDGE OF PAVEMENT.

TYPICAL ROAD SECTION A–A' C8 — C3.2

NTS

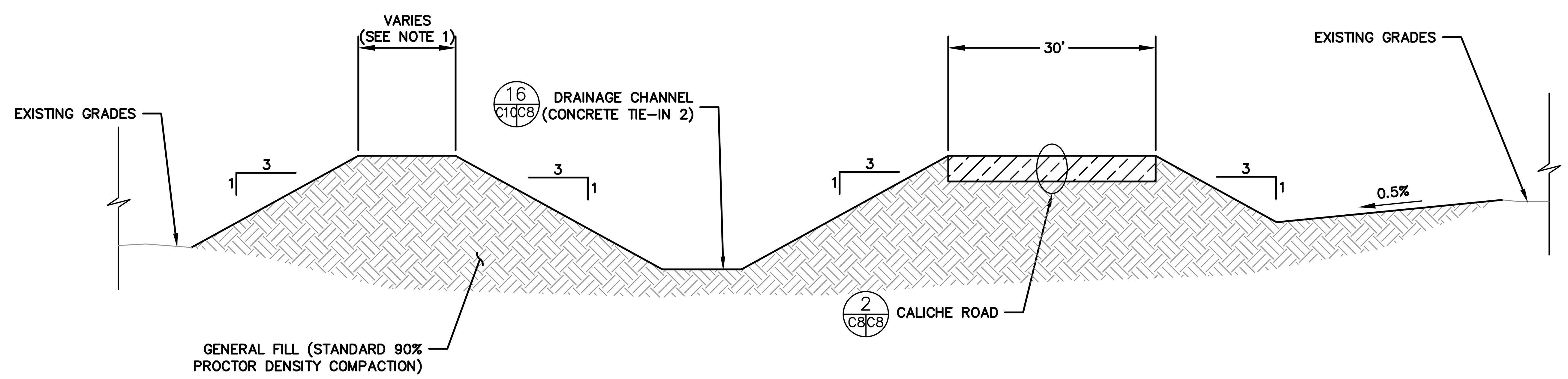


NOTES:

1. DOUBLE APPLICATION LIME-STABILIZED SUBGRADE (4%/4% LIME BY DRY WEIGHT) SHALL CONFORM TO TXDOT ITEM 260 AND COMPACTED TO 95% OF MAXIMUM DRY DENSITY USING ASTM D-698 AND AT MOISTURE CONTENT RANGE OF 0% TO +4% OF OMC.
2. TRANSVERSE JOINT SPACING SHALL NOT EXCEED 15 FEET AND SHALL HAVE A DEPTH OF 1/3 THE PAVEMENT THICKNESS. REFER TO TXDOT CONCRETE PAVING DETAILS – JOINT SEALS (INDEX JS-14) FOR JOINT SEALING METHOD. REFER TO TXDOT CONTINUOUSLY REINFORCED CONCRETE PAVEMENT – ONE LAYER STEEL BAR PLACEMENT (INDEX CRCP (1) – 20) FOR TYPICAL PAVEMENT LAYOUT AND LONGITUDINAL CONSTRUCTION JOINT DETAIL.
3. CONTRACTOR TO PROVIDE MATERIAL SUBMITTALS IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS.
4. ALL REBAR TO BE SUPPORTED ON APPROVED PLASTIC CHAIRS.
5. APPROVED CURING COMPOUND SHALL BE APPLIED TO THE FINISHED SLAB AS SOON AS POSSIBLE AFTER PLACEMENT OF CONCRETE.
6. JOINTS ARE TO BE SAWED AS SOON AS THE SETTING OF THE CONCRETE WILL PERMIT WITHOUT SPALLING OR MARKING THE SLAB.
7. CONCRETE SHALL BE MINIMUM COMPRESSION OF 3,200 PSI @ 7 DAYS AND 4,000 PSI @ 28 DAYS.
8. ALL CONCRETE SHALL BE MACHINE PLACED UNLESS APPROVED BY ENGINEER.

REINFORCED CONCRETE PAVEMENT 1 C8 — C2,C3.1,C3.2,C3.3,C3.4,C3.5,C8,C9.1,C10,C11,C12

NTS

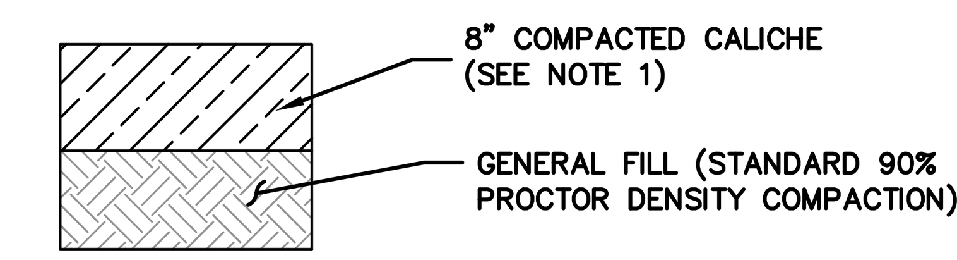


NOTES:

1. WIDTH OF THE LANDFILL BERM VARIES FROM 10-FT TO 45-FT. SEE DRAWING C3.5–3.6 FOR THE LAYOUT.

TYPICAL ROAD SECTION B–B' C8 — C3.6

NTS

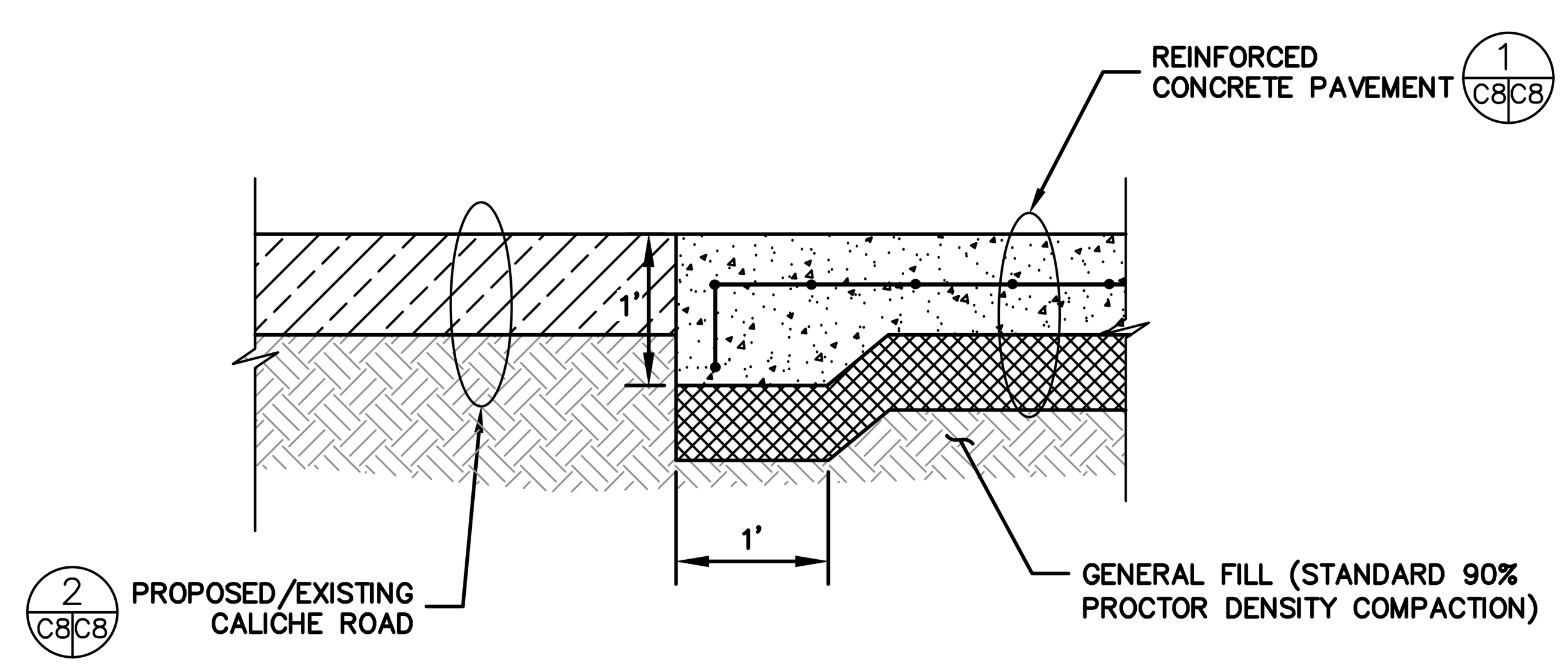


NOTES:

1. CALICHE BASE SHALL CONFORM TO CITY OF EAGLE PASS PUBLIC WORKS DEPARTMENT, CONSTRUCTION SPECIFICATIONS MANUAL ITEM D-1.02, TYPE F, GRADE 2 COMPACTED TO AT LEAST 95% OF MAXIMUM DRY DENSITY.

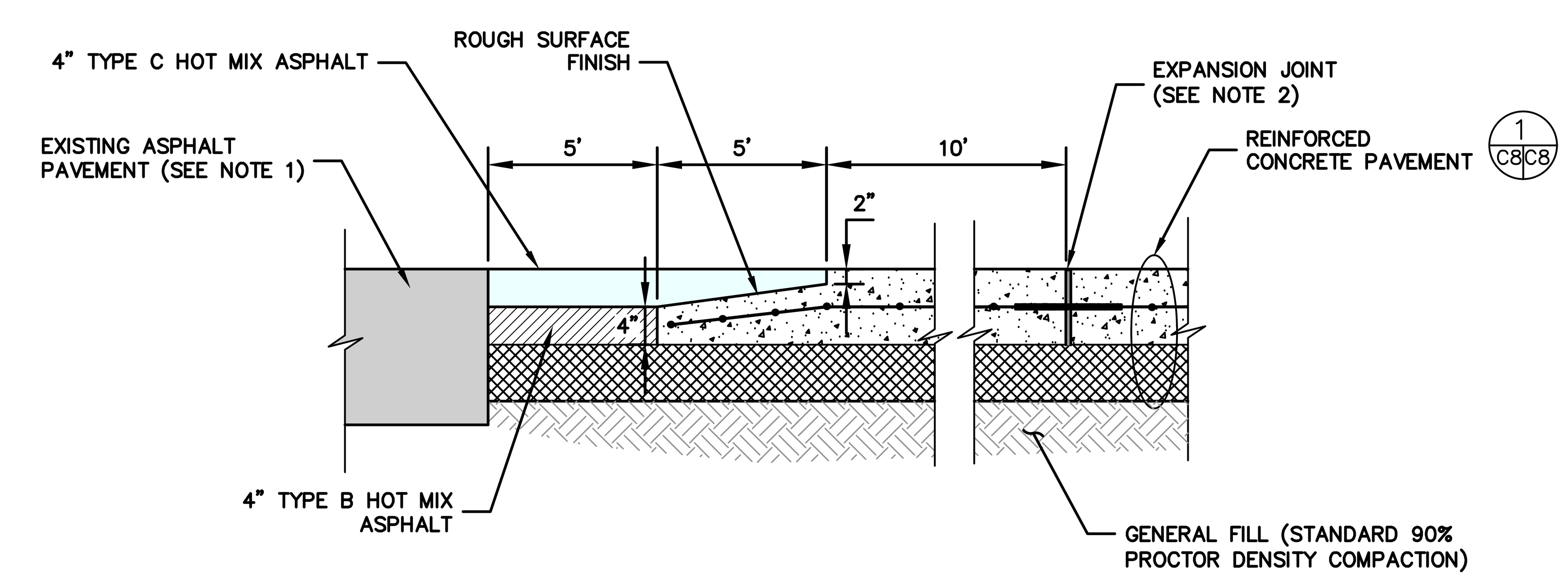
CALICHE ROAD 2 C8 — C2,C3.5,C3.6,C8,C10

NTS



TRANSVERSE TIE JOINT DETAIL
CONCRETE PAVEMENT TO CALICHE ROAD 3 C8 — C2,C3.4,C3.5

NTS

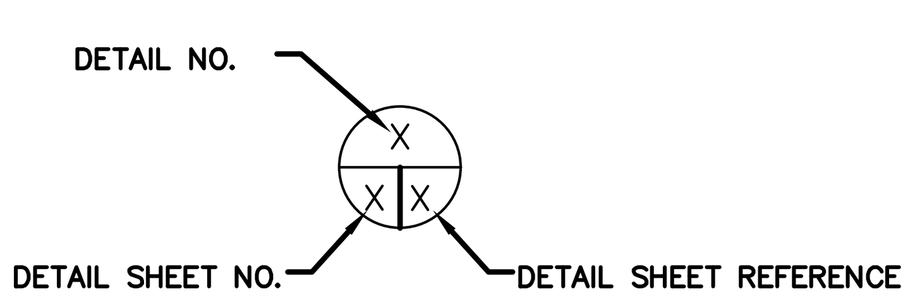


NOTES:

1. EXISTING ASPHALT PAVEMENT IS FOR GENERAL REPRESENTATION ONLY, AND AS SUCH IS NOT INTENDED TO REPRESENT TRUE THICKNESS AND COMPOSITION.
2. REFER TO TXDOT CONCRETE PAVING DETAILS – JOINT SEALS (INDEX JS-14) FOR JOINT SEALING METHOD. REFER TO TXDOT CONTINUOUSLY REINFORCED CONCRETE PAVEMENT – ONE LAYER STEEL BAR PLACEMENT (INDEX CRCP (1) – 20) FOR TYPICAL PAVEMENT LAYOUT AND LONGITUDINAL CONSTRUCTION JOINT DETAIL.

TRANSVERSE TIE JOINT DETAIL
CONCRETE PAVEMENT TO EXISTING ASPHALT PAVEMENT 4 C8 — C3.1

NTS



ISSUED FOR BIDDING

10/14/2024 6:13 PM G:\MAVERICK COUNTY LANDFILL\16223092.00 T15 – C-Plans for entrance road\C8 – ROAD DETAILS

REV	DATE	DESCRIPTION	BY
△			
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TEXAS BOARD OF PROFESSIONAL ENGINEERS REG. NO. F-3407

DRAWING TITLE
ROAD DETAILS

PROJECT TITLE
MAVERICK COUNTY LANDFILL
ENTRANCE ROAD, BUILDINGS, AND CCS
CONSTRUCTION PLANS

CLIENT
MAVERICK COUNTY
SOLID WASTE AUTHORITY
16179 FM 1021
EL INDIO, TEXAS 78860

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

PROJ. NO. 16223092.00 | DWN. BY: XW | Q/A RVW BY: RRK
DSN. BY: SS | CHK. BY: SS | APP. BY: RRK

CADD FILE: C8 – ROAD DETAILS

DATE: 10/2024

SCALE: AS SHOWN

DRAWING NO.
C8

PERMIT REVISIONS (MARKED)

PART I
GENERAL INFORMATION

FOR

MAVERICK COUNTY EL INDIO MSW LANDFILL
TCEQ PERMIT NO. MSW 2316

Prepared for:

Maverick County Solid Waste Authority
16179 FM 1021
El-Indio, Texas 78860

And

Maverick County
500 Quarry Street, Suite 3
Eagle Pass, Texas 78852
830/773-3824

PERMIT ISSUED: SEPTEMBER 11, 2007

REVISION 2 PREPARED BY:

SCS ENGINEERS
Texas Board of Professional Engineers Reg. No. F-3407
1901 Central Drive, Suite 550
Bedford, Texas 76021
817/571-2288

Revision 1 – May 2004
Revision 2 – March 2024
Revision 3 – June 2025
SCS Project No. 16220088.00 & 16223092.00

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Attachment	*Figure*	*Description*
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3.0 COORDINATION WITH AGENCIES – 30 TAC 330.51(B)(6)

Documentation of Coordination with the following agencies is required and is included in **Appendix I-F.**

3.A Texas Commission on Environmental Quality (TCEQ)

Coordination with the TCEQ to demonstrate compliance with the Clean Act Section 208 is included as Appendix I-F1.

3.B Federal Aviation Administration (FAA)

Coordination with the United States Department of Transportation, Federal Aviation Administration to demonstrate compliance with airport location restrictions is included as Appendix I-F2. A letter from the U.S. Department of Transportation, Federal Aviation Administration stating "there are no existing or proposed public-used airports within five miles of the site, therefore we have no objection to the proposal" has been included in this appendix.

3.C Texas Department of Transportation (TXDOT)

Coordination with the Texas Department of Transportation for compliance with traffic and location restrictions is included as **Appendix I-F3**. A driveway access permit for the proposed MSW facility to access FM 1021 was submitted to TXDOT. The permit was successfully approved. A copy of the signed driveway permit is included as **Appendix I-F3.**

Subsequently, an additional driveway access permit for the new entrance to the facility, located in the southeast corner of the property, was submitted to TXDOT. This permit was successfully approved in June 2025 and a copy of this approved permit is also included as Appendix I-F3.

APPENDIX I-F3

CORRESPONDENCE WITH TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT)

PART III
SITE DEVELOPMENT PLAN NARRATIVE

FOR

MAVERICK COUNTY EL INDIO MSW LANDFILL
TCEQ PERMIT NO. MSW 2316

Prepared for:

Maverick County Solid Waste Authority
16179 FM 1021
El-Indio, Texas 78860

And

Maverick County
500 Quarry Street, Suite 3
Eagle Pass, Texas 78852
830/773-3824

PERMIT ISSUED: SEPTEMBER 11, 2007

REVISIONS 1, 2, 3, 4, 5 & ~~5~~ 6 PREPARED BY:

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Revision 1 – July 2010, October 2010, January 2011
Revision 2 – July 2014
Revision 3 – January 2024
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SCS Project Nos. 16209033.00, 16214011.00, 16220088.00 & 16223092.00

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STATE OF TEXAS
SANDEEP D. SARAF
136850
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PROFESSIONAL ENGINEER
6-15-25

SCS Engineers
TBPE Reg. # F-3407

ATTACHMENTS TO PART III

Attachment	*Description*
1	Site Layout Plan
2	Fill Cross-Sections
3	Existing Contour Map
4	Geology Report
5	Groundwater Characterization Report
6	Ground and Surface Water Protection Plan and Drainage Plan
7	Final Contour Map
8	Cost Estimate for Closure and Post-Closure
9	Applicant's Statement
10	Soil and Liner Quality Control Plan (SLQCP)
11	Groundwater Sampling and Analysis Plan (GWSAP)
12	Final Closure Plan
13	Post-Closure Care Plan
14	Landfill Gas Management Plan
15	Leachate and Contaminated Water Plan

2.1 LANDFILL METHOD §330.63(d)(4)(B)

The permitted waste area of the landfill is 108 acres and the final cover side slopes are 3H:1V. The basic design of the Maverick County Landfill will consist of area fill both above and below ground. The site will be continuously developed using 14 disposal cells. The below-ground waste disposal will extend approximately 45 feet below ground to a finished base grade (top of liner) elevation of approximately 691 feet m.s.l. The bottom liner system of each cell will slope to drain at a minimum 2 percent toward a perforated LCS pipe located in the center of each cell. The LCS pipe will be sloped at a minimum slope of 1% towards the leachate collection sump. The landfill base grades are designed with a 1% base liner slope.

The above-ground waste disposal generally includes a 3 horizontal to 1 vertical fill slope from the landfill perimeter to a top elevation of approximately 833 feet m.s.l. with a 5% cap slope.

An eight-foot high chain-link security fence with a locking gate at the entrance to the facility has been installed on the FM 1021 perimeter of the site.

Development of the landfill will be an ongoing process throughout the projected 73 year site life. The landfill will be developed in one phase as shown on Attachment 1 of Part III. The 14 individual cells outlined represent discrete construction limits for extending the landfill floor excavation and lining system.

Throughout the development of the site where excavation is anticipated, the general excavation sequence will be as follows.

1. Construct temporary erosion controls including diversion berms, ditches and filter fences.

2. Strip and stockpile topsoil in designated areas. Construct appropriate erosion controls to maintain natural drainage patterns to the extent possible.

3. Excavate to the elevations shown in Part III, and stockpile soil in designated areas to construct screening berms and push wall berms when appropriate. Maintain stockpiles in compliance with the Erosion Control Plan.

4. Construct a compacted clay liner in accordance with the Soil Liner Quality Control Plan (SLQCP) provided in Part III, Attachment 10. In general, the constructed lined area will not exceed that area which will be covered by one lift of waste within 6 months.

Construction Sequence for Phase 1, Cell 1

1. Construct an all-weather road along the western and southern edges of the excavation. Construct the all-weather road of a surface such as asphalt, crushed

As a routine procedure, a stockpile of cover material sufficient to cover the working face or active area will be maintained near the working area. This will provide periodic cover on a contingency basis for such conditions as inclement weather, unanticipated down-time of cover hauling equipment, and fire/hot load control at the working face.

During dry weather, the operator will perform dust control by sprinkling water on the roads and ramps, as necessary.

2.3 ACCESS CONTROL §330.63(b)(1)

Site access control consists of an 8-foot chain link fence with 2-strand barbed wire top rail, in concrete footings along the FM 1021 side of the landfill and a 5-foot 5-strand barbed-wire fence on steel poles with concrete footings around the remaining perimeter of the site. A gate with control features will be located at the facility entrances, including the primary entrance (i.e., the existing main entrance) and secondary entrance/exit gates. The primary entrance to the facility is to the south to optimize the site operations. This entrance provides room for one inbound and one outbound scale, with a queuing distance of 510' between the gate and inbound scale. This will provide the ability to safely maneuver traffic through the scale house area, eliminate traffic from backing up onto FM 1021, and reduce overall disposal time for customers. Also, it provides additional room for future drainage features that are proposed at the landfill.

Site personnel will inspect regularly the fencing, report any failure, and see that any damage is quickly repaired. All security features, including the entry gates, and the locks will be kept in proper working order, maintained, and quickly replaced if inoperable and/or irreparable. Maintenance will be performed on site security mechanisms (i.e. fences, locking gates) as necessary to maintain access control, as described in Part IV – Site Operating Plan, Section 4.1. The fences, gates, and other means of access control will be maintained and operated to prevent the entry of livestock, to protect the public from exposure to potential health and safety hazards, and to discourage unauthorized entry or uncontrolled disposal of solid waste or hazardous materials.

Scale house personnel at the primary entrance will control site access whenever the entry gates are open. When the site is closed, the entry gates will be closed to prevent unauthorized and uncontrolled waste disposal and locked when no personnel are present on site. Lighting will be provided at the scale house and primary entrance gate. The perimeter fencing will prevent vehicular and pedestrian access to the site at points other than the entry gates. Under normal operations, the primary entrance constructed for the facility will be the only public entrance for the landfill. Generally, the secondary entrance will be for landfill personnel or Maverick County designated personnel. However, in the event that primary entrance is inaccessible due to weather or traffic, approved waste haulers and/or the general public may be directed to through the secondary entrance. The locations of the primary and secondary entrances are shown on Part III, Attachment 1B. The primary entrance layout is shown in Part III, Attachment 1B10.

The gate attendant will direct drivers to the proper disposal area. There, the drivers will be directed to a specific unloading area. Operations over the life of the facility may include alteration to the location and quantity of entrance and administrative facilities (i.e. building, trailers, citizen service areas, fuel tanks, scales, equipment maintenance facilities, etc.) and other facility appurtenances even though they will remain in the same general location. In all cases, any alteration in the location of these facilities will be designed to increase the level of service provided by the facility without interfering with site operations.

2.4 SITE LIFE §330.63(d)(4)(D)

The disposal rate for the Maverick County Landfill is expected to range from approximately 350 tons/day to 400 tons/day. The region currently has a collection rate of 6 lbs/person/day.

MAVERICK COUNTY – EL INDIO MSW LANDFILL
MAVERICK COUNTY, TEXAS
PERMIT APPLICATION
SITE DEVELOPMENT PLAN PART III
ATTACHMENT 1

SITE LAYOUT PLAN

Prepared for:

Maverick County Solid Waste Authority
16179 FM 1021
El-Indio, Texas 78860

And
Maverick County
500 Quarry Street, Suite 3
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Revision 1 – January 2004, May 2004
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Revision 3 – July 2014, October 2014
Revision 4 – October 2024
Revision 5 – February 2025; Revision 6 – June 2025
SCS Project Nos. 16208046, 16209033.00, 16223092.00

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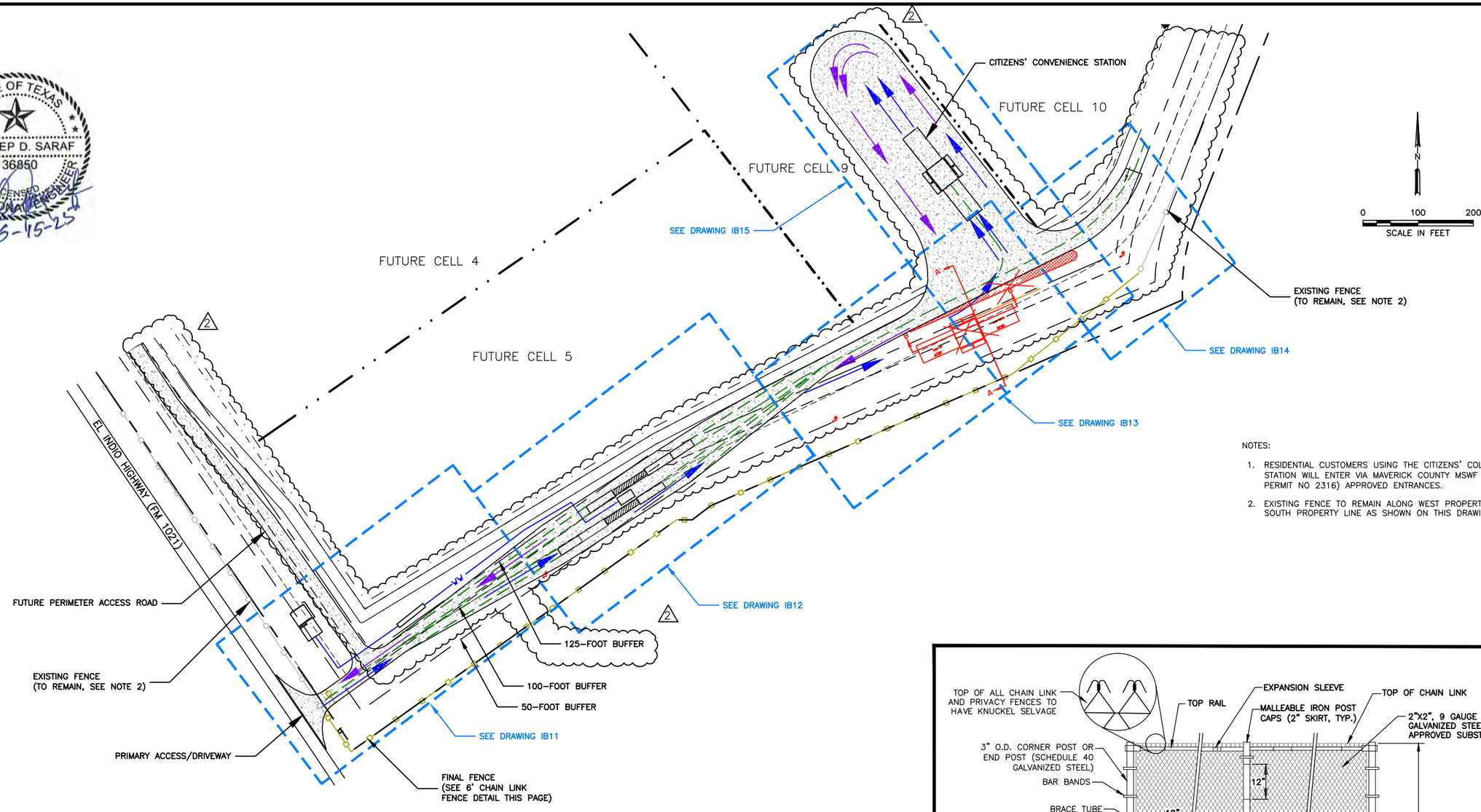


NOTES:

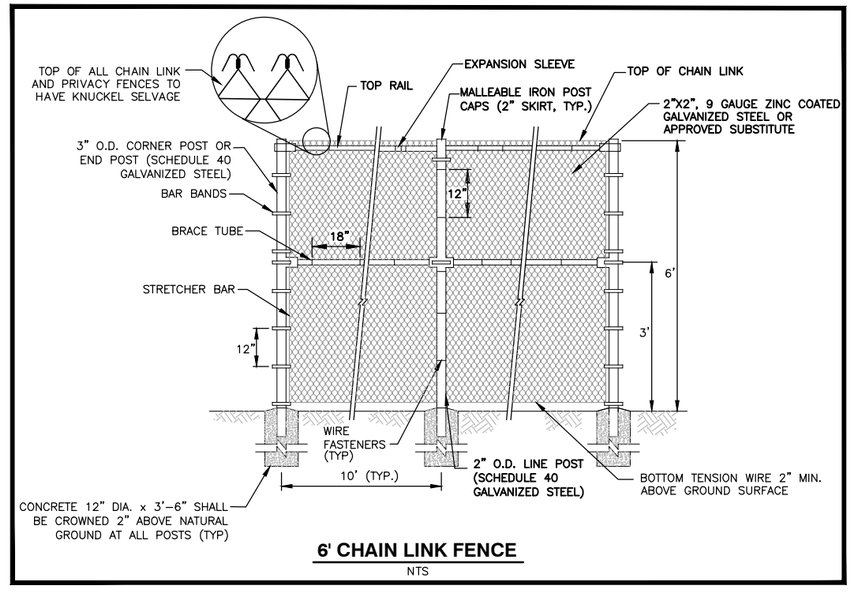
1. RESIDENTIAL CUSTOMERS USING THE CITIZENS' COLLECTION STATION WILL ENTER VIA MAVERICK COUNTY MSWF (MSW PERMIT NO 2316) APPROVED ENTRANCES.
2. EXISTING FENCE TO REMAIN ALONG WEST PROPERTY LINE AND SOUTH PROPERTY LINE AS SHOWN ON THIS DRAWING.

LEGEND

- PROPERTY BOUNDARY
- PERMIT BOUNDARY
- LIMITS OF WASTE
- CELL/UNIT LIMITS
- 50-FOOT BUFFER
- 100-FOOT BUFFER
- 2 125-FOOT BUFFER
- EXISTING FENCE (TO REMAIN)
- FINAL FENCE
- SEPTIC LINE
- DRIVING LANES
- PAVEMENT
- INCOMING TRAFFIC FLOW
- OUTGOING TRAFFIC FLOW

	REVISION 1 NOTES (RESPONSE TO NOD COMMENTS)
1	REVISED TO INDICATE 50-FOOT AND 100-FOOT BUFFER ZONE
2	REVISED LEGEND TO SHOW EXISTING FENCE (TO REMAIN)
3	REVISED LEGEND TO UPDATE CALLOUT FROM "PROPOSED" FENCE TO "FINAL" FENCE
4	REVISED TO SHOW FINAL FENCE DETAILS (6-INCH CHAIN LINK FENCE)
5	UPDATED NOTES, LEGEND, AND CALLOUTS
6	DEPICTED EXISTING FENCE TO REMOVE
7	DELETED NOTE 3

	REVISION 2 NOTES (RESPONSE TO NOD 2 COMMENTS)
1	CITIZENS' CONVENIENCE STATION HAS BEEN RELOCATED WITH A MINIMUM BUFFER OF 125-FOOT FROM THE PROPERTY BOUNDARY
2	REVISED TO INDICATE 125-FOOT BUFFER ZONE
3	REVISED TO INDICATE PREVIOUSLY PERMITTED GAS PROBE LOCATIONS



6' CHAIN LINK FENCE
NTS

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
1	03/25	RESPONSE TO NOD COMMENTS	SDS
2	06/25	RESPONSE TO NOD 2 COMMENTS	SDS

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

DRAWING: NEW PRIMARY ENTRANCE FACILITY

PROJECT: MAVERICK COUNTY MSW LANDFILL PERMIT MODIFICATION

CLIENT: MAVERICK COUNTY SOLID WASTE AUTHORITY
16179 FM 1021
EL INDIO, TEXAS

SCS ENGINEERS
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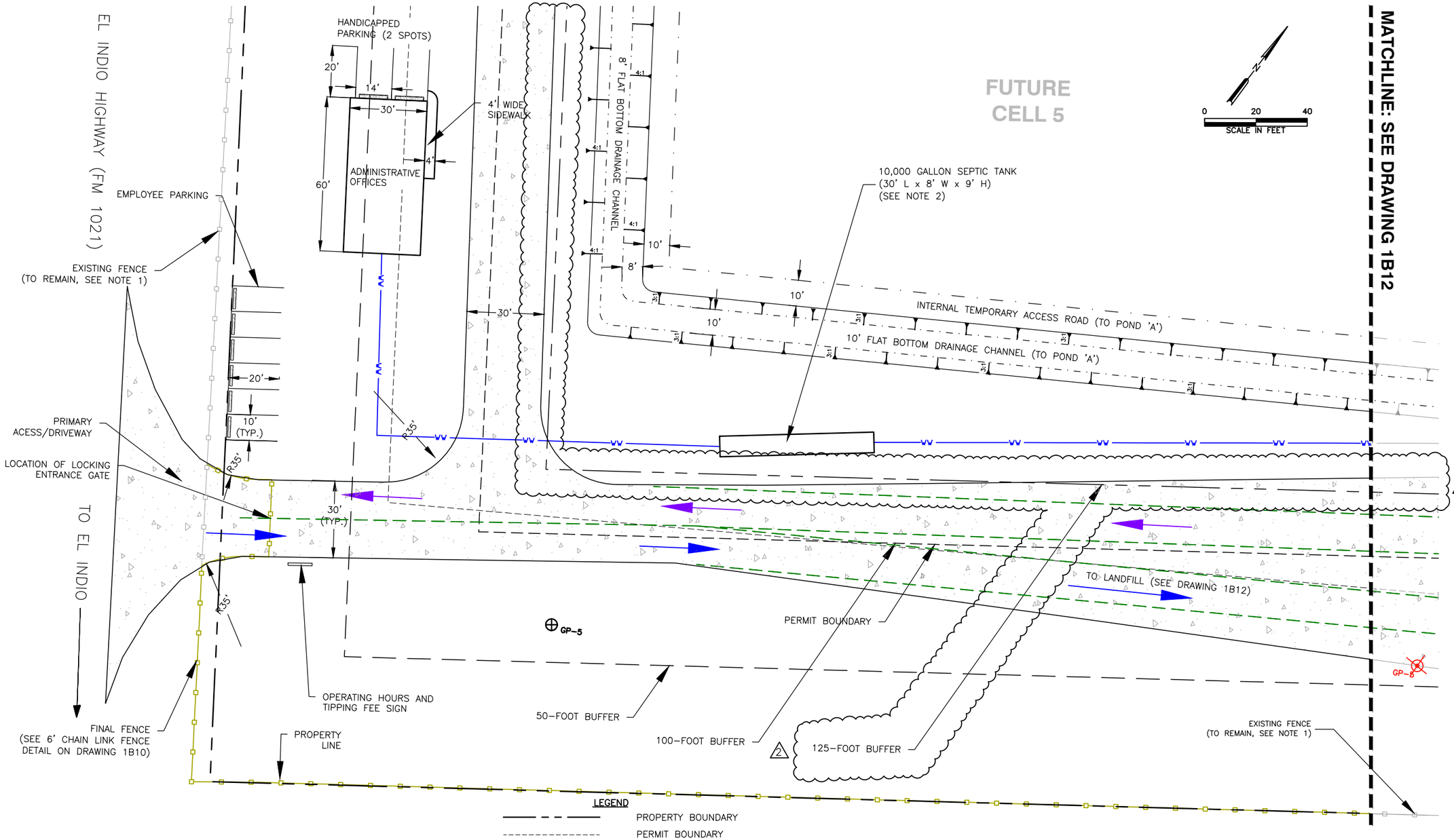
PROJ. NO. 162230920.00
DSN. BY: DNA
DWN. BY: DNA
CHK. BY: ACA
QA/A &W BY: SDS
APP. BY: SDS

CADD FILE: IB-1B10-1B15

DATE: 06/2025

SCALE: AS SHOWN

ATTACHMENT NO. 1B10



LEGEND

- PROPERTY BOUNDARY
- PERMIT BOUNDARY
- LIMITS OF WASTE
- CELL/UNIT LIMITS
- 50-FOOT BUFFER
- 100-FOOT BUFFER
- 125-FOOT BUFFER
- EXISTING FENCE (TO REMAIN)
- FINAL FENCE
- SEPTIC LINE
- DRIVING LANES
- PAVEMENT
- INCOMING TRAFFIC FLOW
- OUTGOING TRAFFIC FLOW
- GP-5 GAS MONITOR PROBE (SEE NOTE 3)

	REVISION ⚠ NOTES (RESPONSE TO NOD COMMENTS)
1	REVISED TO INDICATE 50-FOOT AND 100-FOOT BUFFER ZONE
2	REVISED LEGEND TO SHOW EXISTING FENCE (TO REMAIN)
3	REVISED LEGEND TO UPDATE CALLOUT FROM "PROPOSED" FENCE TO "FINAL" FENCE
4	REMOVED "APPROXIMATE LOCATION OF PROPOSED" FROM SEPTIC TANK CALLOUT
5	ADDED NOTE 2 RELATED TO SEPTIC TANK CONSTRUCTION
6	UPDATED LEGEND TO INCLUDE GP-5 CALLOUT AND REVISED NOTE 3
7	UPDATED NOTES, LEGEND, AND CALLOUTS
8	DEPICTED EXISTING FENCE TO REMOVE

	REVISION ⚠ NOTES (RESPONSE TO NOD 2 COMMENTS)
1	REVISED TO INDICATE 125-FOOT BUFFER ZONE
2	REVISED TO INDICATE PREVIOUSLY PERMITTED GAS PROBE LOCATIONS

NOTES:

1. EXISTING FENCE TO REMAIN ALONG WEST PROPERTY LINE AND SOUTH PROPERTY LINE AS SHOWN ON THIS DRAWING.
2. SEPTIC TANK TO BE CONSTRUCTED IN COMPLIANCE WITH 30 TAC 330.207
3. THE PROBES WERE INSTALLED CONSISTENT WITH ATTACHMENT 14.

STATE OF TEXAS
SANDEEP D. SARAF
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LICENSED
PROFESSIONAL ENGINEER
6-15-25

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
1	03/25	RESPONSE TO NOD COMMENTS	SDS
2	06/25	RESPONSE TO NOD 2 COMMENTS	SDS

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

DRAWING: NEW PRIMARY ENTRANCE FACILITY

PROJECT: MAVERICK COUNTY MSW LANDFILL PERMIT MODIFICATION

CLIENT: MAVERICK COUNTY SOLID WASTE AUTHORITY 16179 FM 1021 EL INDIO, TEXAS

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16223092.00	DNA	ACA	SDS	SDS
DSN. BY: DNA				

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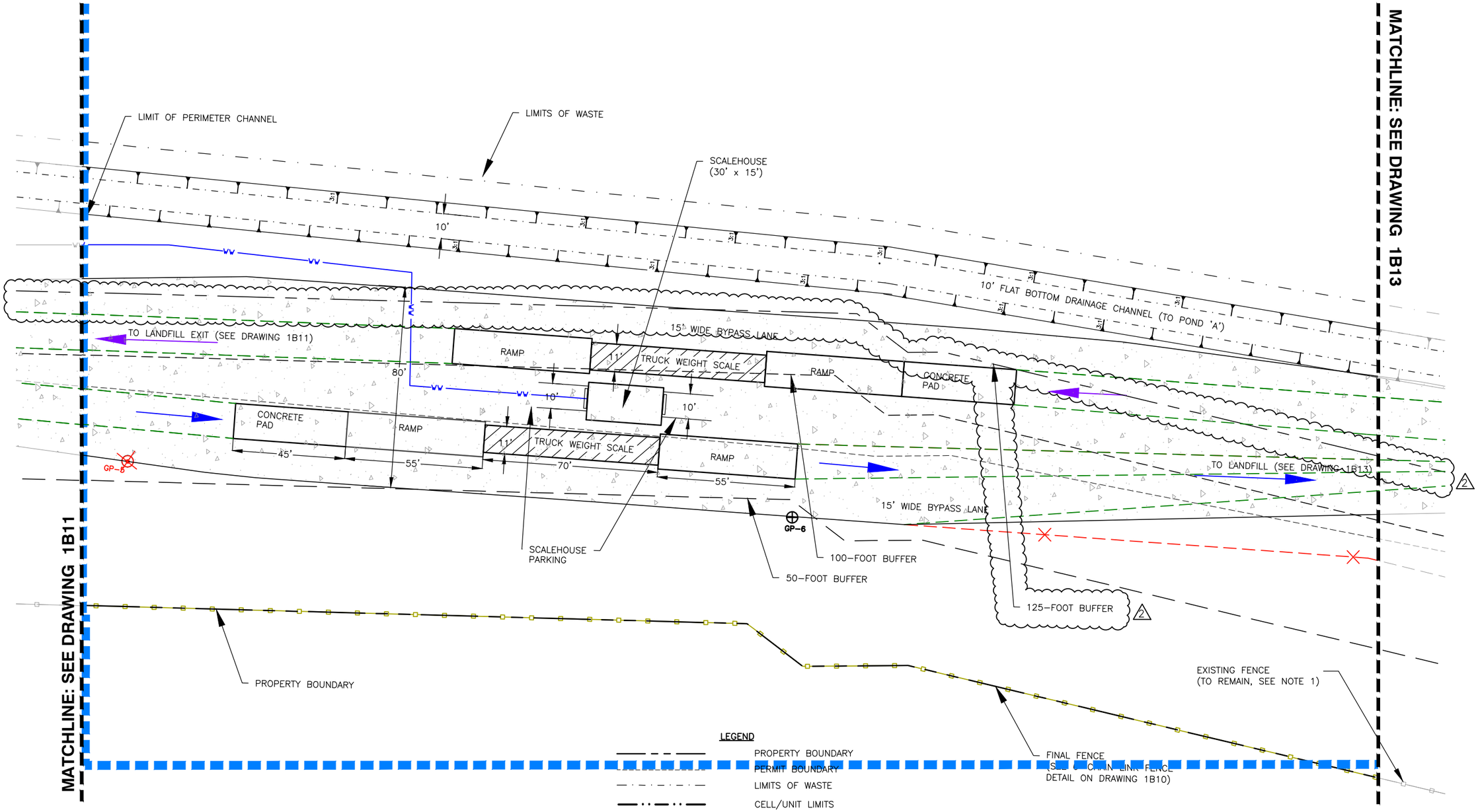
DATE: 06/2025

SCALE: AS SHOWN

ATTACHMENT NO. 1B11



LEGEND

- PROPERTY BOUNDARY
- PERMIT BOUNDARY
- LIMITS OF WASTE
- CELL/UNIT LIMITS
- 50-FOOT BUFFER
- 100-FOOT BUFFER
- 2 — 125-FOOT BUFFER
- EXISTING FENCE (TO REMAIN)
- FINAL FENCE
- VV — SEPTIC LINE
- DRIVING LANES
- PAVEMENT
- INCOMING TRAFFIC FLOW
- OUTGOING TRAFFIC FLOW
- GP-6 — GAS MONITOR PROBE (SEE NOTE 2)

NOTES:

1. EXISTING FENCE TO REMAIN ALONG WEST PROPERTY LINE AND SOUTH PROPERTY LINE AS SHOWN ON THIS DRAWING.
2. THE PROBES WERE INSTALLED CONSISTENT WITH ATTACHMENT 14.

	REVISION 1 NOTES (RESPONSE TO NOD COMMENTS)
1	REVISED TO INDICATE 50-FOOT AND 100-FOOT BUFFER ZONE
2	REVISED TO SHOW EXISTING FENCE (TO REMOVE) AND EXISTING FENCE (TO REMAIN)
3	UPDATED NOTES, LEGEND, AND CALLOUTS

	REVISION 2 NOTES (RESPONSE TO NOD 2 COMMENTS)
1	REVISED TO INDICATE 125-FOOT BUFFER ZONE
2	REVISED TO INDICATE PREVIOUSLY PERMITTED GAS PROBE LOCATIONS

STATE OF TEXAS
SANDEEP D. SARAF
136850
LICENSED
PROFESSIONAL ENGINEER
6-15-25

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
1	03/25	RESPONSE TO NOD COMMENTS	SDS
2	06/25	RESPONSE TO NOD 2 COMMENTS	SDS

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

DRAWING: NEW PRIMARY ENTRANCE FACILITY

PROJECT: MAVERICK COUNTY MSW LANDFILL PERMIT MODIFICATION

CLIENT: MAVERICK COUNTY SOLID WASTE AUTHORITY 16179 FM 1021 EL INDIO, TEXAS

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PROJ. NO. 162230392.00 | DSN. BY: DNA | DWN. BY: DNA | CHK. BY: AGA | CVA, EVW BY: SDS | APP. BY: SDS

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SCALE: AS SHOWN

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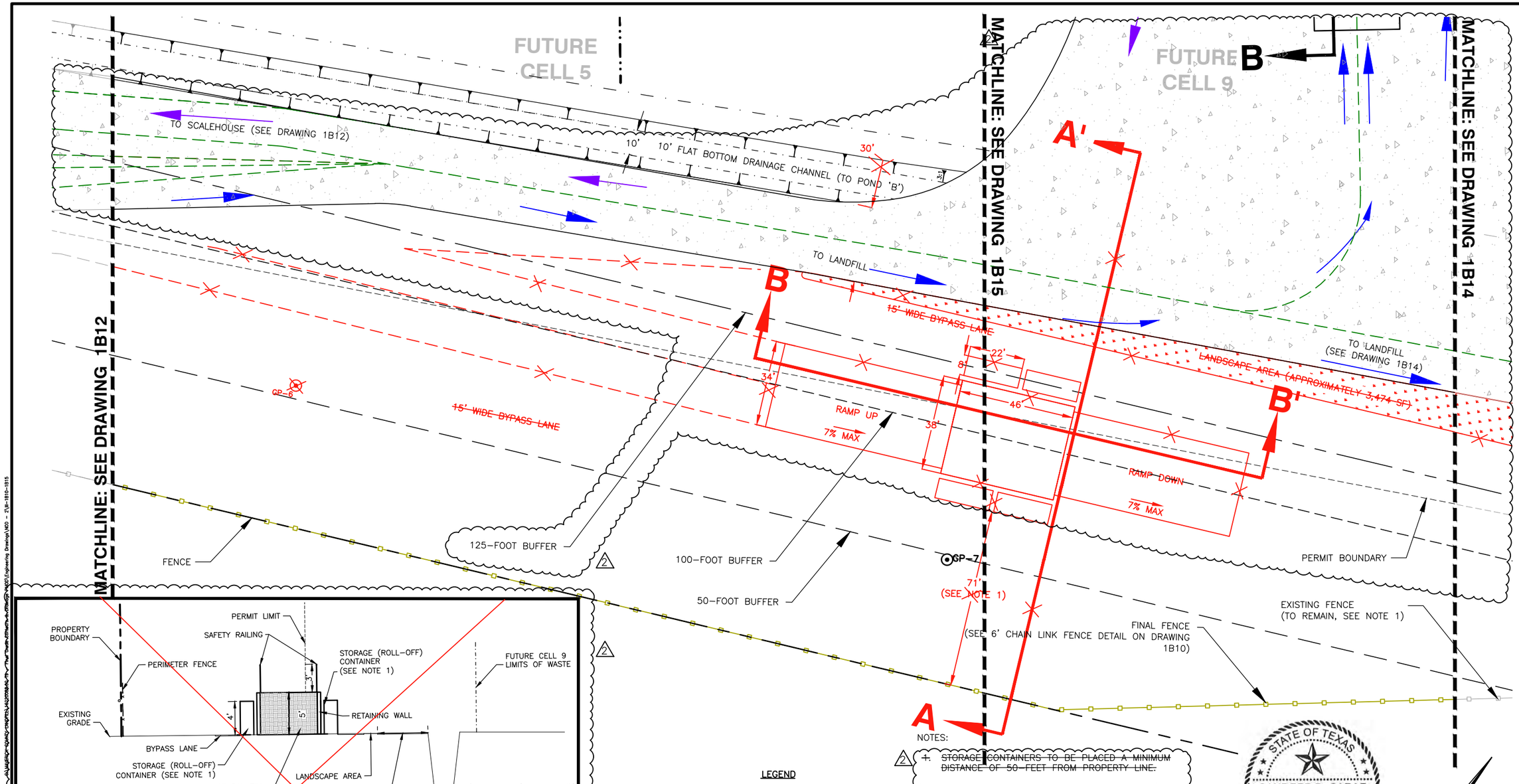
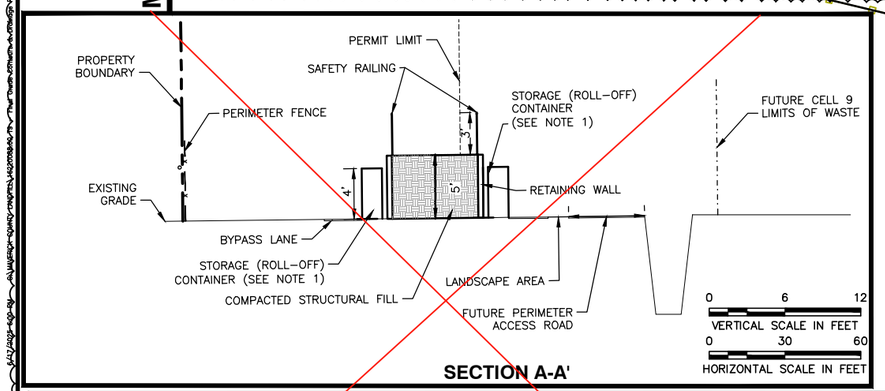
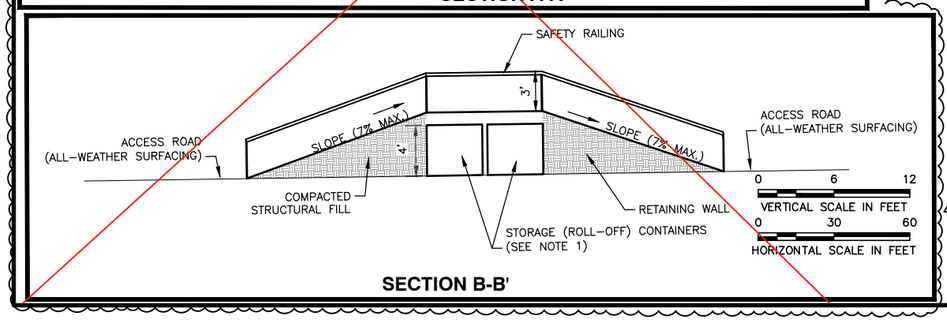




SECTION A-A'



SECTION B-B'

LEGEND

- PROPERTY BOUNDARY
- PERMIT BOUNDARY
- LIMITS OF WASTE
- CELL/UNIT LIMITS
- 50-FOOT BUFFER
- 100-FOOT BUFFER
- 125-FOOT BUFFER
- EXISTING FENCE (TO REMAIN)
- FINAL FENCE
- DRIVING LANES
- PAVEMENT
- ~~LANDSCAPE AREA~~
- INCOMING TRAFFIC FLOW
- OUTGOING TRAFFIC FLOW
- GP-7 FUTURE GAS MONITOR PROBE (SEE NOTE ~~4~~ 3)

NOTES:

2
1. ~~STORAGE CONTAINERS TO BE PLACED A MINIMUM DISTANCE OF 50-FEET FROM PROPERTY LINE.~~
2. RESIDENTIAL CUSTOMERS USING THE CITIZENS' COLLECTION STATION WILL ENTER VIA MAVERICK COUNTY MSWF (MSW PERMIT NO 2316) APPROVED ENTRANCES.
3. EXISTING FENCE TO REMAIN ALONG WEST PROPERTY LINE AND SOUTH PROPERTY LINE AS SHOWN ON THIS DRAWING.
4. THE PROBES WILL BE INSTALLED CONSISTENT WITH ATTACHMENT 14.

	REVISION 2 NOTES (RESPONSE TO NOD 2 COMMENTS)
1	CITIZENS' CONVENIENCE STATION HAS BEEN RELOCATED WITH A MINIMUM BUFFER OF 125-FOOT FROM THE PROPERTY BOUNDARY
2	REVISED TO INDICATE 125-FOOT BUFFER ZONE
3	REVISED TO DELETE SECTIONS A-A', AND B-B'
4	REVISED DRIVING LANES AND EDGE OF PAVEMENT DUE TO RELOCATION OF CITIZENS' CONVENIENCE STATION
5	REVISED NOTES, UPDATED LEGEND, AND CALLOUTS
6	REVISED TO INDICATE PREVIOUSLY PERMITTED GAS PROBE LOCATIONS

STATE OF TEXAS
SANDEEP D. SARAF
136850
LICENSED PROFESSIONAL ENGINEER
6-15-25

0 20 40
SCALE IN FEET

	REVISION 1 NOTES (RESPONSE TO NOD COMMENTS)
1	REVISED TO INDICATE 50-FOOT AND 100-FOOT BUFFER ZONE
2	REVISED LEGEND TO SHOW EXISTING FENCE (TO REMAIN)
3	REVISED LEGEND TO UPDATE CALLOUT FROM "PROPOSED" FENCE TO "FINAL" FENCE
4	UPDATED NOTES, LEGEND, AND CALLOUTS
5	DEPICTED EXISTING FENCE TO REMOVE
6	REMOVED GP-6 FROM LAYOUT, ADDED GP-7, AND REVISED "PROPOSED" TO "FUTURE" GAS MONITOR PROBE IN LEGEND

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
1	03/25	RESPONSE TO NOD COMMENTS	SDS
2	06/25	RESPONSE TO NOD 2 COMMENTS	SDS

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

DRAWING: NEW PRIMARY ENTRANCE FACILITY

PROJECT: MAVERICK COUNTY MSW LANDFILL PERMIT MODIFICATION

CLIENT: MAVERICK COUNTY SOLID WASTE AUTHORITY 16179 FM 1021 EL INDIO, TEXAS

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

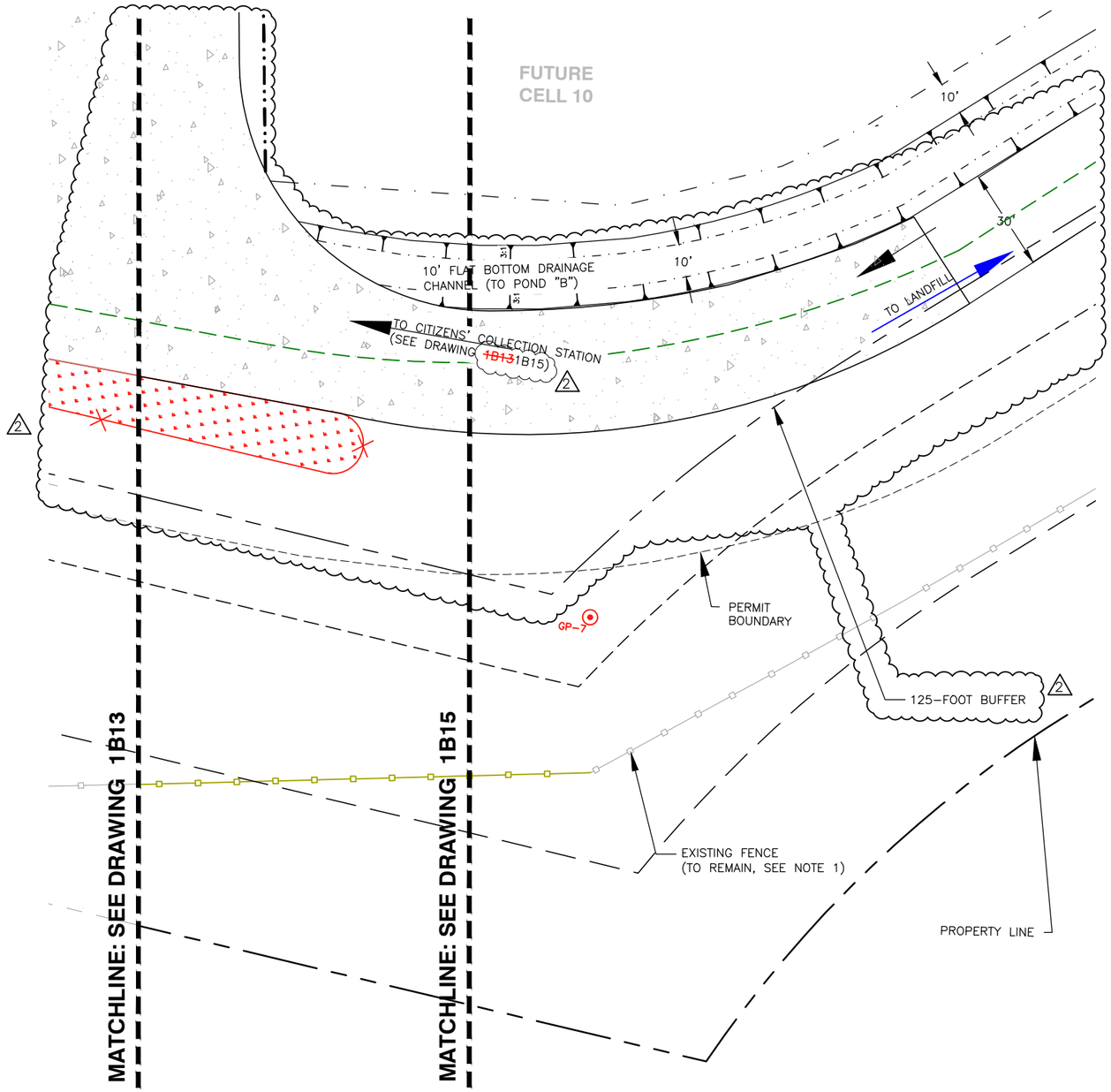
PROJ. NO. 16223092.00
DSN. BY: DNA
DWN. BY: DNA
CHK. BY: ACA
QA/QC BY: SDS
APP. BY: SDS

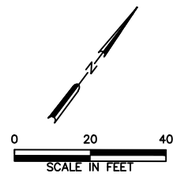
CADD FILE: III-1B10-1B15

DATE: 06/2025

SCALE: AS SHOWN

ATTACHMENT NO. 1B13





LEGEND

- PROPERTY BOUNDARY
- PERMIT BOUNDARY
- LIMITS OF WASTE
- CELL/UNIT LIMITS
- 50–FOOT BUFFER
- 100–FOOT BUFFER
- 2 125–FOOT BUFFER
- EXISTING FENCE (TO REMAIN, SEE NOTE 1)
- FINAL FENCE
- DRIVING LANES
- PAVEMENT
- 2 ~~LANDSCAPE AREA~~
- INCOMING TRAFFIC FLOW
- OUTGOING TRAFFIC FLOW

NOTES:

1. EXISTING FENCE TO REMAIN ALONG WEST PROPERTY LINE AND SOUTH PROPERTY LINE AS SHOWN ON THIS DRAWING.

	REVISION 1 NOTES (RESPONSE TO NOD COMMENTS)
1	REVISED TO INDICATE 50–FOOT AND 100–FOOT BUFFER ZONE
2	REVISED LEGEND TO SHOW EXISTING FENCE (TO REMAIN)
3	UPDATED LEGEND CALLOUT FROM "PROPOSED" FENCE TO "FINAL" FENCE
4	UPDATED NOTES, LEGEND, AND CALLOUTS
5	REMOVED GP–7 FROM LAYOUT AND LEGEND. DELETED NOTE 2

	REVISION 2 NOTES (RESPONSE TO NOD 2 COMMENTS)
1	CITIZENS' CONVENIENCE STATION HAS BEEN RELOCATED WITH A MINIMUM BUFFER OF 125–FOOT FROM THE PROPERTY BOUNDARY AS PREVIOUSLY SHOWN ON 1B13
2	REVISED TO REMOVE LANDSCAPE AREA
3	REVISED TO INDICATE 125–FOOT BUFFER ZONE
4	UPDATED LEGEND AND CALLOUTS
5	REVISED TO INDICATE PREVIOUSLY PERMITTED GAS PROBE LOCATIONS

STATE OF TEXAS
SANDEEP D. SARAF
136850
LICENSED
PROFESSIONAL ENGINEER
6-15-25

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REV	DATE	DESCRIPTION	BY
1	03/25	RESPONSE TO NOD COMMENTS	SDS
2	06/25	RESPONSE TO NOD 2 COMMENTS	SDS

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

DRAWING: NEW PRIMARY ENTRANCE FACILITY

PROJECT: MAVERICK COUNTY MSW LANDFILL PERMIT MODIFICATION

CLIENT: MAVERICK COUNTY SOLID WASTE AUTHORITY 16179 FM 1021 EL INDIO, TEXAS

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
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1901 CENTRAL DRIVE, SUITE 550, BEDFORD, TX 76021
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PROJ. NO. 16223092.00 | DSN. BY: DNA | CHK. BY: ACA | DSN. BY: DNA | C/A RVW BY: SDS | APP. BY: SDS

CADD FILE: III-1B10-1B15

DATE: 06/2025

SCALE: AS SHOWN

ATTACHMENT NO. 1B14

MAVERICK COUNTY – EL INDIO MSW LANDFILL
MAVERICK COUNTY, TEXAS
PERMIT APPLICATION
SITE DEVELOPMENT PLAN PART III
ATTACHMENT 2

FILL CROSS-SECTIONS

Prepared for:
Maverick County Solid Waste Authority
16179 FM 1021
El-Indio, Texas 78860

And
Maverick County
500 Quarry Street, Suite 3
Eagle Pass, Texas 78852
830/773-3824

PERMIT ISSUED: SEPTEMBER 11, 2007

REVISIONS 2, 3, 4, 5, & ~~5~~ 6 PREPARED BY:

SCS ENGINEERS
Texas Board of Professional Engineers Reg. No. F-3407
1901 Central Drive, Suite 550
Bedford, Texas 76021
817/571-2288

Revision 1 – January 2004, July 2004, August 2004
Revision 2 – April 2009
Revision 3 – July 2010
Revision 4 – October 2024
Revision 5 – February 2025; Revision 6 – June 2025
SCS Project No. 16208046.00, 16223092.00

TABLE OF CONTENTS

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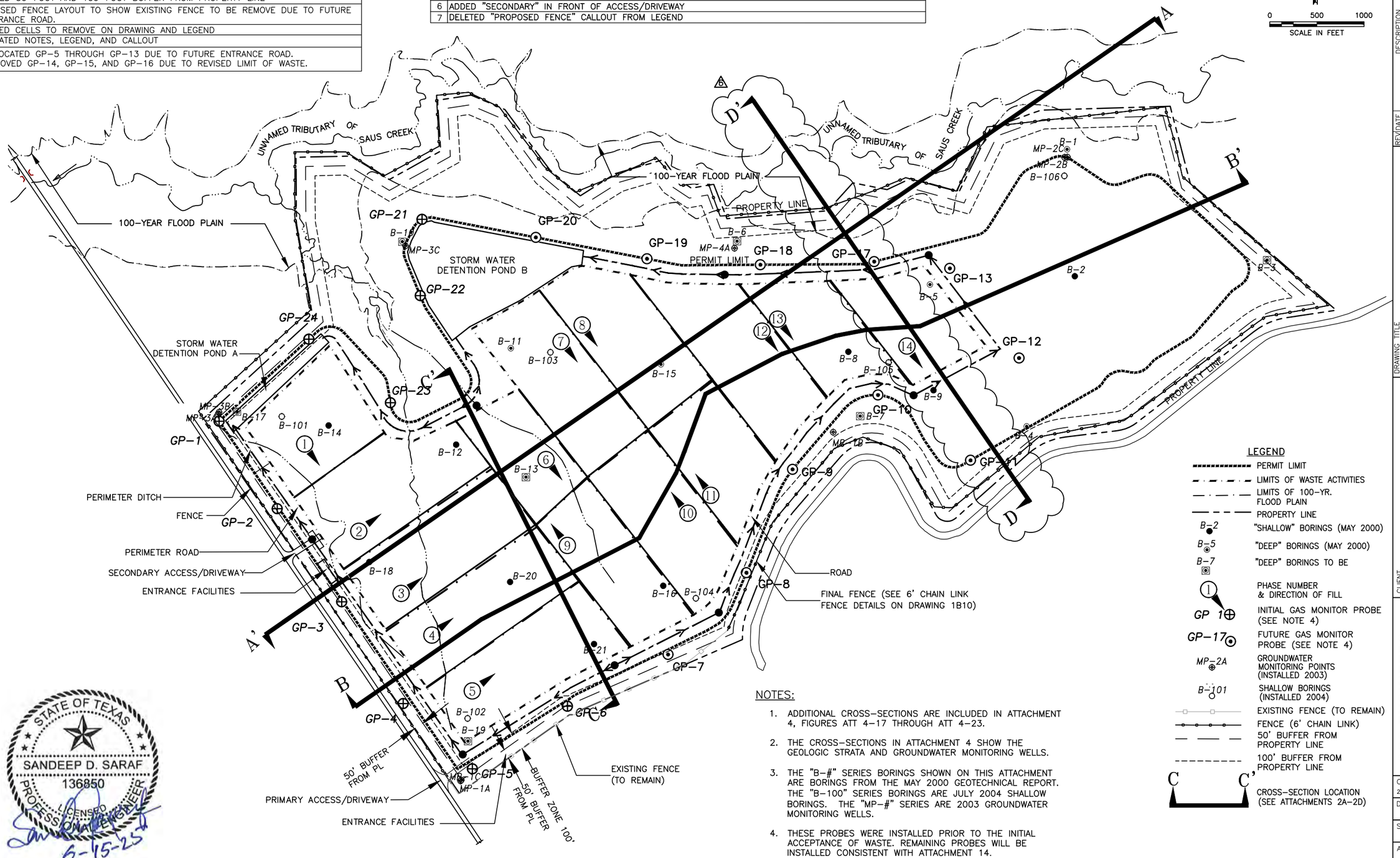
2B1 Cross-Section B-B' (1 of 2)
2B2 Cross-Section B-B' (2 of 2)
2C Cross-Section C-C'
2D Cross-Section D-D'
2E Alternate Liner Design

SCS Engineers
TBPE Reg. # F-3407

	REVISION 5 NOTES (RESPONSE TO NOD COMMENTS)
1	UPDATED LEGEND TO REPLACE "GP-5" WITH "GP-17" AND "PROPOSED" TO "FUTURE"
2	ADDED NOTE 5 FOR SEQUENCING ORDER FROM 1 THROUGH TO 14
3	REVISED TO SHOW REDUCED CELL 14, AND DELETED CELLS 15 AND 16
4	REVISED NOTE 4 RELATED TO EXISTING GAS MONITOR PROBES
5	ADDED 50-FOOT AND 100-FOOT BUFFER FROM PROPERTY LINE
6	REVISED FENCE LAYOUT TO SHOW EXISTING FENCE TO BE REMOVE DUE TO FUTURE ENTRANCE ROAD.
7	ADDED CELLS TO REMOVE ON DRAWING AND LEGEND
8	UPDATED NOTES, LEGEND, AND CALLOUT
9	RELOCATED GP-5 THROUGH GP-13 DUE TO FUTURE ENTRANCE ROAD. REMOVED GP-14, GP-15, AND GP-16 DUE TO REVISED LIMIT OF WASTE.

	REVISION 4 NOTES
1	REDUCED LIMITS OF WASTE ACTIVITIES BOUNDARY FROM 134 ACRES TO 108 ACRES
2	REVISED LOCATION OF B-B' TO INCLUDE LANDFILL PEAK ELEVATION
3	RELOCATED GP-5 AND GP-6 DUE TO PROPOSED ENTRANCE ROAD
4	REVISED FENCE LAYOUT RELOCATED FUTURE GP-5 AND GP-6 DUE TO PROPOSED ENTRANCE ROAD
5	ADDED "PRIMARY ACCESS/DRIVEWAY" AND "ENTRANCE FACILITIES" ON SOUTH PROPERTY BOUNDARY CORNER
6	ADDED "SECONDARY" IN FRONT OF ACCESS/DRIVEWAY
7	DELETED "PROPOSED FENCE" CALLOUT FROM LEGEND

	REVISION 6 NOTES
1	REVISED LOCATION OF D-D'



LEGEND

- PERMIT LIMIT
- LIMITS OF WASTE ACTIVITIES
- LIMITS OF 100-YR. FLOOD PLAIN
- PROPERTY LINE
- "SHALLOW" BORINGS (MAY 2000)
- "DEEP" BORINGS (MAY 2000)
- "DEEP" BORINGS TO BE
- PHASE NUMBER & DIRECTION OF FILL
- INITIAL GAS MONITOR PROBE (SEE NOTE 4)
- FUTURE GAS MONITOR PROBE (SEE NOTE 4)
- GROUNDWATER MONITORING POINTS (INSTALLED 2003)
- SHALLOW BORINGS (INSTALLED 2004)
- EXISTING FENCE (TO REMAIN)
- FENCE (6' CHAIN LINK)
- 50' BUFFER FROM PROPERTY LINE
- 100' BUFFER FROM PROPERTY LINE
- CROSS-SECTION LOCATION (SEE ATTACHMENTS 2A-2D)

NOTES:

1. ADDITIONAL CROSS-SECTIONS ARE INCLUDED IN ATTACHMENT 4, FIGURES ATT 4-17 THROUGH ATT 4-23.
2. THE CROSS-SECTIONS IN ATTACHMENT 4 SHOW THE GEOLOGIC STRATA AND GROUNDWATER MONITORING WELLS.
3. THE "B-#" SERIES BORINGS SHOWN ON THIS ATTACHMENT ARE BORINGS FROM THE MAY 2000 GEOTECHNICAL REPORT. THE "B-100" SERIES BORINGS ARE JULY 2004 SHALLOW BORINGS. THE "MP-#" SERIES ARE 2003 GROUNDWATER MONITORING WELLS.
4. THESE PROBES WERE INSTALLED PRIOR TO THE INITIAL ACCEPTANCE OF WASTE. REMAINING PROBES WILL BE INSTALLED CONSISTENT WITH ATTACHMENT 14.
5. CELL SEQUENCING WILL FOLLOW NUMBERING ORDER 1 THROUGH 14.

STATE OF TEXAS
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LICENSED PROFESSIONAL ENGINEER
6-15-25

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REV	DATE	DESCRIPTION	BY
4	9/24	REVISED LIMIT OF WASTE, LOCATION OF B-B' TO INCLUDE NEW FINAL COVER PEAK, AND LOCATION OF EXISTING FENCE	RK SDS
5	3/25	RESPONSE TO NOD COMMENTS	SDS
6	6/25	RESPONSE TO NOD 2 COMMENTS	

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

DRAWING TITLE: CROSS-SECTION LOCATIONS AND SOIL BORING LOCATIONS

PROJECT TITLE: MAVERICK COUNTY EL INDIO LANDFILL PERMIT MODIFICATION

CLIENT: MAVERICK COUNTY 500 QUARRY STREET, SUITE 3 EAGLE PASS, TEXAS 78852

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS
1901 CENTRAL DRIVE, SUITE 950, BEDFORD, TX 76021
PH (817) 571-2288 FAX NO. (817) 571-2188

PROJ. NO. 16223092.00 | DWN. BY: DNA | CHK. BY: AGA | QA/A RVW BY: | APP. BY: | SDS

CADD FILE: 2 - LOCATIONS

DATE: 3/2025

SCALE: AS SHOWN

ATTACHMENT 2

	REVISION 5 NOTES (RESPONSE TO NOD COMMENTS)
1	REVISED FINAL COVER AND LANDFILL BERM DETAILS TO CLARIFY THAT DOUBLE-SIDED GEOCOMPOSITE WILL BE USED ON 3:1 SIDE SLOPE AND SINGLE-SIDED GEOCOMPOSITE ON 5% SLOPES. REVISED NOTE 3 FOR EACH DETAIL
2	REVISED BOTTOM LINER AND LANDFILL BERM DETAILS TO SPECIFY THICKNESS OF GEOCOMPOSITE

	REVISION 6 NOTES (RESPONSE TO NOD 2 COMMENTS)
1	REVISED PROFILE TO SHOW DELETED PERMITTED GRADES
2	EXISTING GRADES HAVE BEEN UPDATED FROM AUGUST 16, 2023 TOPOGRAPHIC SURVEY TO SEPTEMBER 26, 2024 TOPOGRAPHIC SURVEY
3	ADDED "FUTURE" FOR EACH PHASE CALLOUT. DELETED REFERENCE TO "CELL"

NOTES:

1. ADDITIONAL CROSS-SECTIONS ARE INCLUDED IN ATTACHMENT 4, FIGURES ATT 4-17 THROUGH ATT 4-23.
2. THE CROSS-SECTIONS IN ATTACHMENT 4 SHOW THE GEOLOGIC STRATA AND GROUNDWATER MONITORING WELLS.
3. THE BORINGS SHOWN ON THIS ATTACHMENT ARE BORINGS FROM THE MAY 2000 GEOTECHNICAL REPORT.
4. DETAILED BORING LOGS FOR THE BORINGS SHOWN ON THIS CROSS-SECTION ARE INCLUDED IN APPENDIX 2D OF THIS ATTACHMENT.
5. SEE ATTACHMENT 2E FOR ALTERNATE LINER DESIGN WITH A GEOSYNTHETIC CLAY LINER.
6. EXISTING GRADES ARE BASED ON A TOPOGRAPHIC SURVEY PERFORMED BY DAS ON ~~AUGUST 16, 2023~~ SEPTEMBER 26, 2024.
7. SINGLE-SIDED GEOCOMPOSITE AND SMOOTH GEOMEMBRANE INSTALLED ON THE FLOOR IN CELLS 1 THROUGH 3. ALL FUTURE CELLS WILL HAVE DOUBLE-SIDED GEOCOMPOSITE AND TEXTURED (BOTH SIDES) GEOMEMBRANE INSTALLED ON THE FLOOR AND SIDESLOPE.

STATE OF TEXAS
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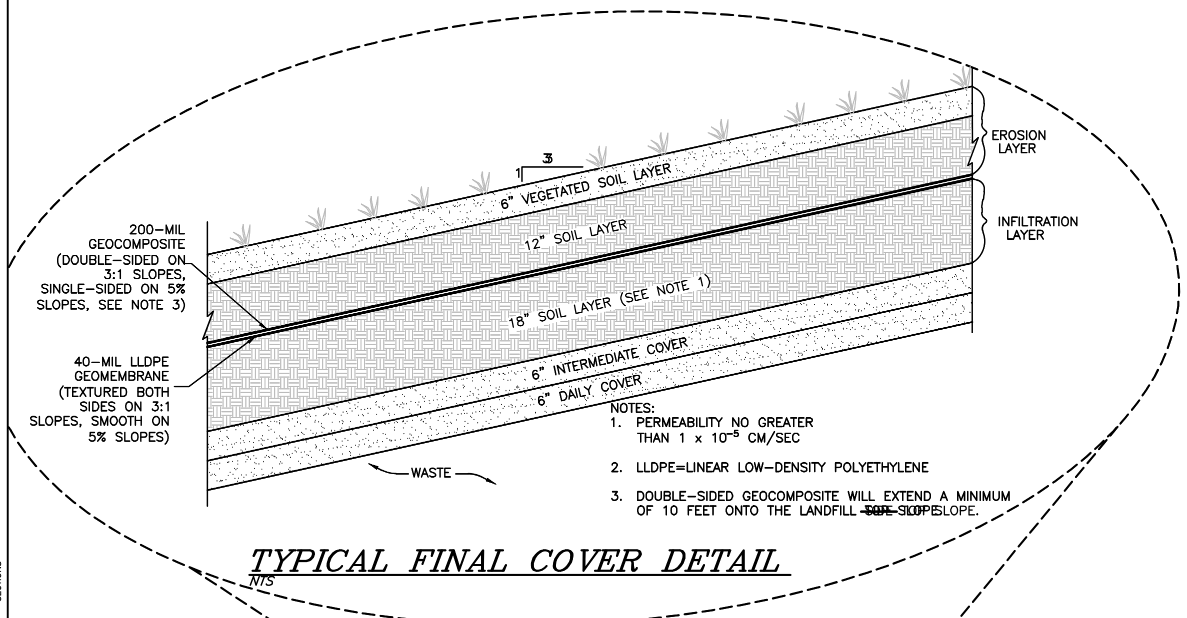
136850
LICENSED PROFESSIONAL ENGINEER
6-15-25

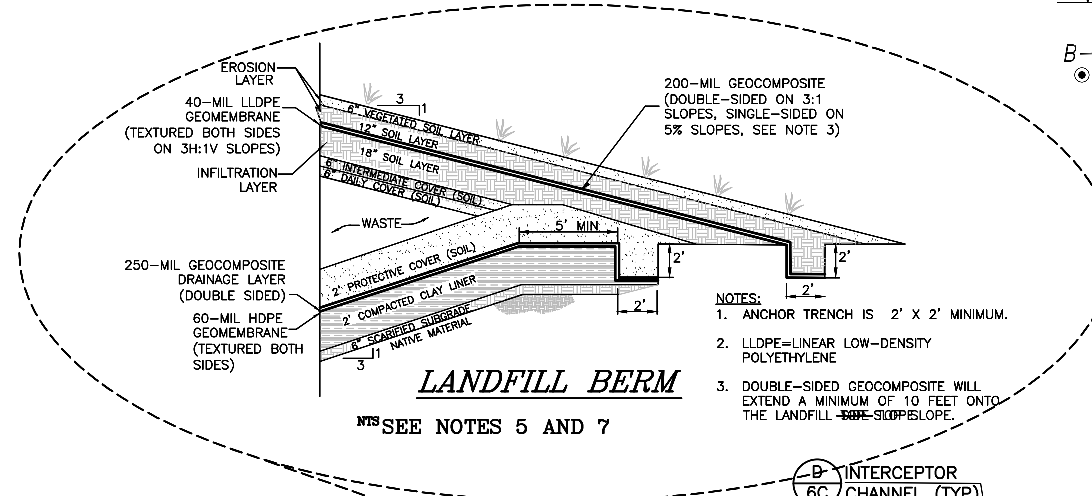
LEGEND:

- WATER LEVEL DURING DRILLING
- WATER LEVEL AT END OF MONITORING PERIOD
- B-5 BORING LOCATION AND BORING NUMBER
- ALL ELEVATIONS INDICATE FEET ABOVE MEAN SEA LEVEL.



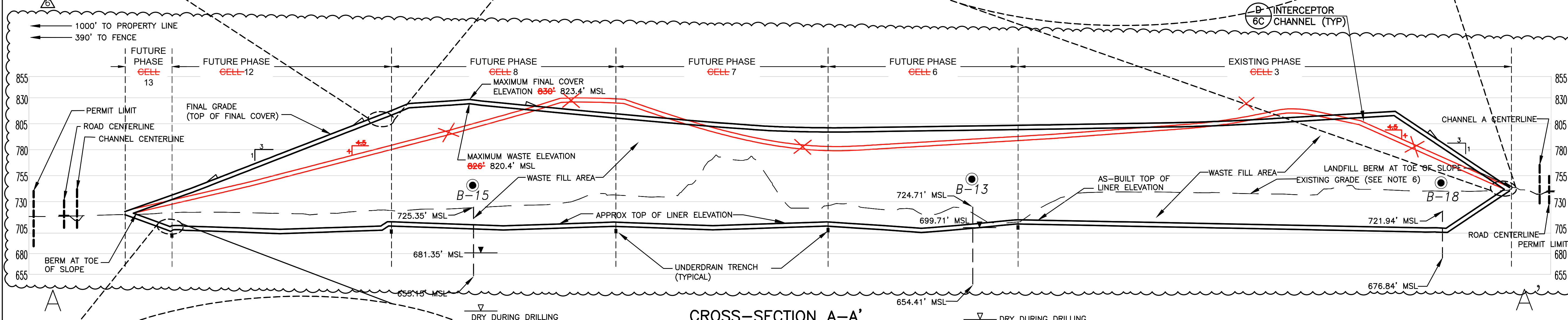
NOTES:
1. PERMEABILITY NO GREATER THAN 1 x 10^{-5} CM/SEC
2. LLDPE=LINEAR LOW-DENSITY POLYETHYLENE
3. DOUBLE-SIDED GEOCOMPOSITE WILL EXTEND A MINIMUM OF 10 FEET ONTO THE LANDFILL ~~TOE~~ SLOPE.

TYPICAL FINAL COVER DETAIL
NTS



NOTES:
1. ANCHOR TRENCH IS 2' X 2' MINIMUM.
2. LLDPE=LINEAR LOW-DENSITY POLYETHYLENE
3. DOUBLE-SIDED GEOCOMPOSITE WILL EXTEND A MINIMUM OF 10 FEET ONTO THE LANDFILL ~~TOE~~ SLOPE.

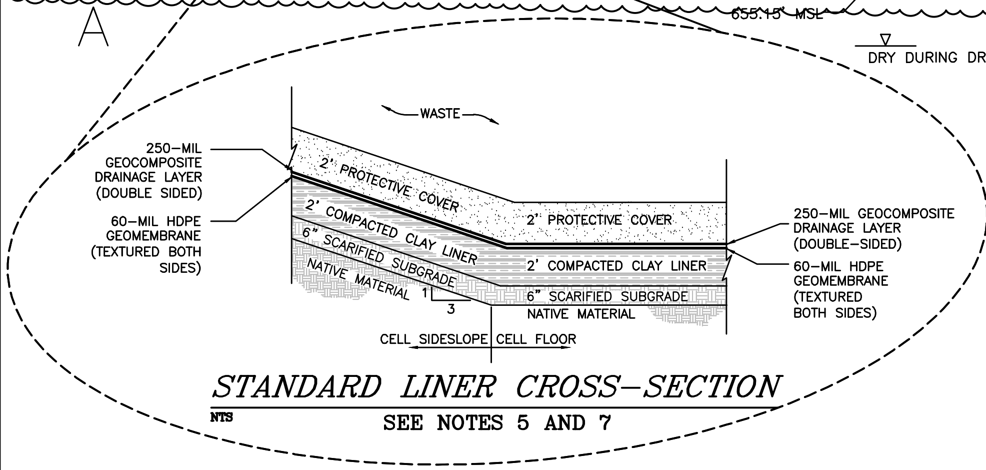
LANDFILL BERM
NTS SEE NOTES 5 AND 7



CROSS-SECTION A-A'

0 50 100 200 FT HORIZONTAL

0 25 50 100 FT VERTICAL



STANDARD LINER CROSS-SECTION
NTS SEE NOTES 5 AND 7

	REVISION 4 NOTES
1	ADDED GEOCOMPOSITE IN FINAL COVER
2	REPLACED VFPE WITH LLDPE GEOMEMBRANE
3	UPDATED CELL FLOOR LINER DETAIL
4	REVISED SIDESLOPE FROM 4.5:1 TO 3:1
5	ADDED NOTES 6 AND 7

- DRY DURING MONITORING
- DRY DURING DRILLING

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
4	9/24	ADDED GEOCOMPOSITE IN FINAL COVER; REPLACED VFPE	SDS
		WITH LLDPE GEOMEMBRANE; CHANGED SIDESLOPE TO	
		3H:1V; UPDATED CELL FLOOR LINER DETAIL	
5	3/25	REVISED GEOCOMPOSITE CALLOUT	SDS
		RESPONSE TO NOD COMMENTS	
6	6/25	RESPONSE TO NOD 2 COMMENTS	SDS

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

DRAWING TITLE: CROSS-SECTION A-A'

PROJECT TITLE: MAVERICK COUNTY EL INDIO MSW LANDFILL PERMIT MODIFICATION

CLIENT: MAVERICK COUNTY 500 QUARRY STREET, SUITE 3 EAGLE PASS, TEXAS 78852

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS
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PH (817) 571-2288 FAX NO. (817) 571-2188

PROJ. NO. 16223092.00 | DSN. BY: AGA | DWN. BY: DNA | CHK. BY: SDS | Q/A RVW BY: AGA | APP. BY: SDS

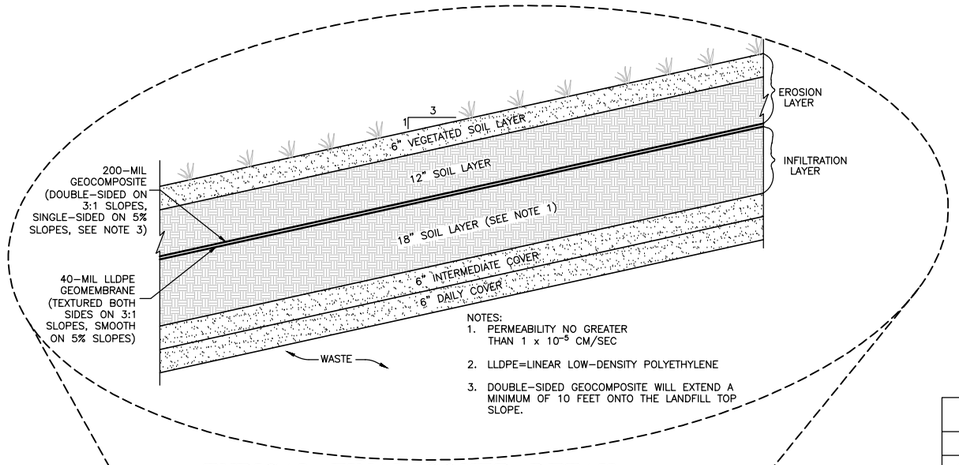
CADD FILE: 2A - SECTIONS

DATE: 06/2025

SCALE: AS SHOWN

ATTACHMENT 2A

G:\MAVERICK COUNTY LANDFILL\16223092.00 T9 - Final Grade Contours & Drainage PMOD\Engineering Drawings\NOD - 2\2A - SECTIONS 6/17/2025 7:06 PM



TYPICAL FINAL COVER DETAIL

NTS

	REVISION 4 NOTES
1	ADDED GEOCOMPOSITE IN FINAL COVER
2	REPLACED VFPE WITH LLDPE GEOMEMBRANE
3	UPDATED CELL FLOOR LINER DETAIL
4	REVISED SIDESLOPE FROM 4.5:1 TO 3:1
5	ADDED NOTES 6 AND 7

	REVISION 5 NOTES (RESPONSE TO NOD COMMENTS)
1	REVISED FINAL COVER DETAIL TO CLARIFY THAT DOUBLE-SIDED GEOCOMPOSITE WILL BE USED ON 3:1 SIDE SLOPE AND SINGLE-SIDED GEOCOMPOSITE ON 5% SLOPES. REVISED NOTE 3
2	REVISED BOTTOM LINER DETAIL TO SPECIFY THICKNESS OF GEOCOMPOSITE

	REVISION 6 NOTES (RESPONSE TO NOD 2 COMMENTS)
1	REVISED PROFILE TO SHOW DELETED PERMITTED GRADES
2	EXISTING GRADES HAVE BEEN UPDATED FROM AUGUST 16, 2023 TOPOGRAPHIC SURVEY TO SEPTEMBER 26, 2024 TOPOGRAPHIC SURVEY
3	ADDED "FUTURE" FOR EACH PHASE CALLOUT

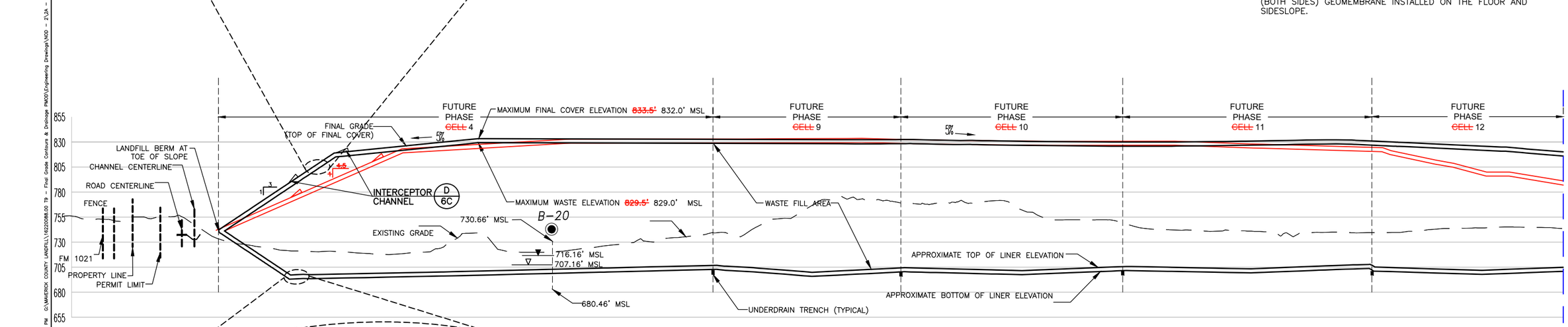
LEGEND:

- WATER LEVEL DURING DRILLING
- WATER LEVEL AT END OF MONITORING PERIOD
- B-5 BORING LOCATION AND BORING NUMBER

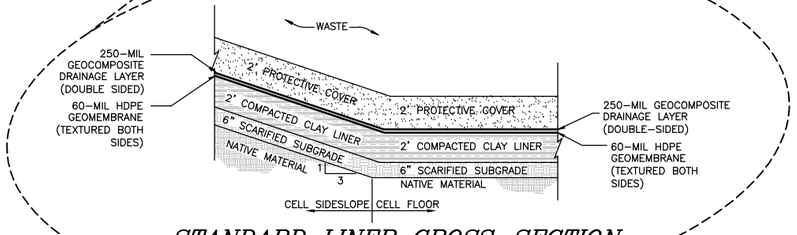
ALL ELEVATIONS INDICATE FEET ABOVE MEAN SEA LEVEL.

NOTES:

1. ADDITIONAL CROSS-SECTIONS ARE INCLUDED IN ATTACHMENT 4, FIGURES ATT 4-17 THROUGH ATT 4-23.
2. THE CROSS-SECTIONS IN ATTACHMENT 4 SHOW THE GEOLOGIC STRATA AND GROUNDWATER MONITORING WELLS.
3. THE BORINGS SHOWN ON THIS ATTACHMENT ARE BORINGS FROM THE MAY 2000 GEOTECHNICAL REPORT.
4. DETAILED BORING LOGS FOR THE BORINGS SHOWN ON THIS CROSS-SECTION ARE INCLUDED IN APPENDIX 2D OF THIS ATTACHMENT.
5. SEE ATTACHMENT 2E FOR ALTERNATE LINER DESIGN WITH A GEOSYNTHETIC CLAY LINER.
6. EXISTING GRADES ARE BASED ON A TOPOGRAPHIC SURVEY PERFORMED BY DAS ON ~~AUGUST 16, 2023~~ SEPTEMBER 26, 2024.
7. SINGLE-SIDED GEOCOMPOSITE AND SMOOTH GEOMEMBRANE INSTALLED ON THE FLOOR IN CELLS 1 THROUGH 3. ALL FUTURE CELLS WILL HAVE DOUBLE-SIDED GEOCOMPOSITE AND TEXTURED (BOTH SIDES) GEOMEMBRANE INSTALLED ON THE FLOOR AND SIDESLOPE.



B



STANDARD LINER CROSS-SECTION

NTS

SEE NOTES 5 AND 7

CROSS-SECTION B-B'

0 50 100 200 FT HORIZONTAL

0 25 50 100 FT VERTICAL

STATE OF TEXAS
SANDEEP D. SARAF
136850
LICENSED PROFESSIONAL ENGINEER
6-15-25

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
4	9/24	ADDED GEOCOMPOSITE IN FINAL COVER; REPLACED VFPE WITH LLDPE GEOMEMBRANE; CHANGED SIDESLOPE TO 3H:1V; UPDATED CELL FLOOR LINER DETAIL	SDS
5	3/25	REVISED GEOCOMPOSITE CALLOUT	SDS
6	6/25	RESPONSE TO NOD COMMENTS	SDS

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

DRAWING TITLE: CROSS-SECTION B-B'

PROJECT TITLE: MAVERICK COUNTY EL INDIO MSW LANDFILL PERMIT MODIFICATION

CLIENT: MAVERICK COUNTY 500 QUARRY STREET, SUITE 3 EAGLE PASS, TEXAS 78852

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS
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PROJ. NO. 27230992.00 | DSN. BY: AGA | DWN. BY: DNA | CHK. BY: SDS | QA RVW BY: AGA | APP. BY: SDS

CADD FILE: 2A - SECTIONS

DATE: 06/2025

SCALE: AS SHOWN

ATTACHMENT 2B1

6/17/2025 7:48 PM G:\MAVERICK COUNTY LANDFILL\162206B.00 T9 - Final Grade Contours & Drainage PMOD\Engineering Drawings\MOD - 2-2A - SECTIONS

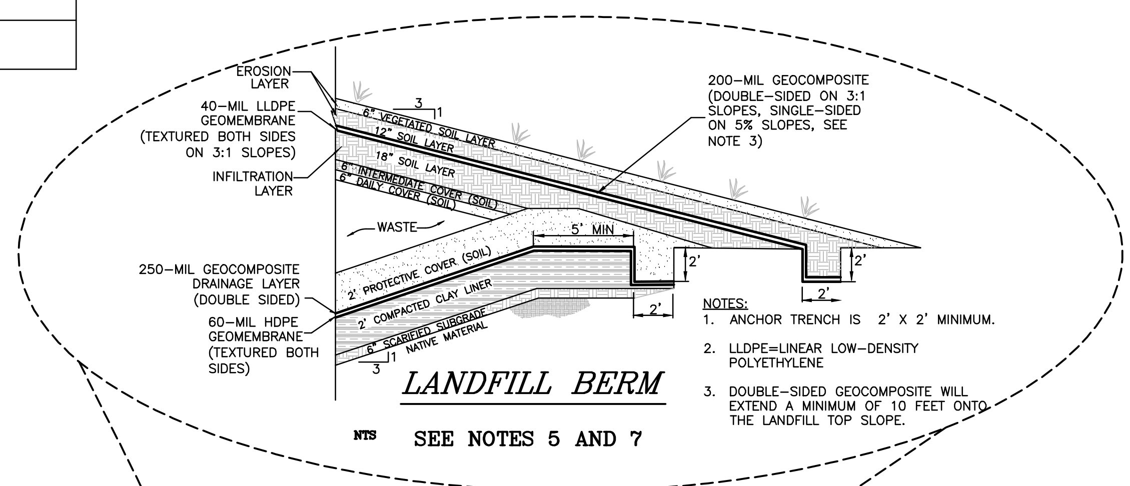
	REVISION 4 NOTES
1	ADDED GEOCOMPOSITE IN FINAL COVER
2	REPLACED VFPE WITH LLDPE GEOMEMBRANE
3	UPDATED CELL FLOOR LINER DETAIL
4	REVISED SIDESLOPE FROM 4.5:1 TO 3:1
5	ADDED NOTES 6 AND 7

	REVISION 6 NOTES (RESPONSE TO NOD 2 COMMENTS)
1	REVISED PROFILE TO SHOW DELETED GRADES
2	EXISTING GRADES HAVE BEEN UPDATED FROM AUGUST 16, 2023 TOPOGRAPHIC SURVEY TO SEPTEMBER 26, 2024 TOPOGRAPHIC SURVEY
3	ADDED "FUTURE" FOR EACH PHASE CALLOUT

	REVISION 5 NOTES (RESPONSE TO NOD COMMENTS)
1	REVISED FINAL COVER AND LANDFILL BERM DETAILS TO CLARIFY THAT DOUBLE-SIDED GEOCOMPOSITE WILL BE USED ON 3:1 SIDE SLOPE AND SINGLE-SIDED GEOCOMPOSITE ON 5% SLOPES. REVISED NOTE 3 FOR EACH DETAIL
2	REVISED BOTTOM LINER AND LANDFILL BERM DETAILS TO SPECIFY THICKNESS OF GEOCOMPOSITE

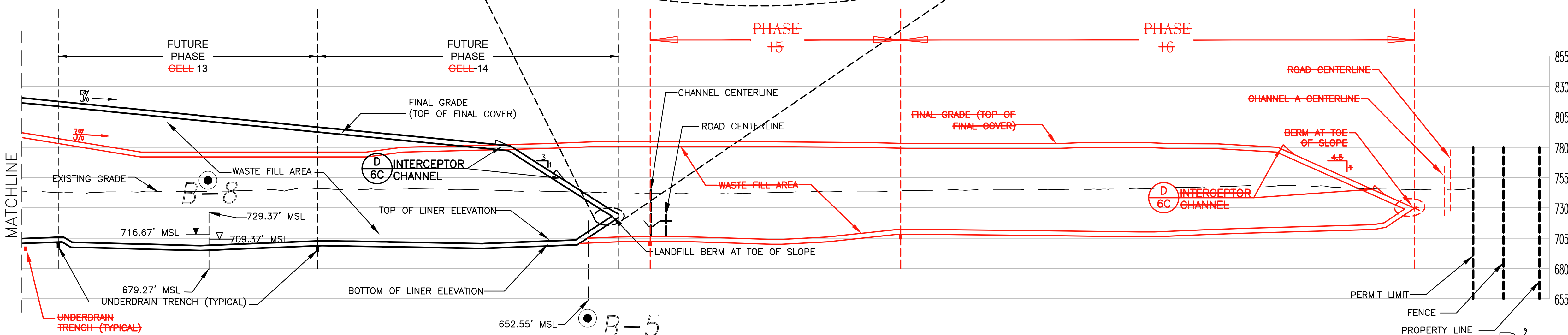
NOTES:

1. ADDITIONAL CROSS-SECTIONS ARE INCLUDED IN ATTACHMENT 4, FIGURES ATT 4-17 THROUGH ATT 4-23.
2. THE CROSS-SECTIONS IN ATTACHMENT 4 SHOW THE GEOLOGIC STRATA AND GROUNDWATER MONITORING WELLS.
3. THE BORINGS SHOWN ON THIS ATTACHMENT ARE BORINGS FROM THE MAY 2000 GEOTECHNICAL REPORT.
4. DETAILED BORING LOGS FOR THE BORINGS SHOWN ON THIS CROSS-SECTION ARE INCLUDED IN APPENDIX 2D OF THIS ATTACHMENT.
5. SEE ATTACHMENT 2E FOR ALTERNATE LINER DESIGN WITH A GEOSYNTHETIC CLAY LINER.
6. EXISTING GRADES ARE BASED ON A TOPOGRAPHIC SURVEY PERFORMED BY DAS ON ~~AUGUST 16, 2023~~ SEPTEMBER 26, 2024.
7. SINGLE-SIDED GEOCOMPOSITE AND SMOOTH GEOMEMBRANE INSTALLED ON THE FLOOR IN CELLS 1 THROUGH 3. ALL FUTURE CELLS WILL HAVE DOUBLE-SIDED GEOCOMPOSITE AND TEXTURED (BOTH SIDES) GEOMEMBRANE INSTALLED ON THE FLOOR AND SIDESLOPE.



LANDFILL BERM

NTS SEE NOTES 5 AND 7



CROSS-SECTION B-B'

0 50 100 200 FT HORIZONTAL

0 25 50 100 FT VERTICAL

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
4	9/24	GEOCOMPOSITE IN FINAL COVER; REPLACED VFPE WITH LLDPE GEOMEMBRANE; CHANGED SIDESLOPE TO 3H:1V;	SDS
5	3/25	REVISED GEOCOMPOSITE CALLOUT RESPONSE TO NOD COMMENTS	SDS
6	6/25	RESPONSE TO NOD 2 COMMENTS	SDS

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

DRAWING TITLE: CROSS-SECTION B-B'

PROJECT TITLE: MAVERICK COUNTY EL INDIO MSW LANDFILL PERMIT MODIFICATION

CLIENT: MAVERICK COUNTY 500 QUARRY STREET, SUITE 3 EAGLE PASS, TEXAS 78852

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. 16223092.00 | DSN. BY: AGA | DWN. BY: DNA | CHK. BY: SDS | Q/A RVW BY: AGA | APP. BY: SDS

CADD FILE: 2A - SECTIONS

DATE: 06/2025

SCALE: AS SHOWN

ATTACHMENT 2B2

6/17/2025 7:46 PM G:\MAVERICK COUNTY LANDFILL\16220088.00 T9 - Final Grade Contours & Drainage PMOD\Engineering Drawings\NOD - 2\2A - SECTIONS

NOTES:

1. ADDITIONAL CROSS-SECTIONS ARE INCLUDED IN ATTACHMENT 4, FIGURES ATT 4-17 THROUGH ATT 4-23.
2. THE CROSS-SECTIONS IN ATTACHMENT 4 SHOW THE GEOLOGIC STRATA AND GROUNDWATER MONITORING WELLS.
3. THE BORINGS SHOWN ON THIS ATTACHMENT ARE BORINGS FROM THE MAY 2000 GEOTECHNICAL REPORT.
4. DETAILED BORING LOGS FOR THE BORINGS SHOWN ON THIS CROSS-SECTION ARE INCLUDED IN APPENDIX 2D OF THIS ATTACHMENT.
5. BORINGS B-12 AND B-21 ARE LOCATED APPROXIMATELY 200' FROM THE LOCATION OF THIS CROSS-SECTION. THEIR BORING INFORMATION IS INCLUDED TO SUPPLEMENT THAT PROVIDED BY BORING B-20 WHICH IS LOCATED ALONG THIS CROSS-SECTION.
6. SEE ATTACHMENT 2E FOR ALTERNATE LINER DESIGN WITH A GEOSYNTHETIC CLAY LINER.
7. EXISTING GRADES ARE BASED ON A TOPOGRAPHIC SURVEY PERFORMED BY DAS ON ~~AUGUST 16, 2023~~ SEPTEMBER 26, 2024.
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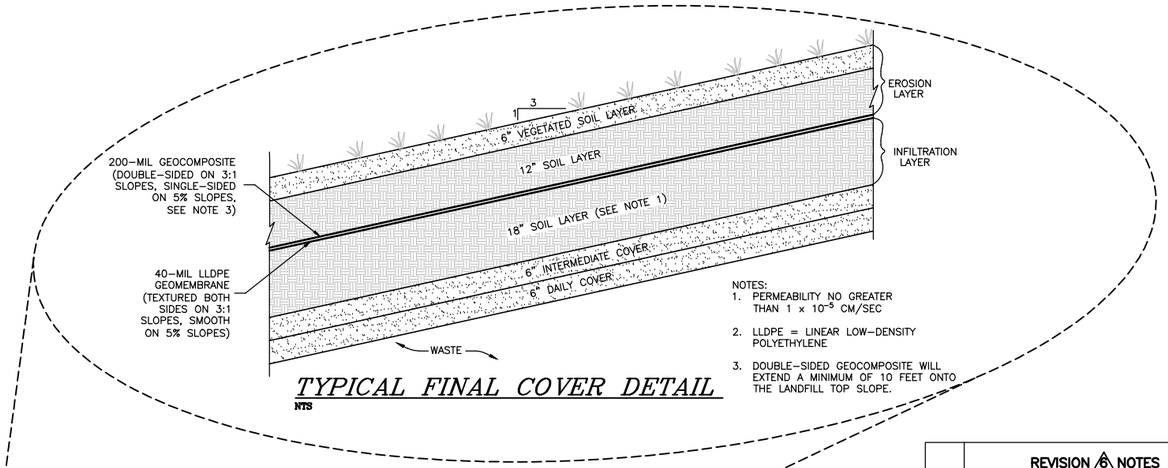
LEGEND:

- WATER LEVEL DURING DRILLING
- WATER LEVEL AT END OF MONITORING PERIOD
- B-5 BORING LOCATION AND BORING NUMBER
- ALL ELEVATIONS INDICATE FEET ABOVE MEAN SEA LEVEL.



TYPICAL FINAL COVER DETAIL
NTS

	REVISION 4 NOTES
1	ADDED GEOCOMPOSITE IN FINAL COVER
2	REPLACED VFPE WITH LLDPE GEOMEMBRANE
3	UPDATED CELL FLOOR LINER DETAIL
4	REVISED SIDESLOPE FROM 4.5:1 TO 3:1
5	ADDED NOTES 6 AND 7

	REVISION 5 NOTES (RESPONSE TO NOD COMMENTS)
1	REVISED FINAL COVER AND LANDFILL BERM DETAILS TO CLARIFY THAT DOUBLE-SIDED GEOCOMPOSITE WILL BE USED ON 3:1 SIDE SLOPE AND SINGLE-SIDED GEOCOMPOSITE ON 5% SLOPES. REVISED NOTE 3 FOR EACH DETAIL
2	REVISED BOTTOM LINER AND LANDFILL BERM DETAILS TO SPECIFY THICKNESS OF GEOCOMPOSITE

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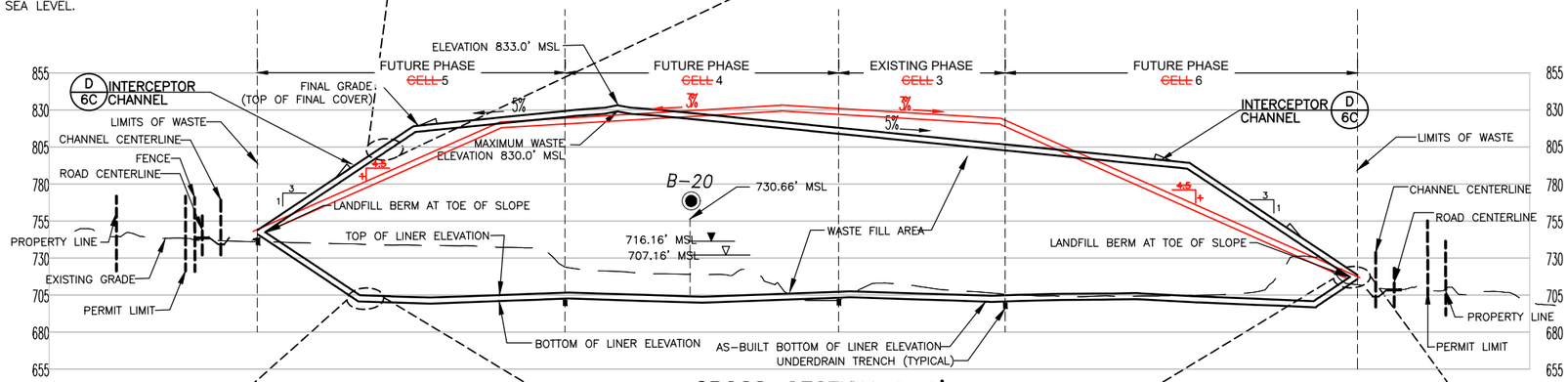
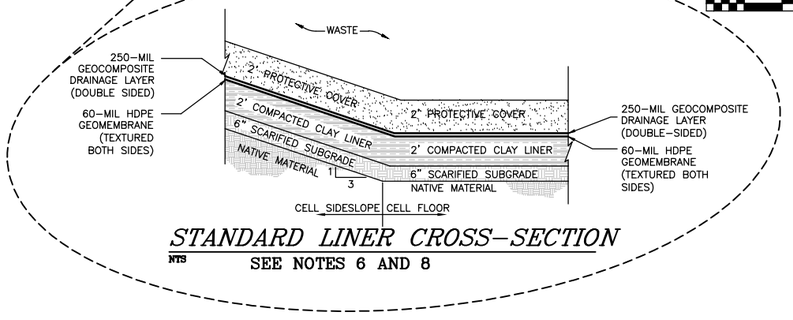
3	ADDED "FUTURE" FOR EACH PHASE CALLOUT



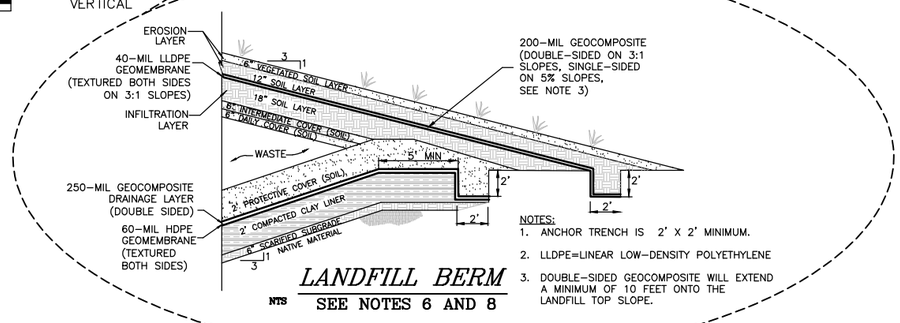
CROSS-SECTION C-C'

0 50 100 200 FT HORIZONTAL

0 25 50 100 FT VERTICAL



STANDARD LINER CROSS-SECTION
NTS SEE NOTES 6 AND 8



LANDFILL BERM
NTS SEE NOTES 6 AND 8

NOTES:
1. ANCHOR TRENCH IS 2' X 2' MINIMUM.
2. LLDPE=LINEAR LOW-DENSITY POLYETHYLENE
3. DOUBLE-SIDED GEOCOMPOSITE WILL EXTEND A MINIMUM OF 10 FEET ONTO THE LANDFILL TOP SLOPE.

STATE OF TEXAS
SANDEEP D. SARAF
136850
LICENSED PROFESSIONAL ENGINEER
6-15-25

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
4	9/24	ADDED GEOCOMPOSITE IN FINAL COVER; REPLACED VFPE WITH LLDPE GEOMEMBRANE; CHANGED SIDESLOPE TO 3H:1V; UPDATED CELL FLOOR LINER DETAIL	SDS
5	3/25	REVISED GEOCOMPOSITE CALLOUT	SDS
6	6/25	RESPONSE TO NOD COMMENTS	SDS

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

CLIENT
MAVERICK COUNTY
500 QUARRY STREET, SUITE 3
EAGLE PASS, TEXAS 78852

PROJECT TITLE
MAVERICK COUNTY
EL INDIO MSW LANDFILL
PERMIT MODIFICATION

DRAWING TITLE
CROSS-SECTION C-C'

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS
1901 CENTRAL DRIVE, SUITE 550, BEDFORD, TX 76021
PH: (817) 571-2288 FAX NO. (817) 571-2198

PROJ. NO. 62223092.00 | DWN. BY: DNA | CHK. BY: SDS | Q/A RVW BY: AGA | APP. BY: SDS | DSN. BY: AGA

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DATE: 06/2025

SCALE: AS SHOWN

ATTACHMENT 2C

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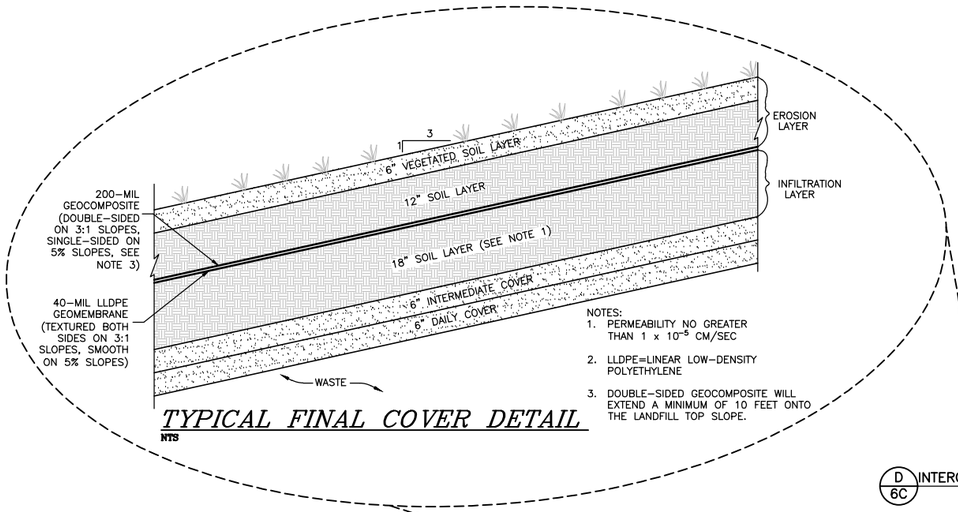
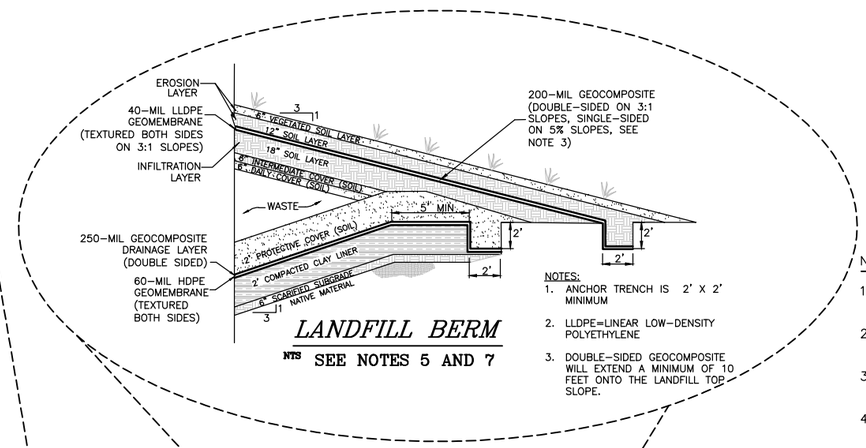


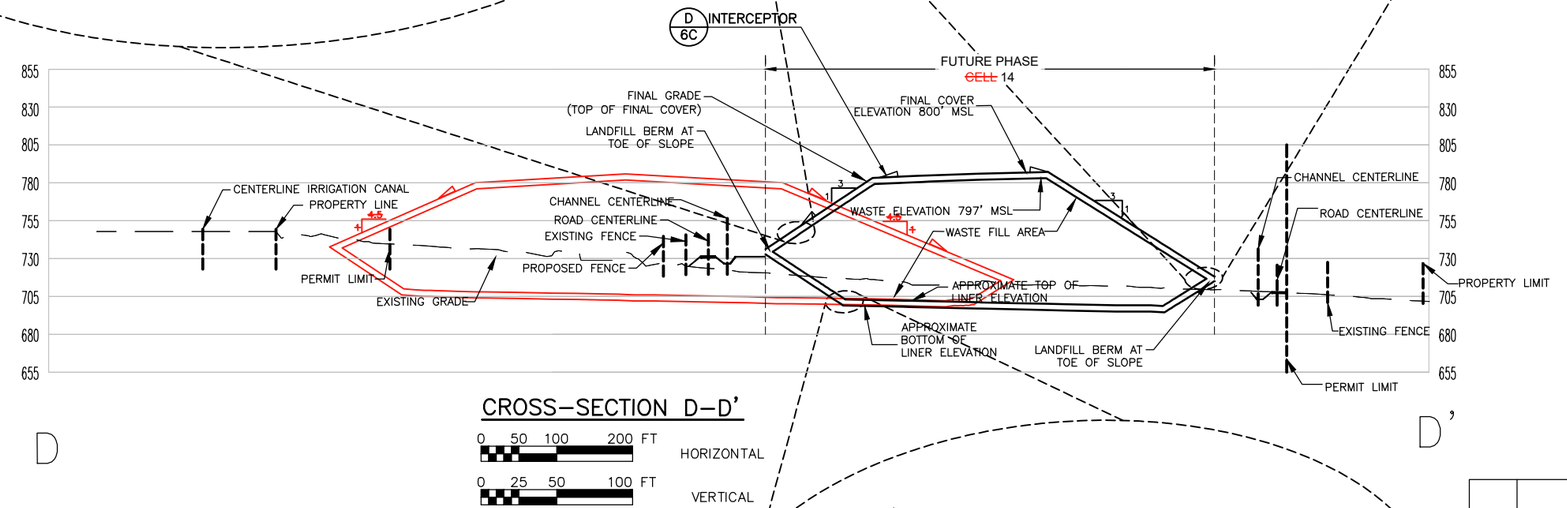
TYPICAL FINAL COVER DETAIL

NTS



LANDFILL BERM

NTS SEE NOTES 5 AND 7



CROSS-SECTION D-D'

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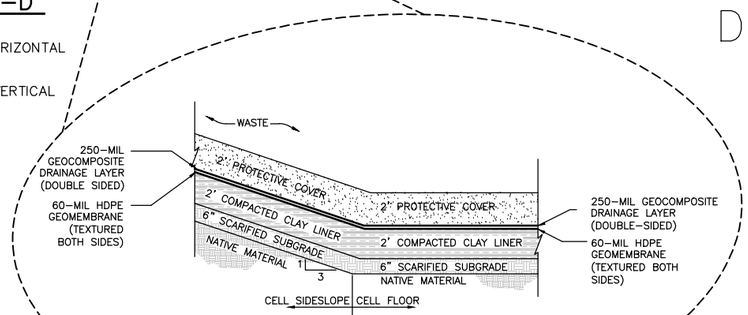
0 25 50 100 FT VERTICAL



STANDARD LINER CROSS-SECTION

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FOR PERMIT PURPOSES ONLY

STATE OF TEXAS
SANDEEP D. SARAF
136850
LICENSED
PROFESSIONAL ENGINEER
6-15-25

REV	DATE	DESCRIPTION	BY
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TEXAS BOARD OF PROFESSIONAL ENGINEERS REG. NO. F-3407

DRAWING TITLE: CROSS-SECTION D-D'

PROJECT TITLE: MAVERICK COUNTY EL INDIO MSW LANDFILL PERMIT MODIFICATION

CLIENT: MAVERICK COUNTY
500 QUARRY STREET, SUITE 3
EAGLE PASS, TEXAS 78852

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS
1901 CENTRAL DRIVE, SUITE 650, BEDFORD, TX 76021
PH (817) 571-2288 FAX NO. (817) 571-2188

PROJ. NO. 62223092.00 | DSN. BY: AGA | DWN. BY: DNA | CHK. BY: SDS | Q/A RVW BY: AGA | APP. BY: SDS

CADD FILE: 2A – SECTIONS

DATE: 06/2025

SCALE: AS SHOWN

ATTACHMENT 2D

PART III

ATTACHMENT 6

GROUNDWATER AND SURFACE WATER PROTECTION PLAN AND DRAINAGE PLAN

FOR

MAVERICK COUNTY EL INDIO MSW LANDFILL
TCEQ PERMIT NO. MSW-2316

Prepared for:
Maverick County
500 Quarry Street, Suite 3
Eagle Pass, Texas 78852
830/773-3824

PERMIT ISSUED: SEPTEMBER 11, 2007

PERMIT MODIFICATION (REVISION 1, 2, 3, 4, and 5) PREPARED BY:

SCS ENGINEERS
Texas Board of Professional Engineers, Reg. No. F-3407
1901 Central Drive, Suite 550
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817/571-2288

Revision 1 – April 2009
Revision 2 – June 2009
Revision 3 – August 2009
Revision 4 – October 2024
Revision 5 – February 2025
Revision 6 – June 2025

SCS Project No. 16208046.00 & 16223092.00

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2.0 PRE-DEVELOPMENT CONDITIONS 1
2.1 Site Description 1
2.2 Drainage Patterns 2
2.3 Drainage Area Map 3
2.4 Storm Runoff Determination 3
2.5 Pre-Development Storm Runoff 7

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3.5 Maintenance of Drainage Structures 15

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5.0 TPDES CERTIFICATION .....17~~16~~

6.0 EROSION CONTROL PLAN .....17~~16~~

Attachments

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6B Final Drainage Conditions
6B1 Calculations for Final Drainage Conditions
6C Drainage Structures: Details
6D1 Drainage Structures: Interceptor Channel and Downchute Calculations
6D1A Intermediate Cover – Interceptor Channel and Downchute Drainage Sub-Basins
6D1B Final Cover – Interceptor Channel Drainage Sub-Basins
6D1C Final Cover – Downchute Drainage Sub-Basins
6D2 Drainage Structures: Perimeter Channel Calculations
6D3 Drainage Structures: Culvert at Main Entrance Calculations
6E1 Detention Ponds: Detention Pond A Design
6E2 Detention Ponds: Detention Pond B Design
6F Temporary Erosion & Sedimentation Control Measures

Appendices

1. Reference Material: City of Austin Drainage Criteria Manual
2. Erosion and Sedimentation Control Plan
2A. Soil Loss Analysis
2B. Overland Flow Velocity Analysis
3A. Reference Material: Soil Survey Map and Description, USLE/RUSLE References
4. Reference Material: Hydrology and Hydraulic Calculation References, MACCAFERRI Reno Mattress Information

pre-development condition. All stormwater will continue to be directed to the existing tributary of Saus Creek.

Pursuant to the drainage calculations presented in Attachments 6A, 6A1, 6B, 6B1, and stormwater detention design information presented in Attachment 6E, the post-landfill development drainage condition (final drainage condition) will not significantly alter pre-development drainage patterns in the vicinity of the landfill. The pre-development and final drainage conditions based on the 25-year, 24-hour storm event are summarized in the following tables ~~(see also Section 4.1 below)~~. As shown below, the stormwater discharge and runoff volume leaving the property at Discharge Point I+II+III will not be greater than the pre-development conditions. While the discharge does increase at Discharge Point II, the creek is not adversely affected as the overall flow and runoff volume have not increased.

Table 4.1 – Peak Discharge

Discharge Point	Pre-Development Q25	Pre-Development Q100	Final Q25	Final Q100
I	212.55 cfs	333.90 cfs	≤174.44cfs	≤234.68cfs
II	94.60 cfs	148.69 cfs	≤197.84cfs	≤268.11cfs
III	111.97 cfs	175.97 cfs	≤73.98 cfs	≤99.19 cfs
I+II+III	408.60 cfs	624.90 cfs	≤408.40cfs	≤552.61cfs

Table 4.2 – Peak Velocity

Discharge Point	Pre-Development Q25	Pre-Development Q100	Final Q25	Final Q100
I	4.71 ft/s	5.37 ft/s	<4.46 ft/s	<4.86 ft/s
II	2.58 ft/s	2.91 ft/s	<3.14 ft/s	<3.42 ft/s
III	2.24 ft/s	2.55 ft/s	<2.00 ft/s	<2.17 ft/s
I+II+III	3.69 ft/s	4.12 ft/s	<3.68 ft/s	<3.98 ft/s

Table 4.3 – Runoff Volume

Discharge Point	Pre-Development Q25	Final Q25
I+II+III	3,644,945 cf	<3,196,279 cf

5.0 TPDES CERTIFICATION

Consistent with the Texas Pollutant Discharge Elimination System (TPDES) General Permit, TXR050000, a Notice of Intent (NOI) for stormwater discharge associated with an industrial activity will be filed with the TCEQ prior to beginning landfill operations. Additionally, in accordance with the TPDES General Permit, a stormwater pollution prevention plan (SWPPP) will be prepared and implemented at the landfill prior to submitting the NOI. The NOI and SWPPP will be maintained at the landfill in the Site Operating Record.

6.0 EROSION CONTROL PLAN

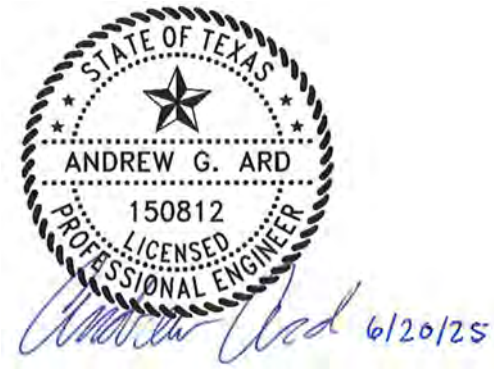
An erosion control plan is included as Appendix 2 of this Attachment. Estimates of soil loss over the development and 30 year post-closure period are also included in this appendix.

Part III

Attachment 6

Attachment 6A1

CALCULATIONS FOR PRE-DEVELOPMENT DRAINAGE CONDITIONS



Part III

Attachment 6

Attachment 6B1

CALCULATIONS FOR FINAL DRAINAGE CONDITIONS

Part III

Attachment 6

Attachment 6D2

DRAINAGE STRUCTURES PERIMETER CHANNEL CALCULATIONS

Part III

Attachment 6

Appendix 4

REFERENCE MATERIAL:

HYDROLOGY AND HYDRAULIC CALCULATION REFERENCES

AND

MACCAFERRI RENO MATTRESS INFORMATION

PART III

ATTACHMENT 14

LANDFILL GAS MANAGEMENT PLAN

FOR

MAVERICK COUNTY EL INDIO MSW LANDFILL
TCEQ PERMIT NO. MSW-2316

Prepared for:
Maverick County
500 Quarry Street, Suite 3
Eagle Pass, Texas 78852
830/773-3824

PERMIT ISSUED: SEPTEMBER 11, 2007

PERMIT MODIFICATION (REVISIONS 1, 2, 3, and ~~3~~4) PREPARED BY:

SCS ENGINEERS
Texas Board of Professional Engineers, Reg. No. F-3407
1901 Central Drive, Suite 550
Bedford, Texas 76021
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Revision 1 – April 2009
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SCS Project Nos. 16208065.00 & 16223092.00

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APPENDICES TO PART III, ATTACHMENT 14

Appendix	Title/Description
III-14A	GAS MONITORING PROBE SAMPLING REPORT & SAMPLE DATA SHEETS

ATTACHMENTS TO PART III, ATTACHMENT 14

Attachment	Title/Description
14A	GAS MONITORING PROBE PLACEMENT
14B	TYPICAL GAS MONITORING PROBE
14C	ENTRANCE FACILITIES

2.5 HYDROGEOLOGY

Cumulative results of hydrogeologic investigations performed between 2000 and 2004 are contained within Attachment 4. Water level data is provided in Table Att4-1 within Attachment 4, and includes monitoring data from October 2003 through May 2004 for the monitoring points. See attachment 4, Section 5.3 for extensive discussion of hydrogeology at the site.

2.6 WASTE STREAM COMPOSITION

The proposed site will accept municipal solid waste as defined by 30 TAC §330.3 to include "solid waste resulting from or incidental to municipal, community, commercial, institutional, and recreational activities, including garbage, rubbish, ashes, street cleanings, dead animals, abandoned automobiles, and all other solid waste other than industrial solid waste." The facility will also accept industrial solid waste, defined as "solid waste resulting from or incidental to any process of industry or manufacturing, or mining or agricultural operation" and special wastes, as defined in 30 TAC §330.3. Class I industrial waste, hazardous wastes, and radioactive wastes will not be accepted at the site.

The principal source of waste is expected to be primarily daily residential and commercial/industrial waste collection.

2.7 PROPOSED LANDFILL DESIGN

The basic design of the proposed site consists of an aerial fill method (both above and below ground). The site consists of one continuous development with ~~16~~ 14 ~~proposed~~ cells. The cell designations and sequence of fill operations are shown in **Part III, *Attachment 1E*.** The proposed below-ground waste disposal will extend approximately 50 feet below natural ground to a finished base grade (top of liner) elevation ranging from 692 feet m.s.l. to 714 feet m.s.l. The liner system will consist of two (2) feet compacted clay with a 60 mil HDPE geomembrane, and a geocomposite drainage layer. The liner systems will include a leachate collection system. The system includes a sump and leachate collection trenches sloped at a minimum of 1.0%. The floor of the landfill cell will slope at 1%. The maximum excavation for the liner and sumps (leachate collection) is approximately 56 feet below existing ground, to approximately 686 feet m.s.l.

5. Monitoring probe inspection and maintenance.

3.1 PROPERTY BOUNDARY MONITORING §330.371(h)

Methane gas has the potential to migrate laterally from the facility's disposal cells. To monitor and detect gas that has migrated beyond the limits of the waste fill area, a monitoring system will be installed within the site's property boundary to provide coverage of the adjacent disposal areas. The proposed monitoring system will consist of permanent monitoring probes. The proposed monitoring probe locations were selected to provide monitoring points between the waste disposal areas and adjacent properties. The gas monitoring probe network will be installed in phases as the operation advances to provide continuous monitoring coverage between active disposal areas and the property boundary.

3.1.1 Monitoring Probe Placement

A network of permanent gas monitoring probes will be placed in key locations around the permit boundary to provide data on the presence of methane in the unsaturated subsurface zone. Probe locations and spacing are a function of site geometry. Sandy soils are more permeable to gas than clayey, fine-grained soils. Perched water leaching from the irrigation canal was detected in the area and as such was a factor in determining appropriate probe depths at this site. The depth was also a function of adjacent waste disposal depth. The maximum spacing for the probes at this landfill will be 600 feet around the perimeter of the disposal units. The locations of the probes for the proposed site are shown on ***Attachment 14A***. Twenty-one probes (GP-1 through GP-24) are proposed around the fill area, with the exception of GP-14, GP-15, and GP-16. The probes will be constructed prior to placing waste in the adjacent landfill cells. Continuous monitors will be installed on any on-site facility structure prior to the initial placement of refuse or occupancy of the structure.

Permanent gas migration probes numbers GP-1 through GP-3 and GP-21 through GP-24 as shown on ***Attachment 14A*** will be installed prior to placement of solid waste in Cell 1. The remaining probes will be installed when construction is initiated on a new cell within 1,000 feet of the individual probe locations as shown on ***Attachment 14A.*** Table 2 below presents the timeline for installation of each gas probe based on construction initiation of the cells.

ATTACHMENTS TO PART III ATTACHMENT 14

Attachment	Title/Description
14A	GAS MONITORING PROBE PLACEMENT
14B	TYPICAL GAS MONITORING PROBE
14C	ENTRANCE FACILITIES

SCS Engineers
TBPE Reg. # F-3407

	REVISION 5 NOTES (RESPONSE TO NOD 2 COMMENTS)
1	REVISED TO SHOW PERMITTED LOCATION FOR THE RELOCATED GAS PROBES GP-5 THROUGH GP-11

N

0 250 500
SCALE IN FEET

UNNAMED TRIBUTARY OF SAUS CREEK
100-YEAR FLOOD PLANE
PROPERTY LINE
372' TO PROPERTY LINE
PERMIT LIMIT
BUFFER ZONE 100'
STORM WATER DETENTION POND B
STORM WATER DETENTION POND A
50' BUFFER ZONE' FROM PL
PERIMETER DITCH
150' TO PROPERTY LINE
PERIMETER ROAD
SECONDARY ACCESS/DRIVEWAY
ENTRANCE FACILITIES
GP-3 TO EL INDIO
PRIMARY ACCESS/DRIVEWAY
ENTRANCE FACILITIES
FINAL FENCE (SEE 6' CHAIN LINK FENCE DETAILS ON DRAWING 1B10)
EXISTING FENCE (TO REMOVE)
EXISTING FENCE (TO REMAIN)
50' BUFFER FROM PROPERTY LINE
100' BUFFER ZONE
ABANDONED FISH HATCHERY
CR4
GP-1 GP-2 GP-3 GP-4 GP-5 GP-6 GP-7 GP-8 GP-9 GP-10 GP-11 GP-12 GP-13 GP-17 GP-18 GP-19 GP-20 GP-21 GP-22 GP-23 GP-24

LEGEND

- PERMIT LIMIT
- LIMITS OF WASTE ACTIVITIES
- LIMITS OF 100-YR. FLOOD PLAIN
- PROPERTY LINE
- CELL BOUNDARIES
- (1) PHASE NUMBER & DIRECTION OF FILL (SEE NOTE 4)
- GP 1 INITIAL GAS MONITOR PROBE (SEE NOTE 2)
- GP-17 FUTURE GAS MONITOR PROBE (SEE NOTE 2)
- EXISTING FENCE (TO REMAIN)
- FENCE (6' CHAIN LINK)
- 50' BUFFER FROM PROPERTY LINE
- 100' BUFFER FROM PROPERTY LINE

NOTE:

1. ALL GAS MONITORING PROBES SHALL BE PLACED OUTSIDE THE WASTE DISPOSAL AREA AND WITHIN THE PERMIT LIMIT AT THE APPROXIMATE LOCATIONS SHOWN ON THIS PLAN.
2. THESE PROBES WERE INSTALLED PRIOR TO THE INITIAL ACCEPTANCE OF WASTE. REMAINING FUTURE PROBES WILL BE INSTALLED CONSISTENT WITH ATTACHMENT 14.
3. THE EXISTING GRADES ARE BASED ON OF A TOPOGRAPHIC SURVEY PERFORMED BY DAS ON SEPTEMBER 26, 2024.
4. CELL SEQUENCING WILL FOLLOW NUMBERING ORDER 1 THROUGH 14.

STATE OF TEXAS
SANDEEP D. SARAF
136850
LICENSED
PROFESSIONAL ENGINEER
6-15-25

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
1	4/09	DECREASE SPACING OF GAS PROBES TO 600'	RK
2	4/09	ADD ALTERNATE ACCESS/DRIVEWAY	
3	9/24	REVISED LIMIT OF WASTE	SDS
4	3/25	RESPONSE TO NOD COMMENTS	SDS
5	6/25	RESPONSE TO NOD 2 COMMENTS	SDS

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

DRAWING TITLE: GAS MONITORING PROBE PLACEMENT

PROJECT TITLE: MAVERICK COUNTY EL INDIO MSW LANDFILL PERMIT MODIFICATION

CLIENT: MAVERICK COUNTY
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EAGLE PASS, TEXAS 78852

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PROJ. NO.	DWN. BY:	CHK. BY:	QA/QC BY:	APP. BY:
162230920.00	DNA	SDS	AGA	SDS
DSN. BY: AGA				

CADD FILE: 14A - GMP

DATE: 06/2025

SCALE: AS SHOWN

ATTACHMENT: 14A

MAVERICK COUNTY EL INDIO MSW LANDFILL
TCEQ PERMIT NO. MSW-2316

PART IV
SITE OPERATING PLAN

Prepared for:

Maverick County Solid Waste Authority
16179 FM 1021
El-Indio, Texas 78860

And

Maverick County
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PERMIT ISSUED: SEPTEMBER 11, 2007

PERMIT MODIFICATION (REVISION 0 - ~~6~~7) PREPARED BY:

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Revision 3 – March 2011
Revision 4 – November 2012
Revision 5 – July 2014, October 2014, December 2014
Revision 6 – June 2025

SCS Project No. 16208046.00, 16209033.00, 16211130.00, 16214011.00, 16223092.00

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LIST OF ACRONYMS

ADC - Alternative Daily Cover
ADCOP - Alternative Daily Cover Operating Plan
CFR - Code of Federal Regulations
CCS – Citizens' Convenience Station
DOT - Department of Transportation
EPA - U.S. Environmental Protection Agency
FWS - U.S. Fish and Wildlife Service
GLER – geomembrane liner evaluation report
LCS - leachate collection system
LFG - landfill gas
MSW - Municipal Solid Waste
MSDS - Material Safety Data Sheets
msl - mean sea level
NRACM - nonregulated asbestos-containing material
OSHA - Occupational Health and Safety Administration
PCBs - polychlorinated biphenyls
RACM - regulated asbestos-containing material
RCRA - Resource Conservation and Recovery Act
SDP - site development plan
SLER - soils and liner evaluation report
SOP - site operating plan
TAC - Texas Administrative Code
TCEQ - Texas Commission on Environmental Quality
TNRCC – Texas Natural Resource Conservation Commission (predecessor to TCEQ)
TPDES – Texas Pollutant Discharge Elimination System
TxDOT - Texas Department of Transportation
WWTP - wastewater treatment plant

SECTION 4

OPERATIONAL PROCEDURES

4.1 ACCESS CONTROL (§330.131)

Access to this site from El Indio and Eagle Pass will be via Farm to Market (F.M.) 1021, which is a two-lane asphalt roadway. The primary entrance road to the landfill will be 30 feet wide with a lockable security gate. The site has two entrances into the facility (primary and secondary), as shown on Attachments 1B and 1B1. Approved waste haulers and/or the general public will be limited to accessing the site through the primary entrance during normal operations.

The site proposes to use its previously approved secondary entrance/exit gate for ingress and egress to F.M. 1021. The primary entrance will be comprised of a driveway and lockable gate (see Section 4.1.1) that provides access to the future all-weather perimeter access road, as shown on Attachments 1B10-~~14~~15. The relocation of the primary entrance location is consistent with 30 TAC §305.70(j)(32), which allows changes to the entry gate location that do not alter access traffic patterns. Although the waste acceptance rate is anticipated to increase from 350 tons/day to up to 400 tons/day, a traffic analysis performed by Hejl, Lee & Associates, Inc. with the original permit application submitted to TCEQ in 2007, considered an increase in waste acceptance rate up to 1,500 tons/day. SCS coordinated with Texas Department of Transportation (TxDOT) for the primary entrance regarding the adequacy and design capacity of the roadways/entrances to safely accommodate the additional volumes and weights of the traffic generated or expected to be generated by the facility operations. This traffic analysis was approved by TxDOT in the correspondence provided to TCEQ with the permit application. Additionally, the current volume of citizen traffic that accesses the facility will remain the same and they will be redirected to the CCS instead of the landfill working face. Maverick County Solid Waste Authority has applied for a permit from Texas Department of Transportation (TxDOT) authorizing construction of a new driveway at the proposed primary entrance, which will be maintained in the Site Operating Record. Upon construction of the new primary entrance, Maverick County will use the currently approved primary entrance as their secondary entrance into the facility. Typically, the use of the secondary entrance gate will be limited to landfill personnel and other Maverick County designated personnel. However, when the primary entrance gate is inaccessible due to weather or traffic, the secondary entrance gate may be used by approved waste haulers and/or the general public. During these events, the secondary entrance gate will be monitored and controlled using the same normal operating procedures as the primary entrance. The gate attendant controls access and monitors all vehicles entering and exiting the site.

4.1.1 Site Security

Site security measures are designed to prevent unauthorized persons from entering the site, to protect the facility and its equipment from possible damage caused by trespassers, and to prevent disruption of facility operations caused by unauthorized site entry.

Unauthorized entry into the site will be prevented by controlling access to the landfill with the perimeter fence and gate at each entrance. A 6-foot chain link fence topped with three-strand barbed wire (i.e., 8-foot total fence height) will be maintained on the west side of the landfill property fronting F.M. 1021. The north, east, and south perimeter fence will be comprised of a predator-proof chain link or metal fence designed to prevent the entry of livestock, and discourage unauthorized entry to the landfill.

The perimeter fence and gates will be inspected monthly. Repairs and maintenance will be performed consistent with §330.131. If the perimeter fence or gates have been damaged (i.e., breached), the TCEQ region office and any local pollution agency with jurisdiction that has requested to be notified, will be notified within 24 hours of detection. The breach will be temporarily repaired within a 24-hour period (weather permitting), and will be permanently repaired within the timeframe approved by the TCEQ region office. Once permanent repairs have been completed, the TCEQ region office will be notified. If the breach can be permanently repaired within 8 hours of detection, then a notice to the TCEQ region office is not required. Documentation of perimeter fence and gate inspections and breaches will be maintained in the Site Operating Record. Refer to Table 4.2 of this SOP for the site inspection and maintenance schedule. "No Trespassing" signs will be posted at the property boundary.

The primary site entrance will be secured by a gate that is monitored by the gate attendant during site operating hours. Additionally, the secondary entrance will be secured by a gate that is monitored by landfill personnel (e.g. scalehouse/gate attendant or landfill manager) during site operating hours. Outside operating hours, the gates to the site will be locked. Entry to the active portion of the landfill will be restricted to designated personnel, approved waste haulers, and properly identified persons whose entry is authorized by landfill management. Visitors may be allowed on the active area only when accompanied by a site representative.

4.1.2 Traffic Control

Access to the landfill site will be provided via primary entrance gate located off of F.M. 1021, as described above. The primary entrance will have a gate that is attended during operating hours by the gate attendant. The gate attendant will restrict site access to authorized vehicles and direct commercial vehicles to the active working face of the landfill, and residential vehicles to the CCS or the landfill working face, as applicable, for the waste load size and type.

The landfill haul roads will be maintained in an all-weather condition and will be freely draining, and kept free of excessive ruts and potholes, as described in Section 4.12. Landfill haul roads will be passable by solid waste transportation vehicles in two directions to facilitate movement of traffic into and out of the site.

Within the site, signs will be placed along the landfill haul road and access road at a frequency adequate for direct waste haulers to appropriate waste disposal location (landfill working face or CCS). Private and commercial solid waste vehicles will not be allowed access to the CCS or any areas other than the working face of the landfill. Roads not being used for access to disposal areas will be blocked or otherwise marked for no entry. Landfill personnel will provide traffic directions, as necessary, to facilitate safe movement of vehicles.

The approach to the working face will be maintained such that two or more vehicles may safely unload side-by-side. A vehicle turn-around area large enough to enable vehicles to arrive and turn around safely will be provided adjacent to the landfill working face. The vehicles will back to a vacant area near the working face to unload. Similarly, roads to the CCS will be wide enough to enable two-way traffic and side-by-side unloading positions. Upon completion of the unloading operation, the transportation vehicles will leave the landfill working face area or CCS and depart the site. Loitering will not be permitted at the landfill working face or at the CCS.

4.2 UNLOADING WASTE (§330.133)

This landfill is authorized to receive municipal solid waste and those special solid wastes allowable under 30 TAC §330.171. The unloading of prohibited waste at the landfill working face and CCS will not be allowed. The categories of wastes that are prohibited at this site by state and federal regulations are discussed in Section 5 of this SOP. Prohibited waste are those waste prohibited from disposal at a landfill in accordance with 30 TAC §330.15(e). In addition to prohibited waste, the County has specified other waste that will not be disposed at the landfill. As such, unauthorized waste includes prohibited waste, as well as the site-specific waste not allowed at the landfill, as described in Section 5 of this SOP. Special wastes will not be handled at this landfill, except in accordance with TCEQ regulations and Section 4.20 of this SOP. Additionally, the County may establish an area on-site designated to receive brush.

The landfill will have a CCS to reduce traffic at the working face of the landfill. This CCS will be used for the acceptance and storage of waste, which will be disposed at the working face, and acceptance and storage of recyclables for transport to an authorized recycling or disposal facility. The CCS will only accept the waste streams authorized for disposal at the landfill described in Section 4.2.2. The unloading of waste in unauthorized areas are prohibited under 30 TAC §330.133(b).

As discussed in Section 2, trained personnel will monitor all incoming loads of waste. Trained personnel will be at the working face and CCS during operating hours to direct and observe each load that is brought in for disposal at each location. These personnel will be familiar with the rules and regulations governing the various types of waste that are excluded from this facility, including knowledge of 30 TAC §330.171. The personnel will also have a basic understanding of both Class 1 industrial and hazardous wastes, which are prohibited at this facility. The landfill personnel involved with unloading or inspection of waste will have authority and responsibility to (1) reject unauthorized loads, (2) have unauthorized material removed by the transporter, removed by onsite personnel, or otherwise properly managed by the facility, and (3) assess appropriate surcharges.

4.2.1 Waste Unloading at Landfill Working Face

Control will also be used to confine the working face to a minimum area consistent with the rate of incoming waste, while allowing for safe and efficient operation of the landfill. The maximum size of the working face will be 14,400 square feet (i.e., 120-ft by 120-ft). Only one working face will be active at any given time for disposal of waste in the landfill. However, as previously mentioned, a separate unloading area may be established for brush.

The unloading of waste in unauthorized areas will be prohibited. Solid waste dumping will be controlled to prevent disposal in locations other than those specified by landfill management. Any waste deposited in an unauthorized area will be removed immediately and disposed of properly.

Landfill personnel will report questionable waste materials or other issues of concern immediately to the Landfill Manager. A record of unauthorized material or waste removal will be maintained in the Site Operating Record, including the type of waste, generator/transporter, and date of receipt. Any unauthorized waste discovered at the landfill will be returned immediately to the transporter or generator of the waste or otherwise property managed by the landfill. Unauthorized waste that is not discovered by landfill employees until after it is unloaded will be returned to the vehicle that delivered the waste. (See Section 5.5 of this SOP, Managing Unauthorized Wastes, for further guidance.)

Signs with directional arrows and portable traffic barricades will restrict traffic to designated disposal locations. Waste hauling vehicles will be directed to the active disposal area. Signs will be placed along the access route to the designated disposal areas. In addition, rules for waste disposal and unauthorized waste will be prominently displayed on signs near the site's primary entrance.

4.2.2 Waste Unloading at CCS

The Gate Attendant will direct citizens with small or light vehicles to unload waste at the CCS into clearly identified storage containers (i.e., roll-offs). The CCS will provide 4, 20 or 40-cubic yard (CY) containers, one for each type of waste listed below. The CCS will only accept the waste streams authorized for disposal at the landfill. Roll-offs containing food waste will typically be removed from the CCS by the end of each day of operation, but will not be stored (i.e., maintained within containers) at the CCS longer than 48 hours following receipt of said waste. Roll-offs with other waste will be removed weekly or sooner when containers reach capacity. Solid waste containing food waste shall be stored in covered or containers that are leak-proof, durable, and designed for safe handling and easy cleaning.

The CCS location and layout plan are identified in Part III Attachment 1 (Site Layout Plan), Attachments 1B and 1B10-~~13~~15, respectively. The CCS will be comprised of an elevated deck area with an all-weather surface for two-lane traffic, with collection containers situated behind a retaining wall for drop-off of the following waste:

- Brush, Wood Waste, and Yard Waste,
- Construction and Demolition Debris (C&D),
- Municipal Solid Waste (MSW), and
- Scrap Metals.

Each container or unloading area for waste will be clearly identified. Containers used at the CCS will be inspected and maintained in accordance with Table 4.2. A Waste Screener will direct

citizens to appropriate locations for unloading materials at the CCS and observe that the respective materials are unloaded in the correct bin or container. Waste Screeners will be trained to recognize unauthorized waste, the procedures if unauthorized waste is detected, and fire protection procedures. Fire protection procedures for the CCS are described in Section 6.

The design of the CCS will comply with the requirements of §330.303 (related to Surface Water Drainage), and the applicable requirements of §330.207 (related to Contaminated Water Management).

4.3 HOURS OF OPERATION (§330.135)

The waste acceptance hours (i.e., site operating hours), when materials will be transported on or offsite, may be any time between the hours of 7 a.m. and 7 p.m., Monday through Sunday. Operation of heavy equipment for compaction of solid waste, application of daily and intermediate cover, regrading, or construction activities may occur at the landfill any time between the hours of 5 a.m. and 9 p.m., Monday through Sunday. These additional hours for heavy equipment operation, before and after waste acceptance hours, are necessary to perform any necessary earthwork at the landfill that may otherwise interfere with waste disposal operation. Transportation of material or heavy equipment operation will not be conducted between 9 p.m. and 5 a.m.

Consistent with TCEQ rules, the County Judge may request alternate operating hours for special occasions, special purpose events, holidays or other special occurrences. The TCEQ may approve alternate operating hours up to five days in a calendar year period. Additionally, the TCEQ region office may allow additional temporary waste acceptance or operating hours to address disasters, other emergency situations, or other unforeseen circumstances that could result in the disruption of waste management services in the area. If the Landfill Manager determines the landfill needs to operate outside the approved operating hours, the Landfill Manager will seek approval from the TCEQ region office for the alternate operating hours prior to such occurrence. The Landfill Manager will record the dates and times of alternate or additional operating hours in the Site Operating Record.

The Landfill Manager, in consultation with the County Judge, may establish operating hours that are less than those noted above. These hours will be indicated on the sign at the primary entrance to the landfill.

4.4 SITE SIGNS (§330.137)

A site sign will be displayed at the primary entrance to the site. The site sign will be readable from the site entrance. This sign will measure at least 4 feet by 4 feet, and have lettering of at least 3 inches in height that state the name of the site, type of site, hours and days of operation, an emergency 24-hour contact phone number(s) that reaches an individual with the authority to obligate the facility at all times that the facility is closed, the local emergency fire department phone number, and the TCEQ permit number. Appendix IV-A includes a detail of the site sign. Also, signs prohibiting receipt of hazardous waste and other types of unauthorized waste, closed drums, and smoking will be posted at the primary entrance gate. In addition, a sign will be

displayed at the primary entrance gate stating that all loads must be properly covered or secured. A sign will also be displayed at the secondary entrance to direct any waste haulers and/or the general public to the scalehouse at the primary entrance.

Within the site, signs will be placed along the landfill haul road and access road at a frequency adequate for waste transportation vehicles to be able to understand where the current waste disposal area is located and which roads are to be used. Roads not being used for access to the disposal area will be blocked or otherwise marked for no entry.

4.5 CONTROL OF WINDBLOWN WASTES AND LITTER (§330.139)

Windblown wastes will be controlled by the following methods:

- Waste transportation vehicles using this facility will be required to use adequate covers or other means of containment. The adequacy of covers or containment of incoming wastes will be checked at both of the landfill entrances. A sign will be prominently displayed at the landfill primary entrance stating that all loads will be properly covered and that a surcharge will be placed on all vehicles without adequate cover.

- Daily cover will be applied at the end of each day of operation to assist with the control of windblown waste.

- The facility will provide litter control fences, as necessary, at appropriate locations near the working face and elsewhere. The litter control fence will be of sufficient height and will be located as close as practical to the active area to control windblown waste and litter.

- As part of the overall site maintenance program, facility personnel will collect daily the windblown waste materials that may have accumulated throughout the entire site, including but not limited to, fences and gates, landfill haul roads and drainage channels throughout the site on days when the facility is in operation.

- Facility personnel will inspect public access roads within two miles in either direction from the landfill primary and secondary entrances for waste spilled en route to the landfill on a daily basis, as described in Section 4.8 of this SOP.

All collected litter will be taken daily to the working face of the landfill for disposal.

4.6 EASEMENTS AND BUFFER ZONES (§330.141)

4.6.1 Easements

In accordance with 30 TAC §330.141, solid waste unloading, storage, disposal, or facility operations will not occur within any easement or right-of-way that crosses the site. There are three known easements that traverse the site. All easements are listed in Part I/II General Information, Section 3.1.5. No solid waste unloading, storage, disposal, or processing operations

shall occur within 25 feet of the center line of any utility line or pipeline easement, unless otherwise authorized by the TCEQ. All pipeline and utility easements will be clearly marked with posts that extend at least six feet above ground level, spaced at intervals no greater than 300 feet. All easement and right-of-way markers will be installed consistent with the requirements in Section 4.7 of this SOP.

4.6.2 Buffer Zones

The buffer zone for the landfill is located within and adjacent to the facility boundary on property that is owned or controlled by the County. No solid waste unloading, storage, disposal, or processing operations will occur within the buffer zone. However, perimeter drainage channels, detention ponds, and haul roads may be installed within the buffer zone. Buffer zones may vary around the perimeter of the landfill, but in no case are they less than ~~50~~ 125 feet in width for unloading, storage, and processing consistent with §330.543(b)(1) for such operations as the CCS and ~~125 feet in width~~ for landfill disposal operations consistent with §330.543(b)(2). Landfill haul roads will be constructed within the buffer zones to allow the safe passage of fire-fighting and other emergency equipment. The location and construction of the perimeter drainage channels and detention ponds will not interfere with the haul road to allow for safe passage of fire fighting and emergency vehicles. Buffer zones will be clearly marked as specified in Section 4.7 of this SOP.

4.7 LANDFILL MARKERS AND BENCHMARK (§330.143)

Landfill markers will be installed to clearly mark significant features as described in 30 TAC §330.143(b). The markers will be steel or wooden posts and will extend at least 6 feet above the ground surface. The markers will not be obscured by vegetation and will be placed in sufficient numbers to clearly show the required boundaries. The County will maintain visibility of all required landfill markers and the benchmark. Landfill markers will be inspected monthly and will be maintained and repaired as necessary. Markers will be replaced within 15 days of removal, destruction, or a determination that the markers do not meet regulatory requirements. Refer to Table 4.2 of this SOP for site inspection and maintenance schedule. Markers will be repainted as needed to retain visibility. Guidelines for type, placement, and color coding of markers are outlined below.

- Site Boundary - Site boundary markers will be painted black. The markers will be placed at each corner of the site and along each boundary line at intervals no greater than 300 feet. Fencing may be placed between these markers as required. In areas where the fence is located on the permit boundary, the fence posts may be painted black and used as site boundary markers.

- Buffer Zone - Buffer zone markers will be painted yellow. The markers identifying the buffer zone will be placed along each buffer zone boundary at all corners and between corners at intervals of no greater than 300 feet. Placement of the landfill grid markers may be made along a buffer zone boundary. The buffer zones will be a minimum of 125 feet wide, as described in Section 4.6.2.

- Easements and Rights-of-Way - Easement and right-of-way markers will be painted green. The markers will be placed along the centerline of an easement and along the boundary of a right-of-way, at each corner within the site, and at the intersection of the permit boundary. Where it is impractical to place a marker, the marker will be offset from the easement right-of-way and the offset distance will be clearly painted on the marker.

- Landfill Grid System - Grid markers will be painted white. The grid system will consist of lettered markers along two opposite sides of the site, and numbered markers along the other two sides. Markers will be spaced no greater than 100 feet apart measured along perpendicular lines. Where feasible, intermediate markers will be installed where markers cannot be seen from opposite boundaries. At a minimum, grid markers will delineate the area expected to receive waste within the next 3 years. The grid markers will be maintained during the active life of the site and throughout the post-closure period.

- SLER/GLER Area - SLER/GLER markers will be painted red. The markers will be placed so that all areas for which a SLER/GLER has been submitted and approved by the TCEQ are readily determinable. Such markers are to provide site workers immediate knowledge of the extent of approved disposal areas. These markers will be located and protected so that they are not destroyed during operations until operations extend into the next SLER/GLER area. The location of these markers will be tied into the landfill grid system and will be reported on each SLER/GLER submitted. SLER/GLER markers will not be placed inside the evaluated areas.

- 100-Year Floodplain – 100-Year floodplain protection markers will be painted blue. The markers will be installed for any area within the permit boundary that is within the 100-year floodplain. The area subject to flooding will be clearly marked by means of permanent post not more than 300 feet apart or closer if necessary to retain visual continuity.

The permanent benchmark is located approximately 25 feet west of a wooden post in the southwest corner of the landfill property and 25 feet north of the south fence line. The benchmark is a bronze survey marker, stamped with the elevation and survey date and set in concrete. This benchmark elevation was surveyed from a known United States Coast and Geodetic Survey benchmark or other reliable source.

4.8 CONTROL OF WASTE SPILLED EN ROUTE TO THE SITE (§330.145)

The Landfill Manager will take steps to assure that vehicles hauling waste to the site are enclosed or provided with a tarpaulin, net, or other means to properly secure the load. The steps taken by the County will include, as necessary, the posting of signs requiring the loads to be covered, refusing acceptance of uncovered loads, reporting offenders to the police, adding disposal surcharges, or other necessary means.

On a daily basis when the landfill is in operation, landfill personnel will inspect F.M. 1021 for spilled waste for a distance of two miles in either direction from the landfill's primary entrance. In addition, on days when the secondary entrance is used by waste haulers, landfill personnel will inspect F.M. 1021 for spilled waste for a distance of two miles north of the primary entrance, two miles south of the secondary entrance, and the distance between both entrances. If spilled waste is found on these segments of F.M. 1021, such waste will be cleaned up by landfill personnel and delivered to the landfill, assuming such waste is suitable for disposal at the landfill. The Landfill Manager will consult with TxDOT officials and Maverick County concerning cleanup of F.M. 1021, consistent with 30 TAC §330.145. Cleanup of F.M. 1021 will include cleanup of the right-of-way as well.

4.9 DISPOSAL OF LARGE ITEMS (§330.147)

A large item/white goods storage area will be provided, as necessary, based on the quantity of these large item/white goods received for disposal. These items will be recycled as demand warrants but will not be stored in excess of 180 days. Large items that are not recycled will be disposed of at the working face. Care will be taken during disposal of large items such that: (1) large items are not placed directly on the liner protective cover, (2) large items are placed such that they do not interfere with continued waste filling, and (3) that other, smaller municipal solid waste is placed and compacted around them.

The County will maintain a program for the proper management of chlorinated fluorocarbon (CFC) refrigerant from refrigerators, freezers, air conditioning units, or other items in accordance with 40 CFR 82.156(f). CFCs will be evacuated from refrigerators, freezers, or air conditions by a third party vendor, or landfill personnel certified to perform this activity, prior to landfilling or recycling the units at an offsite facility. Items such as electrical equipment, which contains PCBs, will be excluded from waste fill. Procedures for detecting and excluding PCBs are provided in Section 5.

4.10 AIR QUALITY AND ODOR MANAGEMENT PLAN (§330.149)

4.10.1 Air Quality

Municipal solid waste landfills are subject to TCEQ regulations concerning burning and air pollution control. Measures to control air pollution may include, but are not limited to, the following items:

- Open burning of waste will not be permitted at this facility.
- The Landfill Manager will develop operations that are consistent with the State Implementation Plan (SIP) developed under the Federal Clean Air Act §110, as amended, and §330.15(d).
- Control of dust emissions (i.e. particulate matter control) from haul roads.
- Implementation of an Odor Management Plan.

- Investigate visible air emissions and implement controls as necessary.

4.10.2 Odor Management Plan

An Odor Management Plan will be implemented at the landfill and will include, but is not limited to, the following procedures:

- Incoming waste will be promptly landfilled.
- Identification of waste that require special attention and immediately cover and compact with daily cover or other waste.
- Identification of loads with significant odors by the Gate Attendant, and notification to the working face personnel.
- Freshly landfilled waste will be promptly covered with daily cover at the end of each operation day.
- Keeping the size of the working face to a minimum so waste can be covered quickly.
- Ponded water at the site will be controlled as detailed in Section 4.19 of this SOP.
- Damage or erosion of daily, intermediate, or final cover will be repaired within 5 days of detection (weather permitting) consistent with Section 4.18.5.
- Regular inspection of vapor-tight gaskets on leachate riser end caps. Damaged or deficient gaskets will be repaired following the inspection.
- Control of potential odors from leachate recirculation operations, as described in Section 4.23.
- Leachate will be disposed and handled as described in Attachment 15 – Leachate and Contaminated Water Plan.
- Control of landfill gas emissions as detailed in the Landfill Gas Management Plan.
- Clean-up spills of odorous materials immediately.
- Accidental fires will be controlled as outlined in Section 6 of this SOP.

4.11 DISEASE VECTOR CONTROL (§330.151)

The need for vector control (control of rodents, flies, mosquitoes, etc.) will be minimized through proper daily site operations, which include the application of daily and intermediate cover. The extent of the working face will also be minimized, as described in Section 4.2.

Landfill personnel will make weekly checks for insects and rodents and will report problems to the Landfill Manager. If necessary, a licensed professional will apply pesticides or rodenticides to enhance vector control. Care will be taken to ensure that proper chemicals are used and that they are properly applied.

4.12 MAINTENANCE OF SITE ACCESS ROADS (§330.153)

The landfill haul roads (i.e., perimeter haul roads and other constructed interior haul roads) will be constructed of crushed stone, gravel, caliche, or asphalt paving. All-weather landfill haul roads will be maintained for access to the working face during wet-weather operation. In addition to the all-weather roads, some portions of the onsite roads will be maintained for use during dry weather only. The tracking of mud and trash onto public access roadways to the landfill will be minimized by removing mud and associated debris from the site's primary and secondary entrances at least once per day during periods of wet weather and on days when mud or debris is accumulated on the site entrances or public roadway.

Dust will be controlled on the landfill haul roads by periodic spraying from a water truck or other means during periods of significantly dry weather. Dust from on-site roads will not become a nuisance to surrounding areas. A water source and necessary equipment or other means of dust control approved by the TCEQ will be provided.

Grading equipment will be used, as necessary, to control or remove mud accumulations on landfill haul roads. All haul roads will be inspected for damage due to traffic or erosion following significant rainfall events but, in any instance, the minimum inspection frequency of the site roads will be monthly. Crushed stone, concrete rubble, masonry demolition debris, crushed glass, recycled asphalt materials, or caliche will be delivered to the site on an as-needed basis for use in maintaining passable haul roads during wet weather. All onsite haul roads will be maintained in a clean and safe condition. Site roads will be regraded on an as needed basis, as a result of monthly inspections, to minimize depressions, ruts and potholes. Refer to Table 4.2 of this SOP for the site inspection and maintenance schedule.

4.13 SALVAGING AND SCAVENGING (§330.155)

Salvaging will not be allowed to interfere with disposal of solid waste or to create public health nuisances. Salvaged materials will be considered as potential recycled materials. Salvaged items will be removed from the landfill property often enough and will not be stored in excess of 180 days to prevent the items from becoming a nuisance, to preclude the discharge of pollutants from the area, and to prevent an excessive accumulation of the material at the landfill. Special wastes received at the landfill will not be salvaged. Additionally, pesticide, fungicide, rodenticide, and herbicide containers will not be salvaged. Scavenging will be prohibited at all times.

4.14 ENDANGERED SPECIES PROTECTION (§330.157)

Landfill operations will not result in the destruction or adverse modification of the critical habitat of endangered or threatened species, or cause or contribute to the taking of any endangered or

threatened species. No endangered or threatened species are known to exist in the immediate vicinity of the landfill. Verification by the United States Department of the Interior Fish and Wildlife Service that no endangered species will be affected by landfill operations is provided in Part I/II, Appendix I-C3.

4.15 LANDFILL GAS MANAGEMENT (§330.159)

The monitoring of LFG at the landfill will be in accordance with Attachment 14 - Landfill Gas Management Plan. The reports and other submittals required by Attachment 14 will be included in the Site Operating Record, as described in Section 8.1 and submitted to the TCEQ consistent with TCEQ requirements.

4.16 TREATMENT OF ABANDONED OIL AND WATER WELLS (§330.161)

There are no known abandoned water wells or abandoned crude oil or natural gas wells on the landfill property. However, if such abandoned wells are encountered during the course of site development, the County will immediately provide written notification to the TCEQ of the location of these wells.

Within 30 days of finding any abandoned water wells, the County will provide written certification to the TCEQ that all such wells have been capped, plugged, and closed in accordance with all applicable rules and regulations of the TCEQ or other applicable state agency.

For abandoned crude oil or natural gas wells, or other wells associated with mineral recovery, within 30 days of finding any such wells, the County will provide the TCEQ with written notification of the location of such wells. Within 30 days of plugging such wells, the County will provide the TCEQ with written certification that all such wells have been properly capped, plugged, and closed in accordance with all applicable rules and regulations of the Railroad Commission of Texas.

A copy of the well-plugging report to be submitted to the appropriate state agency will also be submitted to the TCEQ within 30 days after the well has been plugged. The County will also submit a permit modification (if applicable) identifying any proposed changes to the liner installation plan as a result of any well abandonment.

4.17 COMPACTION OF SOLID WASTE (§330.163)

Compaction of incoming waste provides more efficient use of available space and reduces the amount of settling after the fill is complete. The incoming waste will be spread in layers and compacted. Compaction of the waste will be accomplished by repeated passes of the landfill compaction equipment capable of providing a minimum 1,000 lbs/cy compaction. Adequate compaction will be accomplished to minimize future consolidation and settlement and provide for the proper application of intermediate and final cover.

Waste placement in landfill phases (i.e., cells) with floor slopes greater than 2% and smooth geomembrane on the floor will be conducted by the following: (1) spreading and compacting

lifts across the entire cell floor; and (2) starting from the low end (i.e. leachate sump) and progressing to the high end.

4.18 SOIL MANAGEMENT, PLACEMENT, AND COMPACTION OF DAILY, INTERMEDIATE, AND FINAL COVER (§330.165)

4.18.1 Soil Management

Management of soil for use in and around the landfill will be an ongoing activity at the facility. In general, soil for use as daily cover, intermediate cover, final cover, and other uses will be available adjacent to the active area. The volume of the soil stockpile used for application of daily cover will depend on the size of the working face, but will be adequate to cover the working face with at least 6-inches, as described in Section 4.18.2. Soil used for fire control will be available within 1,100 feet of the working face, as described in Section 6.1. The soil stockpile(s) will consist of soil that has not previously come in contact with waste. Section 6.1 lists the minimum size of the soil stockpile that will be maintained for fire fighting purposes. This stockpile will be routinely replenished. If the volume of the soil stockpile is reduced to less than the minimum size, it will be replenished prior to the next day of waste acceptance.

4.18.2 Daily Cover

Daily cover of waste is necessary to control disease vectors, windblown waste, odors, fires, scavenging, and to promote runoff from the fill area. At the end of each working day, at least 6 inches of soil cover material that has not previously been mixed with garbage, rubbish, or other solid waste, or an approved alternative daily cover (ADC) material, will be placed over all solid waste received subsequent to the previous cover placement.

The use of ADC will be limited to a 24-hour period after which either waste or daily cover will be placed. The procedures that will be used for application of ADC are specified in the Alternative Daily Cover Operating Plan (ADCOP), as provided in Appendix IV-C. Prior to utilizing different ADCs materials other than previously authorized ADCs, the County will submit a request for temporary authorization consistent with §330.165(d)(1). Consistent with this ADCOP, a status report will be submitted on a two-month basis to the TCEQ during the temporary authorization period describing the effectiveness of the ADC.

If soil is used as daily cover, the minimum thickness will be 6 inches. To ensure that the daily cover soil will be adequate (i.e., minimize vectors, contaminated storm-water runoff, odors, etc.) the following procedures will be followed:

- The daily cover will be sloped to drain.
- The daily cover will be compacted by bulldozer to minimize infiltration of storm water, graded to drain, and will not have waste visibly protruding through it.
- The Landfill Manager will visually verify during placement that a minimum of 6 inches (compacted thickness) of daily cover soil has been placed. The Landfill Manager will

document, on a daily basis, that he has visually verified the thickness and condition in the Cover Application Log (discussed further in Section 4.18.6 of this SOP).

- After each rainfall event, the Landfill Manager will inspect all daily cover areas for erosion, exposed waste or other damage, and repair, as described in Section 4.18.5. Runoff from areas that have intact daily cover is considered to not have come in contact with the working face or leachate.

Inactive areas with 6 inches of daily cover will be inspected weekly for erosion, ponded water, seeps, protruding waste, or other detrimental conditions that may cause contaminated runoff from the daily cover. Within a period of 180 days, an additional 6 inches of earthen material not previously mixed with garbage, rubbish or other solid waste will be placed over inactive areas with daily cover for a total of not less than 12 inches of cover. This 12-inch-thick layer of cover soil will be classified as "intermediate cover" as described in Section 4.18.3 of this SOP. Once the area becomes active again, the top 6 inches may be stripped off for use as daily cover in other areas, provided it can be removed without contamination by contact with solid waste.

4.18.3 Intermediate Cover

All areas that have received waste and will be inactive for longer than 180 days will be covered with 12 inches of well-compacted intermediate cover within 180 days after placement of daily cover or becoming inactive. The top six inches of the intermediate cover will be capable of sustaining native plant growth. Vegetation will be established on intermediate cover within 180 days following application of the intermediate cover and will provide a minimum 60 percent ground coverage, as described in Attachment 6, Appendix 2, Section 5.4. The intermediate cover will be graded and maintained to prevent ponding. Vegetation growth and erosion control features will be maintained as specified in Section 7 of this SOP.

The Landfill Manager will inspect intermediate cover at the site weekly for erosion, ponded water, seeps, protruding waste, or other detrimental conditions that may cause contaminated runoff. Erosion gullies or washed-out areas will be repaired within 5 days of detection, weather permitting, as described in Section 4.18.5.

4.18.4 Final Cover

Final cover will be placed as areas of the site are filled to the design top-of-waste grades. Final cover will be placed in accordance with Attachment 12 - Final Closure Plan. Areas that receive final cover will be vegetated immediately following completion of final cover placement, and will provide at least 85 percent ground coverage, as described in Attachment 6, Appendix 2, Section 5.5. Surface water will be managed throughout the operating life of the landfill to minimize erosion of the final cover. Erosion of final cover will be repaired within 5 days of detection, weather permitting, by restoring the cover material, grading, compacting, and seeding, as necessary. Monthly inspections and restorations will be implemented during the entire operational life. Refer to Table 4.2 of this SOP for a site inspection and maintenance schedule.

The final cover system, including the erosion control structures (interceptor channels and downchutes), will be maintained during and after construction. During the active life of the site,

the Landfill Manager will inspect the final cover system monthly. Post-closure care inspection procedures are outlined in the Attachment 13 - Postclosure Care Plan. Final cover will be monitored throughout the entire closure and post-closure care period of the landfill.

4.18.5 Erosion of Cover

Intermediate and final cover will be inspected on a weekly and monthly basis, respectively, for erosion. Inactive areas with daily, intermediate, and final cover also will be inspected for erosion following significant rainfall events. A significant rainfall event is defined as precipitation greater than 0.5 inches. Erosion gullies or washed-out areas deep enough to impact the final or intermediate cover will be repaired within 5 days of detection (weather permitting) by restoring the cover material, grading, compacting, and/or seeding or sodding. An eroded area is considered to be deep enough to impact the final or intermediate cover if it exceeds four inches in depth as measured perpendicular to the slope. The TCEQ region office may approve more time for cover repairs if the extent of the damage indicates that more time will be needed or if repairs are delayed due to weather conditions.

The date of detection of erosion and date of completion of repairs, including justification of delays, will be documented in the Cover Application Log. Cover inspections will be conducted throughout the operational life of the landfill.

4.18.6 Cover Application Log

Throughout the landfill operation, a cover application log will be maintained and be readily available for inspection by the TCEQ and authorized agents or employees of local governments having jurisdiction. For daily and intermediate cover, the log will specify the area covered (by use of the grid system), how it was placed, and the date it was completed. For final cover, the log will specify the final cover area, the date of cover, and the thickness applied that date. Each entry will be certified by the signature of the Landfill Manager that the work was accomplished as stated in the log. Repairs will be documented in the appropriate cover log, including inspections for erosion, the findings, and the action taken.

4.19 PREVENTION OF PONDED WATER (§330.167)

The prevention of ponding water is necessary to control infiltration of water into the waste. Additionally, ponded water can be a source of odor and breeding grounds for vectors. This ponding water prevention plan to be implemented at the landfill includes, but is not limited to, the following procedures:

Preventative Actions:

- Inspections of the landfill cover will be performed consistent with Section 4.18 of this SOP for the respective cover (i.e., daily, weekly, or monthly) and following periods of wet weather to identify potential ponding locations.

- Routine site grading and maintenance to provide drainage and prevent the ponding of water over areas containing waste.

Corrective Actions:

- Should ponding occur, the water will be removed and the depressions filled within seven days of the occurrence.

- If the ponded water has come into contact with waste, leachate, or waste-contaminated soils, it will be treated as leachate and handled in accordance with the Attachment 15 - Leachate and Contaminated Water Plan.

4.20 DISPOSAL OF SPECIAL WASTES (§330.171)

Acceptance of special wastes, as defined in 30 TAC §330.3(148), will be performed in accordance with 30 TAC §330.171. The special wastes that will be accepted at the landfill are discussed in the following subsections.

4.20.1 Dead Animals and Slaughterhouse Waste

Dead animals or slaughterhouse wastes will be accepted at this landfill. Dead animals and slaughterhouse wastes will be buried and covered with a minimum of 3 feet of other solid waste or a minimum of 2 feet of soil immediately upon receipt

4.20.2 Non-Regulated asbestos-containing material (non-RACM)

Non-regulated asbestos-containing materials (non-RACM) may be accepted for disposal at this landfill provided the wastes are placed on the active working face and immediately covered with 12 inches of earthen material or 3 feet of solid waste. Under no circumstances may any material containing non-RACM be placed on any surface or roadway that is subject to vehicular traffic or disposed of by any other means by which the material could be crumbled into a friable state.

4.20.3 Empty Containers

Empty containers which have been used for pesticides, herbicides, fungicides, or rodenticides will be disposed at the site in accordance with the following:

- The containers are tripled rinsed prior to receipt at the landfill.

- The containers are rendered unusable prior to or upon receipt at the landfill.

- The containers are covered by the end of the same working day they are received.

Containers for which triple-rinsing is not feasible or practical (e.g., paper bags, cardboard containers) may be disposed at the landfill , provided that the waste is disposed as a municipal

hazardous waste from conditionally exempt generators, as described in Section 4.20.4 or Class 2 industrial waste if classified as such in accordance with §335.506.

4.20.4 Municipal Hazardous Waste from Conditionally Exempt Generators

Municipal hazardous waste from a conditionally exempt small quantity generator (CESQG) may be accepted at the landfill without further approval from the TCEQ provided the amount of waste does not exceed 220 pounds per month per generator, and provided the landfill owner or operator authorizes acceptance of the waste.

4.20.5 Sludge, Grease Trap, Grit Trap, or Municipal Liquid Waste

Sludge, grease trap waste, grit trap waste, or liquid wastes from municipal sources will be accepted at a landfill for disposal only if the waste has been treated or processed and the treated/processed material has been tested, in accordance with Test Method 9095 (Paint Filter Liquids Test), as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (EPA Publication Number SW-846), as amended, and is certified to contain no free liquids.

4.20.6 Used Oil Filters

Used oil filters (to include filters that have been crushed and/or processed to remove free-flowing used oil) from **non-household generator**s will not be accepted at the landfill. However, used oil filters from internal combustion engines from **household generators** will be accepted at the landfill if the filter has been:

- Crushed to less than 20% of its original volume to remove all free-flowing used oil.

- Processed by a method other than crushing to remove all free-flowing used oil. A filter is considered to have been processed if:

  (i) the filter has been separated into component parts and the free-flowing used oil has been removed from the filter element by some means of compression in order to remove free-flowing used oil;
  (ii) the used filter element of a filter consisting of a replaceable filtration element in a reusable or permanent housing has been removed from the housing and pressed to remove free-flowing used oil; or
  (iii) the housing is punctured and the filter is drained for at least 24 hours.

4.20.7 Medical Waste

Medical waste that has been treated in accordance with the procedures specified in Subchapter Y (related to Medical Waste Management) may be accepted at the landfill.

4.20.8 Waste Generated Outside the Boundaries of Texas

Waste generated outside the boundaries of Texas, including waste generated at Maquiladora facilities, will be accepted at the landfill provided it is classified as MSW, one of the special wastes described in Section 4.20.1 through Section 4.20.8, or Class 2 or Class 3 industrial solid waste, as described in Section 4.21. As noted above, Class 1 industrial solid waste will not be accepted at the landfill. Waste generated outside the boundaries of Texas that has been classified as one of the above types of waste will be handle consistent with the requirements for that type of waste described in this SOP.

Prior to accepting waste generated outside the boundaries of Texas, the landfill operator will require that the generator submit a "Request for Authorization for Disposal of a Special Waste." This request will include the items listed in §330.171(b)(2), as described below in Section 4.20.10. Following receipt of the request, the County will submit said request to the TCEQ for approval. The waste generated outside the boundaries of Texas specified in the request will not be accepted until approval from the TCEQ has been obtained and will only be accepted for the time period specified in the approval.

4.20.9 Other Special Wastes

Special wastes, other than the special waste identified 30 TAC §330.171(c) & (d), requires prior written approval from the TCEQ. Approvals will be waste-specific and/or site-specific and will be granted only to appropriate facilities operating in compliance with TCEQ regulations. As specified in 30 TAC §330.171(b)(2), requests for approval to accept other special wastes will be submitted to the TCEQ and will include the following:

1. A complete description of the chemical and physical characteristics of each special waste and the quantity and rate at which each waste is produced and/or the expected frequency of disposal. An additional statement will be included as to whether the special waste is a Class I industrial waste or not.

2. An operational plan containing the procedures for handling each waste and listing required protective equipment for operating personnel and onsite emergency equipment.

3. A contingency plan outlining responsibility for containment and cleanup of any accidental spills occurring during the delivery and/or disposal operation.

Special waste classified as Class 1 industrial waste is prohibited from being disposed of at the landfill.

4.21 DISPOSAL OF INDUSTRIAL WASTE (§330.173)

As specified in Section 5.1, the County will not accept Class 1 industrial solid waste at the landfill. This facility will accept Class 2 and Class 3 industrial solid waste, as defined in §335.506 and §335.507, respectively, provided the acceptance of such waste does not interfere with landfill operation.

4.21.1 Petroleum Contaminated Soils

Soil contaminated by petroleum products, such as automotive gasoline, other fuels, used motor oil from an internal combustion engine, or crude oils (also referred to as petroleum contaminated soils), may be accepted for disposal without specific TCEQ approval. Prior to acceptance of petroleum contaminated soils, the soils must be certified as being under the limits specified in the Table 4.1.

To determine whether or not a soil meets the criteria listed in the table, one composite sample will be taken for every 50 cubic yards (CY) of contaminated soil. The composite sample should be comprised of four separate grab samples from within the 50 CY. The person taking the sample should strive to obtain the most representative sample possible. All samples must be analyzed for total petroleum hydrocarbon (TPH). If analytical data or process knowledge indicates the possible presence of other contaminants (e.g. benzene or lead), testing for additional parameters is required, as indicated in 30 TAC §335, Subchapter R and TCEQ Regulatory Guidance Document Number RG-22 and RG-29. When additional parameters are required (benzene or lead), it is only necessary to analyze the sample(s) which contain the highest level of TPH from per 200 CY. For example, if there is 400 CY of contaminated soil, there should be eight samples tested for TPH and the two samples with the highest TPH level from those samples should be analyzed for the additional parameters of concern. Laboratory detection limits must be less than or equal to the maximum contaminant levels listed in Table 4.1.

TABLE 4.1
CONTAMINATED SOIL CONSTITUENTS OF CONCERN

CONSTITUENTS OF CONCERN	MAXIMUM CONTAMINANT LEVEL
Benzene	**0.5 mg/l[1]**
TPH	**1,500 mg/kg**
Lead[2]	**1.5 mg/l[1]**

Notes:

[1] An analysis of total contaminant level may be used as a screening tool prior to Toxicity Characteristic Leaching Procedure (TCLP). To determine the maximum total contaminant level at which a TCLP is not necessary multiply the table limit by a factor of 20. This formula is extrapolated from a 20:1 dilution factor when preparing TCLP samples for analysis (Title 40 Code of Federal Regulations, Part 261, Appendix II). If a contaminant total level exceeds 20 times the table limit (e.g. total lead>30 mg/kg, total benzene >10 mg/kg, etc.), then TCLP must be performed.

[2] If it is known through process knowledge, that the automotive gasoline and fuels did not contain lead, it is not necessary to test for lead.

4.22 VISUAL SCREENING OF DEPOSITED WASTE (§330.175)

Methods for visually screening the working face and deposited waste will include, but are not limited to, the following items consistent with 30 TAC §330.175:

- Orienting the working face away from the F.M. 1021.
- Developing the aerial fill portion of the landfill from the exterior to the interior, when appropriate (i.e., by constructing landfill sideslopes prior to filling operation

- Maintaining existing trees and other vegetation near the landfill permit boundary and adjacent to F.M. 1021.

4.23 LEACHATE AND CONTAMINATED WATER MANAGEMENT

Maverick County will not discharge contaminated water without specific written authorization by the TCEQ. The management of leachate and contaminated water will be performed in accordance with Attachment 15 – Leachate and Contaminated Water Plan. Reports and other submittals required by Attachment 15 will be maintained in the Site Operating Record, as described in Section 8.1 of this SOP.

Leachate collected from the leachate collection system may be recirculated back into the landfill by spraying on the working face, or injecting the leachate back into waste. However, recirculation will only take place over composite lined cells (referred herein as Standard Liner System, see Section 3.0) in accordance with §330.331(b).

Leachate that is recirculated into the landfill will be performed using the following procedures:

1. Leachate will be sprayed directly onto the waste at the working face via a dedicated water truck or injected into the waste mass using a dedicated pump.

2. Prior to performing leachate recirculation, containment berms and diversion berms will be constructed to prevent runoff of contaminated water and run-on of uncontaminated stormwater, respectively.

3. Leachate recirculation performed using a spray application will be performed as follows:

    a. The spray application will not be performed when standing water exists or during rain events.

    b. No odors are expected to be associated with this practice. Nevertheless, to provide assurance that odors and wind transmission are minimized, the following procedures will be implemented:

        i. The spray application of leachate will be performed at a minimum 100-foot setback from the limits-of-waste.
        ii. The leachate will be sprayed down towards the waste, such that the water stream is not being projected up into the air.
        iii. Spray applications will only be performed on days when the wind speed is less than or equal to 15 miles per hour.

    c. The rate of spraying will be low enough to prevent the occurrence of ponding and allow the infiltration of leachate prior subsequent applications.

4. Leachate recirculation performed by injection will be performed by installing either HDPE [SDR 17 or less] or polyvinyl chloride (PVC) [Sch 80 or less] below-grade

horizontal pipes or vertical injection wells for introduction of the liquids into the landfill in areas of daily or intermediate cover only. As such, leachate recirculation will not occur in areas within in-place final cover.

a. If below-grade horizontal pipes are installed, they will be installed in trenches at least 3 feet below the landfill surface and be comprised of solid and perforated sections of pipe. Using this technique, the perforated section will be maintained at least 50 feet from the landfill sideslope (i.e., to minimize seeps) when waste disposal in area of recirculation is above-grade.

b. If vertical wells are installed, they will be installed with the bottom of the well at least 10 feet above the bottom liner of the landfill. The well will be comprised of perforated and solid components, with the solid piping extending from the landfill surface to at least 3 feet below grade and encased in soil backfill. The remainder of the well piping will be perforated and encased in gravel backfill.

5. Although, leachate recirculation is not expect to result in nuisance odors, if nuisance odors develop, the following procedures will be implemented to mitigate odors:

   a. Leachate recirculation will temporarily suspended until the nuisance odors dissipate.

   b. If nuisance odors are associated with spray applications, the area will be immediately covered with 6 inches of soil.

   c. If nuisance odors are associated with injection of leachate, all connections to horizontal or vertical injection points will be inspected to make sure that each connection is vapor-tight. If damaged or deficient connections are observed, then the connections will be repaired following the inspection.

   d. If nuisance odors are still occurring, then the procedures in Section 4.10.2, related to Odor Management Plan, should be reviewed and implemented as needed until odors are mitigated.

6. The Landfill Manager will maintain records of the volume of leachate recirculated into the landfill. The recirculation volume will be measured using either flow meters connected to pumps and/or water trucks, or by the volume discharged from water trucks based on the capacity of such storage units.

Leachate recirculation will be performed such that ponding and seeps will not occur. If either, ponding or seeps, are detected or if the leachate head on the liner exceeds 12 inches, the leachate recirculation in the respective cell will be discontinued until the condition is remediated. Additionally, preventative and corrective actions detailed in Section 4.19 will be followed related to cover inspections for seeps and ponding. If seeps are observed during inspections, the area will be packed with onsite soil (i.e., low permeable clay) to assist in mitigating the seep.

Leachate recirculation will be restricted to volumes less than 830,290 gallons/acre/year during below-grade waste disposal and 660,394 gallons/acre/year during above-grade waste disposal. Additionally, the maximum daily recirculation will be limited to less than or equal to 9,700 and 5,400 gallons/acre/day for below and above-grade disposal, respectively, provided total annual volumes are not exceeded and leachate recirculation at the landfill is limited to less than 100,000 gallons/day in accordance with §330.991(a)(7)(A). These allowable recirculation volumes pertain to areas draining to a common sump. The calculations and respective HELP modeling for leachate recirculation are provided in Attachment 15, Appendix 1A.

TABLE 4.2

SITE INSPECTION AND MAINTENANCE SCHEDULE

ITEM	TASK	SCHEDULE
Fence/Gate	Inspect perimeter fence and gate for damage, gaps, intrusions and the like. Make temporary repairs within 24-hours (weather permitting) and permanent repairs within the timeframe approved by the TCEQ region office.	Monthly
Windblown Waste	Police working fence area, wind fences, access roads, entrance areas (primary and secondary), and perimeter fence for loose trash. Clean up upon detection.	Daily
Waste Spilled en Route to the Site	Police entrance areas and FM-1021 at least 2 miles in either direction from the landfill entrances (primary and secondary) for loose trash. Clean up upon detection.	Daily
Landfill Markers	Inspect all landfill markers for damage, color coding, and general location. Correct or replace damaged markers within 15 days of discovery.	Monthly
Landfill Haul Road	Inspect landfill haul roads for damage from vehicle traffic, and erosion. Repair onsite roads, as needed, based on inspections. Inspect landfill entrances (primary and secondary) and onsite roads for excessive mud and/or waste accumulation. Maintain as needed with crushed rock or stone.	Monthly Daily (Wet Weather) Weekly (Otherwise)
Daily Cover	Inspect for proper placement, thickness, and compaction. Remedy deficiencies as needed.	Daily (active areas) Weekly (inactive areas)
Intermediate Cover	Inspect for proper placement, thickness, erosion, vegetation, compaction and for presence of waste or other contamination. Remedy deficiencies as needed within 5 days, weather permitting.	Weekly
Final Cover	Inspect for proper placement, thickness, vegetation, compaction, slope, settlement and erosion. Maintenance will be ongoing throughout postclosure care period. Remedy deficiencies as needed within 5 days, weather permitting.	Monthly

TABLE 4.2 (Continued)

ITEM	TASK	SCHEDULE
Erosion Control	Inspect the intermediate and final cover for signs of erosion. Damaged areas will be repaired within 5 days (weather permitting) of detection by restoring cover material, grading, compaction, and/or seeding or sodding.	Weekly (Interim), Monthly (Final), and following wet weather
Disease Vector Control	Inspect landfill facility for insects and rodent populations and report them to the Landfill Manager.	Weekly
Ponding Water	Inspect landfill cover for potential ponding water locations. Grade and compact potential areas within seven days, weather permitting.	Daily (daily cover), Weekly (Interim), Monthly (Final) and following wet weather
Leachate Storage Tanks	Inspect leachate tanks, related piping, and connections for leaks or spills.	Weekly
Depth of Leachate on Liner	Measure leachate depth within sump using electric liquid indicator (see Attachment 15, Section 4.7).	Monthly (without recirculation) Weekly (with recirculation)
Leachate Pumps	Inspect leachate pumps and maintain, as necessary (see Attachment 15, Section 4.7).	Annually
Leachate Pipe Clean-out	Perform clean-out activities of leachate collection lines (see Attachment 15, Section 4.7).	Annually
CCS Containers	Inspect the containers for spills and leaks, and repair or replace containers, if necessary, as a result of these inspections.	Daily

PERMIT REVISIONS (UNMARKED)

PART I
GENERAL INFORMATION

FOR

MAVERICK COUNTY EL INDIO MSW LANDFILL
TCEQ PERMIT NO. MSW 2316

Prepared for:

Maverick County Solid Waste Authority
16179 FM 1021
El-Indio, Texas 78860

And

Maverick County
500 Quarry Street, Suite 3
Eagle Pass, Texas 78852
830/773-3824

PERMIT ISSUED: SEPTEMBER 11, 2007

REVISION 2 PREPARED BY:

SCS ENGINEERS
Texas Board of Professional Engineers Reg. No. F-3407
1901 Central Drive, Suite 550
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817/571-2288

Revision 1 – May 2004
Revision 2 – March 2024
Revision 3 – June 2025
SCS Project No. 16220088.00 & 16223092.00

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SCS Engineers
TBPE Reg. # F-3407

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3.0 COORDINATION WITH AGENCIES – 30 TAC 330.51(B)(6)

Documentation of Coordination with the following agencies is required and is included in **Appendix I-F.**

3.A Texas Commission on Environmental Quality (TCEQ)

Coordination with the TCEQ to demonstrate compliance with the Clean Act Section 208 is included as Appendix I-F1.

3.B Federal Aviation Administration (FAA)

Coordination with the United States Department of Transportation, Federal Aviation Administration to demonstrate compliance with airport location restrictions is included as Appendix I-F2. A letter from the U.S. Department of Transportation, Federal Aviation Administration stating "there are no existing or proposed public-used airports within five miles of the site, therefore we have no objection to the proposal" has been included in this appendix.

3.C Texas Department of Transportation (TXDOT)

Coordination with the Texas Department of Transportation for compliance with traffic and location restrictions is included as **Appendix I-F3**. A driveway access permit for the proposed MSW facility to access FM 1021 was submitted to TXDOT. The permit was successfully approved. A copy of the signed driveway permit is included as **Appendix I-F3.**

Subsequently, an additional driveway access permit for the new entrance to the facility, located in the southeast corner of the property, was submitted to TXDOT. This permit was successfully approved in June 2025 and a copy of this approved permit is also included as Appendix I-F3.

APPENDIX I-F3

CORRESPONDENCE WITH TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT)

Permit to Construct Access Driveway Facilities on Highway Right of Way

PERMIT NUMBER: TxDOT ENTER PERMIT NUMBER HERE 2025061301			
	GPS*	ROADWAY	
REQUESTOR	LATITUDE, LONGITUDE	HWY NAME	FM1021
	28.5416278, -100.3232694	FOR TxDOT'S USE	
		CONTROL	4-DIGIT
NAME	Maverick County - Municipal Solid Waste Facility #2316	SECTION	2-DIGIT EX. 01
MAILING ADDRESS	16179 FM 1021, P.O. Box 10		
CITY, STATE, ZIP	El Indio, Texas 78860		
PHONE NUMBER	(830) 787-8191		
*GLOBAL POSITIONING SYSTEM COORDINATES AT INTERSECTION OF DRIVEWAY CENTERLINE WITH ABUTTING ROADWAY			

The Texas Department of Transportation, hereinafter called the State, hereby authorizes El Indio Landfill (MSW Permit #2316), hereinafter called the Permittee, to ☒ construct / ☐ reconstruct a South Primary Entrance Road (residential, convenience store, retail mall, farm, etc.) access driveway on the highway right of way abutting highway number FM 1021 in Maverick County, located at 16179 FM 1021, El Indio, TX 78860.

USE ADDITIONAL SHEETS AS NEEDED

Is this parcel in current litigation with the State of Texas? ☒ YES ☐ NO

Is the Permittee or a family member of Permittee an employee or official of the Texas Department of Transportation? ☐ YES ☒ NO

Does an employee or official of the Texas Department of Transportation serve as an employee or officer of Permittee or own a controlling interest in Permittee? ☐ YES ☒ NO

This permit is subject to the Access Driveway Policy described on page 2 and the following:

1. The undersigned hereby agrees to comply with the terms and conditions set forth in this permit for construction and maintenance of an access driveway on the state highway right of way.
2. The Permittee represents that the design of the facilities, as shown in the attached sketch, is in accordance with the Roadway Design Manual, Hydraulic Design Manual and the access management standards set forth in the Access Management Manual (except as otherwise permitted by an approved variance).
3. Construction of the driveway shall be in accordance with the attached design sketch, and is subject to inspection and approval by the State.
4. Maintenance of facilities constructed hereunder shall be the responsibility of the Permittee, and the State reserves the right to require any changes, maintenance or repairs as may be necessary to provide protection of life or property on or adjacent to the highway. Changes in design will be made only with prior written approval of the State.
5. The Permittee shall hold harmless the State and its duly appointed agents and employees against any action for personal injury or property damage related to the driveway permitted hereunder.
6. Except for regulatory and guide signs at county roads and city streets, the Permittee shall not erect any sign on or extending over any portion of the highway right of way. The Permittee shall ensure that any vehicle service fixtures such as fuel pumps, vendor stands, or tanks shall be located at least 12 feet from the right of way line to ensure that any vehicle services from these fixtures will be off the highway right of way.
7. The State reserves the right to require a new access driveway permit in the event of: (i) a material change in land use, driveway traffic volume or vehicle types using the driveway, or (ii) reconstruction or other modification of the highway facility by the State.
8. The State may revoke this permit upon violation of any provision of this permit by the Permittee.
9. This permit will become null and void if the above-referenced driveway facilities are not constructed within six (6) months from the issuance date of this permit.
10. The Permittee will contact the State's representative Charles Fite Maintenance supervisor telephone, (860) 776-0506, at least twenty-four (24) hours prior to beginning the work authorized by this permit.
11. The requesting Permittee will be provided instructions on the appeal process if this permit request is denied by the State.

The undersigned hereby agrees to comply with the terms and conditions set forth in this permit for construction and maintenance of an access driveway on the highway right of way.

Date: 2/13/25 Signed: _____
(Property Owner or owner's representative)

6/16/2025	DocuSigned by: Vanessa Rosales-Herrera 70CAB6EA0F3B42B...
Date of Issuance	District Engineer, or designee Approval
Date of Issuance as per Variance to AMM	District Engineer, or designee Approval
Date of Denial	District Engineer Denial (No Delegation)

Access Driveway Policy

Title 43 Texas Administrative Code (Transportation), Chapter 11 (Design), Subchapter C (Access Connections To State Highways) and the "Access Management Manual" establish policy for the granting of access and the design, materials, and construction of driveways connecting to state highways. All driveway facilities must follow this policy. To the extent there is any conflict between this permit and the policy, the policy shall control. If a proposed driveway does not comply with the access management standards, the owner may seek a variance to a requirement contained in the access management standards by contacting the local TxDOT office.

TxDOT Driveway Permit Request Contact

For a local contact for your TxDOT Driveway Permit Request or variance request, visit: http://www.txdot.gov/inside-txdot/district.html. You can click on the section of the map closest to your location to find the local TxDOT office. You can also click on the drop down box below the map to find the district for your county.

Other Conditions

In addition to Items 1 thru 11 on page 1 of this permit, the facility shall also be in accordance with the attached sketch and subject to the following additional conditions stated below:

See attached "Sketch of Installation" Sheet and "Site Plan" for additional information. A summary of proposed road is as follows:
1. Proposed radii: 75',
2. Throat Width: 30',
3. Throat Length: 70',
4. Entry Width: 180', and
5. 8" Reinforced concrete pavement with #4 rebar @ 9" OCEW.

Variance Documentation Justification

For a Variance request, please indicate which of the below are applicable, as required by TAC §11.52(e):

☐ a significant negative impact to the owner's real property or its use will likely result from the denial of its request for the variance, including the loss of reasonable access to the property or undue hardship on a business located on the property.

☐ an unusual condition affecting the property exists that was not caused by the property owner and justifies the request for the variance.

For the conditions selected above, provide written justification below. (Attach additional sheets, if needed)

For TXDOT use below:

For Variance denials, please indicate which of the below conditions, as provided in TAC §11.52(e), were determined:

☐ adversely affect the safety, design, construction, mobility, efficient operation, or maintenance of the highway; or

☐ likely impair the ability of the state or the department to receive funds for highway construction or maintenance from the federal government.

Attachments:

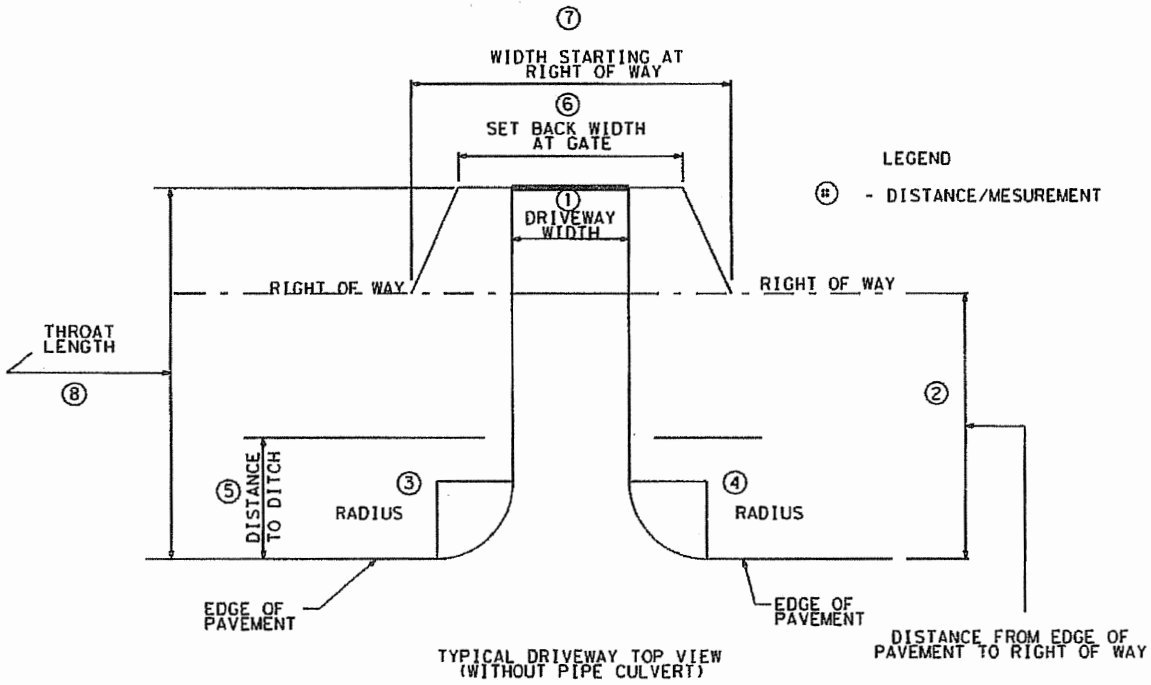
Sketch of Installation

All Variance Documentation

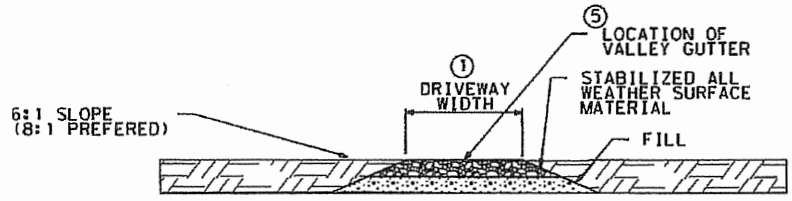
Sketch of Installation

Requestor:	Maverick County Landfill			**Hwy No.:**	F.M. 1021	**Permit No.:**	
County:	Maverick	**Control:**			**Section:**		
Driveway Type: (Rural Locations)	**Farm/Ranch** ☐	**Field** ☐	**Residential** ☐	**Service** ☒			

Driveway Dimensions



TYPICAL DRIVEWAY TOP VIEW
(WITHOUT PIPE CULVERT)



TYPICAL DRIVEWAY CROSS SECTION
(WITHOUT PIPE CULVERT)

Driveway Utilizing Valley Gutter and Gate Set Back of Right of Way Line

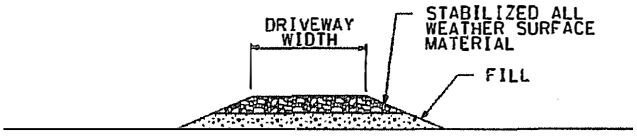
Sketch of Installation

Requestor:	Maverick County Landfill	**Hwy No.:**	F.M. 1021	**Permit No.:**	
County:	Maverick	**Control:**		**Section:**	
Driveway Type: (Rural Locations)	**Farm/Ranch** ☐	**Field** ☐	**Residential** ☐	**Service** ☒	

Driveway Dimensions

1. Driveway Width = 30 ft.
2. Distance from edge of pavement to right of way = 35 ft.
3. Radius = 75 ft.
4. Radius = 75 ft.
5. Distance to Ditch = N/A ft.
6. Set Back Width @ Gate= 30 ft.
7. Width starting at right of way = 53 ft.
8. Throat Length = 71 ft.

Pavement Structure



TYPICAL DRIVEWAY CROSS SECTION (WITHOUT PIPE CULVERT)

Pavement Structure			
	material selection	thickness, in.	comment
concrete	Portland Cement Concrete	6" min.	
asphalt	N/A		
flexbase	N/A		
fill material	Sand Bedding	2" min.	

Driveway Utilizing Valley Gutter and Gate Set Back of Right of Way Line

SITE LAYOUT

EXISTING CELL 1

EXISTING CELL 2

EXISTING CELL 3

FUTURE CELL 4

FUTURE CELL 5

FUTURE CELL 6

FUTURE CELL 7

FUTURE CELL 8

FUTURE CELL 9

FUTURE CELL 10

FUTURE CELL 11

FUTURE CELL 12

FUTURE CELL 13

FUTURE CELL 14

EXISTING FACILITY ENTRANCE

EXISTING OFFICE BUILDING

PROPOSED OFFICE BUILDING

PROPOSED SCALES/ SCALEHOUSE

PROPOSED FACILITY ENTRANCE

SEE FIGURE 2

PROPOSED CITIZEN'S CONVENIENCE STATION

N

0 150 300

SCALE IN FEET

LEGEND

- PERMIT BOUNDARY
- PERMIT BOUNDARY
- LIMITS OF WASTE
- CELL/UNIT LIMITS
- FENCE

STATE OF TEXAS
SANDEEP D. SARAF
136850
LICENSED PROFESSIONAL ENGINEER
2-12-25

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
1			
2			
3			
4			
5			
6			
7			

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

DRAWING: OVERALL FACILITY LAYOUT

PROJECT: MAVERICK COUNTY LANDFILL DRIVEWAY PERMIT APPLICATION

CLIENT: MAVERICK COUNTY SOLID WASTE AUTHORITY
16179 FM 1021
EL INDIO, TEXAS

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.	DSN. BY:	CHK. BY:	CA/K &W BY:	APP. BY:
16221076.00	SS	JC	SDS	SDS

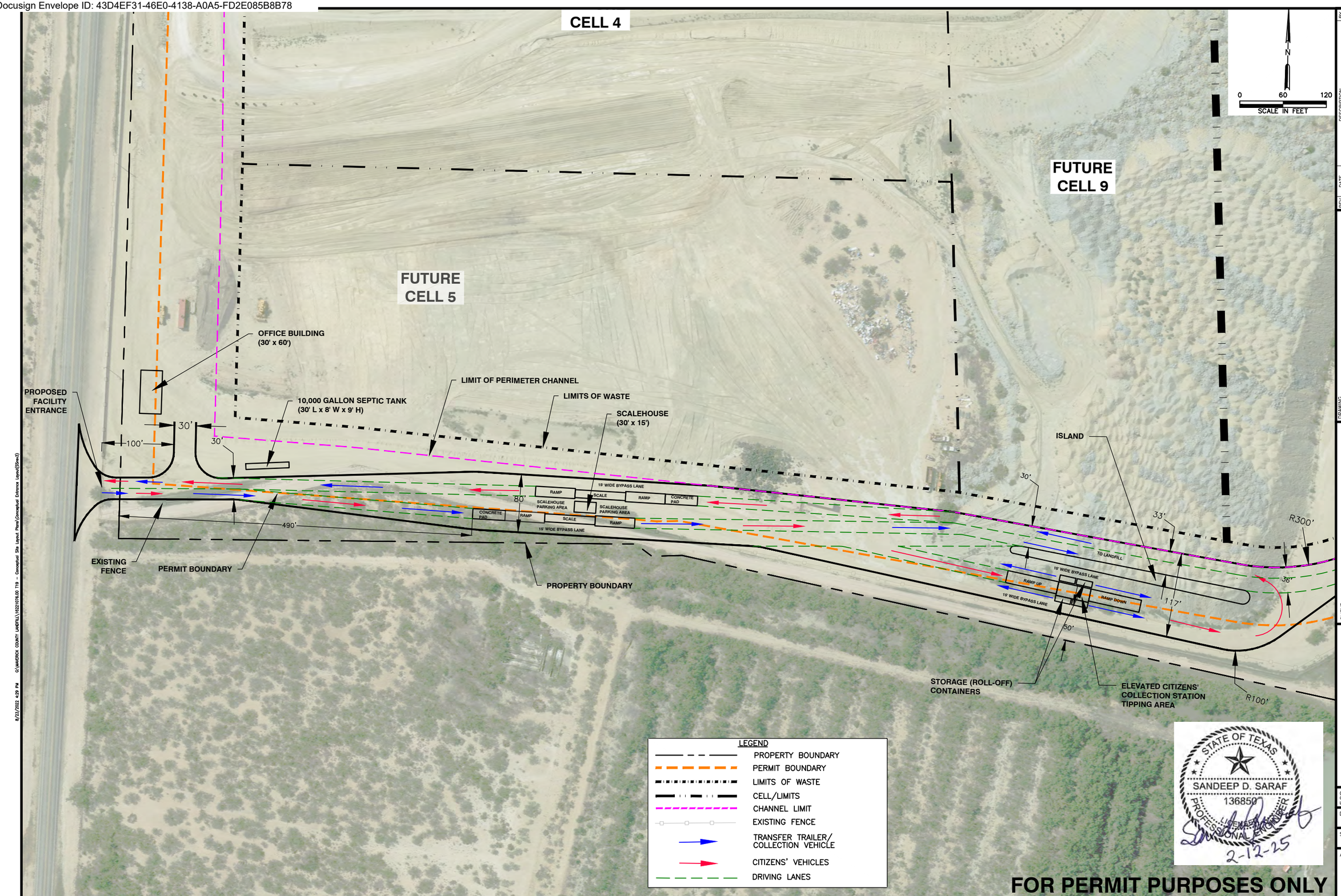
CADD FILE: CONCEPTUAL ENTRANCE LAYOUT(SSREV3)

DATE: 8/2022

SCALE: AS SHOWN

ATTACHMENT NO. 1

8/23/2022 4:27 PM G:\MAVERICK COUNTY LANDFILL\16221076.00 T19 - Conceptual Site Layout Plans\Conceptual Entrance Layout(SSrev3)



FOR PERMIT PURPOSES ONLY

STATE OF TEXAS
SANDEEP D. SARAF
136850
LICENSED PROFESSIONAL ENGINEER
2-12-25

REV | DATE | DESCRIPTION | BY

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

DRAWING: PROPOSED ENTRANCE ROAD LAYOUT

PROJECT: MAVERICK COUNTY LANDFILL DRIVEWAY PERMIT APPLICATION

CLIENT: MAVERICK COUNTY SOLID WASTE AUTHORITY 16179 FM 1021 EL INDIO, TEXAS

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.	16221076.00
DSN. BY:	SS
DWN. BY:	LC
CHK. BY:	SDS
Q/A RVW BY:	SDS
APP. BY:	SDS

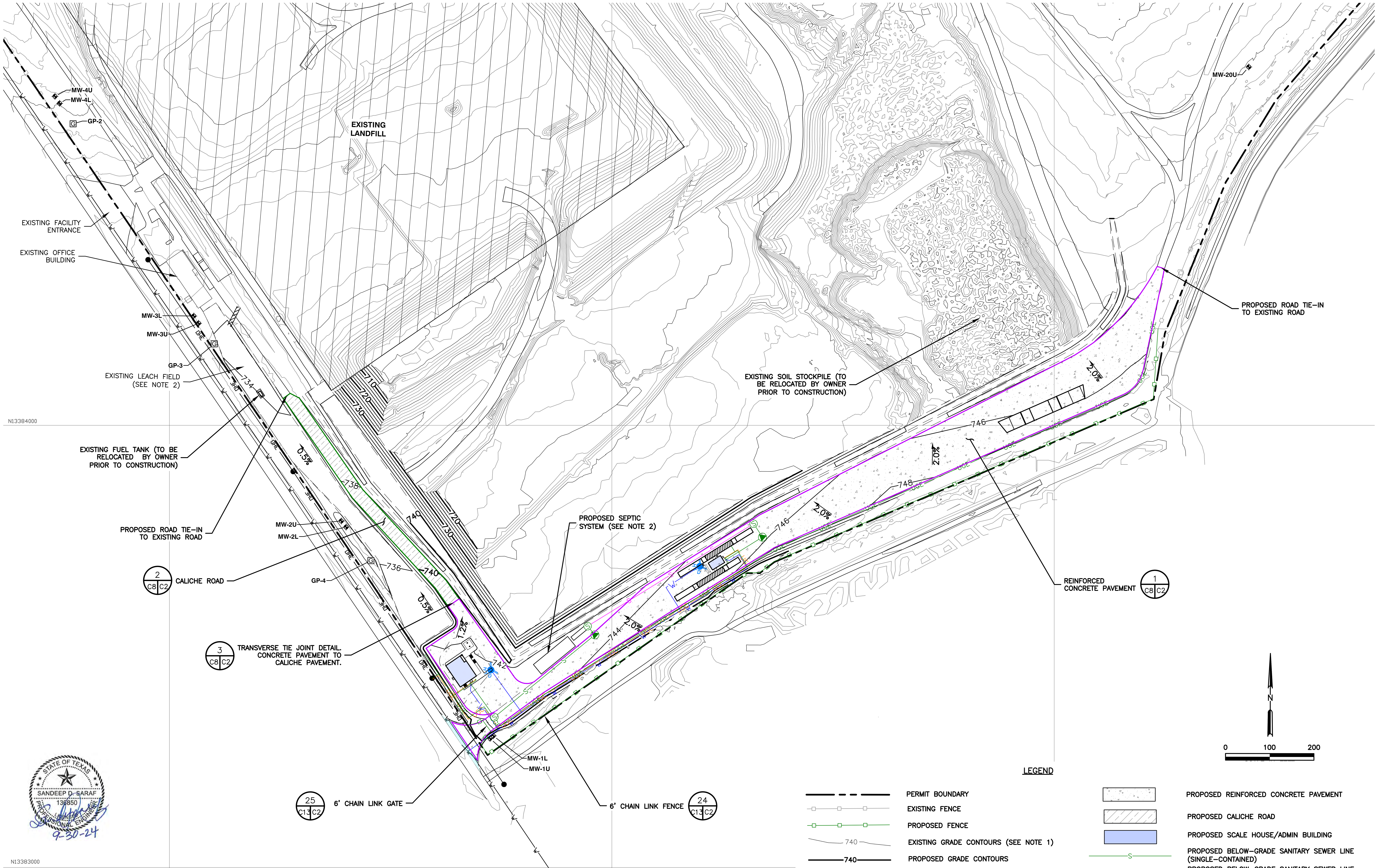
CADD FILE: CONCEPTUAL ENTRANCE LAYOUT(SSREV3)

DATE: 8/2022

SCALE: AS SHOWN

ATTACHMENT NO. 2

8/31/2023 4:29 PM G:\MAVERICK COUNTY LANDFILL\16221076.00 119 - Conceptual Site Layout Plans\Conceptual Entrance Layout(SSrev3)



NOTES:

1. EXISTING CONTOURS ARE REPRESENTATIVE OF AN AERIAL SURVEY FLOWN ON 08/16/2023 BY DAS GEOSPATIAL.
2. SEPTIC SYSTEM (TANK AND ABSORPTION FIELD) SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER/SEPTIC SYSTEM DESIGNER IN THE STATE OF TEXAS AND INSTALLED BY A LICENSED SEPTIC SYSTEM INSTALLER IN THE STATE OF TEXAS. CONTRACTOR IS RESPONSIBLE FOR CONTRACTING THE DESIGN AND BUILD OF THE SEPTIC SYSTEM. NO SEPTIC DESIGN HAS BEEN PROVIDED. CONTRACTOR SHALL COORDINATE WITH MEP IN REGARDS TO DESIGN FLOWS FOR THE SEPTIC SYSTEM.

DETAIL NO. / DETAIL SHEET NO. / DETAIL SHEET REFERENCE (X / X X)

STATE OF TEXAS — SANDEEP D. SARAF — 135850 — PROFESSIONAL ENGINEER — 9-30-24

LEGEND

Symbol	Description
	PERMIT BOUNDARY
	EXISTING FENCE
	PROPOSED FENCE
740	EXISTING GRADE CONTOURS (SEE NOTE 1)
740	PROPOSED GRADE CONTOURS
	TOE-TOP OF SLOPE
OHE	EXISTING POWER LINE
W	EXISTING WATER LINE
	PROPOSED EDGE OF CONCRETE PAVEMENT
	PROPOSED EDGE OF CALICHE ROAD
GP-4	EXISTING GAS PROBE
MW-4L	EXISTING MONITORING WELL
	PROPOSED REINFORCED CONCRETE PAVEMENT
	PROPOSED CALICHE ROAD
	PROPOSED SCALE HOUSE/ADMIN BUILDING
S	PROPOSED BELOW-GRADE SANITARY SEWER LINE (SINGLE-CONTAINED)
S	PROPOSED BELOW-GRADE SANITARY SEWER LINE (DUAL-CONTAINED)
W	PROPOSED BELOW-GRADE WATER LINE
UGE	PROPOSED BELOW-GRADE ELECTRIC LINE
UGC	PROPOSED BELOW-GRADE COMMUNICATION LINE
	PROPOSED SANITARY SEWER CLEANOUT
S	PROPOSED SANITARY SEWER MANHOLE
	PROPOSED FIRE HYDRANT

ISSUED FOR BIDDING

REV	DATE	DESCRIPTION	BY

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

DRAWING TITLE: **PAVING PLAN**

PROJECT TITLE: MAVERICK COUNTY LANDFILL ENTRANCE ROAD, BUILDINGS, AND CCS CONSTRUCTION PLANS

CLIENT: MAVERICK COUNTY SOLID WASTE AUTHORITY 16179 FM 1021 EL INDIO, TEXAS 78860

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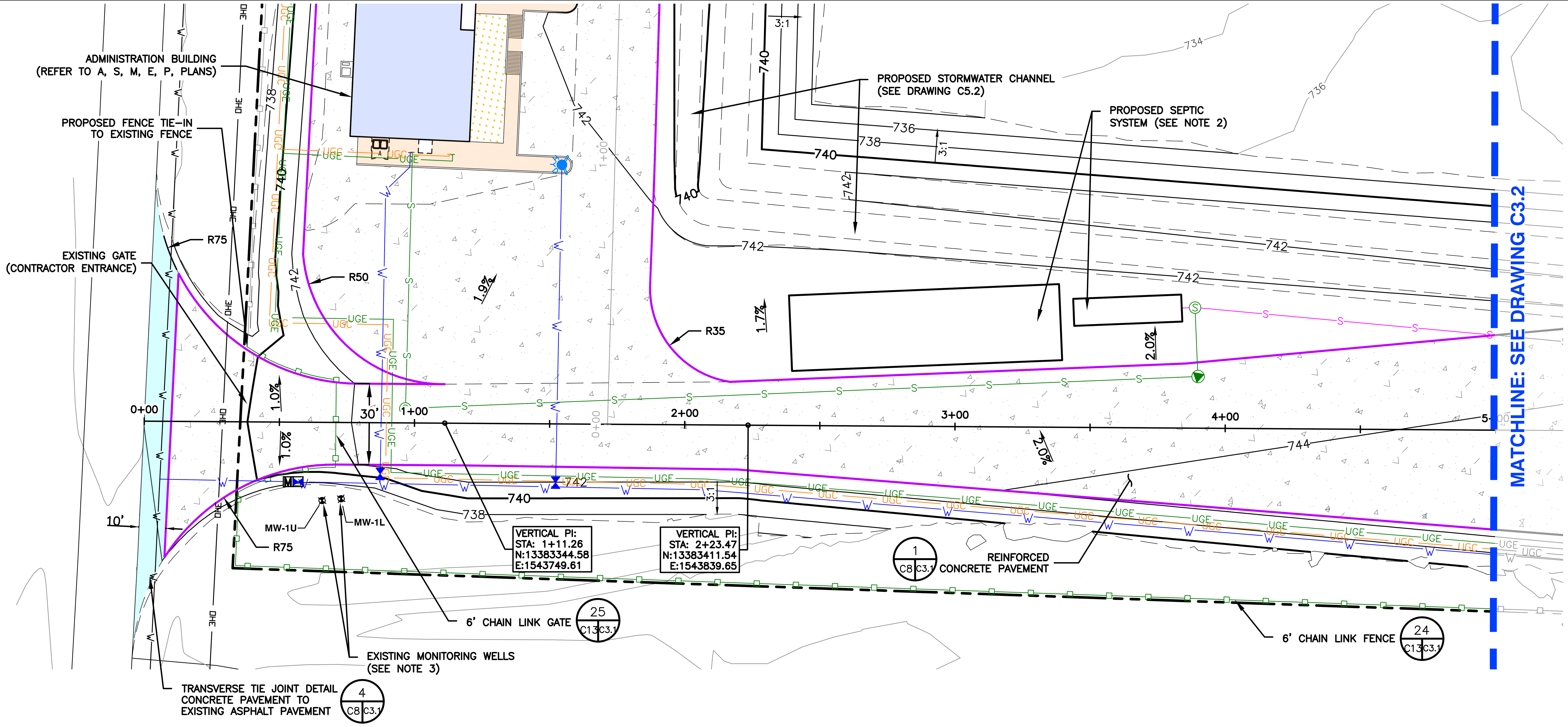
PROJ. NO. 16223092.00 | DSN. BY: SS | DWN. BY: XW | CHK. BY: SS | Q/A RVW BY: RRK | APP. BY: RRK

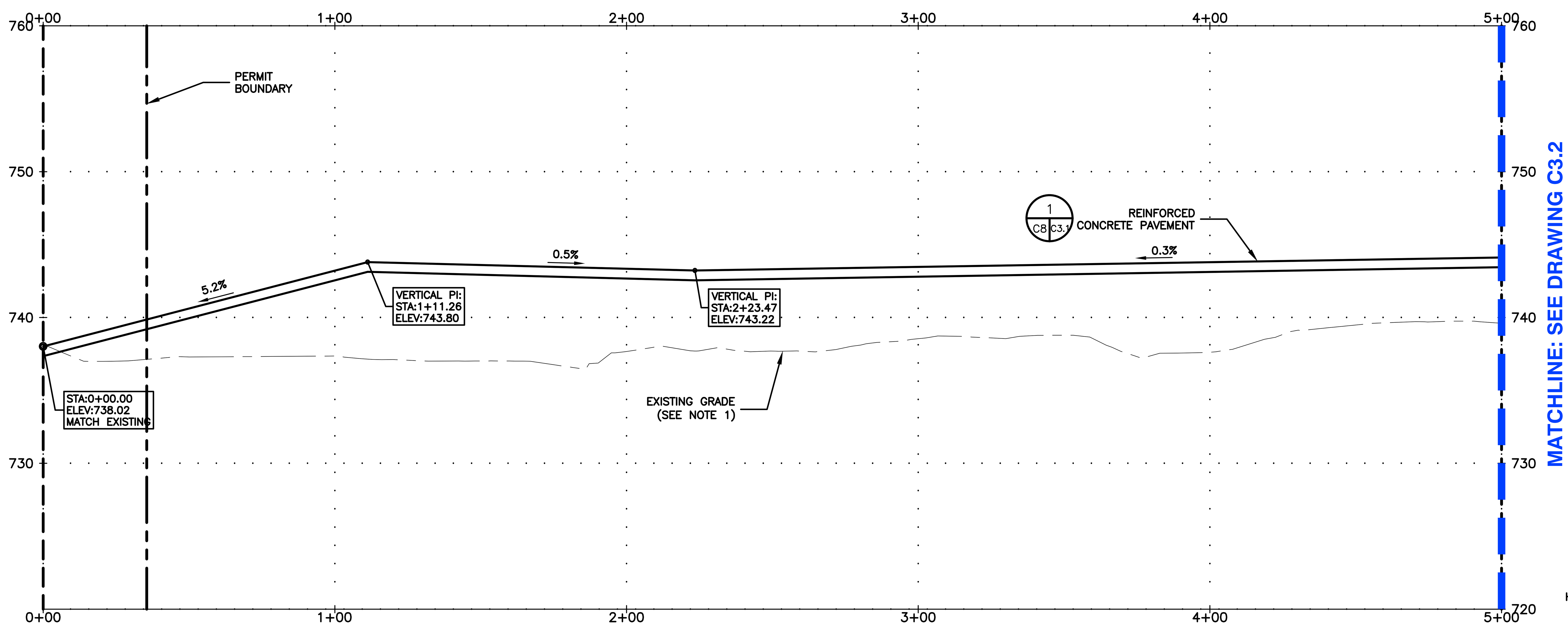
CADD FILE: C1 - SITE LAYOUT PLAN AND PROFILES

DATE: 10/2024

SCALE: AS SHOWN

DRAWING NO. **C2**





ENTRANCE ROAD PLAN AND PROFILE STA 0+00 TO 5+00

0 25 50
HORIZONTAL SCALE IN FEET

0 5 10
VERTICAL SCALE IN FEET

LEGEND

- PERMIT BOUNDARY
- PROPOSED FENCE
- EXISTING GRADE CONTOURS (SEE NOTE 1)
- EXISTING MONITORING WELL (MW-4L)
- PROPOSED GRADE CONTOURS
- TOE-TOP OF SLOPE
- EXISTING POWER LINE (OHE)
- EXISTING WATER LINE (W)
- PROPOSED EDGE OF CONCRETE PAVEMENT
- PROPOSED REINFORCED CONCRETE PAVEMENT
- PROPOSED TRANSVERSE TIE JOINT
- PROPOSED SCALE HOUSE/ADMIN BUILDING
- PROPOSED SIDEWALK
- PROPOSED GRASSED AREA
- PROPOSED BELOW-GRADE SANITARY SEWER LINE (SINGLE-CONTAINED) (S)
- PROPOSED BELOW-GRADE SANITARY SEWER LINE (DUAL-CONTAINED) (S)
- PROPOSED BELOW-GRADE WATER LINE (W)
- PROPOSED BELOW-GRADE ELECTRIC LINE (UGE)
- PROPOSED BELOW-GRADE COMMUNICATION LINE (UGC)
- PROPOSED SANITARY SEWER CLEANOUT
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED FIRE HYDRANT
- PROPOSED WATER LINE VALVE WITH BOX
- PROPOSED WATER LINE METER AND VALVE WITH BOX

NOTES:

1. EXISTING CONTOURS ARE REPRESENTATIVE OF AN AERIAL SURVEY FLOWN ON 08/16/2023 BY DAS GEOSPATIAL.
2. SEPTIC SYSTEM (TANK AND ABSORPTION FIELD) SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER/SEPTIC SYSTEM DESIGNER IN THE STATE OF TEXAS AND INSTALLED BY A LICENSED SEPTIC SYSTEM INSTALLER IN THE STATE OF TEXAS. CONTRACTOR IS RESPONSIBLE FOR CONTRACTING THE DESIGN AND BUILD OF THE SEPTIC SYSTEM. NO SEPTIC DESIGN HAS BEEN PROVIDED. CONTRACTOR SHALL COORDINATE WITH MEP IN REGARDS TO DESIGN FLOWS FOR THE SEPTIC SYSTEM.
3. CONTRACTOR SHALL PROVIDE PROTECTION FOR ALL WELLS, PIEZOMETERS, GAS PROBES, LEACH FIELD, AND OTHER UTILITIES AND STRUCTURES, AND SHALL REPAIR OR REPLACE ANY OF THESE WHICH ARE DAMAGED DURING THE EXECUTION OF THE WORK AT THE EXPENSE OF THE CONTRACTOR.

DETAIL NO.
DETAIL SHEET NO.
DETAIL SHEET REFERENCE

STATE OF TEXAS
SANDEEP D. SARAF
136850
PROFESSIONAL ENGINEER
9-30-24

ISSUED FOR BIDDING

REV	DATE	DESCRIPTION	BY

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

DRAWING TITLE: ENTRANCE ROAD PLAN AND PROFILE - 1

PROJECT TITLE: MAVERICK COUNTY LANDFILL ENTRANCE ROAD, BUILDINGS, AND CCS CONSTRUCTION PLANS

CLIENT: MAVERICK COUNTY SOLID WASTE AUTHORITY 16179 FM 1021 EL INDIO, TEXAS 78860

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PROJ. NO. 16223092.00 | DSN. BY: XW | Q/A RVW BY: RRK
CHK. BY: SS | DWN. BY: SS | APP. BY: RRK

CADD FILE: C3 - ROAD PROFILE

DATE: 10/2024

SCALE: AS SHOWN

DRAWING NO. C3.1

10/14/2024 5:58 PM G:\MAVERICK COUNTY LANDFILL\16223092.00 T15 - C-Plans for entrance road\C3 - Road Profile

0 25 50
SCALE IN FEET

LEGEND

- MAVERICK COUNTY PROPERTY BOUNDARY
- PROPOSED EDGE OF CONCRETE PAVEMENT
- TRACTOR TRAILER FRONT AXLE TRACKING
- TRACTOR TRAILER REAR AXLE TRACKING

STATE OF TEXAS
SANDEEP D. SARAF
136550
LICENSED
PROFESSIONAL ENGINEER
5-7-25

FOR PERMITTING PURPOSES ONLY

REV	DATE	DESCRIPTION	BY

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

DRAWING TITLE: ENTRANCE ROAD PLAN

PROJECT TITLE: MAVERICK COUNTY LANDFILL ENTRANCE ROAD

CLIENT: MAVERICK COUNTY SOLID WASTE AUTHORITY
16179 FM 1021
EL INDIO, TEXAS 78860

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
1500 CENTRAL PARK DRIVE, SUITE 150, BEDFORD, TX 76021
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PROJ. NO. 02224108.00
DSN. BY: SS
DWN. BY: XW
CHK. BY: SS
QA REW BY: RRK
APP. BY: RRK

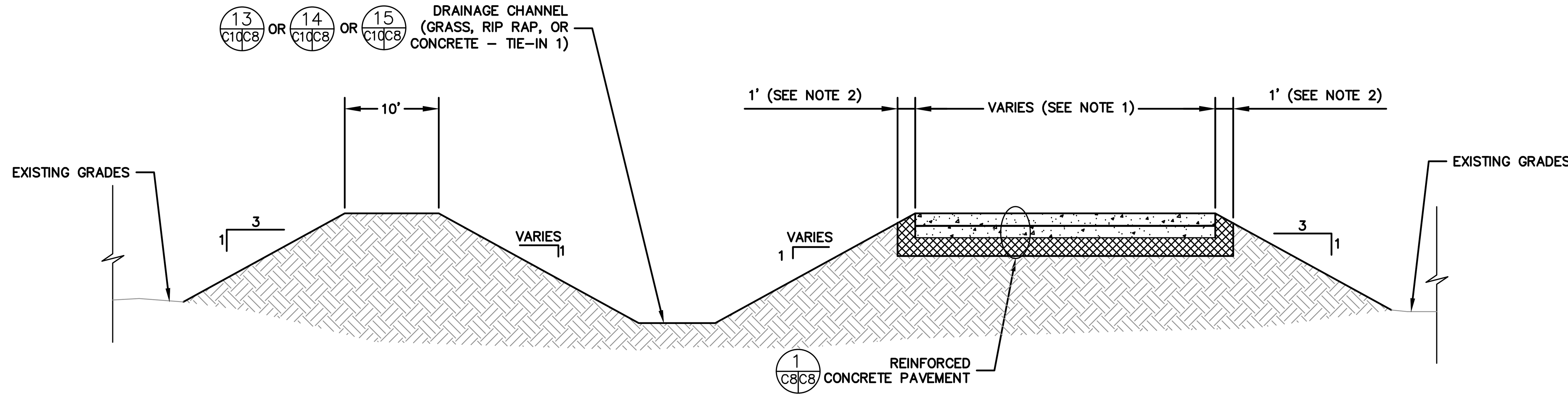
CADD FILE: C3 – ROAD PROFILE

DATE: 05/2025

SCALE: AS SHOWN

DRAWING NO. 1

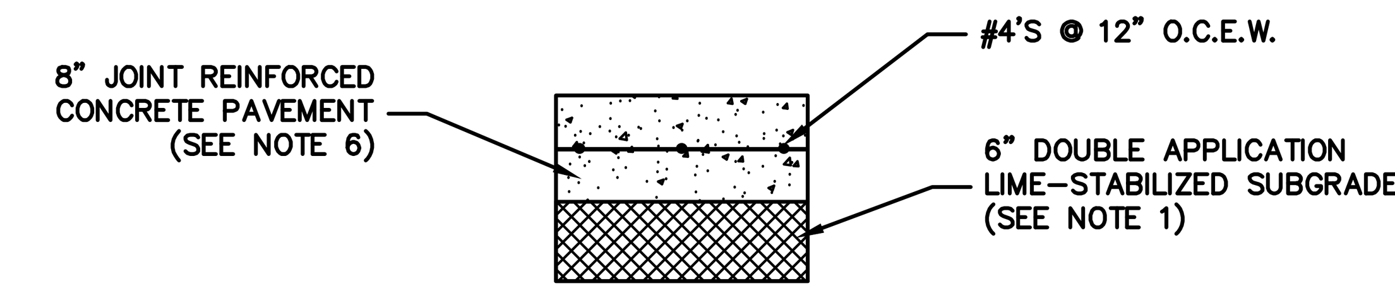
5/7/2025 1:39 PM O:\MAVERICK COUNTY LANDFILL\162\224108.00 TIB – TxDOT application\Exhibit for TxDOT\C3 – Road Profile



NOTES:

1. SEE DRAWINGS C3.1–C3.4 FOR ROAD LAYOUT.
2. LIME STABILIZED SUBGRADE SHALL EXTEND FROM 1-FT BEYOND THE PROPOSED BACK OF CURB OR EDGE OF PAVEMENT.

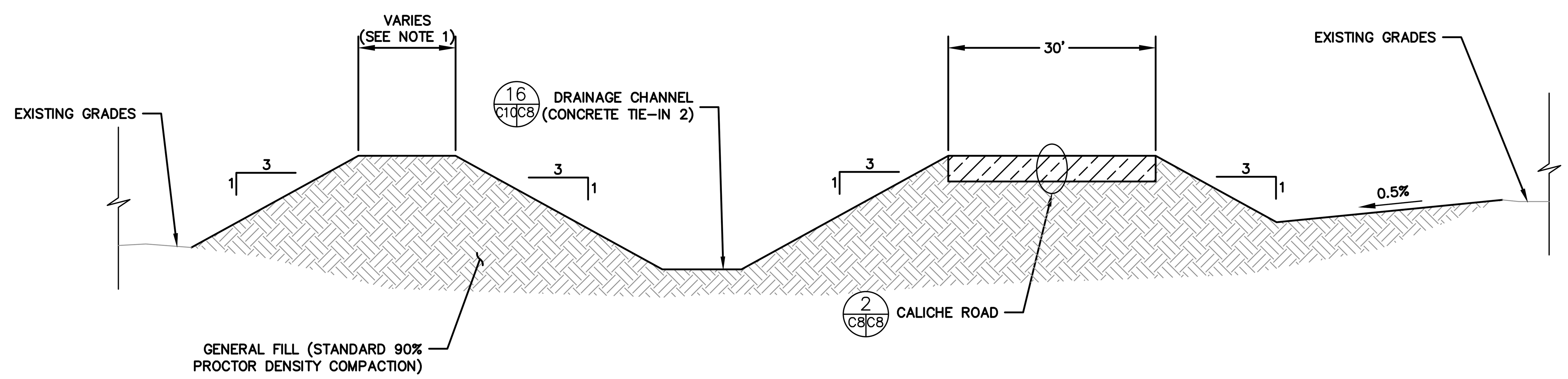
TYPICAL ROAD SECTION A–A' (C8 – C3.2)
NTS



NOTES:

1. DOUBLE APPLICATION LIME-STABILIZED SUBGRADE (4%/4% LIME BY DRY WEIGHT) SHALL CONFORM TO TXDOT ITEM 260 AND COMPACTED TO 95% OF MAXIMUM DRY DENSITY USING ASTM D-698 AND AT MOISTURE CONTENT RANGE OF 0% TO +4% OF OMC.
2. TRANSVERSE JOINT SPACING SHALL NOT EXCEED 15 FEET AND SHALL HAVE A DEPTH OF 1/3 THE PAVEMENT THICKNESS. REFER TO TXDOT CONCRETE PAVING DETAILS – JOINT SEALS (INDEX JS-14) FOR JOINT SEALING METHOD. REFER TO TXDOT CONTINUOUSLY REINFORCED CONCRETE PAVEMENT – ONE LAYER STEEL BAR PLACEMENT (INDEX CRCP (1) – 20) FOR TYPICAL PAVEMENT LAYOUT AND LONGITUDINAL CONSTRUCTION JOINT DETAIL.
3. CONTRACTOR TO PROVIDE MATERIAL SUBMITTALS IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS.
4. ALL REBAR TO BE SUPPORTED ON APPROVED PLASTIC CHAIRS.
5. APPROVED CURING COMPOUND SHALL BE APPLIED TO THE FINISHED SLAB AS SOON AS POSSIBLE AFTER PLACEMENT OF CONCRETE.
6. JOINTS ARE TO BE SAWED AS SOON AS THE SETTING OF THE CONCRETE WILL PERMIT WITHOUT SPALLING OR MARKING THE SLAB.
7. CONCRETE SHALL BE MINIMUM COMPRESSION OF 3,200 PSI @ 7 DAYS AND 4,000 PSI @ 28 DAYS.
8. ALL CONCRETE SHALL BE MACHINE PLACED UNLESS APPROVED BY ENGINEER.

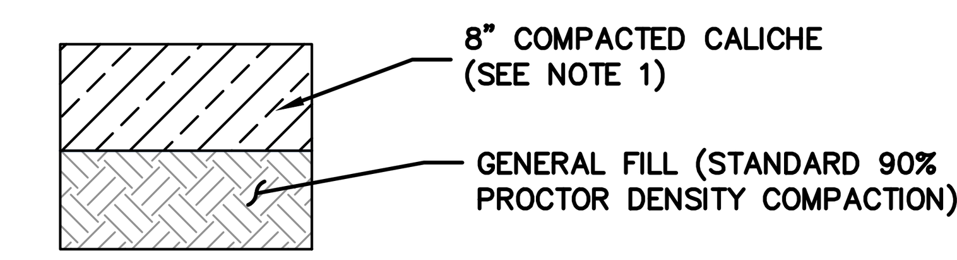
REINFORCED CONCRETE PAVEMENT (1 / C8 – C2,C3.1,C3.2,C3.3,C3.4,C3.5,C8,C9.1,C10,C11,C12)
NTS



NOTES:

1. WIDTH OF THE LANDFILL BERM VARIES FROM 10-FT TO 45-FT. SEE DRAWING C3.5–3.6 FOR THE LAYOUT.

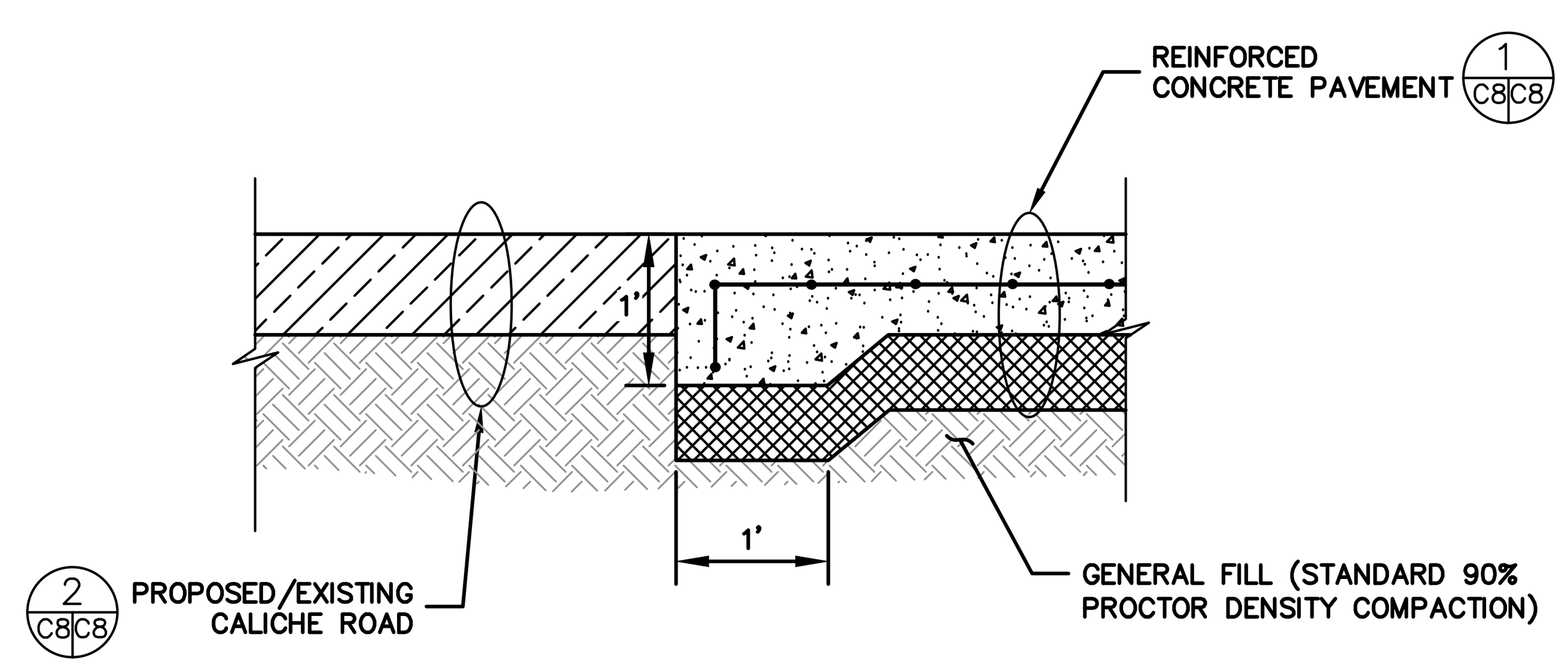
TYPICAL ROAD SECTION B–B' (C8 – C3.6)
NTS



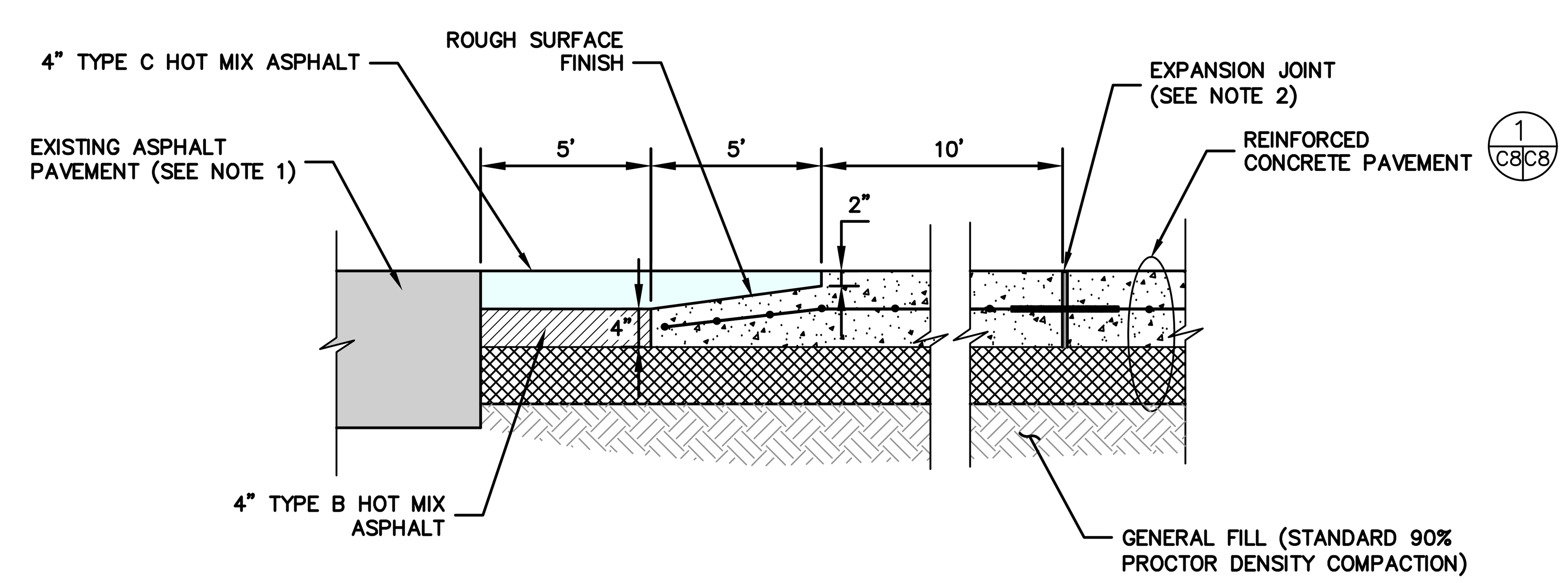
NOTES:

1. CALICHE BASE SHALL CONFORM TO CITY OF EAGLE PASS PUBLIC WORKS DEPARTMENT, CONSTRUCTION SPECIFICATIONS MANUAL ITEM D-1.02, TYPE F, GRADE 2 COMPACTED TO AT LEAST 95% OF MAXIMUM DRY DENSITY.

CALICHE ROAD (2 / C8 – C2,C3.5,C3.6,C8,C10)
NTS



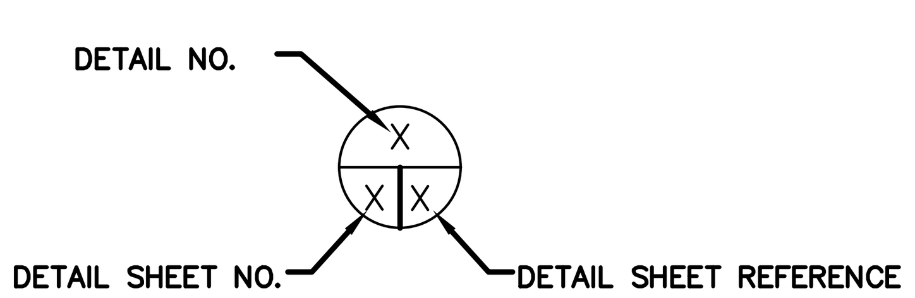
TRANSVERSE TIE JOINT DETAIL
CONCRETE PAVEMENT TO CALICHE ROAD (3 / C8 – C2,C3.4,C3.5)
NTS



NOTES:

1. EXISTING ASPHALT PAVEMENT IS FOR GENERAL REPRESENTATION ONLY, AND AS SUCH IS NOT INTENDED TO REPRESENT TRUE THICKNESS AND COMPOSITION.
2. REFER TO TXDOT CONCRETE PAVING DETAILS – JOINT SEALS (INDEX JS-14) FOR JOINT SEALING METHOD. REFER TO TXDOT CONTINUOUSLY REINFORCED CONCRETE PAVEMENT – ONE LAYER STEEL BAR PLACEMENT (INDEX CRCP (1) – 20) FOR TYPICAL PAVEMENT LAYOUT AND LONGITUDINAL CONSTRUCTION JOINT DETAIL.

TRANSVERSE TIE JOINT DETAIL
CONCRETE PAVEMENT TO EXISTING ASPHALT PAVEMENT (4 / C8 – C3.1)
NTS



10/14/2024 6:13 PM G:\MAVERICK COUNTY LANDFILL\16223092.00 T15 – C-Plans for entrance road\C8 – ROAD DETAILS

STATE OF TEXAS – SANDEEP D. SARAF – 138850 – PROFESSIONAL ENGINEER
9-30-24

ISSUED FOR BIDDING

REV	DATE	DESCRIPTION	BY

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

DRAWING TITLE: **ROAD DETAILS**

PROJECT TITLE: MAVERICK COUNTY LANDFILL ENTRANCE ROAD, BUILDINGS, AND CCS CONSTRUCTION PLANS

CLIENT: MAVERICK COUNTY SOLID WASTE AUTHORITY 16179 FM 1021 EL INDIO, TEXAS 78860

SCS ENGINEERS
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PROJ. NO. 16223092.00 | DWN. BY: XW | Q/A RVW BY: RRK
DSN. BY: SS | CHK. BY: SS | APP. BY: RRK

CADD FILE: C8 – ROAD DETAILS

DATE: 10/2024

SCALE: AS SHOWN

DRAWING NO. **C8**

PART III
SITE DEVELOPMENT PLAN NARRATIVE

FOR

MAVERICK COUNTY EL INDIO MSW LANDFILL
TCEQ PERMIT NO. MSW 2316

Prepared for:

Maverick County Solid Waste Authority
16179 FM 1021
El-Indio, Texas 78860

And

Maverick County
500 Quarry Street, Suite 3
Eagle Pass, Texas 78852
830/773-3824

PERMIT ISSUED: SEPTEMBER 11, 2007

REVISIONS 1, 2, 3, 4, 5 & 6 PREPARED BY:

SCS ENGINEERS
Texas Board of Professional Engineers Reg. No. F-3407
1901 Central Drive, Suite 550
Bedford, Texas 76021
817/571-2288

Revision 1 – July 2010, October 2010, January 2011
Revision 2 – July 2014
Revision 3 – January 2024
Revision 4 – October 2024; Revision 5 – February 2025; Revision 6 – June 2025
SCS Project Nos. 16209033.00, 16214011.00, 16220088.00 & 16223092.00

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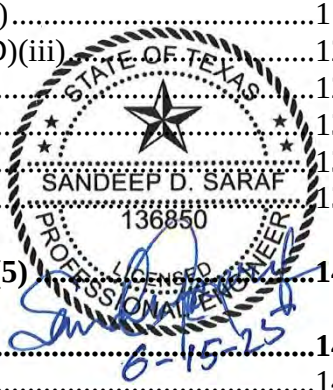

SCS Engineers
TBPE Reg. # F-3407

ATTACHMENTS TO PART III

Attachment	*Description*
1	Site Layout Plan
2	Fill Cross-Sections
3	Existing Contour Map
4	Geology Report
5	Groundwater Characterization Report
6	Ground and Surface Water Protection Plan and Drainage Plan
7	Final Contour Map
8	Cost Estimate for Closure and Post-Closure
9	Applicant's Statement
10	Soil and Liner Quality Control Plan (SLQCP)
11	Groundwater Sampling and Analysis Plan (GWSAP)
12	Final Closure Plan
13	Post-Closure Care Plan
14	Landfill Gas Management Plan
15	Leachate and Contaminated Water Plan

2.1 LANDFILL METHOD §330.63(d)(4)(B)

The permitted waste area of the landfill is 108 acres and the final cover side slopes are 3H:1V. The basic design of the Maverick County Landfill will consist of area fill both above and below ground. The site will be continuously developed using 14 disposal cells. The below-ground waste disposal will extend approximately 45 feet below ground to a finished base grade (top of liner) elevation of approximately 691 feet m.s.l. The bottom liner system of each cell will slope to drain at a minimum 2 percent toward a perforated LCS pipe located in the center of each cell. The LCS pipe will be sloped at a minimum slope of 1% towards the leachate collection sump. The landfill base grades are designed with a 1% base liner slope.

The above-ground waste disposal generally includes a 3 horizontal to 1 vertical fill slope from the landfill perimeter to a top elevation of approximately 833 feet m.s.l. with a 5% cap slope.

An eight-foot high chain-link security fence with a locking gate at the entrance to the facility has been installed on the FM 1021 perimeter of the site.

Development of the landfill will be an ongoing process throughout the projected 73 year site life. The landfill will be developed in one phase as shown on Attachment 1 of Part III. The 14 individual cells outlined represent discrete construction limits for extending the landfill floor excavation and lining system.

Throughout the development of the site where excavation is anticipated, the general excavation sequence will be as follows.

1. Construct temporary erosion controls including diversion berms, ditches and filter fences.

2. Strip and stockpile topsoil in designated areas. Construct appropriate erosion controls to maintain natural drainage patterns to the extent possible.

3. Excavate to the elevations shown in Part III, and stockpile soil in designated areas to construct screening berms and push wall berms when appropriate. Maintain stockpiles in compliance with the Erosion Control Plan.

4. Construct a compacted clay liner in accordance with the Soil Liner Quality Control Plan (SLQCP) provided in Part III, Attachment 10. In general, the constructed lined area will not exceed that area which will be covered by one lift of waste within 6 months.

Construction Sequence for Phase 1, Cell 1

1. Construct an all-weather road along the western and southern edges of the excavation. Construct the all-weather road of a surface such as asphalt, crushed

As a routine procedure, a stockpile of cover material sufficient to cover the working face or active area will be maintained near the working area. This will provide periodic cover on a contingency basis for such conditions as inclement weather, unanticipated down-time of cover hauling equipment, and fire/hot load control at the working face.

During dry weather, the operator will perform dust control by sprinkling water on the roads and ramps, as necessary.

2.3 ACCESS CONTROL §330.63(b)(1)

Site access control consists of an 8-foot chain link fence with 2-strand barbed wire top rail, in concrete footings along the FM 1021 side of the landfill and a 5-foot 5-strand barbed-wire fence on steel poles with concrete footings around the remaining perimeter of the site. A gate with control features will be located at the facility entrances, including the primary entrance (i.e., the existing main entrance) and secondary entrance/exit gates. The primary entrance to the facility is to the south to optimize the site operations. This entrance provides room for one inbound and one outbound scale, with a queuing distance of 510' between the gate and inbound scale. This will provide the ability to safely maneuver traffic through the scale house area, eliminate traffic from backing up onto FM 1021, and reduce overall disposal time for customers. Also, it provides additional room for future drainage features that are proposed at the landfill.

Site personnel will inspect regularly the fencing, report any failure, and see that any damage is quickly repaired. All security features, including the entry gates, and the locks will be kept in proper working order, maintained, and quickly replaced if inoperable and/or irreparable. Maintenance will be performed on site security mechanisms (i.e. fences, locking gates) as necessary to maintain access control, as described in Part IV – Site Operating Plan, Section 4.1. The fences, gates, and other means of access control will be maintained and operated to prevent the entry of livestock, to protect the public from exposure to potential health and safety hazards, and to discourage unauthorized entry or uncontrolled disposal of solid waste or hazardous materials.

Scale house personnel at the primary entrance will control site access whenever the entry gates are open. When the site is closed, the entry gates will be closed to prevent unauthorized and uncontrolled waste disposal and locked when no personnel are present on site. Lighting will be provided at the scale house and primary entrance gate. The perimeter fencing will prevent vehicular and pedestrian access to the site at points other than the entry gates. Under normal operations, the primary entrance constructed for the facility will be the only public entrance for the landfill. Generally, the secondary entrance will be for landfill personnel or Maverick County designated personnel. However, in the event that primary entrance is inaccessible due to weather or traffic, approved waste haulers and/or the general public may be directed to through the secondary entrance. The locations of the primary and secondary entrances are shown on Part III, Attachment 1B. The primary entrance layout is shown in Part III, Attachment 1B10.

The gate attendant will direct drivers to the proper disposal area. There, the drivers will be directed to a specific unloading area. Operations over the life of the facility may include alteration to the location and quantity of entrance and administrative facilities (i.e. building, trailers, citizen service areas, fuel tanks, scales, equipment maintenance facilities, etc.) and other facility appurtenances even though they will remain in the same general location. In all cases, any alteration in the location of these facilities will be designed to increase the level of service provided by the facility without interfering with site operations.

2.4 SITE LIFE §330.63(d)(4)(D)

The disposal rate for the Maverick County Landfill is expected to range from approximately 350 tons/day to 400 tons/day. The region currently has a collection rate of 6 lbs/person/day.

MAVERICK COUNTY – EL INDIO MSW LANDFILL
MAVERICK COUNTY, TEXAS
PERMIT APPLICATION
SITE DEVELOPMENT PLAN PART III
ATTACHMENT 1

SITE LAYOUT PLAN

Prepared for:

Maverick County Solid Waste Authority
16179 FM 1021
El-Indio, Texas 78860

And
Maverick County
500 Quarry Street, Suite 3
Eagle Pass, Texas 78852
830/773-3824

PERMIT ISSUED: SEPTEMBER 11, 2007

REVISIONS 2, 3, 4, 5 and 6, PREPARED BY:

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1901 Central Drive, Suite 550
Bedford, Texas 76021
817/571-2288

Revision 1 – January 2004, May 2004
Revision 2 – June 2009, June 2010,
Revision 3 – July 2014, October 2014
Revision 4 – October 2024
Revision 5 – February 2025; Revision 6 – June 2025
SCS Project Nos. 16208046, 16209033.00, 16223092.00

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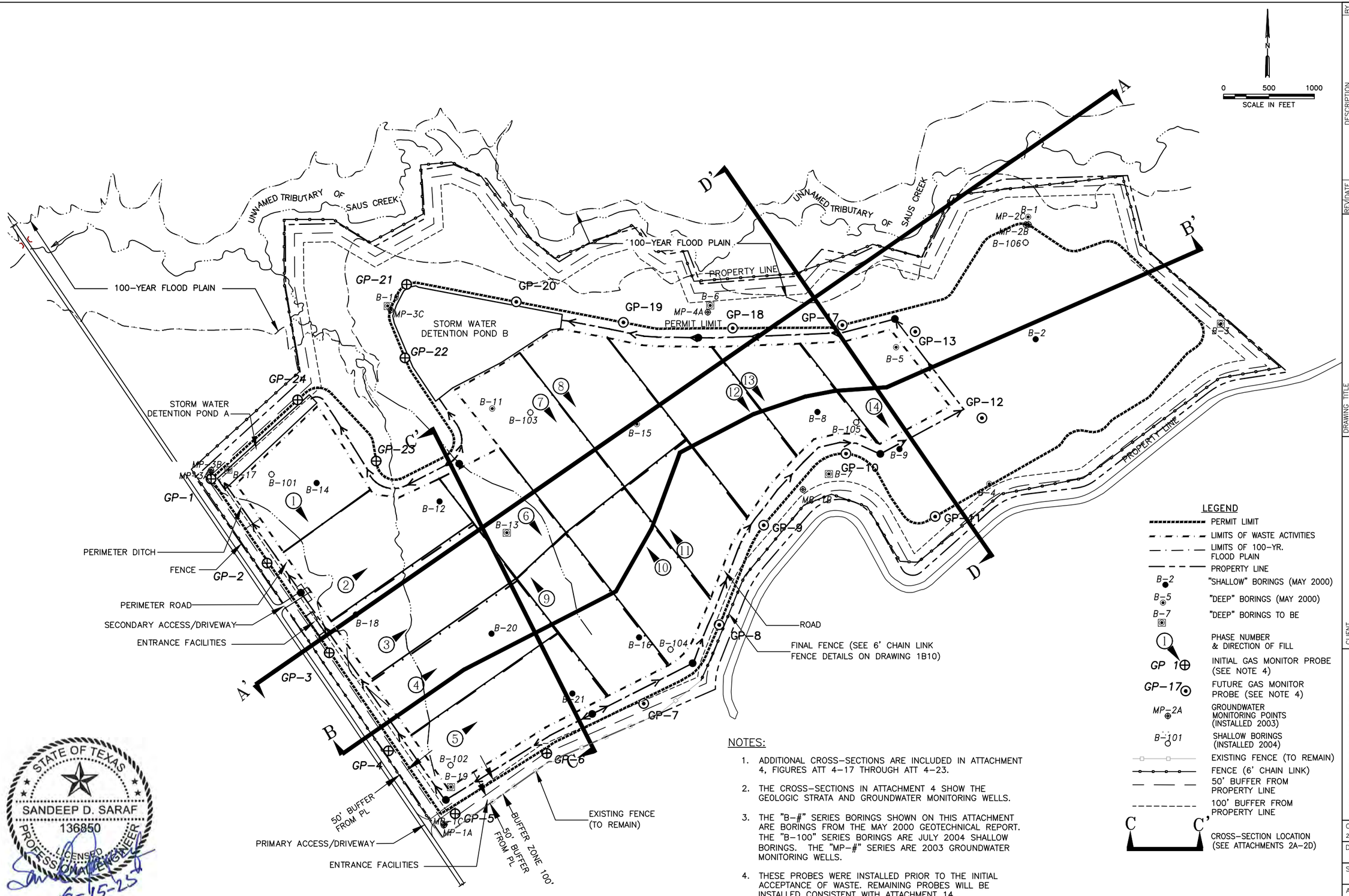
SCS Engineers
TBPE Reg. # F-3407



LEGEND

- PERMIT LIMIT
- LIMITS OF WASTE ACTIVITIES
- LIMITS OF 100-YR. FLOOD PLAIN
- PROPERTY LINE
- B-2 "SHALLOW" BORINGS (MAY 2000)
- B-5 "DEEP" BORINGS (MAY 2000)
- B-7 "DEEP" BORINGS TO BE
- (1) PHASE NUMBER & DIRECTION OF FILL
- GP 1 INITIAL GAS MONITOR PROBE (SEE NOTE 4)
- GP-17 FUTURE GAS MONITOR PROBE (SEE NOTE 4)
- MP-2A GROUNDWATER MONITORING POINTS (INSTALLED 2003)
- B-101 SHALLOW BORINGS (INSTALLED 2004)
- EXISTING FENCE (TO REMAIN)
- FENCE (6' CHAIN LINK)
- 50' BUFFER FROM PROPERTY LINE
- 100' BUFFER FROM PROPERTY LINE
- C C' CROSS-SECTION LOCATION (SEE ATTACHMENTS 2A-2D)

NOTES:

1. ADDITIONAL CROSS-SECTIONS ARE INCLUDED IN ATTACHMENT 4, FIGURES ATT 4-17 THROUGH ATT 4-23.
2. THE CROSS-SECTIONS IN ATTACHMENT 4 SHOW THE GEOLOGIC STRATA AND GROUNDWATER MONITORING WELLS.
3. THE "B-#" SERIES BORINGS SHOWN ON THIS ATTACHMENT ARE BORINGS FROM THE MAY 2000 GEOTECHNICAL REPORT. THE "B-100" SERIES BORINGS ARE JULY 2004 SHALLOW BORINGS. THE "MP-#" SERIES ARE 2003 GROUNDWATER MONITORING WELLS.
4. THESE PROBES WERE INSTALLED PRIOR TO THE INITIAL ACCEPTANCE OF WASTE. REMAINING PROBES WILL BE INSTALLED CONSISTENT WITH ATTACHMENT 14.
5. CELL SEQUENCING WILL FOLLOW NUMBERING ORDER 1 THROUGH 14.

STATE OF TEXAS
SANDEEP D. SARAF
136850
LICENSED PROFESSIONAL ENGINEER
6-15-25

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
4	9/24	REVISED LIMIT OF WASTE, LOCATION OF B-B' TO INCLUDE NEW FINAL COVER PEAK, AND LOCATION OF EXISTING FENCE	RK SDS
5	3/25	RESPONSE TO NOD COMMENTS	SDS
6	6/25	RESPONSE TO NOD 2 COMMENTS	
7			

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

DRAWING TITLE: CROSS-SECTION LOCATIONS AND SOIL BORING LOCATIONS

PROJECT TITLE: MAVERICK COUNTY EL INDIO LANDFILL PERMIT MODIFICATION

CLIENT: MAVERICK COUNTY 500 QUARRY STREET, SUITE 3 EAGLE PASS, TEXAS 78852

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS
1901 CENTRAL DRIVE, SUITE 950, BEDFORD, TX 76021
PH (817) 571-2288 FAX NO. (817) 571-2188

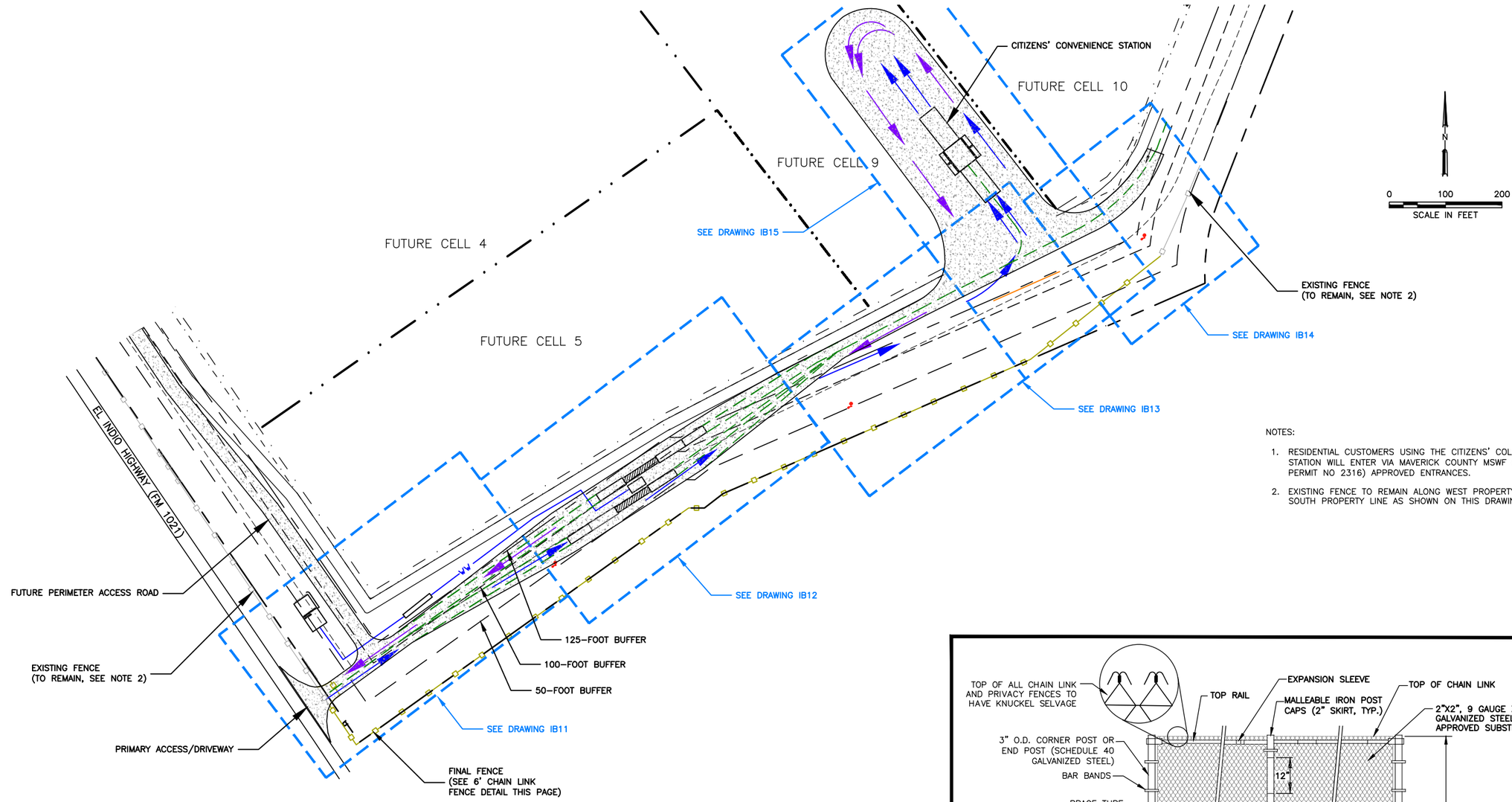
PROJ. NO. 16223092.00 | DWN. BY: DNA | CHK. BY: AGA | D/A RVW BY: | APP. BY: SDS | DSN. BY: DNA

CADD FILE: 2 - LOCATIONS

DATE: 3/2025

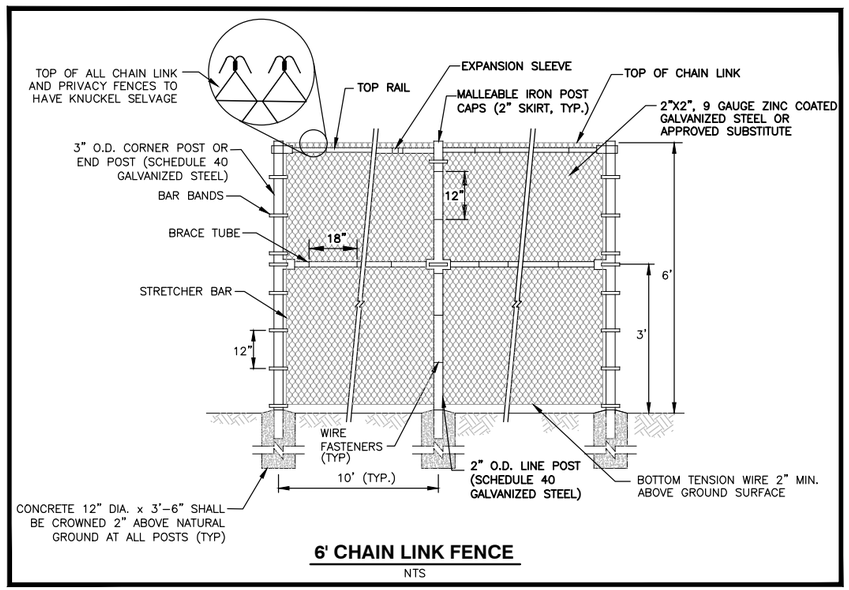
SCALE: AS SHOWN

ATTACHMENT 2



NOTES:

1. RESIDENTIAL CUSTOMERS USING THE CITIZENS' COLLECTION STATION WILL ENTER VIA MAVERICK COUNTY MSWF (MSW PERMIT NO 2316) APPROVED ENTRANCES.
2. EXISTING FENCE TO REMAIN ALONG WEST PROPERTY LINE AND SOUTH PROPERTY LINE AS SHOWN ON THIS DRAWING.



6' CHAIN LINK FENCE
NTS

LEGEND

- PROPERTY BOUNDARY
- PERMIT BOUNDARY
- LIMITS OF WASTE
- CELL/UNIT LIMITS
- 50-FOOT BUFFER
- 100-FOOT BUFFER
- 125-FOOT BUFFER
- EXISTING FENCE (TO REMAIN)
- FINAL FENCE
- SEPTIC LINE
- DRIVING LANES
- PAVEMENT
- INCOMING TRAFFIC FLOW
- OUTGOING TRAFFIC FLOW

STATE OF TEXAS
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LICENSED
PROFESSIONAL ENGINEER
6-15-25

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
1	03/25	RESPONSE TO NOD COMMENTS	SDS
2	06/25	RESPONSE TO NOD 2 COMMENTS	SDS

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

DRAWING: NEW PRIMARY ENTRANCE FACILITY

PROJECT: MAVERICK COUNTY MSW LANDFILL PERMIT MODIFICATION

CLIENT: MAVERICK COUNTY SOLID WASTE AUTHORITY
16179 FM 1021
EL INDIO, TEXAS

SCS ENGINEERS
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1901 CENTRAL DRIVE, SUITE 550, BEDFORD, TX 76021
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PROJ. NO. 16223092.00 | DWN. BY: DNA | CHK. BY: ACA | C/A MGR BY: SDS | APP. BY: SDS | DSN. BY: DNA

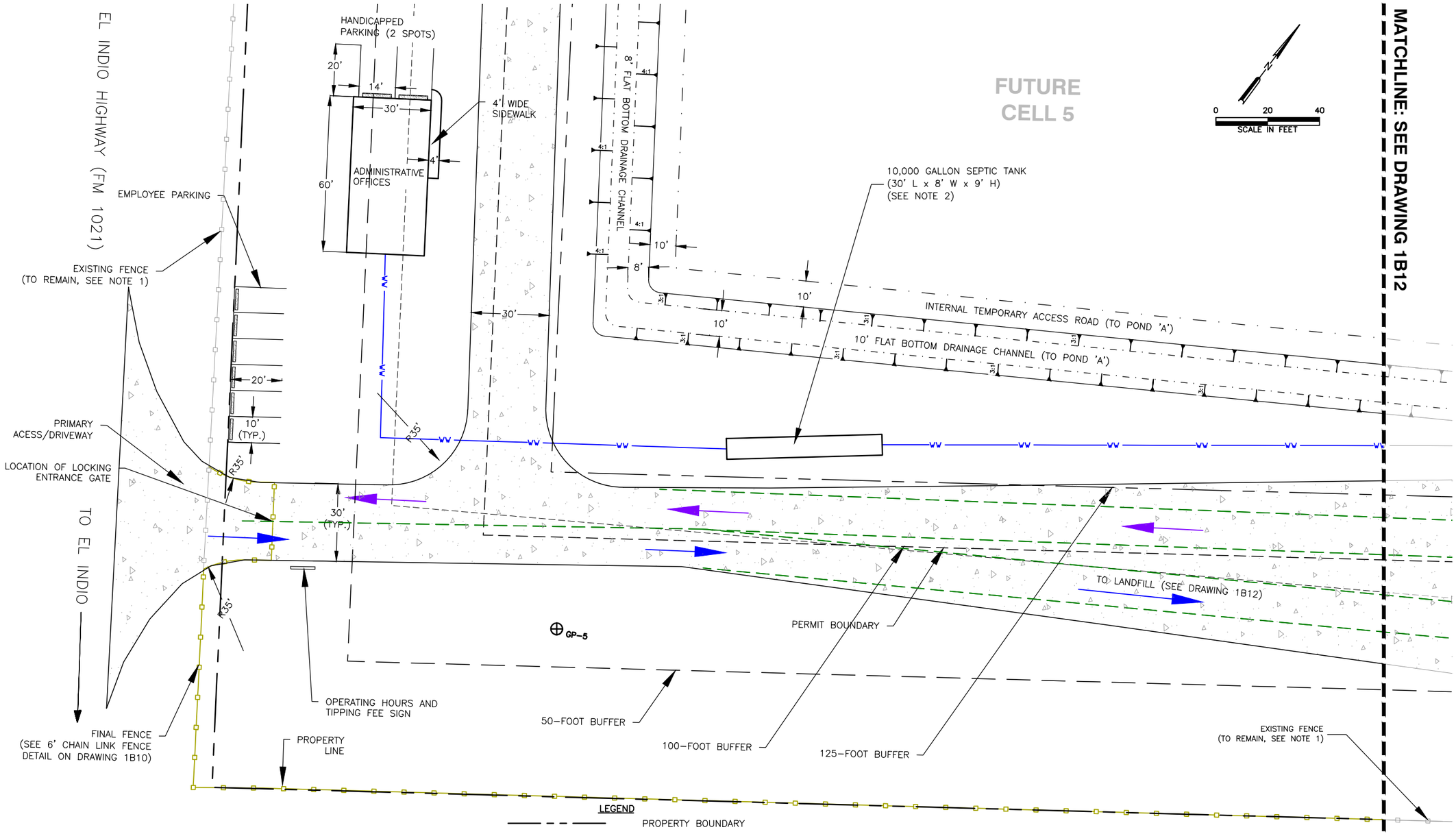
CADD FILE: IB-1B10-1B15

DATE: 06/2025

SCALE: AS SHOWN

ATTACHMENT NO. 1B10

6/17/2025 6:30 PM G:\MAVERICK COUNTY LANDFILL\16223092.00 TB - Final Grade Contours & Drainage PMOD\Engineering Drawings\MOD - 2\IB-1B10-1B15



LEGEND

- PROPERTY BOUNDARY
- PERMIT BOUNDARY
- LIMITS OF WASTE
- CELL/UNIT LIMITS
- 50-FOOT BUFFER
- 100-FOOT BUFFER
- 125-FOOT BUFFER
- EXISTING FENCE (TO REMAIN)
- FINAL FENCE
- SEPTIC LINE
- DRIVING LANES
- PAVEMENT
- INCOMING TRAFFIC FLOW
- OUTGOING TRAFFIC FLOW
- GP-5 GAS MONITOR PROBE (SEE NOTE 3)

NOTES:

1. EXISTING FENCE TO REMAIN ALONG WEST PROPERTY LINE AND SOUTH PROPERTY LINE AS SHOWN ON THIS DRAWING.
2. SEPTIC TANK TO BE CONSTRUCTED IN COMPLIANCE WITH 30 TAC 330.207
3. THE PROBES WERE INSTALLED CONSISTENT WITH ATTACHMENT 14.

STATE OF TEXAS
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6-15-25

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
1	03/25	RESPONSE TO NOD COMMENTS	SDS
2	06/25	RESPONSE TO NOD 2 COMMENTS	SDS

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

DRAWING: NEW PRIMARY ENTRANCE FACILITY

PROJECT: MAVERICK COUNTY MSW LANDFILL PERMIT MODIFICATION

CLIENT: MAVERICK COUNTY SOLID WASTE AUTHORITY 16179 FM 1021 EL INDIO, TEXAS

SCS ENGINEERS
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PROJ. NO.	DSN. BY:	CHK. BY:	DSN. BY:
16273092.00	DNA	ACA	DNA

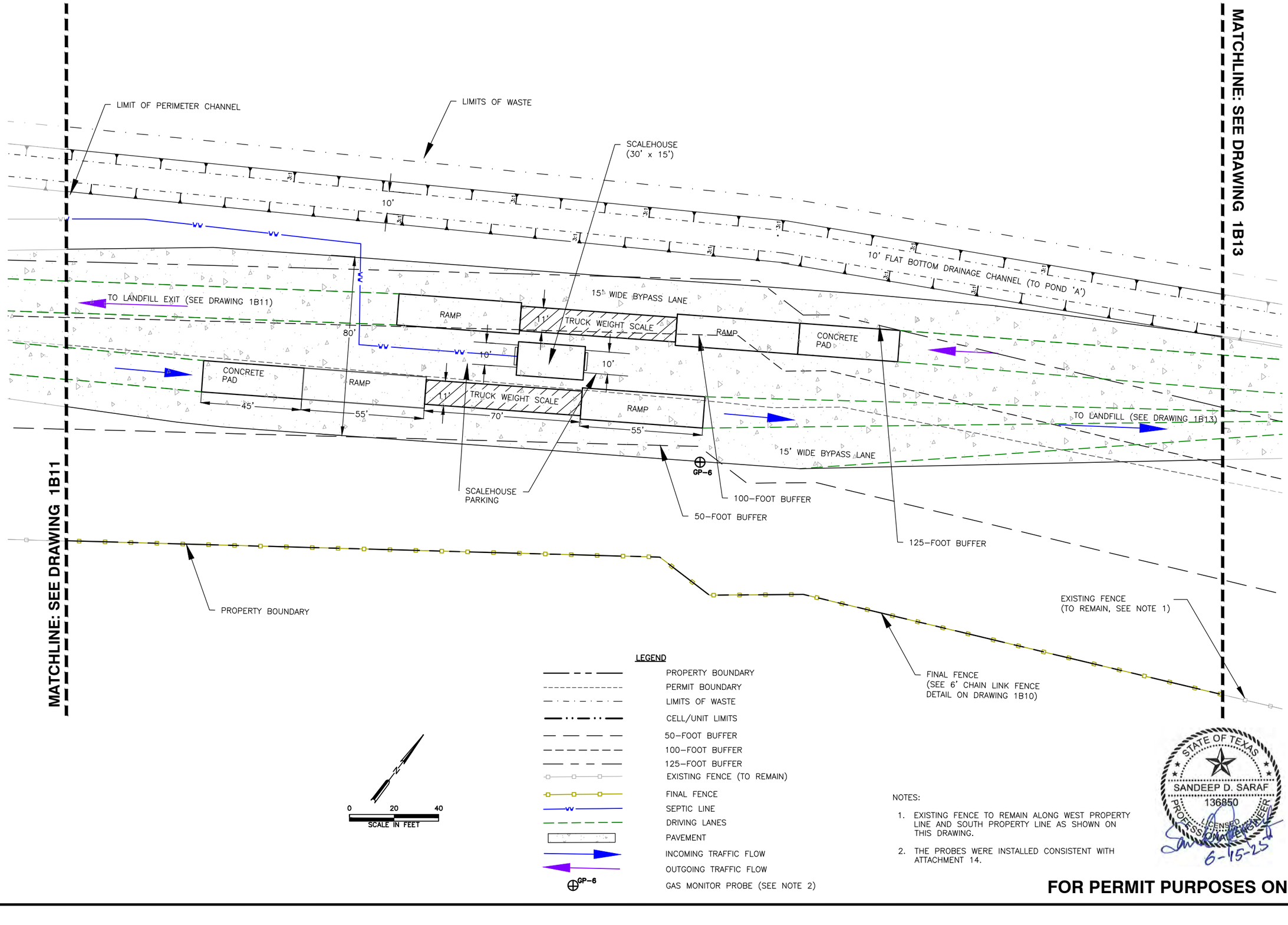
C/A RVW BY:	APP. BY:
SDS	SDS

CADD FILE: III-1B10-1B15

DATE: 06/2025

SCALE: AS SHOWN

ATTACHMENT NO.: 1B11



LEGEND

- PROPERTY BOUNDARY
- PERMIT BOUNDARY
- LIMITS OF WASTE
- CELL/UNIT LIMITS
- 50-FOOT BUFFER
- 100-FOOT BUFFER
- 125-FOOT BUFFER
- EXISTING FENCE (TO REMAIN)
- FINAL FENCE
- SEPTIC LINE
- DRIVING LANES
- PAVEMENT
- INCOMING TRAFFIC FLOW
- OUTGOING TRAFFIC FLOW
- GP-6 GAS MONITOR PROBE (SEE NOTE 2)

NOTES:

1. EXISTING FENCE TO REMAIN ALONG WEST PROPERTY LINE AND SOUTH PROPERTY LINE AS SHOWN ON THIS DRAWING.
2. THE PROBES WERE INSTALLED CONSISTENT WITH ATTACHMENT 14.

STATE OF TEXAS
SANDEEP D. SARAF
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6-15-25

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
1	03/25	RESPONSE TO NOD COMMENTS	SDS
2	06/25	RESPONSE TO NOD 2 COMMENTS	SDS

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

DRAWING: NEW PRIMARY ENTRANCE FACILITY

PROJECT: MAVERICK COUNTY MSW LANDFILL PERMIT MODIFICATION

CLIENT: MAVERICK COUNTY SOLID WASTE AUTHORITY 16179 FM 1021 EL INDIO, TEXAS

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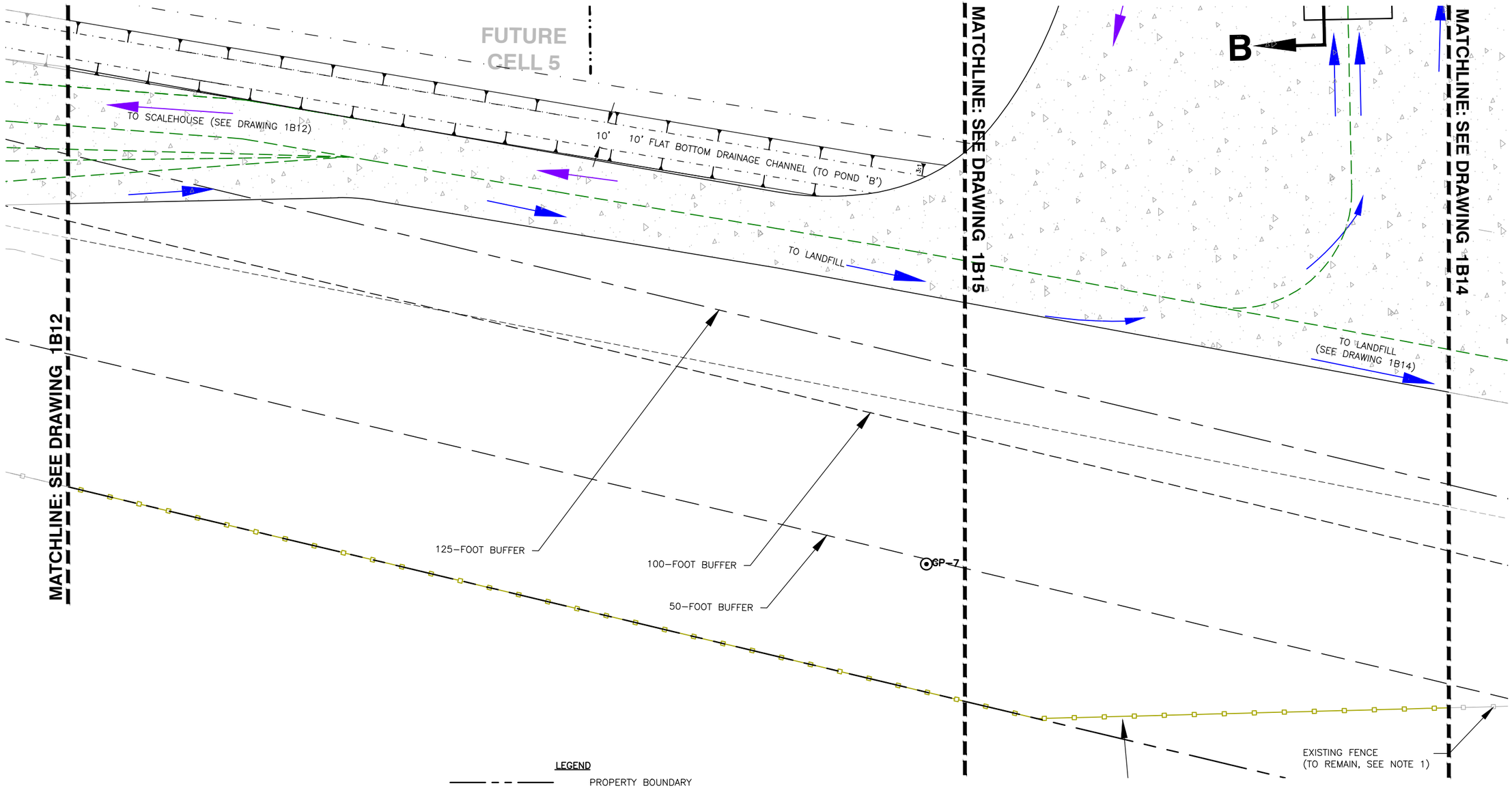
PROJ. NO. 16223092.00 | DSN. BY: DNA | CHK. BY: ACA | QA/QC BY: SDS | APP. BY: SDS

CADD FILE: III-1B10-1B15

DATE: 06/2025

SCALE: AS SHOWN

ATTACHMENT NO. 1B12



LEGEND

- PROPERTY BOUNDARY
- PERMIT BOUNDARY
- LIMITS OF WASTE
- CELL/UNIT LIMITS
- 50-FOOT BUFFER
- 100-FOOT BUFFER
- 125-FOOT BUFFER
- EXISTING FENCE (TO REMAIN)
- FINAL FENCE
- DRIVING LANES
- PAVEMENT
- INCOMING TRAFFIC FLOW
- OUTGOING TRAFFIC FLOW
- GP-7 FUTURE GAS MONITOR PROBE (SEE NOTE 3)

NOTES:

1. RESIDENTIAL CUSTOMERS USING THE CITIZEN'S COLLECTION STATION WILL ENTER VIA MAVERICK COUNTY MSWF (MSW PERMIT NO 2316) APPROVED ENTRANCES.
2. EXISTING FENCE TO REMAIN ALONG WEST PROPERTY LINE AND SOUTH PROPERTY LINE AS SHOWN ON THIS DRAWING.
3. THE PROBES WILL BE INSTALLED CONSISTENT WITH ATTACHMENT 14.

0 20 40
SCALE IN FEET

STATE OF TEXAS
SANDEEP D. SARAF
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LICENSED
PROFESSIONAL ENGINEER
6-15-25

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
1	03/25	RESPONSE TO NOD COMMENTS	SDS
2	06/25	RESPONSE TO NOD 2 COMMENTS	SDS

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

DRAWING: NEW PRIMARY ENTRANCE FACILITY

PROJECT: MAVERICK COUNTY MSW LANDFILL PERMIT MODIFICATION

CLIENT: MAVERICK COUNTY SOLID WASTE AUTHORITY
16179 FM 1021
EL INDIO, TEXAS

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PH (817) 571-2288 FAX NO. (817) 571-2188

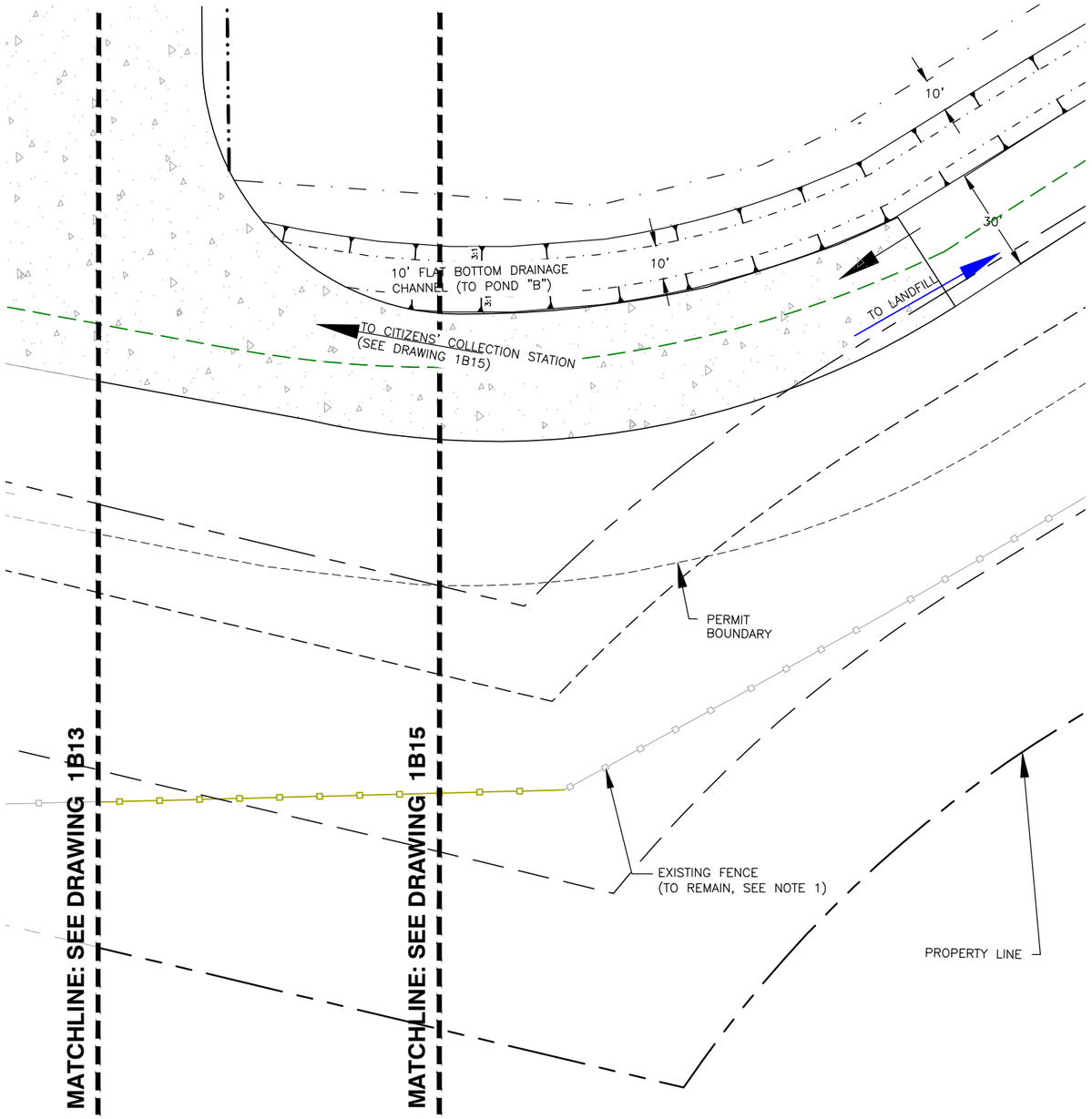
PROJ. NO.	16273092.00
DSN. BY:	DNA
DWN. BY:	DNA
CHK. BY:	ACA
QA/QC BY:	SDS
APP. BY:	SDS

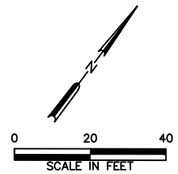
CADD FILE: III-1B10-1B15

DATE: 06/2025

SCALE: AS SHOWN

ATTACHMENT NO. 1B13





LEGEND

- PROPERTY BOUNDARY
- PERMIT BOUNDARY
- LIMITS OF WASTE
- CELL/UNIT LIMITS
- 50–FOOT BUFFER
- 100–FOOT BUFFER
- 125–FOOT BUFFER
- EXISTING FENCE (TO REMAIN, SEE NOTE 1)
- FINAL FENCE
- DRIVING LANES
- PAVEMENT
- INCOMING TRAFFIC FLOW
- OUTGOING TRAFFIC FLOW

NOTES:

1. EXISTING FENCE TO REMAIN ALONG WEST PROPERTY LINE AND SOUTH PROPERTY LINE AS SHOWN ON THIS DRAWING.

STATE OF TEXAS
SANDEEP D. SARAF
136850
LICENSED PROFESSIONAL ENGINEER
6-15-25

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
1	03/25	RESPONSE TO NOD COMMENTS	SDS
2	06/25	RESPONSE TO NOD 2 COMMENTS	SDS

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

DRAWING
NEW PRIMARY ENTRANCE FACILITY

PROJECT
MAVERICK COUNTY MSW LANDFILL PERMIT MODIFICATION

CLIENT
MAVERICK COUNTY SOLID WASTE AUTHORITY
16179 FM 1021
EL INDIO, TEXAS

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PROJ. NO. 16223092.00 | DSN. BY: DNA | DWN. BY: DNA | CHK. BY: AGA | QA/A RVW BY: SDS | APP. BY: SDS

CADD FILE: III-1B10-1B15

DATE: 06/2025

SCALE: AS SHOWN

ATTACHMENT NO.
1B14

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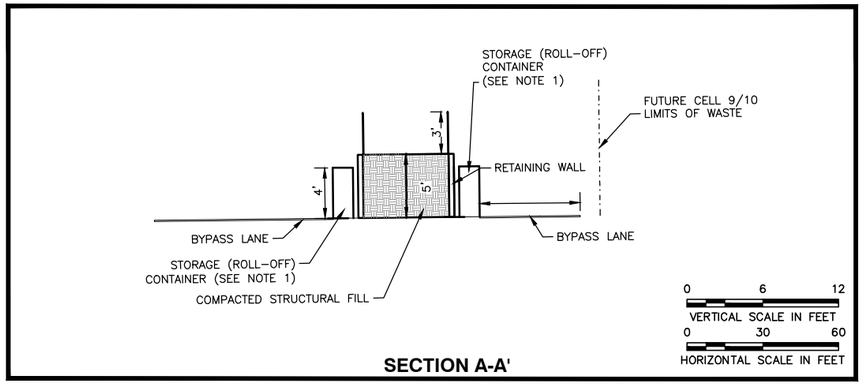
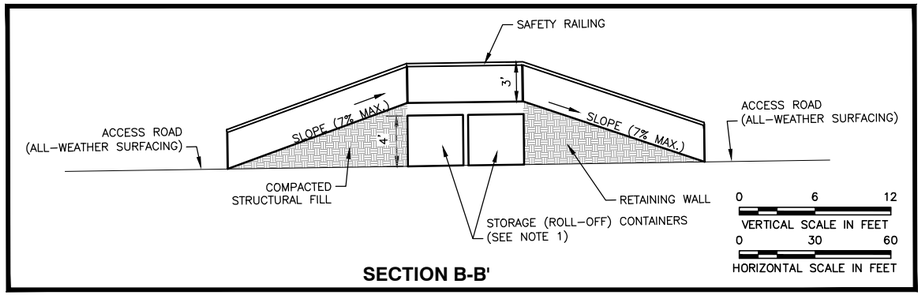


SECTION A-A'



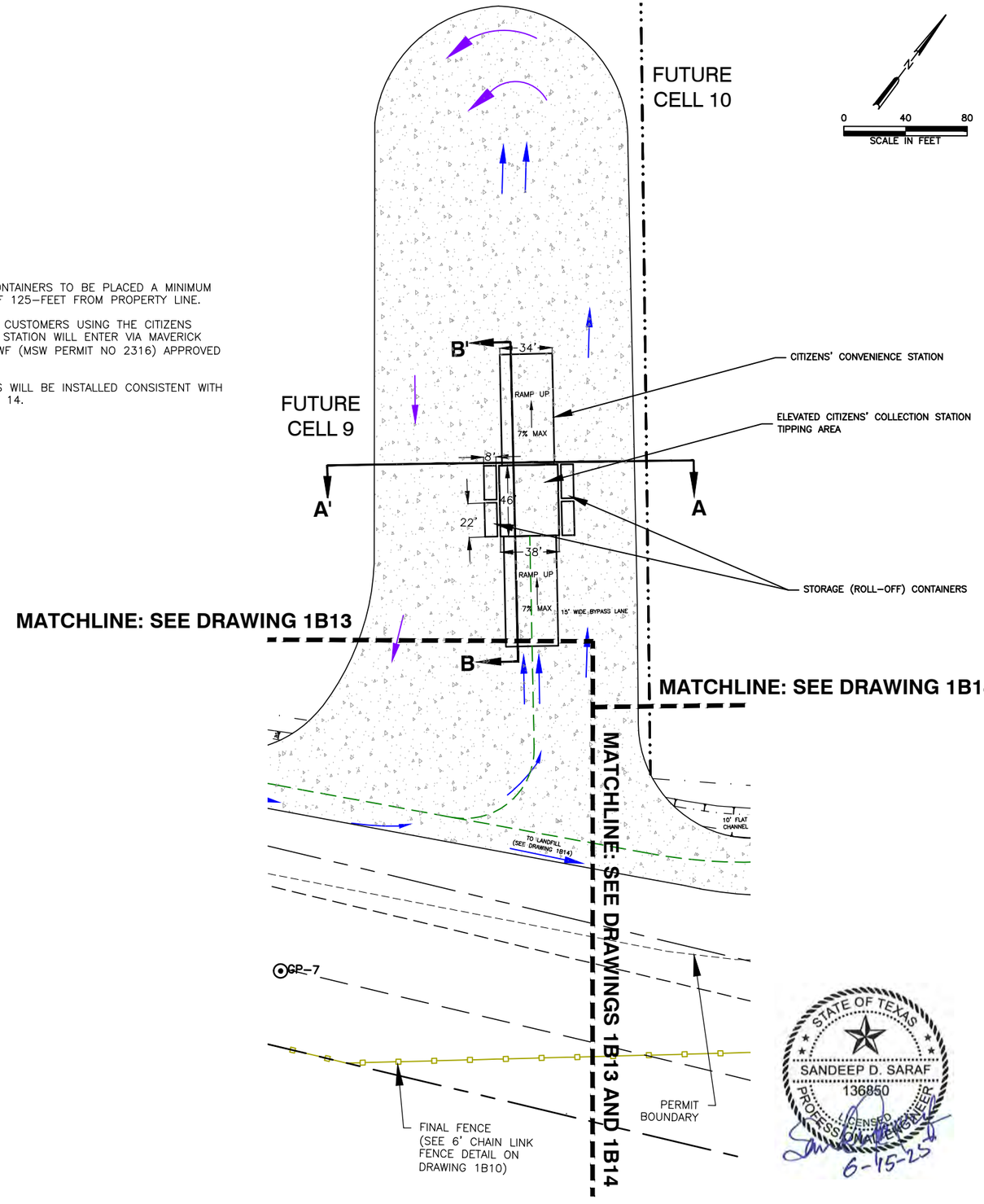
SECTION B-B'

NOTES:

1. STORAGE CONTAINERS TO BE PLACED A MINIMUM DISTANCE OF 125-FEET FROM PROPERTY LINE.
2. RESIDENTIAL CUSTOMERS USING THE CITIZENS COLLECTION STATION WILL ENTER VIA MAVERICK COUNTY MSWF (MSW PERMIT NO 2316) APPROVED ENTRANCES.
3. THE PROBES WILL BE INSTALLED CONSISTENT WITH ATTACHMENT 14.

LEGEND

- PROPERTY BOUNDARY
- PERMIT BOUNDARY
- LIMITS OF WASTE
- CELL/UNIT LIMITS
- 50-FOOT BUFFER
- 100-FOOT BUFFER
- 125-FOOT BUFFER
- EXISTING FENCE (TO REMAIN)
- FINAL FENCE
- DRIVING LANES
- PAVEMENT
- INCOMING TRAFFIC FLOW
- OUTGOING TRAFFIC FLOW
- GP-7 FUTURE GAS MONITOR PROBE (SEE NOTE 3)



FOR PERMIT PURPOSES ONLY

STATE OF TEXAS
SANDEEP D. SARAF
136850
LICENSED PROFESSIONAL ENGINEER
6-15-25

REV	DATE	DESCRIPTION	BY

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

DRAWING: NEW PRIMARY ENTRANCE FACILITY

PROJECT: MAVERICK COUNTY MSW LANDFILL PERMIT MODIFICATION

CLIENT: MAVERICK COUNTY SOLID WASTE AUTHORITY
16179 FM 1021
EL INDIO, TEXAS

SCS ENGINEERS
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CONSULTING ENGINEERS
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PROJ. NO. 16223032.00 | DSN. BY: DNA | DWN. BY: DNA | CHK. BY: AGA | QA/QC BY: SDS | APP. BY: SDS

CADD FILE: III-1B10-1B15

DATE: 06/2025

SCALE: AS SHOWN

ATTACHMENT NO. 1B15

MAVERICK COUNTY – EL INDIO MSW LANDFILL
MAVERICK COUNTY, TEXAS
PERMIT APPLICATION
SITE DEVELOPMENT PLAN PART III
ATTACHMENT 2

FILL CROSS-SECTIONS

Prepared for:
Maverick County Solid Waste Authority
16179 FM 1021
El-Indio, Texas 78860

And
Maverick County
500 Quarry Street, Suite 3
Eagle Pass, Texas 78852
830/773-3824

PERMIT ISSUED: SEPTEMBER 11, 2007

REVISIONS 2, 3, 4, 5, & 6 PREPARED BY:

SCS ENGINEERS
Texas Board of Professional Engineers Reg. No. F-3407
1901 Central Drive, Suite 550
Bedford, Texas 76021
817/571-2288

Revision 1 – January 2004, July 2004, August 2004
Revision 2 – April 2009
Revision 3 – July 2010
Revision 4 – October 2024
Revision 5 – February 2025; Revision 6 – June 2025
SCS Project No. 16208046.00, 16223092.00

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Drawings

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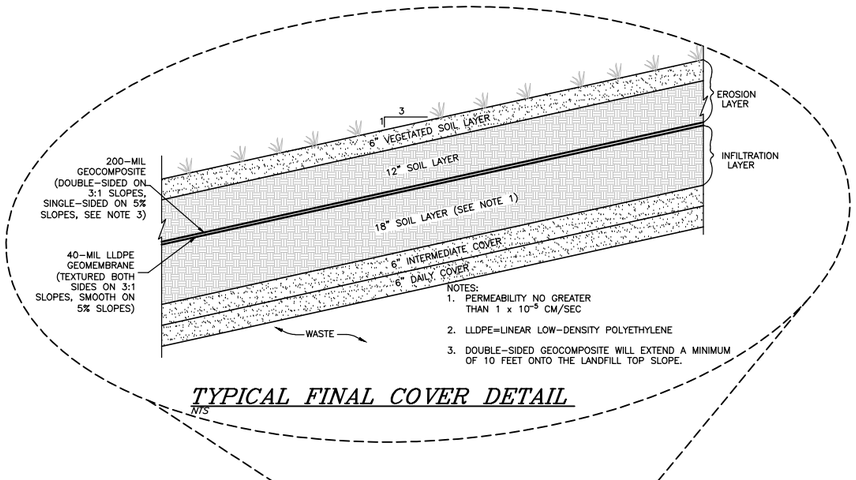
2B2 Cross-Section B-B' (2 of 2)
2C Cross-Section C-C'
2D Cross-Section D-D'
2E Alternate Liner Design



TYPICAL FINAL COVER DETAIL

NTS

NOTES:

1. ADDITIONAL CROSS-SECTIONS ARE INCLUDED IN ATTACHMENT 4, FIGURES ATT 4-17 THROUGH ATT 4-23.
2. THE CROSS-SECTIONS IN ATTACHMENT 4 SHOW THE GEOLOGIC STRATA AND GROUNDWATER MONITORING WELLS.
3. THE BORINGS SHOWN ON THIS ATTACHMENT ARE BORINGS FROM THE MAY 2000 GEOTECHNICAL REPORT.
4. DETAILED BORING LOGS FOR THE BORINGS SHOWN ON THIS CROSS-SECTION ARE INCLUDED IN APPENDIX 2D OF THIS ATTACHMENT.
5. SEE ATTACHMENT 2E FOR ALTERNATE LINER DESIGN WITH A GEOSYNTHETIC CLAY LINER.
6. EXISTING GRADES ARE BASED ON A TOPOGRAPHIC SURVEY PERFORMED BY DAS ON SEPTEMBER 26, 2024.
7. SINGLE-SIDED GEOCOMPOSITE AND SMOOTH GEOMEMBRANE INSTALLED ON THE FLOOR IN CELLS 1 THROUGH 3. ALL FUTURE CELLS WILL HAVE DOUBLE-SIDED GEOCOMPOSITE AND TEXTURED (BOTH SIDES) GEOMEMBRANE INSTALLED ON THE FLOOR AND SIDESLOPE.

STATE OF TEXAS
SANDEEP D. SARAF
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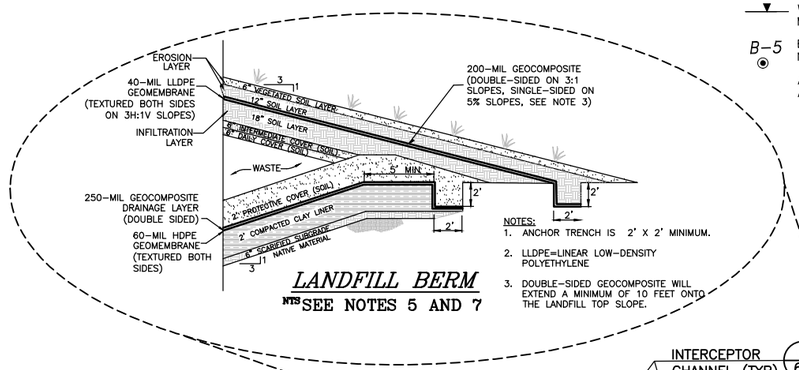
LICENSED
PROFESSIONAL ENGINEER
6-15-25

LEGEND:

- ▽ WATER LEVEL DURING DRILLING
- ▼ WATER LEVEL AT END OF MONITORING PERIOD
- B-5 ◉ BORING LOCATION AND BORING NUMBER
- ALL ELEVATIONS INDICATE FEET ABOVE MEAN SEA LEVEL.

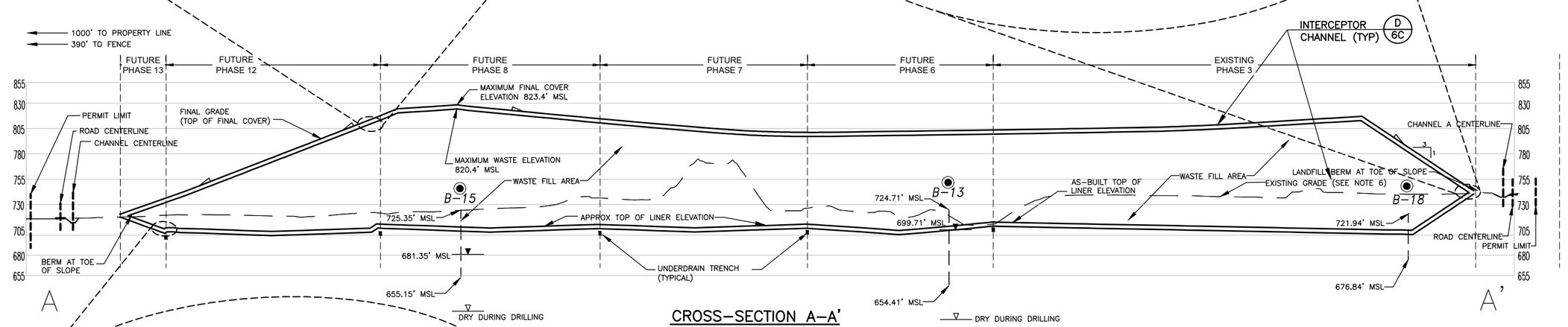


LANDFILL BERM

NTS SEE NOTES 5 AND 7

NOTES:

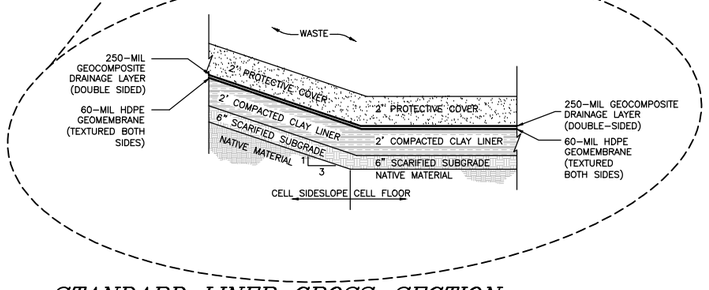
1. ANCHOR TRENCH IS 2' X 2' MINIMUM.
2. LLDPE=LINEAR LOW-DENSITY POLYETHYLENE
3. DOUBLE-SIDED GEOCOMPOSITE WILL EXTEND A MINIMUM OF 10 FEET ONTO THE LANDFILL TOP SLOPE.



CROSS-SECTION A-A'

0 50 100 200 FT HORIZONTAL

0 25 50 100 FT VERTICAL



STANDARD LINER CROSS-SECTION

NTS SEE NOTES 5 AND 7

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
A	9/24	ADDED GEOCOMPOSITE IN FINAL COVER; REPLACED VFPE WITH LLDPE GEOMEMBRANE; CHANGED SIDESLOPE TO 3H:1V; UPDATED CELL FLOOR LINER DETAIL	SDS
A	3/25	REVISED GEOCOMPOSITE CALLOUT	SDS
A	6/25	RESPONSE TO NOD COMMENTS	SDS
A	6/25	RESPONSE TO NOD 2 COMMENTS	SDS

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

DRAWING TITLE: CROSS-SECTION A-A'

PROJECT TITLE: MAVERICK COUNTY EL INDIO MSW LANDFILL PERMIT MODIFICATION

CLIENT: MAVERICK COUNTY 500 QUARRY STREET, SUITE 3 EAGLE PASS, TEXAS 78852

SCS ENGINEERS
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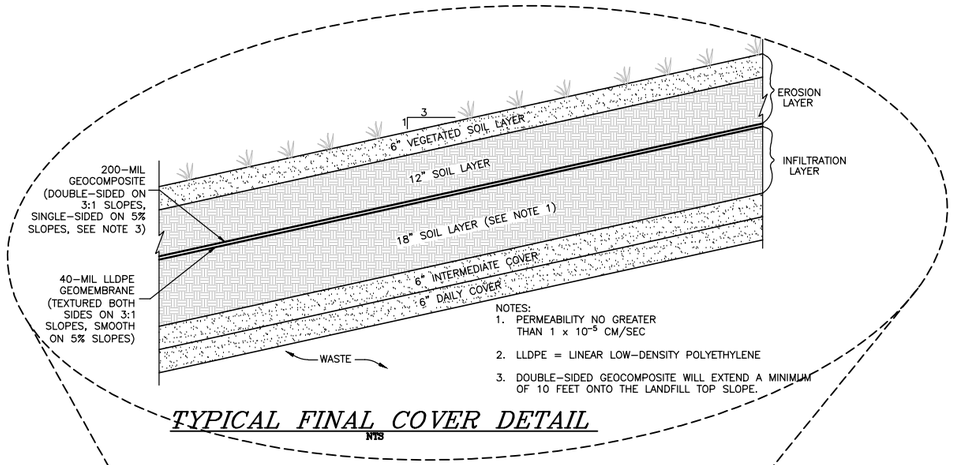
PROJ. NO. 02223092.00 | DSN. BY: AGA | DWN. BY: DNA | CHK. BY: SDS | Q/A RVW BY: AGA | APP. BY: SDS

CADD FILE: 2A - SECTIONS

DATE: 06/2025

SCALE: AS SHOWN

ATTACHMENT: 2A



TYPICAL FINAL COVER DETAIL

NTS

LEGEND:

- WATER LEVEL DURING DRILLING
- WATER LEVEL AT END OF MONITORING PERIOD
- B-5 BORING LOCATION AND BORING NUMBER

ALL ELEVATIONS INDICATE FEET ABOVE MEAN SEA LEVEL.

NOTES:

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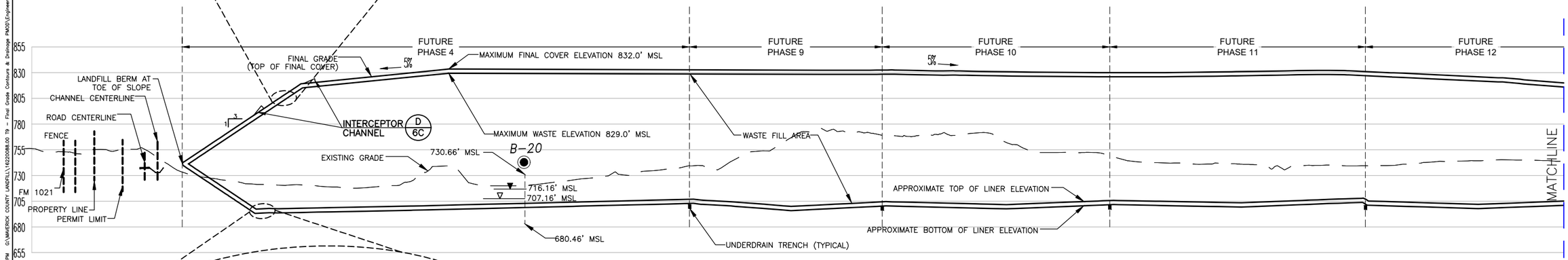
2. THE CROSS-SECTIONS IN ATTACHMENT 4 SHOW THE GEOLOGIC STRATA AND GROUNDWATER MONITORING WELLS.
3. THE BORINGS SHOWN ON THIS ATTACHMENT ARE BORINGS FROM THE MAY 2000 GEOTECHNICAL REPORT.
4. DETAILED BORING LOGS FOR THE BORINGS SHOWN ON THIS CROSS-SECTION ARE INCLUDED IN APPENDIX 2D OF THIS ATTACHMENT.
5. SEE ATTACHMENT 2E FOR ALTERNATE LINER DESIGN WITH A GEOSYNTHETIC CLAY LINER.
6. EXISTING GRADES ARE BASED ON A TOPOGRAPHIC SURVEY PERFORMED BY DAS ON SEPTEMBER 26, 2024.
7. SINGLE-SIDED GEOCOMPOSITE AND SMOOTH GEOMEMBRANE INSTALLED ON THE FLOOR IN CELLS 1 THROUGH 3. ALL FUTURE CELLS WILL HAVE DOUBLE-SIDED GEOCOMPOSITE AND TEXTURED (BOTH SIDES) GEOMEMBRANE INSTALLED ON THE FLOOR AND SIDESLOPE.



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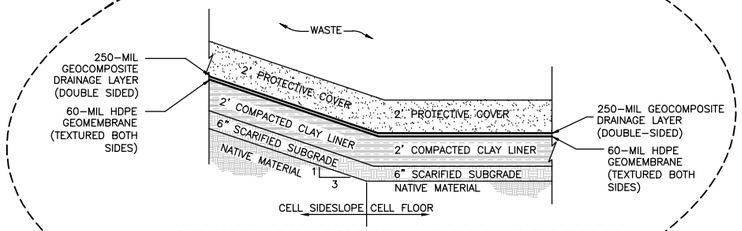


STANDARD LINER CROSS-SECTION

NTS SEE NOTES 5 AND 7

CROSS-SECTION B-B'

0 50 100 200 FT HORIZONTAL

0 25 50 100 FT VERTICAL

STATE OF TEXAS
SANDEEP D. SARAF
136850
LICENSED
PROFESSIONAL ENGINEER
6-15-25

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
2	9/24	ADDED GEOCOMPOSITE IN FINAL COVER; REPLACED VFPE WITH LLDPE GEOMEMBRANE; CHANGED SIDESLOPE TO 3H:1V; UPDATED CELL FLOOR LINER DETAIL	SDS
1	3/25	REVISED GEOCOMPOSITE CALLOUT	SDS
0	6/25	RESPONSE TO NOD COMMENTS	SDS

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

DRAWING TITLE: CROSS-SECTION B-B'

PROJECT TITLE: MAVERICK COUNTY EL INDIO MSW LANDFILL PERMIT MODIFICATION

CLIENT: MAVERICK COUNTY 500 QUARRY STREET, SUITE 3 EAGLE PASS, TEXAS 78852

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS
1901 CENTRAL DRIVE, SUITE 180, BEDFORD, TX 76021
PH (817) 571-2288 FAX NO. (817) 571-2188

PROJ. NO. 02230092.00 | DWN. BY: DNA | CHK. BY: SDS | QA/A RVW BY: AGA | APP. BY: SDS

CADD FILE: 2A – SECTIONS

DATE: 06/2025

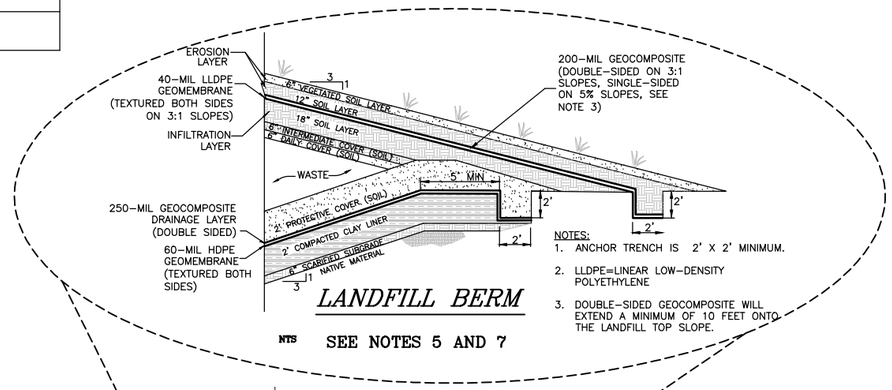
SCALE: AS SHOWN

ATTACHMENT 2B1

	REVISION 4 NOTES
1	ADDED GEOCOMPOSITE IN FINAL COVER
2	REPLACED VFPE WITH LLDPE GEOMEMBRANE
3	UPDATED CELL FLOOR LINER DETAIL
4	REVISED SIDESLOPE FROM 4.5:1 TO 3:1
5	ADDED NOTES 6 AND 7

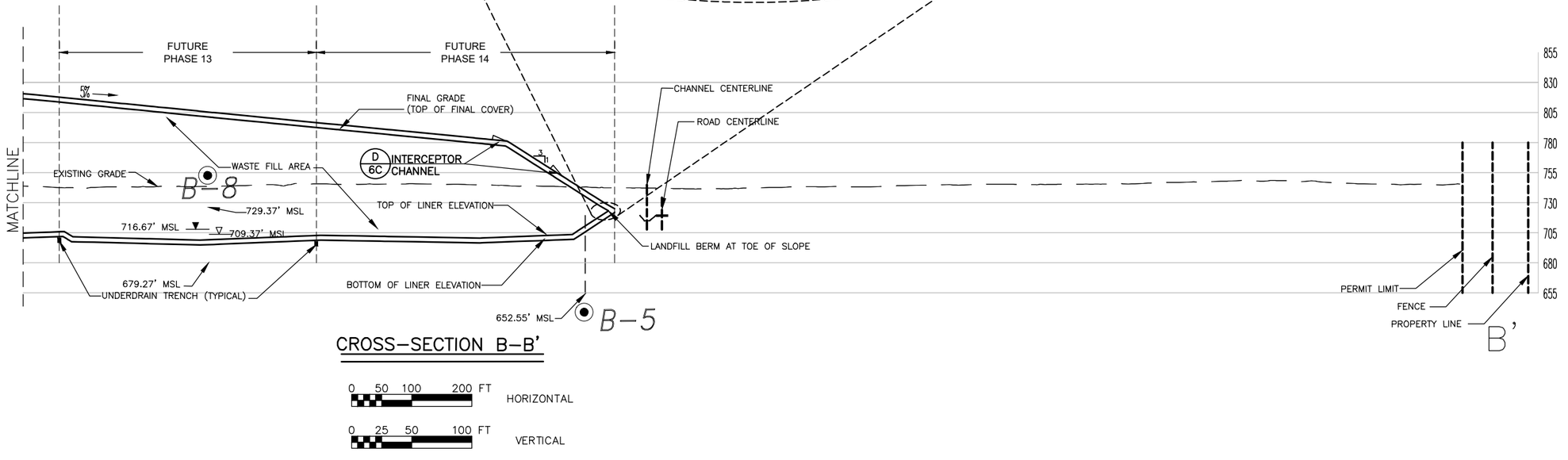
	REVISION 5 NOTES (RESPONSE TO NOD COMMENTS)
1	REVISED FINAL COVER AND LANDFILL BERM DETAILS TO CLARIFY THAT DOUBLE-SIDED GEOCOMPOSITE WILL BE USED ON 3:1 SIDE SLOPE AND SINGLE-SIDED GEOCOMPOSITE ON 5% SLOPES. REVISED NOTE 3 FOR EACH DETAIL
2	REVISED BOTTOM LINER AND LANDFILL BERM DETAILS TO SPECIFY THICKNESS OF GEOCOMPOSITE

	REVISION 6 NOTES (RESPONSE TO NOD 2 COMMENTS)
1	REVISED PROFILE TO SHOW DELETED GRADES
2	EXISTING GRADES HAVE BEEN UPDATED FROM AUGUST 16, 2023 TOPOGRAPHIC SURVEY TO SEPTEMBER 26, 2024 TOPOGRAPHIC SURVEY
3	ADDED "FUTURE" FOR EACH PHASE CALLOUT



LANDFILL BERM

NTS SEE NOTES 5 AND 7



CROSS-SECTION B-B'

0 50 100 200 FT HORIZONTAL

0 25 50 100 FT VERTICAL

NOTES:

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2. THE CROSS-SECTIONS IN ATTACHMENT 4 SHOW THE GEOLOGIC STRATA AND GROUNDWATER MONITORING WELLS.
3. THE BORINGS SHOWN ON THIS ATTACHMENT ARE BORINGS FROM THE MAY 2000 GEOTECHNICAL REPORT.
4. DETAILED BORING LOGS FOR THE BORINGS SHOWN ON THIS CROSS-SECTION ARE INCLUDED IN APPENDIX 2D OF THIS ATTACHMENT.
5. SEE ATTACHMENT 2E FOR ALTERNATE LINER DESIGN WITH A GEOSYNTHETIC CLAY LINER.
6. EXISTING GRADES ARE BASED ON A TOPOGRAPHIC SURVEY PERFORMED BY DAS ON SEPTEMBER 26, 2024.
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FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
4	9/24	GEOCOMPOSITE IN FINAL COVER; REPLACED VFPE WITH LLDPE GEOMEMBRANE; CHANGED SIDESLOPE TO 3H:1V.	SDS
5	3/25	REVISED GEOCOMPOSITE CALLOUT	SDS
		RESPONSE TO NOD COMMENTS	
6	6/25	RESPONSE TO NOD 2 COMMENTS	SDS
		TEXAS BOARD OF PROFESSIONAL ENGINEERS REG. NO. F-3407	

DRAWING TITLE: CROSS-SECTION B-B'

PROJECT TITLE: MAVERICK COUNTY EL INDIO MSW LANDFILL PERMIT MODIFICATION

CLIENT: MAVERICK COUNTY
500 QUARRY STREET, SUITE 3
EAGLE PASS, TEXAS 78852

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

DWN. BY: DNA | Q/A RVW BY: AGA
CHK. BY: SDS | APP. BY: SDS
PROJ. NO. 62223092.00
DSN. BY: AGA

CADD FILE: 2A - SECTIONS

DATE: 06/2025

SCALE: AS SHOWN

ATTACHMENT 2B2

6/17/2025 7:46 PM G:\MAVERICK COUNTY LANDFILL\162200858.00 TB - Final Grade Contours & Drainage PMOD\Engineering Drawings\MOD - 2\2A - SECTIONS

NOTES:

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4. DETAILED BORING LOGS FOR THE BORINGS SHOWN ON THIS CROSS–SECTION ARE INCLUDED IN APPENDIX 2D OF THIS ATTACHMENT.
5. BORINGS B–12 AND B–21 ARE LOCATED APPROXIMATELY 200' FROM THE LOCATION OF THIS CROSS–SECTION. THEIR BORING INFORMATION IS INCLUDED TO SUPPLEMENT THAT PROVIDED BY BORING B–20 WHICH IS LOCATED ALONG THIS CROSS–SECTION.
6. SEE ATTACHMENT 2E FOR ALTERNATE LINER DESIGN WITH A GEOSYNTHETIC CLAY LINER.
7. EXISTING GRADES ARE BASED ON A TOPOGRAPHIC SURVEY PERFORMED BY DAS ON SEPTEMBER 26, 2024.
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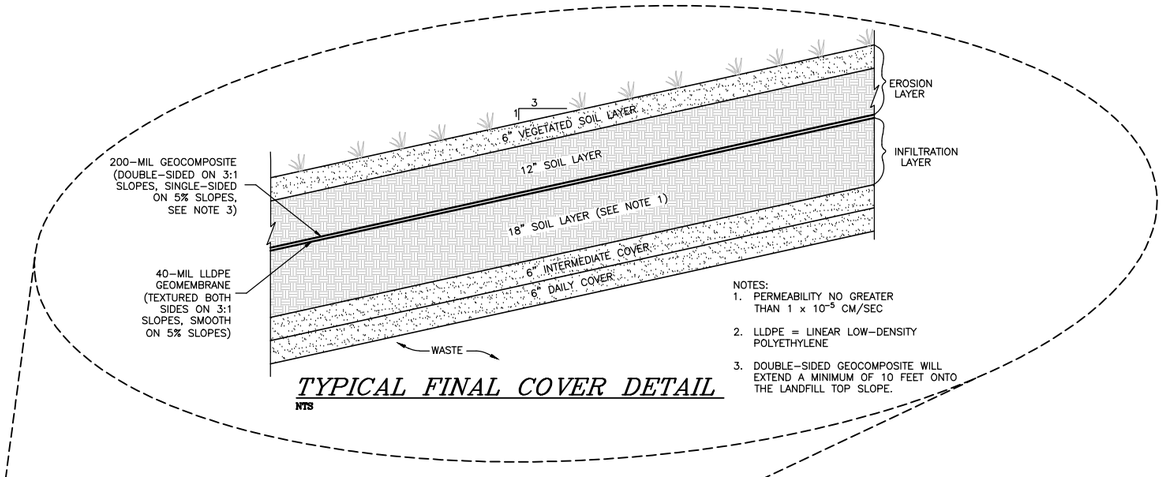
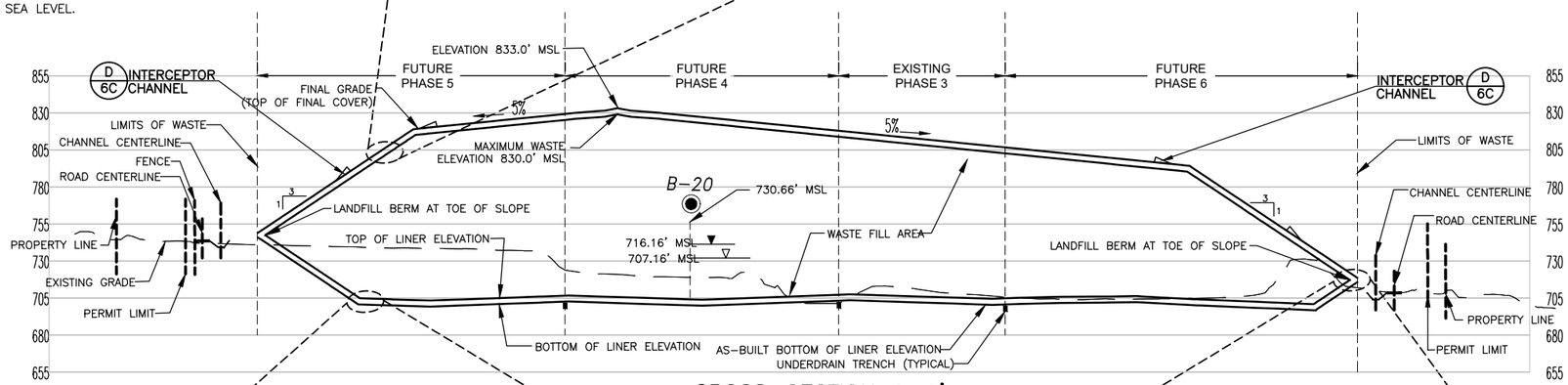
ALL ELEVATIONS INDICATE FEET ABOVE MEAN SEA LEVEL.



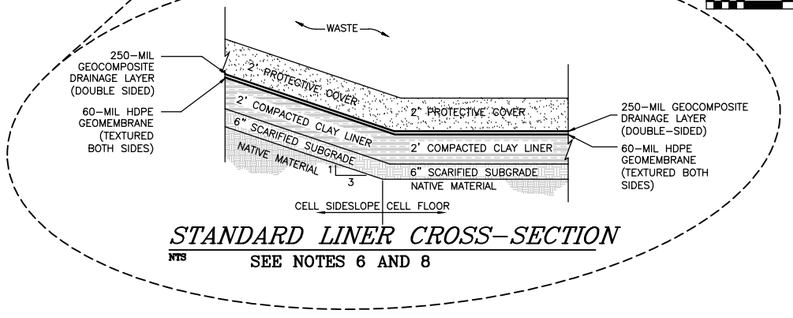
TYPICAL FINAL COVER DETAIL
NTS



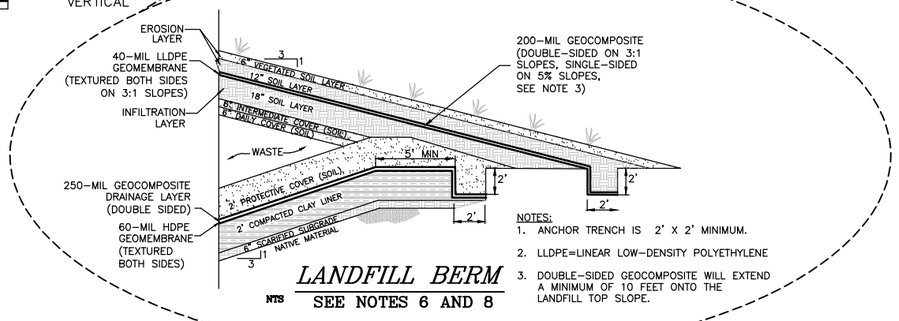
CROSS–SECTION C–C'

0 50 100 200 FT HORIZONTAL

0 25 50 100 FT VERTICAL



STANDARD LINER CROSS–SECTION
NTS
SEE NOTES 6 AND 8



LANDFILL BERM
NTS
SEE NOTES 6 AND 8

NOTES:
1. ANCHOR TRENCH IS 2' X 2' MINIMUM.
2. LLDPE=LINEAR LOW–DENSITY POLYETHYLENE
3. DOUBLE–SIDED GEOCOMPOSITE WILL EXTEND A MINIMUM OF 10 FEET ONTO THE LANDFILL TOP SLOPE.

FOR PERMIT PURPOSES ONLY

STATE OF TEXAS
SANDEEP D. SARAF
136850
LICENSED PROFESSIONAL ENGINEER
6-15-25

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3	3/25	REVISED GEOCOMPOSITE CALLOUT	SDS
4	6/25	RESPONSE TO NOD COMMENTS	SDS
5		RESPONSE TO NOD 2 COMMENTS	SDS

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

DRAWING TITLE
CROSS-SECTION C-C'

PROJECT TITLE
MAVERICK COUNTY
EL INDIO MSW LANDFILL
PERMIT MODIFICATION

CLIENT
MAVERICK COUNTY
500 QUARRY STREET, SUITE 3
EAGLE PASS, TEXAS 78852

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

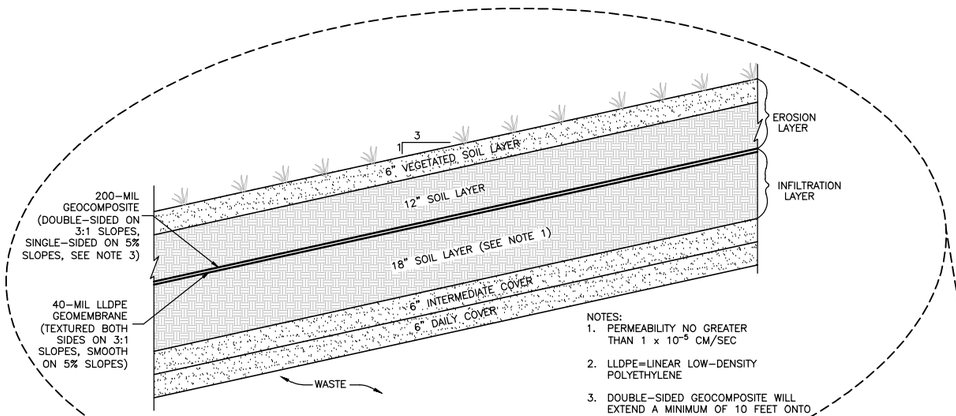
PROJ. NO. 62223092.00
DSN. BY: AGA
DWN. BY: DNA
CHK. BY: SDS
Q/A REVW BY: AGA
APP. BY: SDS

CADD FILE: 2A – SECTIONS

DATE: 06/2025

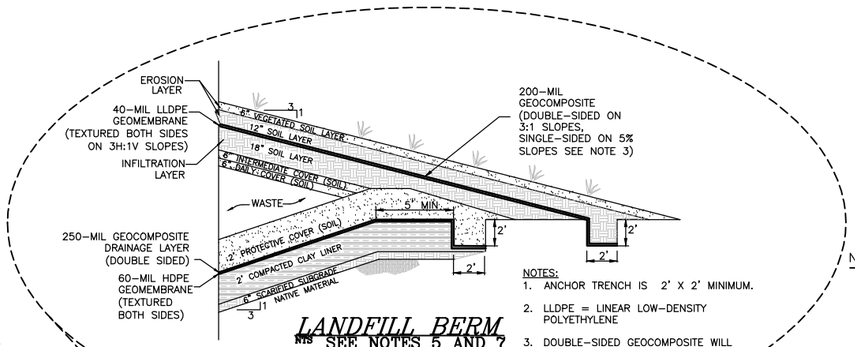
SCALE: AS SHOWN

ATTACHMENT
2C



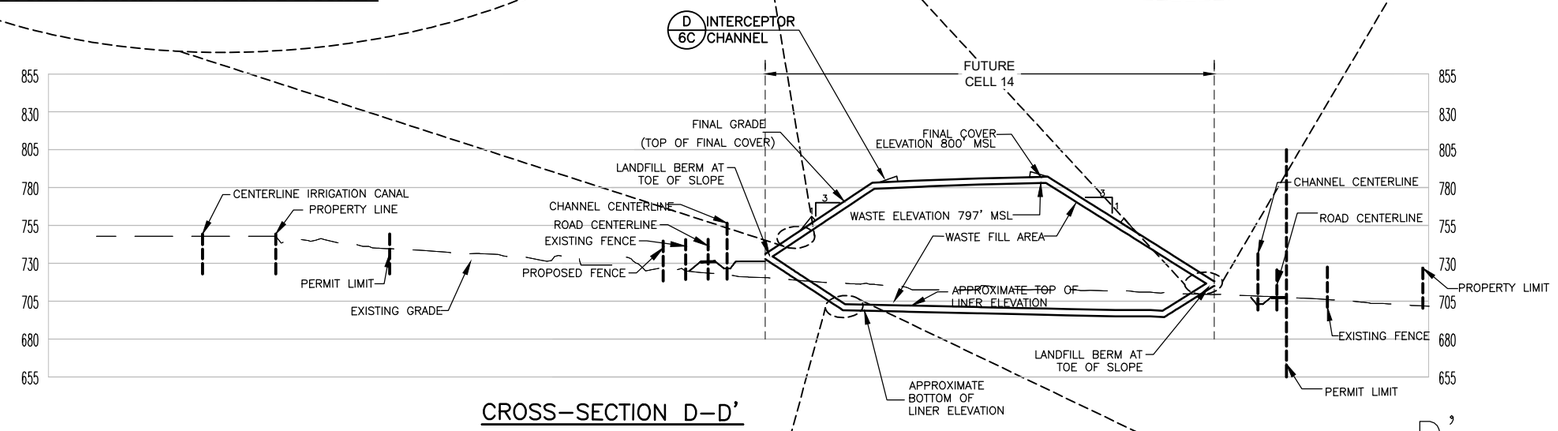
TYPICAL FINAL COVER DETAIL

NTS



LANDFILL BERM

NTS SEE NOTES 5 AND 7



CROSS–SECTION D–D'

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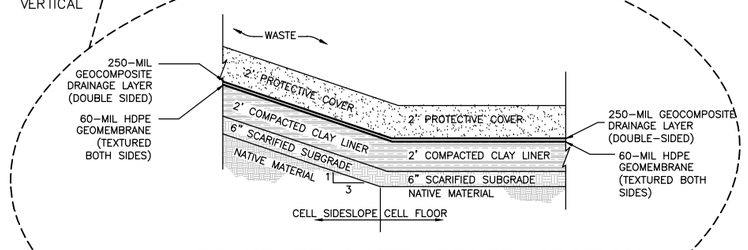
0 25 50 100 FT VERTICAL



STANDARD LINER CROSS–SECTION

NTS SEE NOTES 5 AND 7

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- ALL ELEVATIONS INDICATE FEET ABOVE MEAN SEA LEVEL.

FOR PERMIT PURPOSES ONLY

STATE OF TEXAS
SANDEEP D. SARAF
136850
LICENSED
PROFESSIONAL ENGINEER
6-15-25

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3	3/25	REVISED GEOCOMPOSITE CALLOUT	SDS
2	6/25	RESPONSE TO NOD COMMENTS	SDS
1		RESPONSE TO NOD 2 COMMENTS	SDS

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

DRAWING TITLE: CROSS-SECTION D-D'

PROJECT TITLE: MAVERICK COUNTY EL INDIO MSW LANDFILL PERMIT MODIFICATION

CLIENT: MAVERICK COUNTY
500 QUARRY STREET, SUITE 3
EAGLE PASS, TEXAS 78852

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS
1901 CENTRAL DRIVE, SUITE 950, BEDFORD, TX 76021
PH (817) 571-2236 FAX NO. (817) 571-2188

PROJ. NO. 01223092.00 | DSN. BY: AGA | DWN. BY: DNA | CHK. BY: SDS | QA RVW BY: AGA | APP. BY: SDS

CADD FILE: 2A – SECTIONS

DATE: 06/2025

SCALE: AS SHOWN

ATTACHMENT 2D

6/17/2025 7:45 PM G:\MAVERICK COUNTY LANDFILL\162208&50 19 – Final Grade Contours & Drainage PMOD\Engineering Drawings\MOD – 2\2A – SECTIONS

PART III

ATTACHMENT 6

GROUNDWATER AND SURFACE WATER PROTECTION PLAN AND DRAINAGE PLAN

FOR

MAVERICK COUNTY EL INDIO MSW LANDFILL
TCEQ PERMIT NO. MSW-2316

Prepared for:
Maverick County
500 Quarry Street, Suite 3
Eagle Pass, Texas 78852
830/773-3824

PERMIT ISSUED: SEPTEMBER 11, 2007

PERMIT MODIFICATION (REVISION 1, 2, 3, 4, and 5) PREPARED BY:

SCS ENGINEERS
Texas Board of Professional Engineers, Reg. No. F-3407
1901 Central Drive, Suite 550
Bedford, Texas 76021
817/571-2288

Revision 1 – April 2009
Revision 2 – June 2009
Revision 3 – August 2009
Revision 4 – October 2024
Revision 5 – February 2025
Revision 6 – June 2025
SCS Project No. 16208046.00 & 16223092.00

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- 2.1 Site Description 1
- 2.2 Drainage Patterns 2
- 2.3 Drainage Area Map 3
- 2.4 Storm Runoff Determination 3
- 2.5 Pre-Development Storm Runoff 7

3.0 DEVELOPED CONDITIONS 7
- 3.1 Final Grading 7
- 3.2 Drainage Area Map 7
- 3.3 Drainage Controls 8
- 3.4 Sequence of Development for Drainage Structures 14
- 3.5 Maintenance of Drainage Structures 15

4.0 COMPARISON OF PRE-DEVELOPMENT AND FINAL DRAINAGE PATTERNS 15

5.0 TPDES CERTIFICATION 17

6.0 EROSION CONTROL PLAN 17

Attachments

6A Pre-Development Drainage Conditions
6A1 Calculations for Pre-Development Drainage Conditions
6B Final Drainage Conditions
6B1 Calculations for Final Drainage Conditions
6C Drainage Structures: Details
6D1 Drainage Structures: Interceptor Channel and Downchute Calculations
6D1A Intermediate Cover – Interceptor Channel and Downchute Drainage Sub-Basins
6D1B Final Cover – Interceptor Channel Drainage Sub-Basins
6D1C Final Cover – Downchute Drainage Sub-Basins
6D2 Drainage Structures: Perimeter Channel Calculations
6D3 Drainage Structures: Culvert at Main Entrance Calculations
6E1 Detention Ponds: Detention Pond A Design
6E2 Detention Ponds: Detention Pond B Design
6F Temporary Erosion & Sedimentation Control Measures

Appendices

1. Reference Material: City of Austin Drainage Criteria Manual
2. Erosion and Sedimentation Control Plan
2A. Soil Loss Analysis
2B. Overland Flow Velocity Analysis
3A. Reference Material: Soil Survey Map and Description, USLE/RUSLE References
4. Reference Material: Hydrology and Hydraulic Calculation References, MACCAFERRI Reno Mattress Information

pre-development condition. All stormwater will continue to be directed to the existing tributary of Saus Creek.

Pursuant to the drainage calculations presented in Attachments 6A, 6A1, 6B, 6B1, and stormwater detention design information presented in Attachment 6E, the post-landfill development drainage condition (final drainage condition) will not significantly alter pre-development drainage patterns in the vicinity of the landfill. The pre-development and final drainage conditions based on the 25-year, 24-hour storm event are summarized in the following tables. As shown below, the stormwater discharge and runoff volume leaving the property at Discharge Point I+II+III will not be greater than the pre-development conditions. While the discharge does increase at Discharge Point II, the creek is not adversely affected as the overall flow and runoff volume have not increased.

Table 4.1 – Peak Discharge

Discharge Point	Pre-Development Q25	Pre-Development Q100	Final Q25	Final Q100
I	212.55 cfs	333.90 cfs	≤174.44cfs	≤234.68cfs
II	94.60 cfs	148.69 cfs	≤197.84cfs	≤268.11cfs
III	111.97 cfs	175.97 cfs	≤73.98 cfs	≤99.19 cfs
I+II+III	408.60 cfs	624.90 cfs	≤408.40cfs	≤552.61cfs

Table 4.2 – Peak Velocity

Discharge Point	Pre-Development Q25	Pre-Development Q100	Final Q25	Final Q100
I	4.71 ft/s	5.37 ft/s	≤4.46 ft/s	≤4.86 ft/s
II	2.58 ft/s	2.91 ft/s	≤3.14 ft/s	≤3.42 ft/s
III	2.24 ft/s	2.55 ft/s	≤2.00 ft/s	≤2.17 ft/s
I+II+III	3.69 ft/s	4.12 ft/s	≤3.68 ft/s	≤3.98 ft/s

Table 4.3 – Runoff Volume

Discharge Point	Pre-Development Q25	Final Q25
I+II+III	3,644,945 cf	≤3,196,279 cf

5.0 TPDES CERTIFICATION

Consistent with the Texas Pollutant Discharge Elimination System (TPDES) General Permit, TXR050000, a Notice of Intent (NOI) for stormwater discharge associated with an industrial activity will be filed with the TCEQ prior to beginning landfill operations. Additionally, in accordance with the TPDES General Permit, a stormwater pollution prevention plan (SWPPP) will be prepared and implemented at the landfill prior to submitting the NOI. The NOI and SWPPP will be maintained at the landfill in the Site Operating Record.

6.0 EROSION CONTROL PLAN

An erosion control plan is included as Appendix 2 of this Attachment. Estimates of soil loss over the development and 30 year post-closure period are also included in this appendix.

Part III

Attachment 6

Attachment 6A1

CALCULATIONS FOR PRE-DEVELOPMENT DRAINAGE CONDITIONS

Worksheet 5a: Basic watershed data

Project	Location	By	Date
Maverick County LF	El Indio, TX	AA	6/18/25
Check one: ☑ Present ☐ Developed	Frequency (yr) 25-yr.	Checked IA	Date 6/18/25

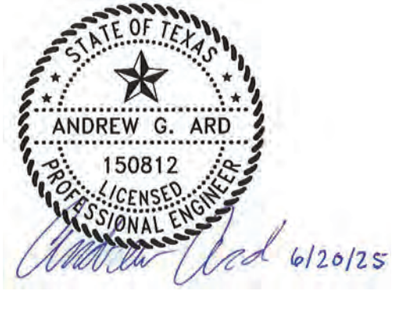
Subarea name	Drainage area A_m (mi^2)	Time of concentration T_c (hr)	Travel time through subarea T_t (hr)	Downstream subarea names	Travel time summation to outlet ΣT_t (hr)	24-hr rainfall P (in)	Runoff curve number CN	Runoff Q (in)	A_mQ (mi^2—in)	Initial abstraction I_a (in)	I_a/P
1	0.0034	0.17	0.02	2	0.05	7.86	80	5.50	0.0187	0.5	0.1
2	0.1401	0.48	0.03	–	0.03	7.86	80	5.50	0.7722	0.5	0.1
3	0.0671	0.48	0.07	2	0.1	7.86	80	5.50	0.3691	0.5	0.1
4	0.0794	0.61	0.07	2,3	0.17	7.86	80	5.50	0.4367	0.5	0.1
5	0.0047	0.53	0	1,2	0.05	7.86	80	5.50	0.0259	0.5	0.1

From worksheet 3 | From worksheet 2 | From table 5-1

6A1-4

Watershed Data					Hydrograph Discharge (cfs)																												
					Hydrograph Time (hrs)																														
Subarea Name	**Subarea Tc**	**Tt to Outlet**	**IA/P**	**AmQ**	11.0	11.3	11.6	11.9	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	13.0	13.2	13.4	13.6	13.8	14.0	14.3	14.6	15.0	15.5	16.0	16.5	17.0	17.5	18.0	19.0	20.0	22.0	26.0
1	0.17	0.05	0.1	0.0187	0.4	0.5	0.7	1.6	3.1	6.1	11.2	13.7	10.6	6.6	4.3	3.0	2.3	1.6	1.3	1.1	1.0	0.9	0.8	0.7	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.0
2	0.48	0.03	0.1	0.7722	13.1	17.8	24.7	44.0	72.6	131.3	237.8	360.6	408.5	391.5	310.4	229.3	174.5	108.1	74.1	57.1	47.1	40.9	36.3	31.7	27.8	24.7	22.4	20.1	17.8	16.2	15.4	14.7	12.4	10.8	9.3	0.0
3	0.48	0.1	0.1	0.3691	5.9	8.1	11.1	18.8	29.5	51.7	93.0	145.8	178.6	184.2	160.2	126.6	97.8	59.8	39.9	29.5	24.0	20.3	18.1	15.5	13.3	12.2	10.7	9.6	8.5	7.8	7.4	7.0	5.9	5.2	4.4	0.0
4	0.61	0.17	0.1	0.4367	6.1	8.3	10.9	16.6	20.5	30.1	50.7	90.4	145.0	189.5	208.3	196.1	165.1	103.9	65.1	44.1	33.6	27.1	23.1	19.7	17.0	14.8	13.1	11.8	10.5	9.6	8.7	8.3	7.4	6.1	5.2	0.0
5	0.53	0.05	0.1	0.0259	0.4	0.6	0.8	1.3	2.1	3.6	6.5	10.2	12.5	12.9	11.2	8.9	6.9	4.2	2.8	2.1	1.7	1.4	1.3	1.1	0.9	0.9	0.8	0.7	0.6	0.5	0.5	0.5	0.4	0.4	0.3	0.0
Composite Hydrograph					25.9	35.2	48.2	82.4	127.9	222.8	399.3	620.7	755.2	784.8	694.4	563.9	446.5	277.6	183.1	134.0	107.4	90.6	79.6	68.6	59.7	53.2	47.5	42.6	37.7	34.5	32.4	30.8	26.4	22.7	19.5	0.0
Runoff Volume Hydrograph (cf)					93,299	126,843	173,546	296,508	460,272	802,022	1,437,385	2,234,687	2,718,805	2,825,196	2,499,993	2,030,103	1,607,566	999,305	659,339	482,230	386,626	326,181	286,551	246,937	214,871	191,422	170,904	153,380	135,856	124,241	116,760	110,919	95,034	81,779	70,096	0
Runoff Volume Interpoloation (cf)					33,021	45,058	70,508	37,839	63,115	111,970	183,604	247,675	277,200	266,259	226,505	181,883	260,687	165,864	114,157	86,886	71,281	61,273	80,023	69,271	81,259	90,582	81,071	72,309	65,024	60,250	56,920	102,976	88,406	151,875	140,193	0
Runoff Volume Total (cf)					**3,644,945**																														

Note:
1.) Watershed Data from Worksheet 5A (Attachment 6A1), as referenced in NRCS TR-55. Coefficient references for Tabular Hydrograph methodology provided in Attachment 6, Appendix 4.



Discharge Point	Bottom Slope (ft/ft)	Bottom Width (ft)	Sideslope (XH:1V)	Depth (ft)	25-yr, 24-hr storm [2]		100-yr, 24-hr storm [2]		Mannings Coefficient [1]
					flow (cfs)	flow velocity (fps)	flow (cfs)	flow velocity (fps)	
I	0.0100	15	4	4	212.5	4.71	333.9	5.37	0.04
II	0.0050	15	8	4	108.5	2.58	169.8	2.91	0.04
III	0.0030	20	7	4	112.0	2.24	176.0	2.55	0.04
I+II+III	0.0050	20	9	6	408.6	3.69	624.9	4.12	0.04

Notes:

1.) Mannings coefficient is for natural, winding streams, as referenced from Table 4.1, "Design Hydrology and Sedimentology for Small Catchments", Haan et al., as described in Attachment 6, Appendix 3A.

2.) Stormwater flows were calculated using rational method and storm intensity coefficients for 25-yr, 24-hr or 100-yr, 24-hr storms, as shown in Attachment 6A1.

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Jun 11 2025

I

Trapezoidal

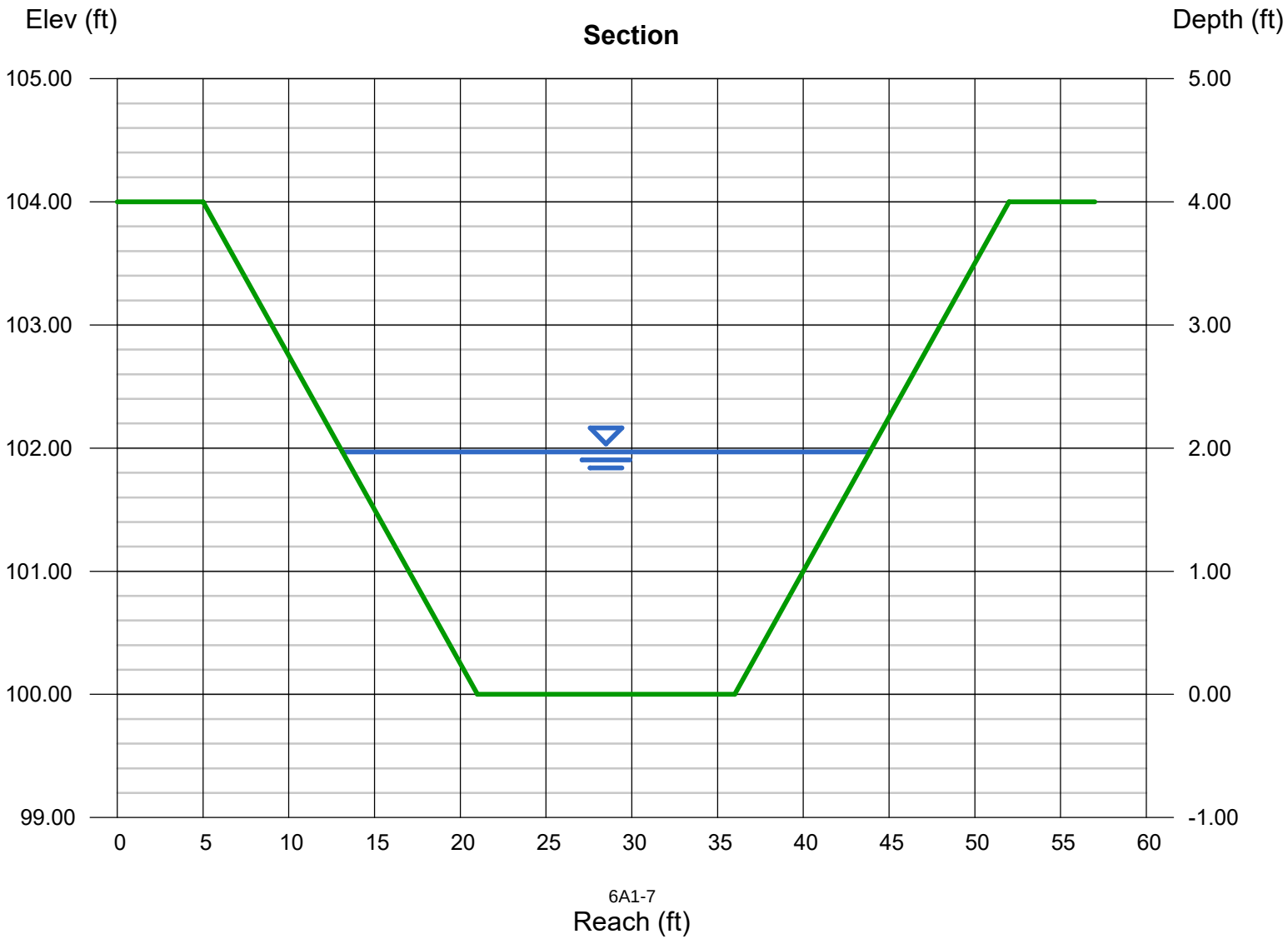
Bottom Width (ft)	= 15.00
Side Slopes (z:1)	= 4.00, 4.00
Total Depth (ft)	= 4.00
Invert Elev (ft)	= 100.00
Slope (%)	= 1.00
N-Value	= 0.040

Calculations

Compute by:	Known Q
Known Q (cfs)	= 212.50

Highlighted

Depth (ft)	= 1.97
Q (cfs)	= 212.50
Area (sqft)	= 45.07
Velocity (ft/s)	= 4.71
Wetted Perim (ft)	= 31.25
Crit Depth, Yc (ft)	= 1.59
Top Width (ft)	= 30.76
EGL (ft)	= 2.32



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Jun 11 2025

I - 100 yr.

Trapezoidal

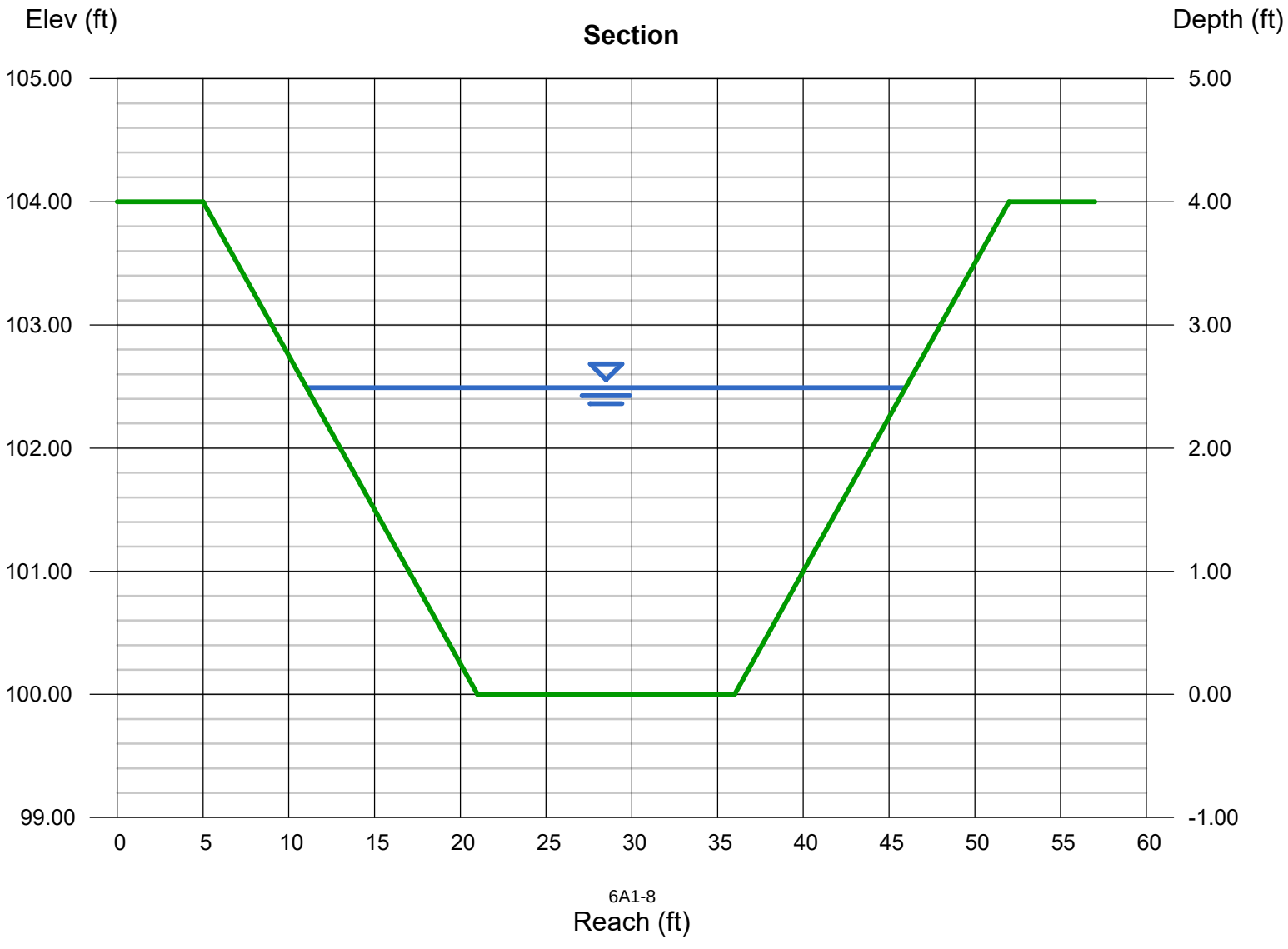
Bottom Width (ft)=	= 15.00
Side Slopes (z:1)=	= 4.00, 4.00
Total Depth (ft)=	= 4.00
Invert Elev (ft)=	= 100.00
Slope (%)	= 1.00
N-Value	= 0.040

Calculations

Compute by:=	Known Q
Known Q (cfs)	= 333.90

Highlighted

Depth (ft)	= 2.49
Q (cfs)	= 333.90
Area (sqft)	= 62.15
Velocity (ft/s)	= 5.37
Wetted Perim (ft)	= 35.53
Crit Depth, Yc (ft)	= 2.06
Top Width (ft)	= 34.92
EGL (ft)	= 2.94



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Jun 11 2025

II

Trapezoidal

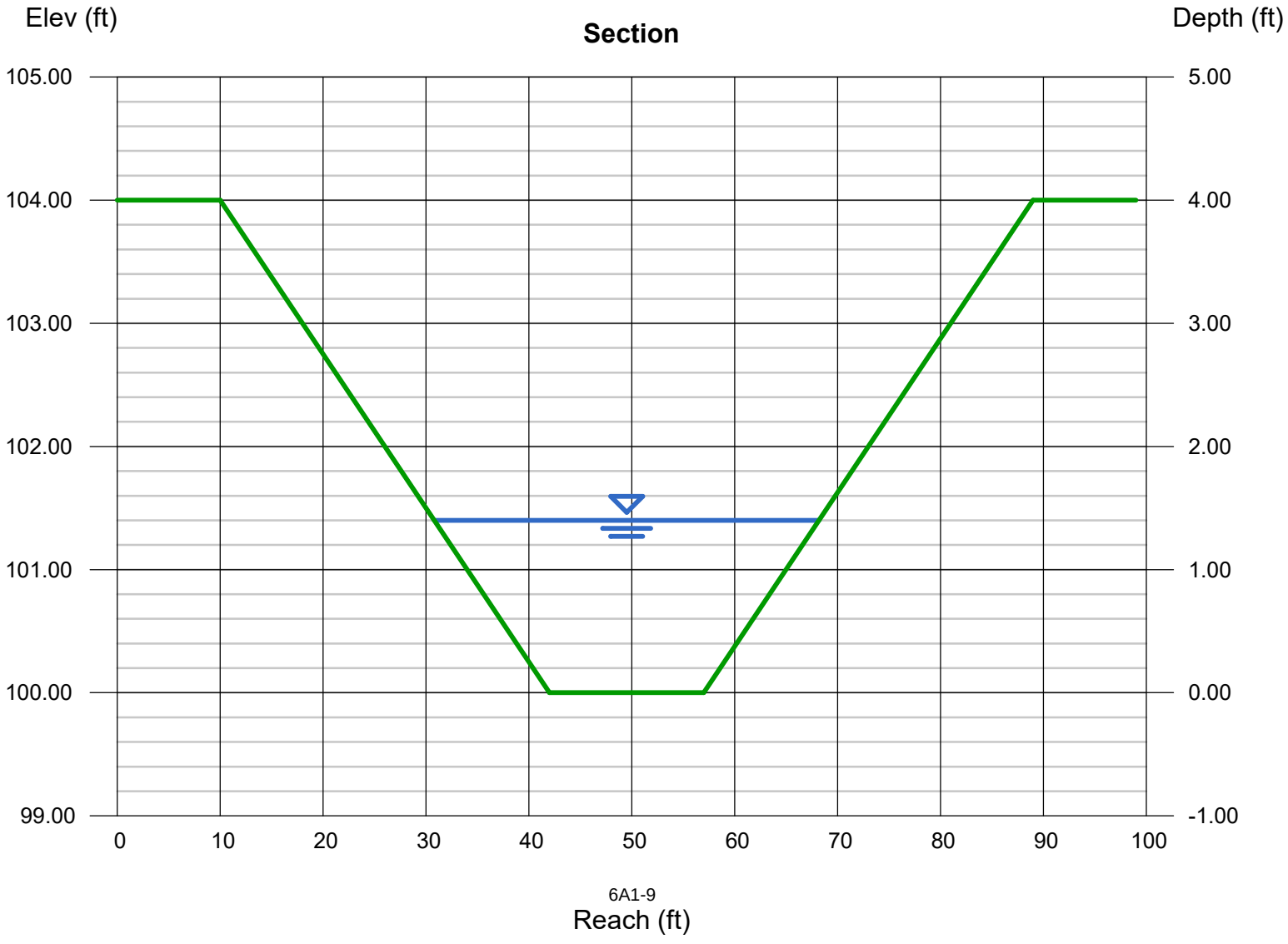
Bottom Width (ft)	= 15.00
Side Slopes (z:1)	= 8.00, 8.00
Total Depth (ft)	= 4.00
Invert Elev (ft)	= 100.00
Slope (%)	= 0.50
N-Value	= 0.040

Calculations

Compute by:	Known Q
Known Q (cfs)	= 94.60

Highlighted

Depth (ft)	= 1.40
Q (cfs)	= 94.60
Area (sqft)	= 36.68
Velocity (ft/s)	= 2.58
Wetted Perim (ft)	= 37.57
Crit Depth, Yc (ft)	= 0.91
Top Width (ft)	= 37.40
EGL (ft)	= 1.50



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Jun 11 2025

II - 100 yr.

Trapezoidal

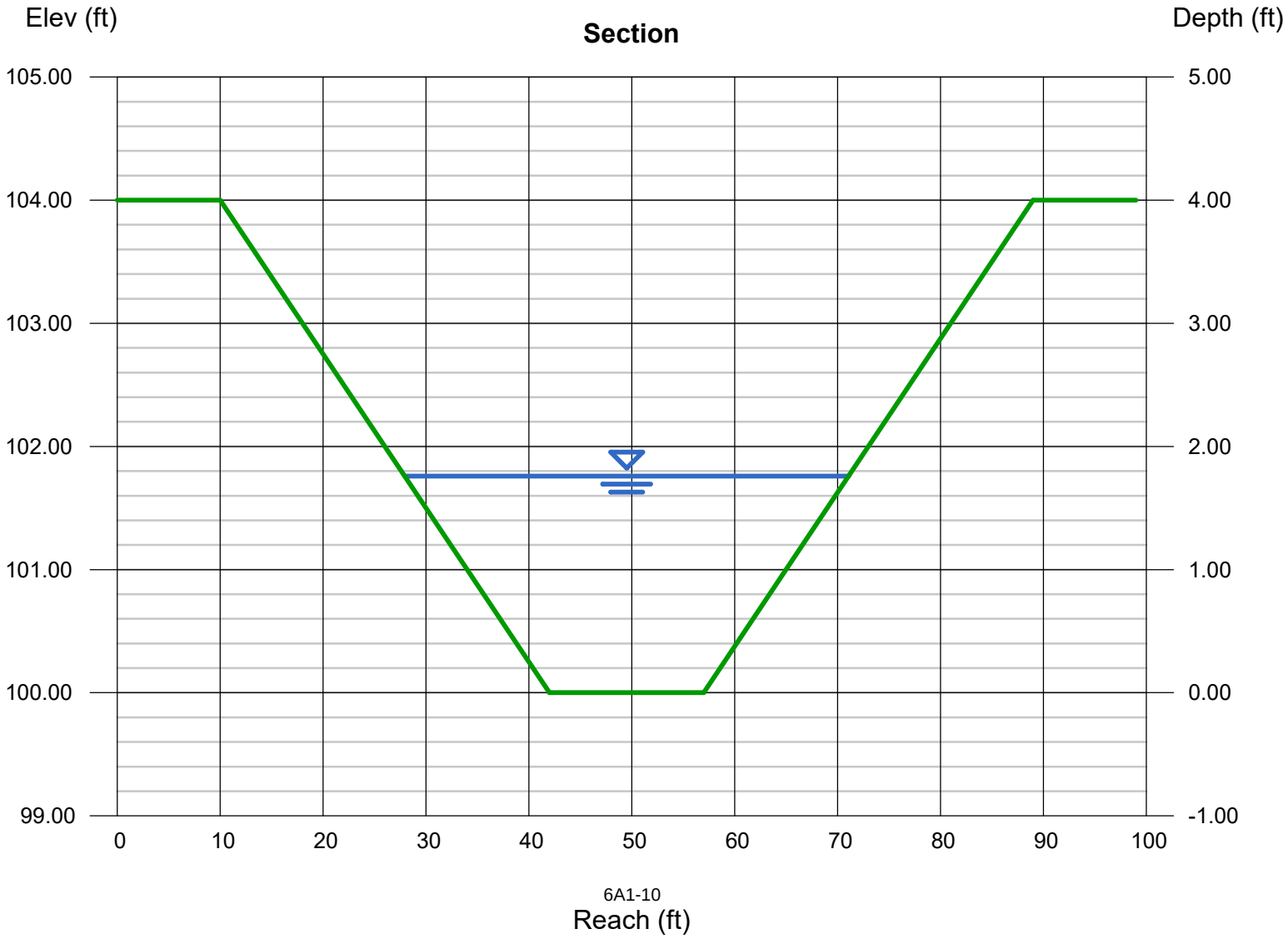
Bottom Width (ft)=	= 15.00
Side Slopes (z:1)=	= 8.00, 8.00
Total Depth (ft)=	= 4.00
Invert Elev (ft)=	= 100.00
Slope (%)	= 0.50
N-Value	= 0.040

Calculations

Compute by:=	Known Q
Known Q (cfs)	= 148.70

Highlighted

Depth (ft)	= 1.76
Q (cfs)	= 148.70
Area (sqft)	= 51.18
Velocity (ft/s)	= 2.91
Wetted Perim (ft)	= 43.38
Crit Depth, Yc (ft)	= 1.18
Top Width (ft)	= 43.16
EGL (ft)	= 1.89



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Jun 11 2025

III

Trapezoidal

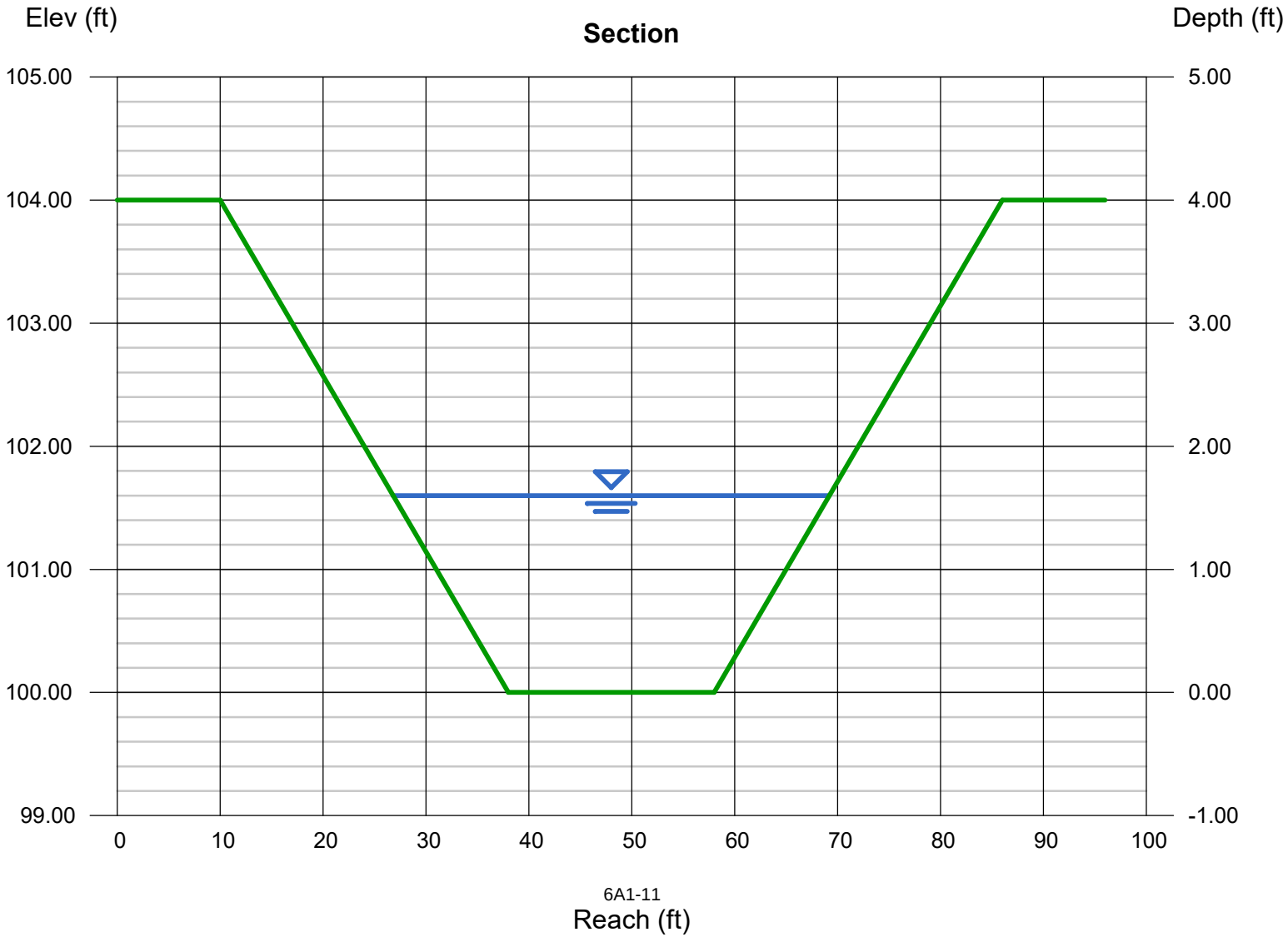
Bottom Width (ft)	= 20.00
Side Slopes (z:1)	= 7.00, 7.00
Total Depth (ft)	= 4.00
Invert Elev (ft)	= 100.00
Slope (%)	= 0.30
N-Value	= 0.040

Calculations

Compute by:	Known Q
Known Q (cfs)	= 112.00

Highlighted

Depth (ft)	= 1.60
Q (cfs)	= 112.00
Area (sqft)	= 49.92
Velocity (ft/s)	= 2.24
Wetted Perim (ft)	= 42.63
Crit Depth, Yc (ft)	= 0.89
Top Width (ft)	= 42.40
EGL (ft)	= 1.68



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Jun 11 2025

III - 100 yr.

Trapezoidal

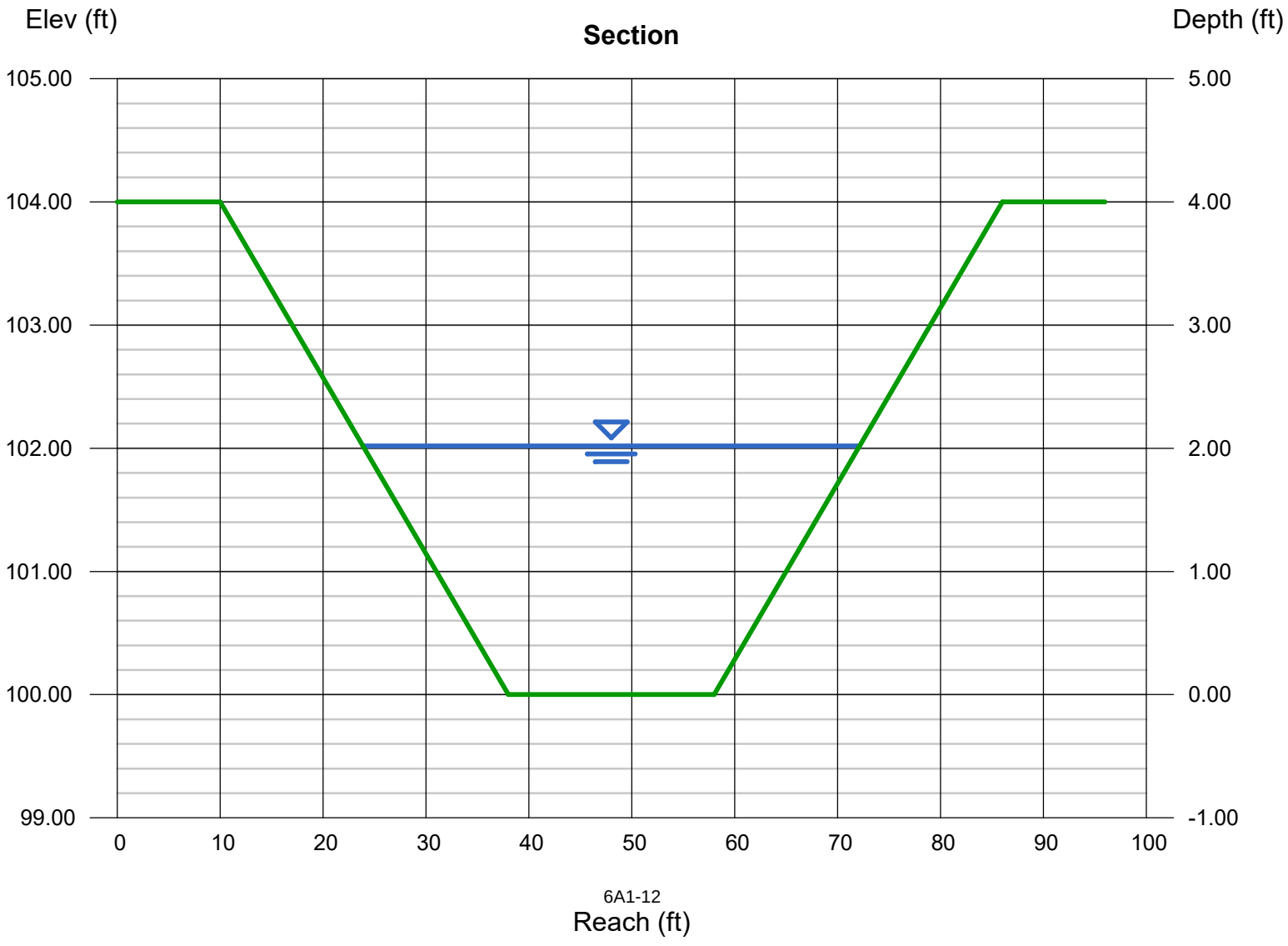
Bottom Width (ft)=	= 20.00
Side Slopes (z:1)=	= 7.00, 7.00
Total Depth (ft)=	= 4.00
Invert Elev (ft)=	= 100.00
Slope (%)	= 0.30
N-Value	= 0.040

Calculations

Compute by:=	Known Q
Known Q (cfs)	= 176.00

Highlighted

Depth (ft)	= 2.02
Q (cfs)	= 176.00
Area (sqft)	= 68.96
Velocity (ft/s)	= 2.55
Wetted Perim (ft)	= 48.57
Crit Depth, Yc (ft)	= 1.17
Top Width (ft)	= 48.28
EGL (ft)	= 2.12



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Jun 11 2025

I+II+III

Trapezoidal

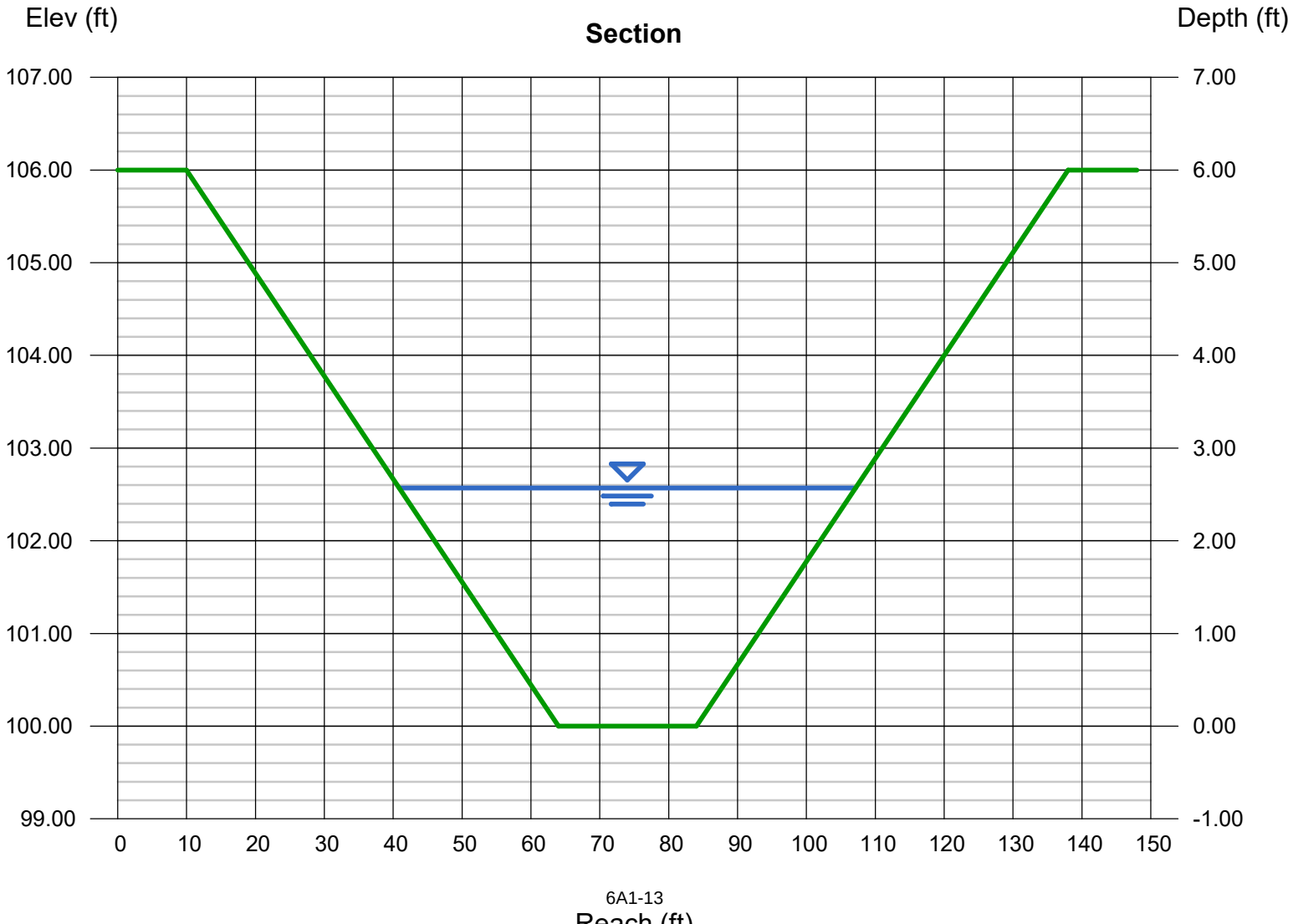
Bottom Width (ft)	= 20.00
Side Slopes (z:1)	= 9.00, 9.00
Total Depth (ft)	= 6.00
Invert Elev (ft)	= 100.00
Slope (%)	= 0.50
N-Value	= 0.040

Calculations

Compute by:	Known Q
Known Q (cfs)	= 408.60

Highlighted

Depth (ft)	= 2.57
Q (cfs)	= 408.60
Area (sqft)	= 110.84
Velocity (ft/s)	= 3.69
Wetted Perim (ft)	= 66.54
Crit Depth, Yc (ft)	= 1.80
Top Width (ft)	= 66.26
EGL (ft)	= 2.78



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Jun 11 2025

I+II+III - 100 yr.

Trapezoidal

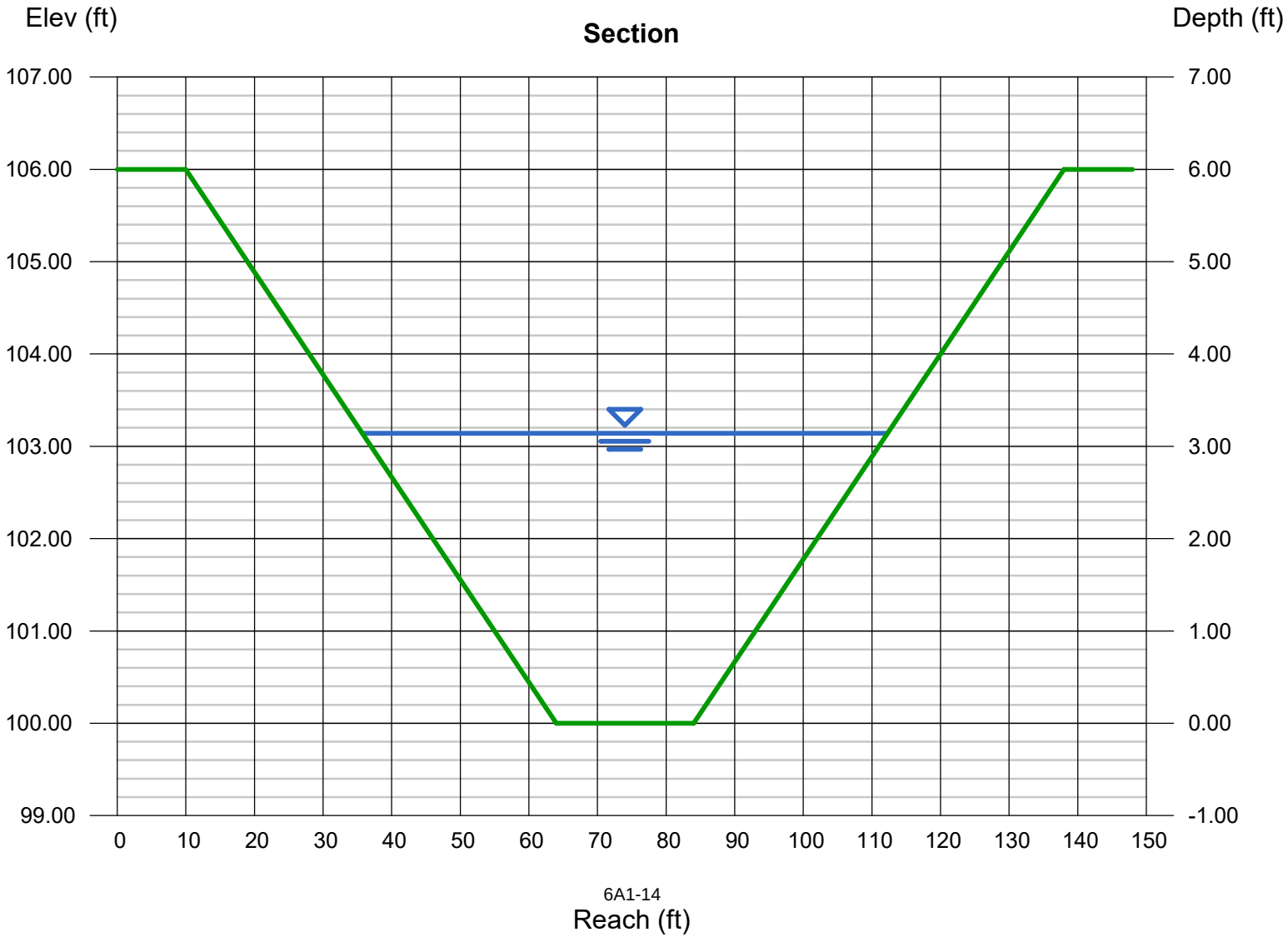
Bottom Width (ft)=	= 20.00
Side Slopes (z:1)=	= 9.00, 9.00
Total Depth (ft)=	= 6.00
Invert Elev (ft)=	= 100.00
Slope (%)	= 0.50
N-Value	= 0.040

Calculations

Compute by:=	Known Q
Known Q (cfs)	= 624.90

Highlighted

Depth (ft)	= 3.14
Q (cfs)	= 624.90
Area (sqft)	= 151.54
Velocity (ft/s)	= 4.12
Wetted Perim (ft)	= 76.87
Crit Depth, Yc (ft)	= 2.25
Top Width (ft)	= 76.52
EGL (ft)	= 3.40



Part III

Attachment 6

Attachment 6B1

CALCULATIONS FOR FINAL DRAINAGE CONDITIONS

Worksheet 5a: Basic watershed data

Project	Location	By	Date
Maverick County LF	El Indio, TX	AA	6/18/25
Check one: ☐ Present ☑ Developed	Frequency (yr) 25-yr	Checked IA	Date 6/18/25

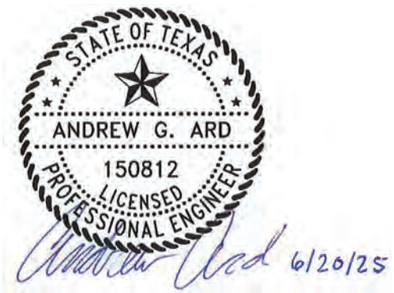
Subarea name	Drainage area A_m (mi^2)	Time of concentration T_c (hr)	Travel time through subarea T_t (hr)	Downstream subarea names	Travel time summation to outlet ΣT_t (hr)	24-hr rainfall P (in)	Runoff curve number CN	Runoff Q (in)	A_mQ (mi^2—in)	Initial abstraction I_a (in)	I_a/P
E	0.0311	0.42	0	H,I,G,F	0.2	7.86	85	6.08	0.189	0.353	0.1
F	0.0433	0.57	0.05	–	0.1	7.86	85	6.08	0.263	0.353	0.1
G	0.0224	0.34	0.05	F	0.1	7.86	85	6.08	0.136	0.353	0.1
H	0.0187	0.44	0.06	I,G,F	0.2	7.86	85	6.08	0.114	0.353	0.1
I	0.0086	0.29	0.02	G,F	0.1	7.86	85	6.08	0.052	0.353	0.1
4AR	0.0172	0.46	0	I,G,F,H	0.2	7.86	80	5.50	0.095	0.5	0.1
4BR	0.0448	0.47	0	I,G,F	0.1	7.86	80	5.50	0.246	0.5	0.1

From worksheet 3 | From worksheet 2 | From table 5-1

6B1-4

Watershed Data					Hydrograph Discharge (cfs)																														
					Hydrograph Time (hrs)																																
Subarea Name	**Subarea Tc**	**Tt to Outlet**	**IA/P**	**AmQ**	11.0	11.3	11.6	11.9	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	13.0	13.2	13.4	13.6	13.8	14.0	14.3	14.6	15.0	15.5	16.0	16.5	17.0	17.5	18.0	19.0	20.0	22.0	26.0
A,B,C,D (Pond A)	0.56	0.50	0.1	0.578	9.7	11.8	14.8	46.9	62.7	86.4	105.3	126.7	128.4	125.9	119.1	109.3	84.7	58.1	38.8	24.4	19.9	15.9	14.2	11.9	10.7	9.6	8.5	7.6	6.7	6.2	5.6	5.4	4.7	4.0	3.5	0.0
E	0.42	0.35	0.1	0.189	2.8	3.8	5.3	0.8	11.2	18.3	33.8	59.7	85.8	98.8	92.4	75.8	58.4	33.6	21.2	15.3	12.3	10.6	9.3	7.9	7.0	6.2	5.7	4.9	4.3	4.0	3.8	3.6	3.2	2.6	2.3	0.0
F	0.57	0.05	0.1	0.263	4.2	5.8	7.9	13.4	21.0	36.8	66.3	103.9	127.3	131.2	114.1	90.2	69.7	42.6	28.4	21.0	17.1	14.5	12.9	11.0	9.5	8.7	7.6	6.8	6.0	5.5	5.3	5.0	4.2	3.7	3.2	0.0
G	0.34	0.10	0.1	0.136	2.6	3.5	5.3	13.5	25.7	49.1	77.7	87.2	70.7	49.2	34.1	24.6	18.5	12.1	9.5	8.2	7.2	6.5	5.8	5.0	4.6	4.2	3.8	3.4	3.0	2.9	2.6	2.4	2.2	1.9	1.6	0.0
H	0.44	0.35	0.1	0.114	1.7	2.3	3.2	0.5	6.7	11.1	20.4	36.0	51.8	59.6	55.7	45.7	35.2	20.3	12.8	9.2	7.4	6.4	5.6	4.8	4.2	3.8	3.4	3.0	2.6	2.4	2.3	2.2	1.9	1.6	1.4	0.0
I	0.29	0.29	0.1	0.052	1.0	1.4	2.0	5.2	9.9	18.8	29.8	33.5	27.1	18.9	13.1	9.4	7.1	4.6	3.7	3.1	2.8	2.5	2.2	1.9	1.8	1.6	1.5	1.3	1.1	1.1	1.0	0.9	0.8	0.7	0.6	0.0
4AR	0.46	0.29	0.1	0.095	1.3	1.8	2.4	3.6	4.5	6.6	11.0	19.7	31.5	41.2	45.3	42.7	35.9	22.6	14.2	9.6	7.3	5.9	5.0	4.3	3.7	3.2	2.9	2.6	2.3	2.1	1.9	1.8	1.6	1.3	1.1	0.0
4BR	0.47	0.29	0.1	0.246	3.9	5.4	7.4	12.5	19.7	34.4	62.0	97.2	119.1	122.8	106.8	84.4	65.2	39.9	26.6	19.7	16.0	13.5	12.1	10.3	8.9	8.1	7.1	6.4	5.7	5.2	4.9	4.7	3.9	3.4	3.0	0.0
Composite Hydrograph					27.3	35.8	48.3	96.3	161.3	261.5	406.3	563.8	641.7	647.7	580.7	482.1	374.7	233.9	155.0	110.6	90.0	75.8	67.1	57.2	50.3	45.5	40.5	36.0	31.8	29.3	27.3	26.0	22.6	19.3	16.6	0.0
Runoff Volume Hydrograph (cf)					98,261	128,722	173,768	346,726	580,794	941,566	1,462,634	2,029,695	2,310,199	2,331,786	2,090,614	1,735,593	1,348,982	841,866	558,133	397,980	323,891	272,832	241,616	206,073	181,220	163,657	145,694	129,535	114,467	105,459	98,337	93,674	81,436	69,598	59,913	0
Runoff Volume Interpoloation (cf)					34,048	45,373	78,074	46,376	76,118	120,210	174,616	216,995	232,099	221,120	191,310	154,229	219,085	140,000	95,611	72,187	59,672	51,445	67,153	58,094	68,975	77,338	68,807	61,001	54,982	50,949	48,003	87,555	75,517	129,511	119,825	0
Runoff Volume Total (cf)					**3,196,279**																														

Note:
1.) Watershed Data from Worksheet 5A (Attachment 6B1), as referenced in NRCS TR-55. Coefficient references for Tabular Hydrograph methodology provided in Attachment 6, Appendix 4.

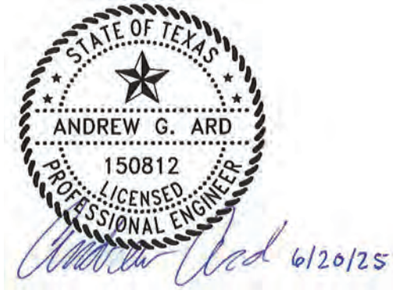


Discharge Point	Bottom Slope (ft/ft)	Bottom Width (ft)	Sideslope (XH:1V)	Depth (ft)	25-yr, 24-hr storm [2]		100-yr, 24-hr storm [2]		Mannings Coefficient [1]
					flow (cfs)	flow velocity (fps)	flow (cfs)	flow velocity (fps)	
I	0.0100	15	4	4	174.2	4.46	234.3	4.86	0.04
II	0.0050	15	8	4	197.8	3.14	268.1	3.42	0.04
III	0.0030	20	7	4	74.0	2.00	99.2	2.17	0.04
I+II+III	0.0050	20	9	6	408.4	3.68	552.6	3.98	0.04

Notes:

1.) Mannings coefficient is for natural, winding streams, as referenced from Table 4.1, "Design Hydrology and Sedimentology for Small Catchments", Haan et al., as described in Attachment 6, Appendix 3A.

2.) Stormwater flows were calculated using rational method and storm intensity coefficients for 25-yr, 24-hr or 100-yr, 24-hr storms, as shown in Attachment 6B1.



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Jun 11 2025

I

Trapezoidal

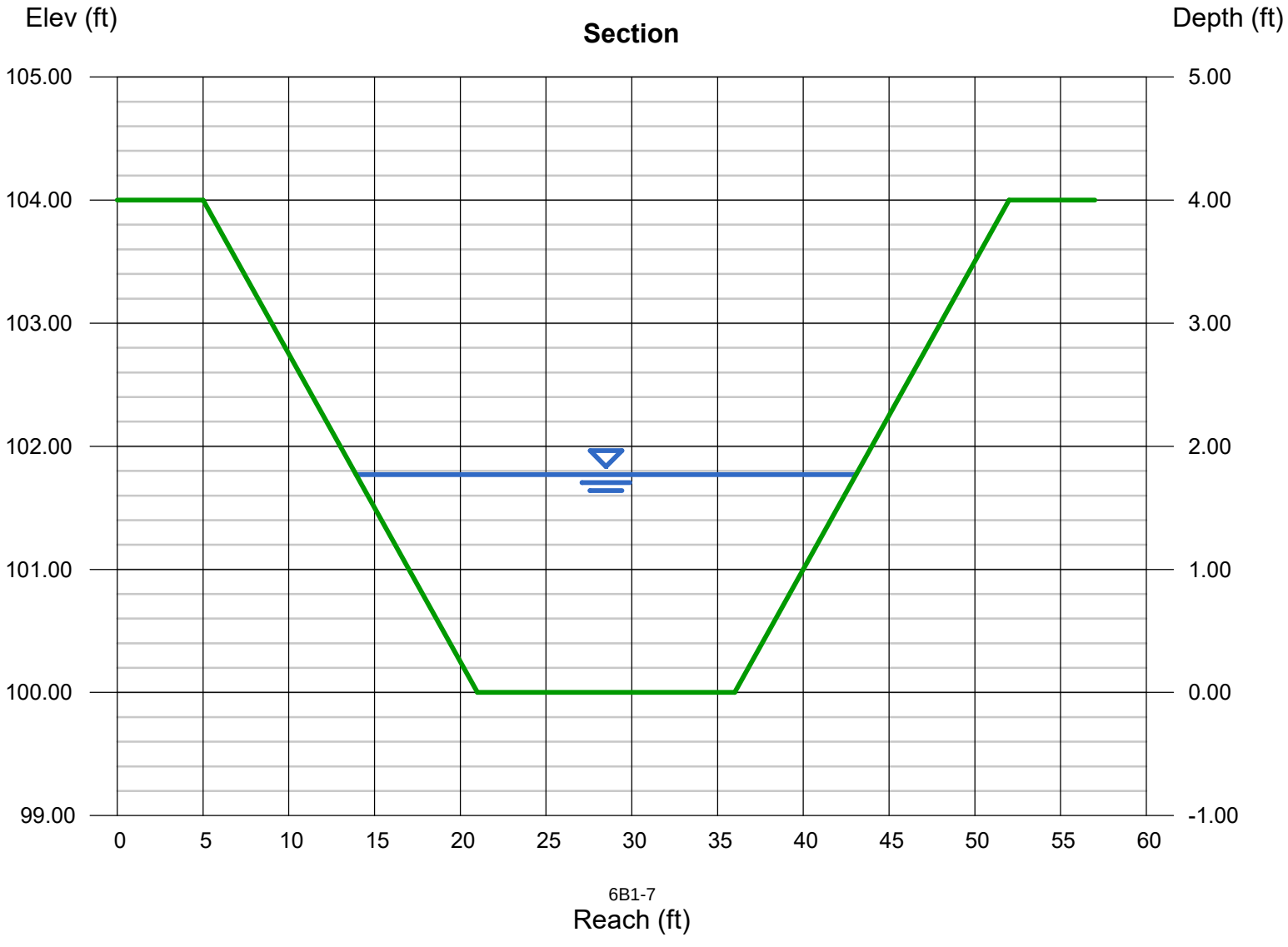
Bottom Width (ft)	= 15.00
Side Slopes (z:1)	= 4.00, 4.00
Total Depth (ft)	= 4.00
Invert Elev (ft)	= 100.00
Slope (%)	= 1.00
N-Value	= 0.040

Calculations

Compute by:	Known Q
Known Q (cfs)	= 174.20

Highlighted

Depth (ft)	= 1.77
Q (cfs)	= 174.20
Area (sqft)	= 39.08
Velocity (ft/s)	= 4.46
Wetted Perim (ft)	= 29.60
Crit Depth, Yc (ft)	= 1.42
Top Width (ft)	= 29.16
EGL (ft)	= 2.08



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Jun 11 2025

I - 100 yr.

Trapezoidal

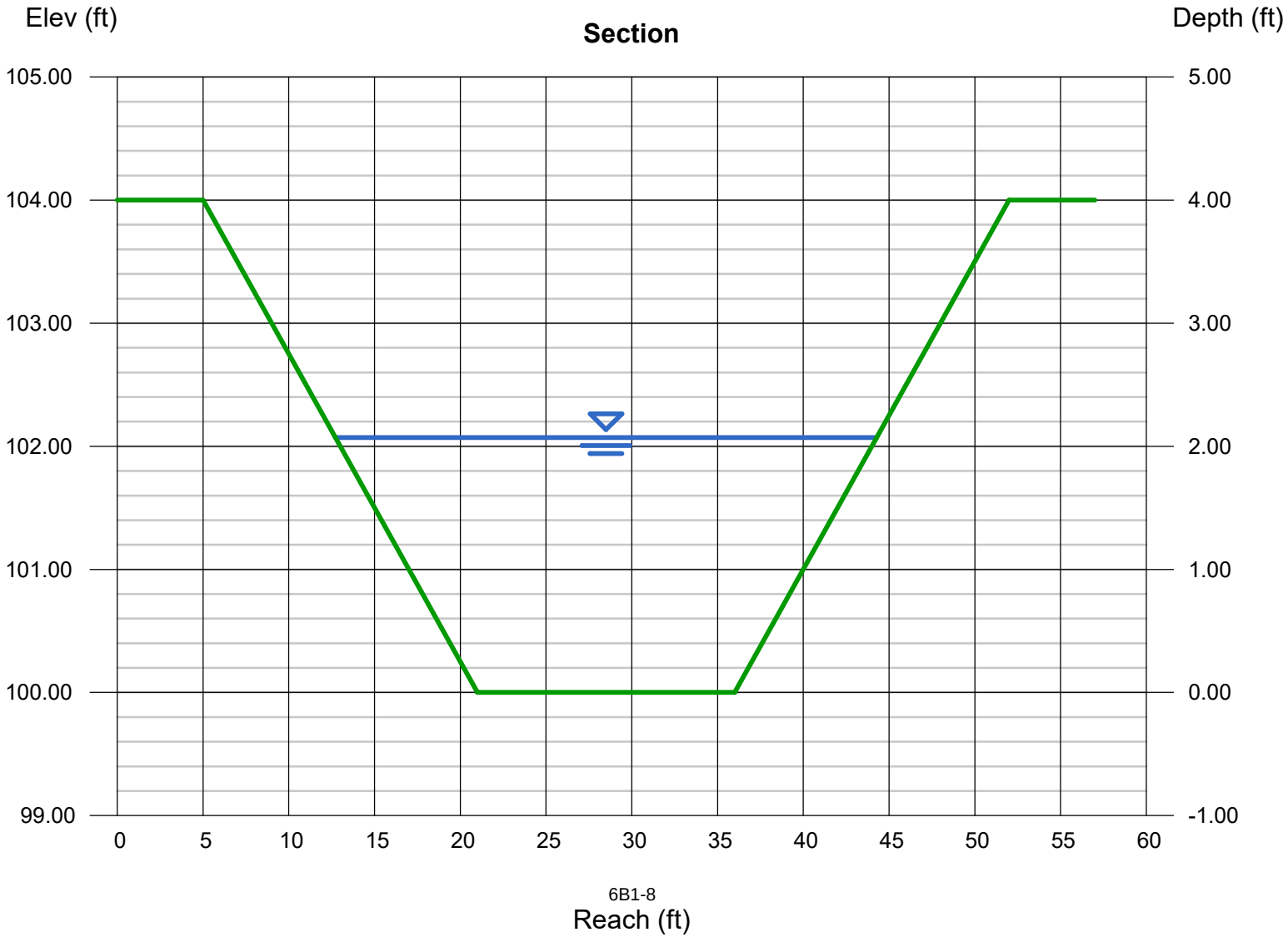
Bottom Width (ft)=	= 15.00
Side Slopes (z:1)=	= 4.00, 4.00
Total Depth (ft)=	= 4.00
Invert Elev (ft)=	= 100.00
Slope (%)	= 1.00
N-Value	= 0.040

Calculations

Compute by:=	Known Q
Known Q (cfs)	= 234.30

Highlighted

Depth (ft)	= 2.07
Q (cfs)	= 234.30
Area (sqft)	= 48.19
Velocity (ft/s)	= 4.86
Wetted Perim (ft)	= 32.07
Crit Depth, Yc (ft)	= 1.68
Top Width (ft)	= 31.56
EGL (ft)	= 2.44



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Jun 11 2025

II

Trapezoidal

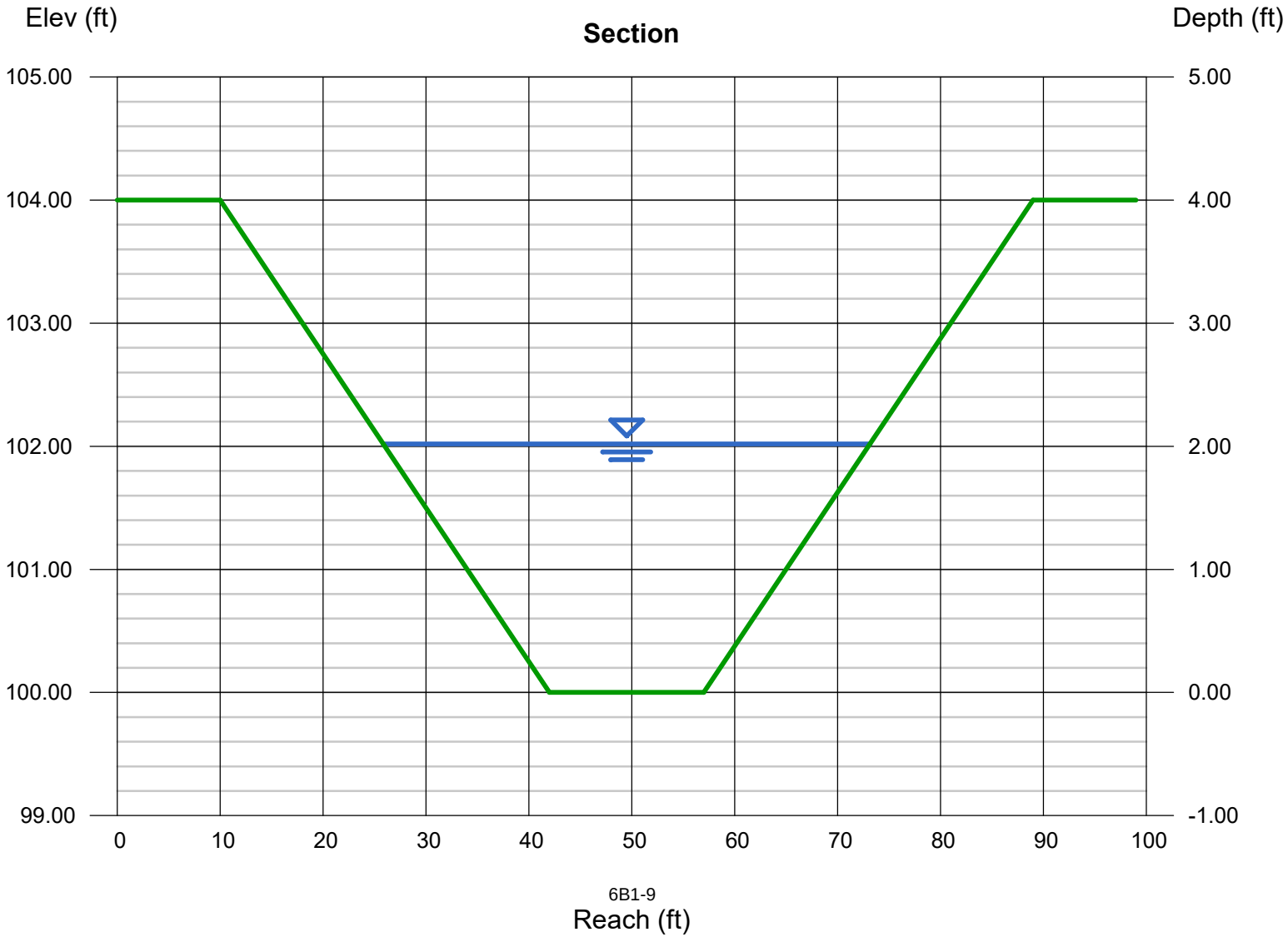
Bottom Width (ft)	= 15.00
Side Slopes (z:1)	= 8.00, 8.00
Total Depth (ft)	= 4.00
Invert Elev (ft)	= 100.00
Slope (%)	= 0.50
N-Value	= 0.040

Calculations

Compute by:	Known Q
Known Q (cfs)	= 197.80

Highlighted

Depth (ft)	= 2.02
Q (cfs)	= 197.80
Area (sqft)	= 62.94
Velocity (ft/s)	= 3.14
Wetted Perim (ft)	= 47.57
Crit Depth, Yc (ft)	= 1.37
Top Width (ft)	= 47.32
EGL (ft)	= 2.17



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Jun 11 2025

II - 100 yr.

Trapezoidal

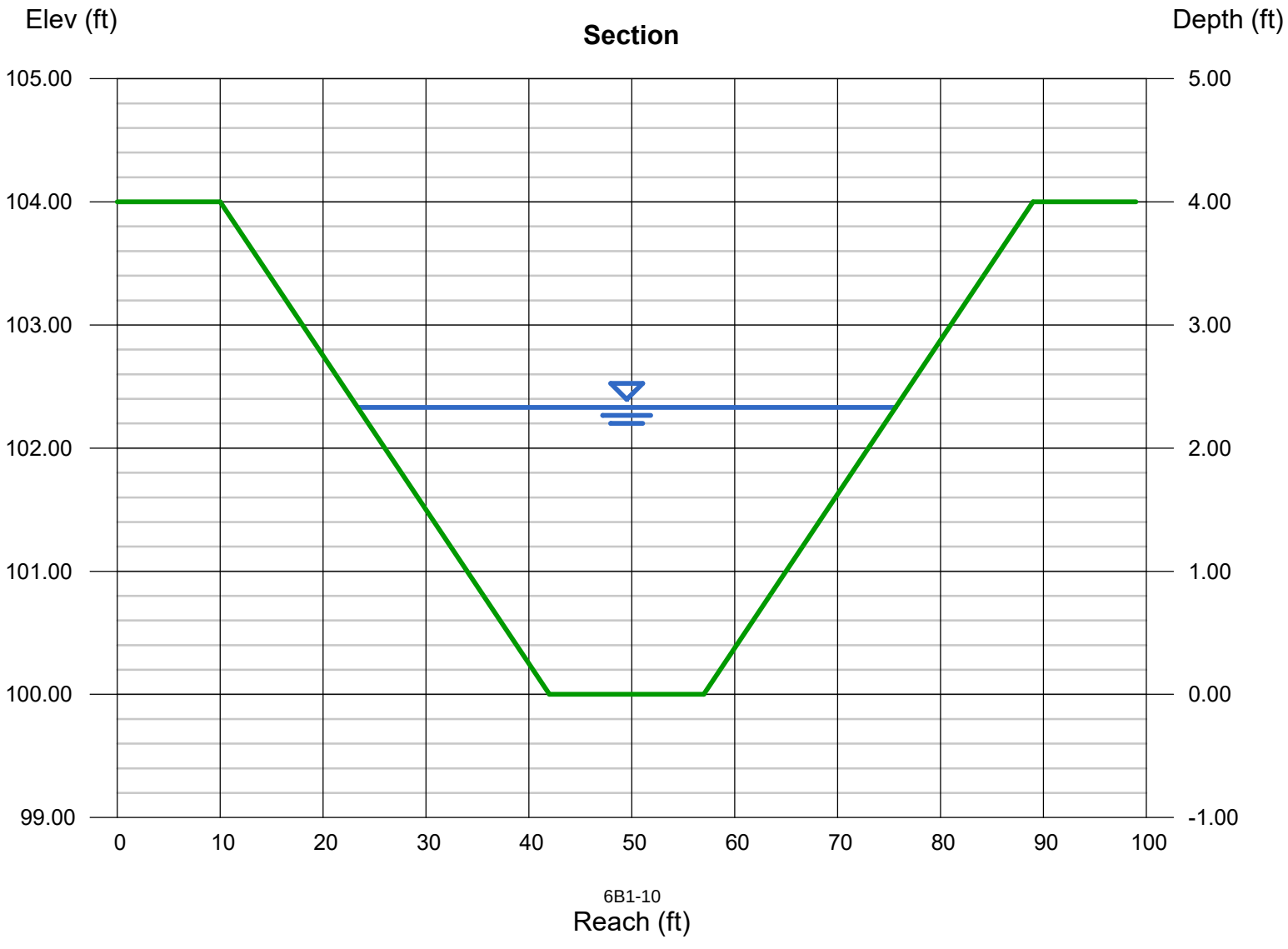
Bottom Width (ft)=	= 15.00
Side Slopes (z:1)=	= 8.00, 8.00
Total Depth (ft)=	= 4.00
Invert Elev (ft)=	= 100.00
Slope (%)	= 0.50
N-Value	= 0.040

Calculations

Compute by:=	Known Q
Known Q (cfs)	= 268.10

Highlighted

Depth (ft)	= 2.33
Q (cfs)	= 268.10
Area (sqft)	= 78.38
Velocity (ft/s)	= 3.42
Wetted Perim (ft)	= 52.57
Crit Depth, Yc (ft)	= 1.62
Top Width (ft)	= 52.28
EGL (ft)	= 2.51



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Jun 11 2025

III

Trapezoidal

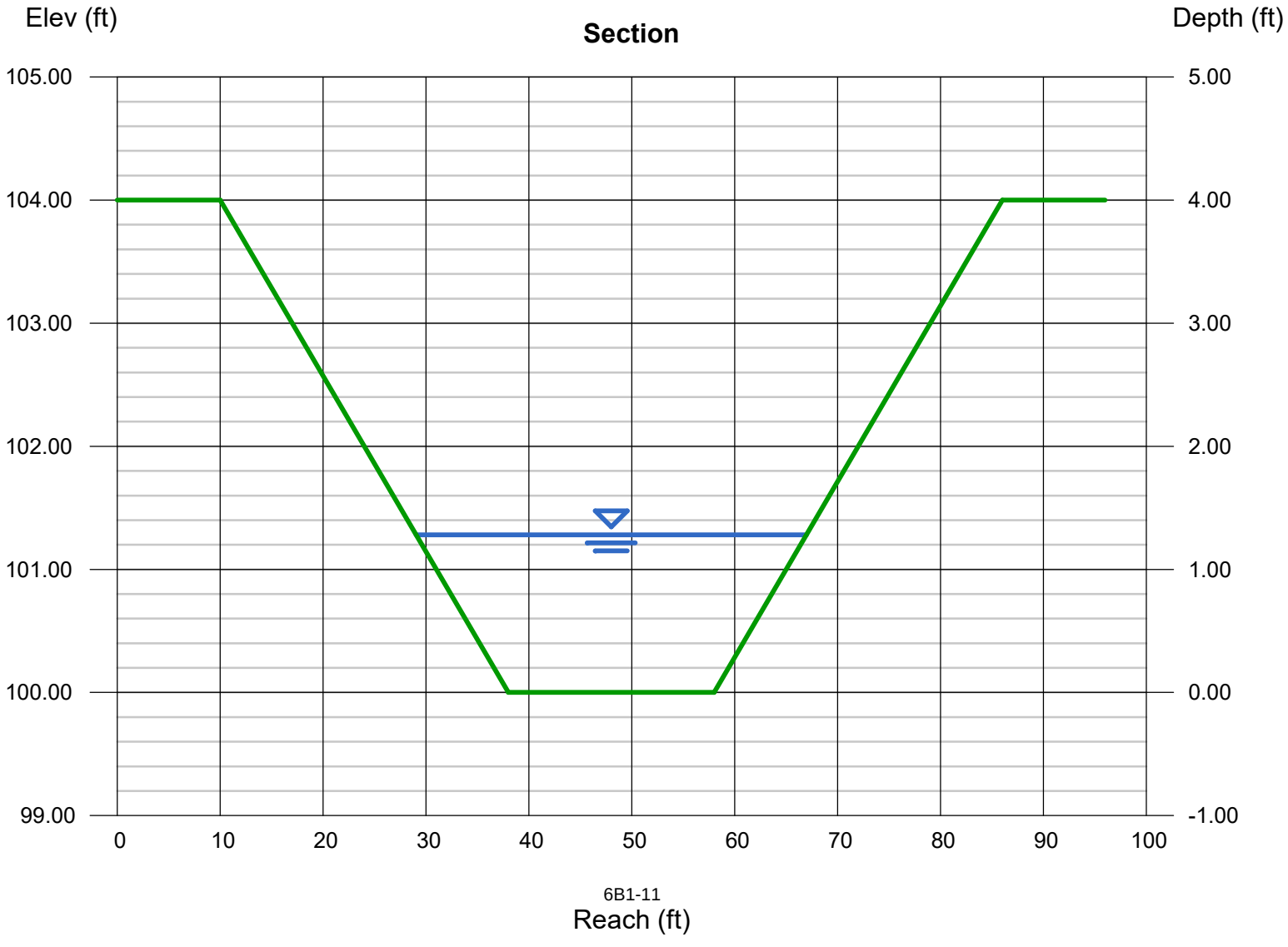
Bottom Width (ft)	= 20.00
Side Slopes (z:1)	= 7.00, 7.00
Total Depth (ft)	= 4.00
Invert Elev (ft)	= 100.00
Slope (%)	= 0.30
N-Value	= 0.040

Calculations

Compute by:	Known Q
Known Q (cfs)	= 74.00

Highlighted

Depth (ft)	= 1.28
Q (cfs)	= 74.00
Area (sqft)	= 37.07
Velocity (ft/s)	= 2.00
Wetted Perim (ft)	= 38.10
Crit Depth, Yc (ft)	= 0.70
Top Width (ft)	= 37.92
EGL (ft)	= 1.34



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Jun 11 2025

III - 100 yr.

Trapezoidal

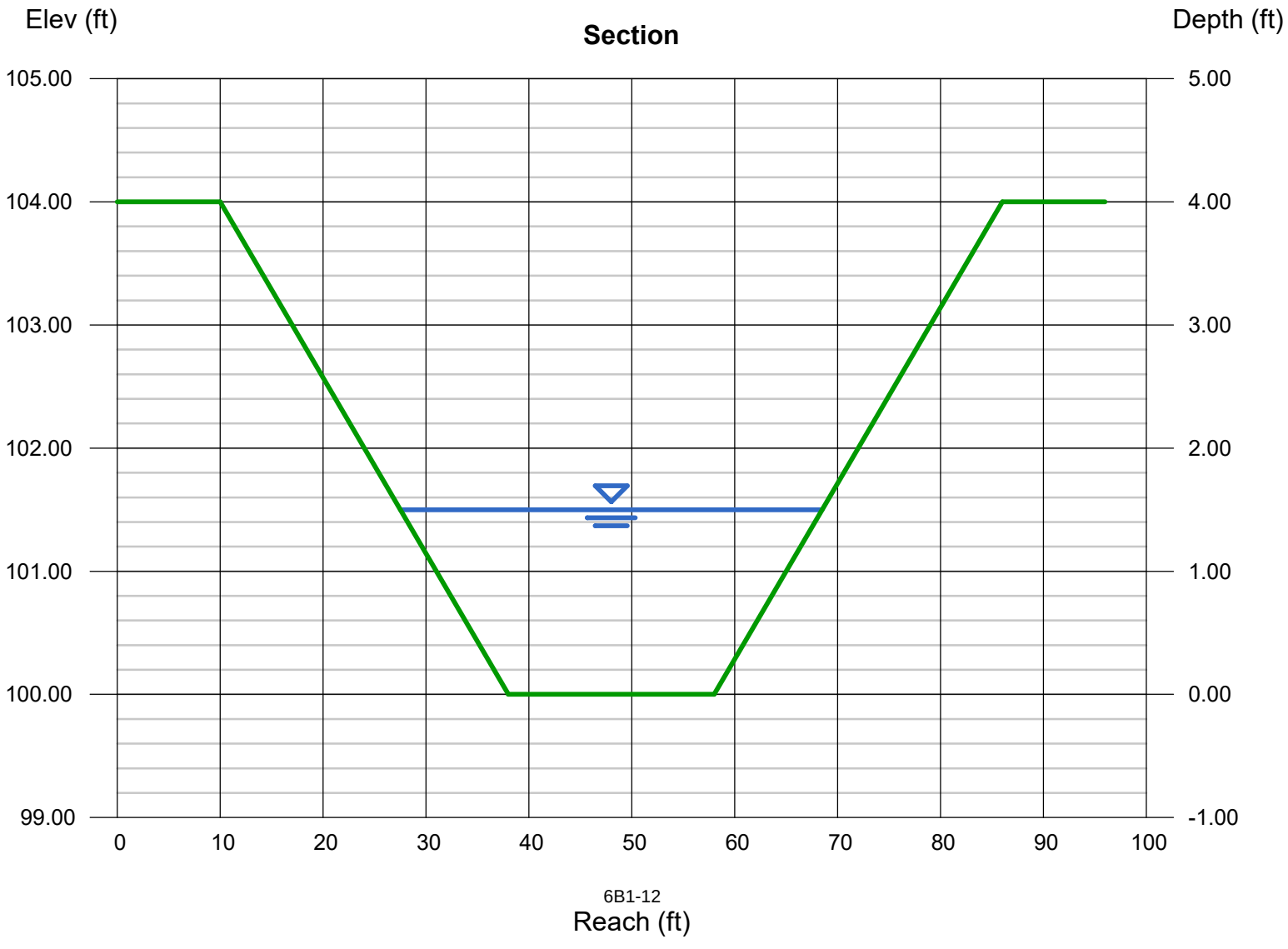
Bottom Width (ft)=	= 20.00
Side Slopes (z:1)=	= 7.00, 7.00
Total Depth (ft)=	= 4.00
Invert Elev (ft)=	= 100.00
Slope (%)	= 0.30
N-Value	= 0.040

Calculations

Compute by:=	Known Q
Known Q (cfs)	= 99.20

Highlighted

Depth (ft)	= 1.50
Q (cfs)	= 99.20
Area (sqft)	= 45.75
Velocity (ft/s)	= 2.17
Wetted Perim (ft)	= 41.21
Crit Depth, Yc (ft)	= 0.83
Top Width (ft)	= 41.00
EGL (ft)	= 1.57



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Jun 11 2025

I+II+III

Trapezoidal

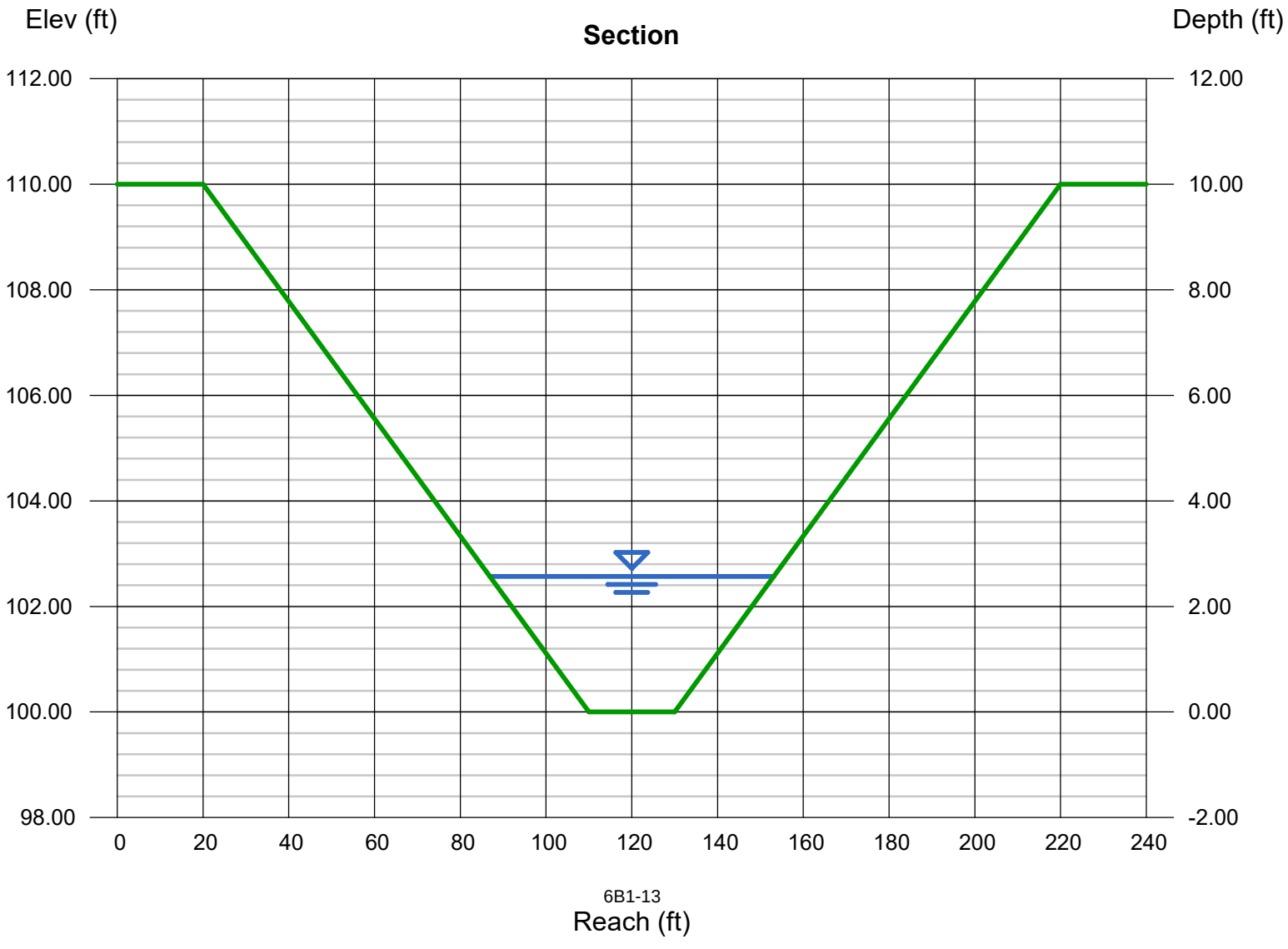
Bottom Width (ft)	= 20.00
Side Slopes (z:1)	= 9.00, 9.00
Total Depth (ft)	= 10.00
Invert Elev (ft)	= 100.00
Slope (%)	= 0.50
N-Value	= 0.040

Calculations

Compute by:	Known Q
Known Q (cfs)	= 408.40

Highlighted

Depth (ft)	= 2.57
Q (cfs)	= 408.40
Area (sqft)	= 110.84
Velocity (ft/s)	= 3.68
Wetted Perim (ft)	= 66.54
Crit Depth, Yc (ft)	= 1.80
Top Width (ft)	= 66.26
EGL (ft)	= 2.78



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Jun 11 2025

I+II+III - 100 yr.

Trapezoidal

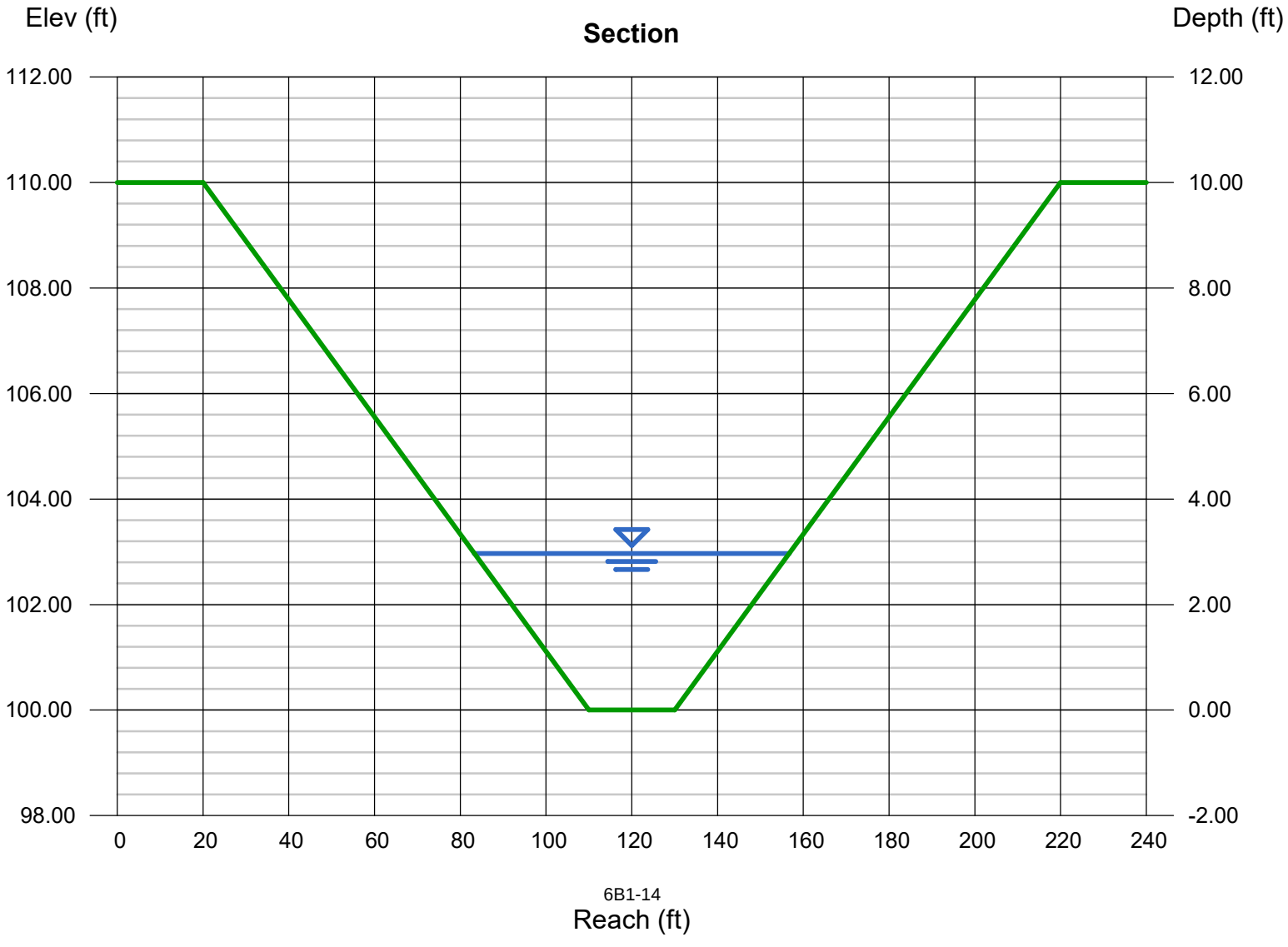
Bottom Width (ft)=	= 20.00
Side Slopes (z:1)=	= 9.00, 9.00
Total Depth (ft)=	= 10.00
Invert Elev (ft)=	= 100.00
Slope (%)	= 0.50
N-Value	= 0.040

Calculations

Compute by:=	Known Q
Known Q (cfs)	= 552.60

Highlighted

Depth (ft)	= 2.97
Q (cfs)	= 552.60
Area (sqft)	= 138.79
Velocity (ft/s)	= 3.98
Wetted Perim (ft)	= 73.79
Crit Depth, Yc (ft)	= 2.11
Top Width (ft)	= 73.46
EGL (ft)	= 3.22



Part III

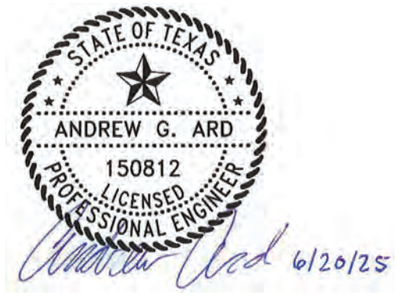
Attachment 6

Attachment 6D2

DRAINAGE STRUCTURES PERIMETER CHANNEL CALCULATIONS

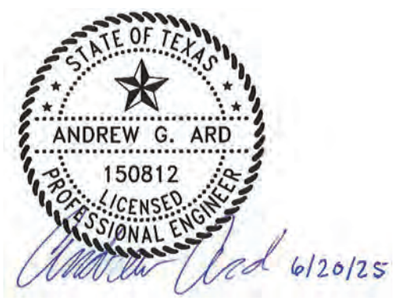
Channel Name	Receiving Basin	Channel Length (ft)	Bottom Slope (ft/ft)	Bottom Width (ft)	Sideslope (XH:1V)	25-yr, 24-hr storm [2]			100-yr, 24-hr storm [2]			Design Depth (ft)	Mannings Coefficient [1]	Lining Material
						flow (cfs)	flow velocity (fps)	Flow Depth (ft)	flow (cfs)	flow velocity (fps)	Flow Depth (ft)			
1A	POND-A	728	0.0050	8	4	62.7	6.09	0.9	84.1	6.65	1.04	2.0	0.013	Concrete
2A	POND-A	1,401	0.0050	8	4	46.8	5.58	0.8	62.5	6.07	0.89	2.0	0.013	Concrete
3A	POND-A	972	0.0050	6	3	9.8	3.92	0.4	16.8	4.20	0.50	1.5	0.013	Concrete
4A	POND-B	577	0.0050	6	3	9.2	3.43	0.4	11.8	3.77	0.41	1.5	0.013	Concrete
5A	POND-B	890	0.0050	8	3	44.7	5.51	0.7	60.0	6.01	0.87	2.0	0.013	Concrete
6A	POND-B	816	0.0050	8	3	46.8	5.58	0.8	63.1	6.13	0.89	2.0	0.013	Concrete
7A	POND-B	1,147	0.0050	8	3	87.6	6.75	1.1	118.1	7.35	1.24	2.5	0.013	Concrete
8A	POND-B	1,091	0.0050	8	3	92.0	6.83	1.1	124.4	7.44	1.27	2.5	0.013	Concrete
9A	POND-B	775	0.0050	10	3	109.8	7.01	1.1	148.9	7.69	1.28	2.5	0.013	Concrete
10A	POND-B	653	0.0050	8	3	69.9	6.32	0.9	80.6	6.63	1.01	2.5	0.013	Concrete

Notes:
1.) Mannings coefficient is for concrete channels, as referenced from City of Austin's Drainage Criteria Manual, as described in Attachment 6, Appendix 1.
2.) Stormwater flows were calculated using rational method and storm intensity coefficients for 25-yr, 24-hr or 100-yr, 24-hr storms, as shown in Attachment 6B1.



Channel Name	Receiving Basin	Channel Length (ft)	Bottom Slope (ft/ft)	Bottom Width (ft)	Sideslope (XH:1V)	25-yr, 24-hr storm [2]			100-yr, 24-hr storm [2]			Design Depth (ft)	Mannings Coefficient [1]	Lining Material
						flow (cfs)	flow velocity (fps)	Flow Depth (ft)	flow (cfs)	flow velocity (fps)	Flow Depth (ft)			
1A	POND-A	728	0.0050	8	4	62.7	6.09	0.9	84.1	6.65	1.04	2.0	0.013	Concrete
2A	POND-A	1,401	0.0050	8	4	46.8	5.58	0.8	62.5	6.07	0.89	2.0	0.013	Concrete
3A	POND-A	972	0.0050	10	3	9.8	2.02	0.4	16.8	2.42	0.59	1.5	0.027	Grass
4A	POND-B	577	0.0050	10	3	9.2	1.95	0.4	11.8	2.15	0.48	1.5	0.027	Grass
5A	POND-B	890	0.0050	10	3	44.7	3.36	1.0	60.0	3.68	1.20	2.0	0.027	Grass
6A	POND-B	816	0.0050	10	3	46.8	3.39	1.1	63.1	3.75	1.23	2.0	0.027	Grass
7A	POND-B	1,147	0.0050	10	3	87.6	4.14	1.5	118.1	4.49	1.73	2.5	0.027	Grass
8A	POND-B	1,091	0.0050	10	3	92.0	4.19	1.5	124.4	4.56	1.78	2.5	0.027	Grass
9A	POND-B	775	0.0050	10	3	109.8	4.42	1.7	148.9	4.82	1.95	2.5	0.027	Grass
10A	POND-B	653	0.0050	10	3	69.9	3.87	1.3	80.6	4.02	1.41	2.5	0.027	Grass

Notes:
1.) Mannings coefficient is for concrete or grass channels, as referenced from City of Austin's Drainage Criteria Manual, as described in Attachment 6, Appendix 1.
2.) Stormwater flows were calculated using rational method and storm intensity coefficients for 25-yr, 24-hr or 100-yr, 24-hr storms, as shown in Attachment 6B1.



Part III

Attachment 6

Appendix 4

REFERENCE MATERIAL:

HYDROLOGY AND HYDRAULIC CALCULATION REFERENCES

AND

MACCAFERRI RENO MATTRESS INFORMATION

United States Department of Agriculture

Natural Resources Conservation Service

Conservation Engineering Division

Technical Release 55

June 1986

Urban Hydrology for Small Watersheds

TR-55

Table 2-1 Runoff depth for selected CN's and rainfall amounts [1/]

Rainfall	Runoff depth for curve number of—												
	40	45	50	55	60	65	70	75	80	85	90	95	98
	inches												
1.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.08	0.17	0.32	0.56	0.79
1.2	.00	.00	.00	.00	.00	.00	.03	.07	.15	.27	.46	.74	.99
1.4	.00	.00	.00	.00	.00	.02	.06	.13	.24	.39	.61	.92	1.18
1.6	.00	.00	.00	.00	.01	.05	.11	.20	.34	.52	.76	1.11	1.38
1.8	.00	.00	.00	.00	.03	.09	.17	.29	.44	.65	.93	1.29	1.58
2.0	.00	.00	.00	.02	.06	.14	.24	.38	.56	.80	1.09	1.48	1.77
2.5	.00	.00	.02	.08	.17	.30	.46	.65	.89	1.18	1.53	1.96	2.27
3.0	.00	.02	.09	.19	.33	.51	.71	.96	1.25	1.59	1.98	2.45	2.77
3.5	.02	.08	.20	.35	.53	.75	1.01	1.30	1.64	2.02	2.45	2.94	3.27
4.0	.06	.18	.33	.53	.76	1.03	1.33	1.67	2.04	2.46	2.92	3.43	3.77
4.5	.14	.30	.50	.74	1.02	1.33	1.67	2.05	2.46	2.91	3.40	3.92	4.26
5.0	.24	.44	.69	.98	1.30	1.65	2.04	2.45	2.89	3.37	3.88	4.42	4.76
6.0	.50	.80	1.14	1.52	1.92	2.35	2.81	3.28	3.78	4.30	4.85	5.41	5.76
7.0	.84	1.24	1.68	2.12	2.60	3.10	3.62	4.15	4.69	5.25	5.82	6.41	6.76
8.0	1.25	1.74	2.25	2.78	3.33	3.89	4.46	5.04	5.63	6.21	6.81	7.40	7.76
9.0	1.71	2.29	2.88	3.49	4.10	4.72	5.33	5.95	6.57	7.18	7.79	8.40	8.76
10.0	2.23	2.89	3.56	4.23	4.90	5.56	6.22	6.88	7.52	8.16	8.78	9.40	9.76
11.0	2.78	3.52	4.26	5.00	5.72	6.43	7.13	7.81	8.48	9.13	9.77	10.39	10.76
12.0	3.38	4.19	5.00	5.79	6.56	7.32	8.05	8.76	9.45	10.11	10.76	11.39	11.76
13.0	4.00	4.89	5.76	6.61	7.42	8.21	8.98	9.71	10.42	11.10	11.76	12.39	12.76
14.0	4.65	5.62	6.55	7.44	8.30	9.12	9.91	10.67	11.39	12.08	12.75	13.39	13.76
15.0	5.33	6.36	7.35	8.29	9.19	10.04	10.85	11.63	12.37	13.07	13.74	14.39	14.76

[1/] Interpolate the values shown to obtain runoff depths for CN's or rainfall amounts not shown.

Development of composite flood hydrograph

This section describes the procedure for developing the peak discharge and selected discharge values of a composite flood hydrograph.

Selecting T_c and T_t

First, use worksheet 5a to develop a summary of basic watershed data by subarea. Then use worksheet 5b to develop a tabular hydrograph discharge summary; this summary displays the effect of individual subarea hydrographs as routed to the watershed point of interest. Use $\sum T_t$ for each subarea as the total reach travel time from that subarea through the watershed to the point of interest. Compute the hydrograph coordinates for selected $\sum T_t$'s using the appropriate sheets in exhibit 5. The flow at any time is:

$$q = q_t A_m Q \qquad \text{[eq. 5-1]}$$

where:

- q = hydrograph coordinate (cfs) at hydrograph time t
- q_t = tabular hydrograph unit discharge from exhibit 5 (csm/in)
- A_m = drainage area of individual subarea (mi^2)
- Q = runoff (in)

Since the timing of peak discharge changes with T_c and T_t, interpolation of peak discharge for T_c and T_t values for use in exhibit 5 is not recommended. Interpolation may result in an estimate of peak discharge that would be invalid because it would be lower than either of the hydrographs. Therefore, round the actual values of T_c and T_t to values presented in exhibit 5. Perform this rounding so that the sum of the selected table values is close to the sum of actual T_c and T_t. An acceptable procedure is to select the results of one of three rounding operations:

1. Round T_c and T_t separately to the nearest table value and sum,
2. Round T_c down and T_t up to nearest table value and sum,
3. Round T_c up and T_t down to nearest table value and sum.

From these three alternatives, choose the pair of rounded T_c and T_t values whose sum is closest to the sum of the actual T_c and T_t. If two rounding methods produce sums equally close to the actual sum, use the combination in which rounded T_c is closest to actual T_c. An illustration of the rounding procedure is as follows:

Table 5-1 I_a values for runoff curve numbers

Curve number	I_a (in)	Curve number	I_a (in)
40	3.000	70	0.857
41	2.878	71	0.817
42	2.762	72	0.778
43	2.651	73	0.740
44	2.545	74	0.703
45	2.444	75	0.667
46	2.348	76	0.632
47	2.255	77	0.597
48	2.167	78	0.564
49	2.082	79	0.532
50	2.000	80	0.500
51	1.922	81	0.469
52	1.846	82	0.439
53	1.774	83	0.410
54	1.704	84	0.381
55	1.636	85	0.353
56	1.571	86	0.326
57	1.509	87	0.299
58	1.448	88	0.273
59	1.390	89	0.247
60	1.333	90	0.222
61	1.279	91	0.198
62	1.226	92	0.174
63	1.175	93	0.151
64	1.125	94	0.128
65	1.077	95	0.105
66	1.030	96	0.083
67	0.985	97	0.062
68	0.941	98	0.041
69	0.899		

Exhibit 5-II: Tabular hydrograph unit discharges (csm/in) for type II rainfall distribution

TRVL TIME (hr)	HYDROGRAPH TIME (HOURS)																														
	11.0	11.3	11.6	11.9	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	13.0	13.2	13.4	13.6	13.8	14.0	14.3	14.6	15.0	15.5	16.0	16.5	17.0	17.5	18.0	19.0	20.0	22.0	26.0
	IA/P = 0.10											* * * TC = 0.1 HR * * *																			IA/P = 0.10
0.0	24	34	53	334	647	1010	623	217	147	123	104	86	76	66	57	51	46	42	38	34	32	29	26	23	21	20	19	18	15	13	12	0
.10	21	29	43	134	267	520	847	701	378	224	157	122	98	75	64	56	50	45	41	36	33	30	27	24	21	20	19	18	16	13	12	0
.20	18	25	35	61	110	215	418	704	702	486	312	209	151	94	73	62	54	49	44	38	34	31	28	25	22	21	19	18	16	14	12	0
.30	17	23	33	56	92	174	337	582	662	545	389	269	190	109	79	65	56	50	45	39	35	32	29	25	22	21	20	18	16	14	12	0
.40	15	20	28	41	51	78	142	272	478	601	563	447	328	172	104	76	63	55	49	42	37	33	29	26	23	21	20	19	17	14	12	0
.50	14	19	26	39	47	68	117	220	392	531	553	482	380	209	121	84	67	57	51	43	38	33	30	27	23	21	20	19	17	14	12	0
.75	12	15	21	29	33	38	49	73	126	224	343	432	464	385	252	156	103	76	62	50	43	36	31	28	25	22	21	19	17	15	12	0
1.0	9	12	15	21	23	26	29	33	40	55	86	148	238	406	434	317	205	130	89	62	50	41	34	30	27	24	22	20	18	16	12	0
1.5	7	8	10	14	15	16	18	20	22	25	29	34	45	101	220	339	373	320	234	131	80	53	40	34	30	27	24	21	19	17	12	2
2.0	4	6	7	9	9	10	11	12	13	15	16	18	20	25	37	72	150	252	336	312	216	109	58	42	34	30	27	24	20	18	13	8
2.5	3	4	5	6	7	7	8	8	9	10	11	12	13	16	19	25	39	75	142	262	308	229	108	58	41	34	30	27	22	19	14	11
3.0	1	2	3	4	4	5	5	6	6	7	7	8	8	10	12	14	17	22	31	76	169	288	236	122	64	43	35	30	24	20	16	11
	IA/P = 0.30											* * * TC = 0.1 HR * * *																			IA/P = 0.30
0.0	0	0	0	154	568	936	524	217	172	149	126	107	97	86	76	69	63	58	53	48	46	42	38	34	31	30	28	27	24	20	19	0
.10	0	0	0	19	109	415	762	603	346	230	176	143	119	96	84	74	68	62	57	50	47	44	40	35	32	30	29	27	24	21	19	0
.20	0	0	0	0	13	77	302	609	605	432	297	217	167	115	94	81	73	66	60	53	48	45	41	37	33	31	29	28	25	21	19	0
.30	0	0	0	0	9	54	219	479	563	476	357	263	199	129	99	85	75	68	62	54	49	45	41	37	33	31	29	28	25	21	19	0
.40	0	0	0	0	0	6	38	159	372	500	484	399	309	183	123	96	82	73	66	58	51	46	42	38	34	31	30	28	25	22	19	0
.50	0	0	0	0	0	4	27	115	287	429	465	421	346	213	138	103	86	76	68	59	52	47	43	39	34	32	30	29	25	22	19	0
.75	0	0	0	0	0	0	1	10	46	132	246	338	381	341	243	165	119	94	80	67	58	50	45	41	37	33	31	29	26	23	19	0
1.0	0	0	0	0	0	0	0	1	4	22	69	149	241	357	331	246	170	122	96	76	64	54	47	42	38	34	32	30	27	24	19	0
1.5	0	0	0	0	0	0	0	0	0	0	0	1	4	41	142	258	310	285	224	142	97	71	55	47	43	39	35	32	29	25	20	4
2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	10	49	130	221	279	255	182	108	70	55	47	42	38	34	30	27	20	11
2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	14	52	119	224	256	193	107	70	55	47	42	38	32	28	22	17
3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	9	52	141	240	199	117	74	56	48	43	35	30	24	18
	IA/P = 0.50											* * * TC = 0.1 HR * * *																			IA/P = 0.50
0.0	0	0	0	0	70	539	377	196	171	154	134	117	108	99	89	83	77	72	67	61	59	56	51	46	43	42	40	38	34	30	28	0
.10	0	0	0	0	47	375	376	256	199	169	146	126	114	102	92	85	79	73	68	62	59	56	52	47	43	42	40	38	34	30	28	0
.20	0	0	0	0	0	31	260	338	283	227	189	160	138	112	99	90	83	77	72	64	60	57	53	48	44	42	41	39	35	30	28	0
.30	0	0	0	0	0	0	21	180	285	284	246	208	176	131	110	97	88	82	76	68	62	59	54	50	45	43	41	39	36	31	28	0
.40	0	0	0	0	0	0	14	125	232	266	253	223	192	142	115	100	91	83	77	69	63	59	55	50	45	43	41	40	36	31	28	0
.50	0	0	0	0	0	0	9	86	183	239	248	231	205	154	122	104	93	85	79	71	64	59	55	51	46	43	41	40	36	32	28	0
.75	0	0	0	0	0	0	3	31	87	147	190	211	213	184	147	121	103	92	84	75	67	61	57	52	47	44	42	40	37	32	28	0
1.0	0	0	0	0	0	0	0	0	1	13	45	92	141	205	197	165	134	112	98	84	75	65	59	55	50	46	43	41	38	34	28	0
1.5	0	0	0	0	0	0	0	0	0	0	0	2	9	51	118	170	183	167	143	111	92	77	65	59	54	50	45	43	39	35	28	2
2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	15	51	103	148	168	156	127	96	76	65	58	54	49	45	41	37	29	12
2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	9	31	69	131	159	140	101	78	66	59	54	50	43	39	31	24
3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	11	46	101	151	134	99	77	65	59	54	45	41	33	26
	RAINFALL TYPE = II											* * * TC = 0.1 HR * * *																			SHEET 1 OF 10

Exhibit 5-II: Tabular hydrograph unit discharges (csm/in) for type II rainfall distribution—continued

TRVL	HYDROGRAPH TIME(HOURS)																														
TIME (hr)	11.0	11.3	11.6	11.9	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	13.0	13.2	13.4	13.6	13.8	14.0	14.3	14.6	15.0	15.5	16.0	16.5	17.0	17.5	18.0	19.0	20.0	22.0	26.0
		IA/P = 0.10											* * * TC = 0.2 HR * * *															IA/P = 0.10			
0.0	23	31	47	209	403	739	800	481	250	166	128	102	86	70	61	54	49	44	40	35	33	30	27	24	21	20	19	18	16	13	12	0
.10	19	26	39	86	168	325	601	733	565	355	229	161	122	83	69	59	53	47	43	37	34	31	28	25	22	21	19	18	16	14	12	0
.20	17	23	32	49	74	136	262	488	652	594	435	298	207	115	81	67	58	51	46	40	35	32	29	26	23	21	20	19	16	14	12	0
.30	16	22	30	46	64	112	212	396	566	585	485	360	258	139	90	71	60	53	48	41	36	32	29	26	23	21	20	19	16	14	12	0
.40	14	19	25	37	43	57	94	173	322	485	551	507	409	227	129	87	68	58	52	44	38	33	30	27	24	21	20	19	17	14	12	0
.50	13	18	24	35	40	52	80	142	262	410	504	506	441	269	153	98	73	61	53	45	39	34	30	27	24	22	20	19	17	15	12	0
.75	10	13	17	23	26	30	34	40	55	86	150	247	349	438	360	240	151	101	75	57	47	39	33	29	26	23	21	20	18	15	12	0
1.0	9	11	14	19	21	24	26	30	35	44	62	101	167	337	413	353	245	157	104	68	53	42	35	31	28	24	22	20	18	16	12	0
1.5	6	8	10	13	14	15	17	19	21	23	26	30	37	73	166	288	356	337	264	154	91	57	42	35	30	27	24	22	19	17	13	3
2.0	4	5	7	8	9	10	10	11	12	14	15	16	18	23	31	55	114	206	291	324	239	125	63	44	35	31	28	24	20	18	14	9
2.5	3	4	5	6	6	7	7	8	9	9	10	11	12	15	18	22	32	58	111	227	298	246	122	63	43	35	31	27	22	19	15	11
3.0	1	2	3	4	4	4	5	5	6	6	7	7	8	9	11	13	16	19	27	59	138	280	248	137	70	46	36	31	25	21	16	11
		IA/P = 0.30											* * * TC = 0.2 HR * * *															IA/P = 0.30			
0.0	0	0	0	39	180	545	697	497	276	198	158	130	110	93	81	73	67	61	56	49	46	43	39	35	32	30	29	27	24	21	19	0
.10	0	0	0	2	27	129	407	600	532	361	252	190	150	108	90	79	71	65	59	52	48	44	41	36	32	31	29	28	25	21	19	0
.20	0	0	0	2	19	92	302	501	521	415	306	228	176	119	95	82	73	67	61	53	48	45	41	37	33	31	29	28	25	21	19	0
.30	0	0	0	0	1	13	66	223	408	484	438	350	269	163	114	93	80	72	65	57	51	46	42	38	34	31	30	28	25	22	19	0
.40	0	0	0	0	1	9	47	164	327	431	436	379	306	189	127	98	83	74	67	58	52	47	43	38	34	31	30	28	25	22	19	0
.50	0	0	0	0	0	0	6	33	120	258	374	415	391	271	173	121	95	81	72	62	55	48	44	40	35	32	30	29	26	22	19	0
.75	0	0	0	0	0	0	2	13	50	126	221	302	348	323	240	167	121	96	81	68	59	50	45	41	37	33	31	29	26	23	19	0
1.0	0	0	0	0	0	0	0	0	1	6	24	69	139	285	331	280	204	145	109	82	68	56	48	43	39	35	32	30	27	24	19	0
1.5	0	0	0	0	0	0	0	0	0	0	0	0	1	16	79	186	271	288	247	165	110	76	58	49	44	40	35	32	29	26	20	5
2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	24	80	163	235	262	202	123	76	58	49	43	39	35	30	27	21	13
2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	28	77	179	242	207	120	75	57	48	43	39	32	29	22	17
3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	30	101	207	227	130	80	59	49	44	35	30	24	18
		IA/P = 0.50											* * * TC = 0.2 HR * * *															IA/P = 0.50			
0.0	0	0	0	0	7	98	371	322	221	182	158	137	120	104	94	86	80	74	69	62	60	57	52	47	44	42	40	39	35	30	28	0
.10	0	0	0	0	4	67	270	305	249	204	174	149	130	108	97	88	82	76	71	64	60	57	53	48	44	42	41	39	35	30	28	0
.20	0	0	0	0	3	45	195	268	255	221	189	163	125	106	95	87	80	75	67	62	58	54	49	45	43	41	39	35	31	28	0
.30	0	0	0	0	2	31	140	226	245	229	203	176	134	111	98	89	82	76	68	62	59	55	50	45	43	41	39	36	31	28	0
.40	0	0	0	0	1	21	101	184	225	228	211	188	144	117	101	91	84	78	69	63	59	55	50	45	43	41	40	36	31	28	0
.50	0	0	0	0	0	1	14	72	146	199	218	213	175	137	113	99	89	82	73	66	60	56	52	47	43	42	40	36	32	28	0
.75	0	0	0	0	0	0	5	28	71	121	162	186	193	161	133	112	98	88	78	70	62	57	53	48	44	42	41	37	33	28	0
1.0	0	0	0	0	0	0	0	0	0	2	13	38	77	154	186	174	147	122	105	89	78	68	60	56	51	46	43	42	38	34	28	0
1.5	0	0	0	0	0	0	0	0	0	0	0	0	2	22	71	129	163	168	150	120	98	80	67	60	55	51	46	43	40	36	28	4
2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	25	65	112	146	157	134	103	79	67	60	55	50	46	41	38	29	14
2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	26	60	117	148	136	101	79	66	59	54	50	43	39	31	24
3,0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	9	40	90	142	130	99	78	66	59	54	45	41	33	26
		RAINFALL TYPE = II											* * * TC = 0.2 HR * * *															SHEET 2 OF 10			

Exhibit 5-II: Tabular hydrograph unit discharges (csm/in) for type II rainfall distribution—continued

TRVL TIME (hr)	11.3	11.6	11.9	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	13.0	13.2	13.4	13.6	13.8	14.0	14.3	14.6	15.0	15.5	16.0	16.5	17.0	17.5	18.0	19.0	20.0	22.0	26.0
											HYDROGRAPH TIME(HOURS)																					
	IA/P = 0.10										* * * TC = 0.3 HR * * *																			IA/P = 0.10	
0.0	20	28	41	118	235	447	676	676	459	283	196	146	114	80	66	57	51	46	42	37	33	31	28	24	22	20	19	18	16	13	12	0
.10	19	26	39	99	189	361	571	641	520	362	251	181	136	89	70	60	53	48	43	37	34	31	28	25	22	21	19	18	16	14	12	0
.20	17	23	32	53	83	154	292	478	587	542	422	308	223	127	86	68	58	52	46	40	35	32	29	26	23	21	20	19	16	14	12	0
.30	16	22	30	49	72	127	237	398	524	536	460	359	268	151	97	73	61	53	48	41	36	32	29	26	23	21	20	19	16	14	12	0
.40	14	19	25	37	45	63	105	193	330	459	510	477	398	237	139	92	70	59	52	44	38	34	30	27	24	21	20	19	17	14	12	0
.50	13	18	24	35	42	56	89	158	272	397	472	475	424	274	163	104	76	62	54	46	39	34	30	27	24	22	20	19	17	15	12	0
.75	11	14	19	26	30	34	42	59	95	160	250	339	417	398	299	196	128	89	69	54	45	37	32	29	26	23	21	20	17	15	12	0
1.0	9	11	14	19	21	24	27	30	36	46	68	109	174	328	396	346	248	163	109	70	54	43	35	31	28	24	22	20	18	16	12	0
1.5	6	8	10	13	14	15	17	19	21	23	26	31	38	77	169	282	347	330	264	158	94	58	42	35	31	27	24	22	19	17	13	3
2.0	4	5	7	8	9	10	10	11	12	14	15	16	18	23	32	57	116	205	285	317	239	128	64	44	36	31	28	25	20	18	14	9
2.5	2	4	5	6	6	7	7	8	9	9	10	11	12	15	18	23	33	60	113	223	293	245	125	65	44	35	31	27	22	19	15	11
3.0	1	2	3	4	4	4	5	5	6	6	7	7	8	9	11	13	16	20	27	61	138	275	246	139	72	46	36	31	25	21	16	11
	IA/P = 0.30										* * * TC = 0.3 HR * * *																			IA/P = 0.30	
0.0	0	0	0	11	64	251	525	574	454	303	221	173	140	104	88	77	70	64	58	51	47	44	40	36	32	31	29	28	24	21	19	0
.10	0	0	0	0	7	45	183	411	520	476	360	268	205	133	101	85	76	69	62	55	49	45	41	37	33	31	30	28	25	21	19	0
.20	0	0	0	0	5	32	132	318	452	468	396	310	240	151	109	90	78	70	64	56	50	46	42	38	33	31	30	28	25	22	19	0
.30	0	0	0	0	0	3	22	96	244	383	440	411	344	217	142	105	87	76	69	60	53	47	43	39	35	32	30	29	26	22	19	0
.40	0	0	0	0	0	2	16	69	186	317	399	407	365	246	160	115	92	79	71	61	54	48	43	39	35	32	30	29	26	22	19	0
,50	0	0	0	0	0	0	2	11	50	140	258	352	389	327	223	149	110	89	77	66	57	50	45	41	36	33	31	29	26	23	19	0
.75	0	0	0	0	0	0	1	4	20	63	135	219	290	335	281	205	146	110	89	72	62	52	46	42	38	34	31	30	27	23	19	0
1.0	0	0	0	0	0	0	0	0	0	2	9	32	78	216	320	306	243	176	128	90	72	59	49	44	40	36	33	31	28	24	19	1
1.5	0	0	0	0	0	0	0	0	0	0	0	0	2	20	84	185	264	281	246	168	112	77	58	49	44	40	36	32	29	26	20	5
2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	12	50	121	200	257	224	141	83	61	50	44	40	36	31	28	21	14
2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	16	51	145	239	223	137	82	60	50	44	40	33	29	22	17
3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	19	74	184	224	146	89	63	51	45	36	31	24	18
	IA/P = 0.50										* * * TC = 0.3 HR * * *																			IA/P = 0.50	
0.0	0	0	0	0	1	25	151	299	277	219	187	162	141	113	100	90	84	78	72	65	61	58	53	48	44	42	41	39	35	31	28	0
.10	0	0	0	0	1	17	106	235	263	234	202	175	152	120	104	93	85	79	73	66	61	58	54	49	44	42	41	39	35	31	28	0
.20	0	0	0	0	0	0	12	75	182	236	234	213	188	144	116	101	91	84	78	70	63	59	55	50	45	43	41	40	36	31	28	0
.30	0	0	0	0	0	0	8	52	138	203	224	217	197	154	123	105	94	86	79	71	64	59	55	51	46	43	42	40	36	32	28	0
.40	0	0	0	0	0	0	5	37	105	170	206	213	203	164	131	110	97	88	81	72	65	60	56	51	46	43	42	40	36	32	28	0
.50	0	0	0	0	0	0	0	4	26	78	140	184	203	191	155	126	107	95	86	76	69	62	57	53	48	44	42	41	37	33	28	0
.75	0	0	0	0	0	0	0	1	10	34	73	117	153	184	173	146	122	105	94	82	73	64	58	54	49	45	43	41	37	33	28	0
1.0	0	0	0	0	0	0	0	0	0	0	4	17	42	114	168	178	159	134	114	94	82	70	61	57	52	47	44	42	39	35	28	0
1.5	0	0	0	0	0	0	0	0	0	0	0	0	1	10	44	98	144	163	157	130	105	84	69	61	56	52	47	44	40	36	29	6
2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	14	44	87	127	153	141	110	83	69	61	56	51	47	42	38	30	17
2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	16	42	97	138	145	107	82	68	60	55	51	43	40	32	25
3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	27	71	127	139	105	81	68	60	55	46	41	33	27
	RAINFALL TYPE = II										* * * TC = 0.3 HR * * *																			SHEET 3 OF 10	

Exhibit 5-II: Tabular hydrograph unit discharges (csm/in) for type II rainfall distribution—continued

TRVL----------HYDROGRAPH TIME(HOURS)----------

TIME (hr)	11.0	11.3	11.6	11.9	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	13.0	13.2	13.4	13.6	13.8	14.0	14.3	14.6	15.0	15.5	16.0	16.5	17.0	17.5	18.0	19.0	20.0	22.0	26.0
	IA/P = 0.10											* * * TC = 0.4 HR * * *																			IA/P = 0.10
0.0	18	25	36	77	141	271	468	592	574	431	298	216	163	104	77	63	55	49	44	38	34	31	28	25	22	21	20	18	16	14	12	0
.10	18	24	34	67	116	219	385	523	557	473	357	263	196	119	84	67	57	51	46	39	35	32	29	25	22	21	20	19	16	14	12	0
.20	15	20	28	44	59	97	179	316	454	523	489	401	309	178	112	81	65	56	49	42	37	33	30	26	23	21	20	19	17	14	12	0
.30	15	20	27	41	53	82	147	260	389	478	486	429	349	210	129	89	69	58	51	43	38	33	30	27	24	21	20	19	17	14	12	0
.40	13	17	23	33	38	48	71	121	214	331	429	467	442	308	189	120	85	66	56	47	41	35	31	28	24	22	20	19	17	15	12	0
.50	12	16	22	31	36	44	62	102	176	279	379	438	440	339	218	137	94	71	59	49	42	35	31	28	25	22	21	19	17	15	12	0
.75	10	13	17	24	26	30	35	45	65	106	170	251	326	393	341	245	164	112	81	59	48	39	33	30	26	23	21	20	18	15	12	0
1.0	8	10	13	17	19	21	24	27	31	37	50	75	118	251	360	376	292	205	138	83	60	45	36	32	28	25	22	21	18	16	12	1
1.5	6	7	9	12	13	14	15	17	19	21	23	26	31	56	121	224	311	333	293	192	115	66	45	36	31	28	25	22	19	17	13	4
2.0	4	5	6	8	8	9	10	10	11	12	14	15	16	20	27	43	85	159	243	306	264	154	74	47	37	32	28	25	21	18	14	9
2.5	2	3	4	5	6	6	7	7	8	9	9	10	11	13	16	20	27	46	85	184	285	262	147	74	47	37	32	28	22	19	15	11
3.0	1	2	2	3	4	4	4	5	5	6	6	7	7	8	10	12	14	17	23	47	109	227	268	160	83	50	38	32	25	21	16	11
	IA/P = 0.30											* * * TC = 0.4 HR * * *																			IA/P = 0.30
0.0	0	0	0	4	26	113	296	480	495	413	306	234	186	127	100	84	74	67	61	54	49	45	41	37	33	31	29	28	25	21	19	0
.10	0	0	0	0	2	18	81	224	395	462	430	347	272	172	121	96	82	73	66	57	51	46	42	38	34	31	30	28	25	22	19	0
.20	0	0	0	0	2	13	59	169	320	414	424	373	305	196	134	103	85	75	67	59	52	47	43	39	34	32	30	29	25	22	19	0
.30	0	0	0	0	0	1	9	42	127	255	361	403	383	274	181	127	99	83	73	63	55	48	44	40	36	32	30	29	26	23	19	0
.40	0	0	0	0	0	1	6	30	94	202	308	372	379	298	203	141	106	87	76	65	56	49	44	40	36	32	31	29	26	23	19	0
.50	0	0	0	0	0	0	0	4	21	70	158	258	334	364	270	187	133	102	85	70	60	51	46	41	37	33	31	30	26	23	19	0
.75	0	0	0	0	0	0	0	2	8	30	76	145	219	321	305	241	177	130	102	78	65	55	47	43	38	34	32	30	27	24	19	0
1.0	0	0	0	0	0	0	0	0	0	1	4	15	42	150	267	308	272	209	154	103	79	62	51	45	41	37	33	31	28	25	19	1
1.5	0	0	0	0	0	0	0	0	0	0	0	0	1	10	51	136	226	274	263	195	131	85	62	51	45	41	36	33	29	26	20	6
2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	31	86	162	252	239	162	93	64	52	45	41	37	31	28	21	15
2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	9	33	112	202	235	155	92	64	52	45	41	33	29	23	18
3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	21	76	182	221	148	90	63	51	45	36	31	24	18
	IA/P = 0.50											* * * TC = 0.4 HR * * *																			IA/P = 0.50
0.0	0	0	0	0	0	7	59	168	245	257	213	186	163	128	109	96	88	81	75	67	62	58	54	50	45	43	41	39	35	31	28	0
.10	0	0	0	0	0	0	5	41	125	205	240	222	198	154	123	106	94	86	79	71	64	60	56	51	46	43	42	40	36	32	28	0
.20	0	0	0	0	0	0	3	28	93	168	216	220	205	164	131	110	97	88	81	72	65	60	56	51	46	43	42	40	36	32	28	0
.30	0	0	0	0	0	0	0	2	20	69	135	189	209	192	155	126	107	95	86	77	69	62	57	53	48	44	42	41	37	33	28	0
.40	0	0	0	0	0	0	0	1	14	50	106	161	193	202	163	133	112	98	89	78	70	62	58	53	48	44	42	41	37	33	28	0
.50	0	0	0	0	0	0	0	1	9	37	83	135	174	194	171	140	117	102	91	80	71	63	58	54	49	45	43	41	37	33	28	0
.75	0	0	0	0	0	0	0	0	0	3	15	40	76	147	177	169	146	124	107	90	79	68	60	56	51	47	43	42	38	34	28	0
1.0	0	0	0	0	0	0	0	0	0	0	1	7	21	78	141	173	167	146	125	101	86	73	63	58	53	48	45	42	39	35	28	1
1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	5	26	71	121	153	159	139	113	89	72	63	57	53	48	44	40	37	29	7
2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	16	45	86	138	150	125	93	74	64	58	53	48	42	39	31	20
2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	17	59	112	143	121	91	73	63	57	53	45	40	32	26
3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	11	40	101	138	117	90	73	63	57	48	42	34	27
	RAINFALL TYPE = II											* * * TC = 0.4 HR * * *																			SHEET 4 OF 10

Exhibit 5-II: Tabular hydrograph unit discharges (csm/in) for type II rainfall distribution—continued

TRVL TIME (hr)	11.3	11.6	11.9	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	13.0	13.2	13.4	13.6	13.8	14.0	14.3	14.6	15.0	15.5	16.0	16.5	17.0	17.5	18.0	19.0	20.0	22.0	26.0
	IA/P = 0.10										* * * TC = 0.5 HR * * *																IA/P = 0.10				
0.0	17	23	32	57	94	170	308	467	529	507	402	297	226	140	96	74	61	53	47	41	36	32	29	26	23	21	20	19	16	14	12	0
.10	16	22	30	51	80	140	252	395	484	499	434	343	265	162	108	80	65	55	49	42	36	33	29	26	23	21	20	19	16	14	12	0
.20	14	19	25	38	47	69	116	207	332	434	477	449	378	238	149	101	77	62	53	45	39	34	30	27	24	22	20	19	17	14	12	0
.30	13	18	24	35	43	60	97	170	278	382	446	448	401	270	171	114	83	66	56	46	40	34	31	27	24	22	20	19	17	15	12	0
.40	12	15	21	29	33	40	53	83	141	233	332	408	434	361	243	157	107	79	64	51	43	36	32	28	25	22	21	20	17	15	12	0
.50	11	15	20	28	31	37	48	71	118	194	286	367	412	378	271	178	119	86	68	53	44	37	32	29	25	23	21	20	17	15	12	0
.75	9	11	14	19	21	24	27	31	37	49	74	118	182	319	374	328	244	169	117	76	56	43	35	31	28	25	22	21	18	16	12	1
1.0	7	9	12	16	17	19	21	24	27	32	40	55	83	188	309	359	322	245	172	102	68	49	38	32	29	26	23	21	19	16	12	1
1.5	5	7	8	11	12	13	14	15	17	19	21	23	27	43	89	175	269	322	309	225	140	77	49	38	32	29	25	23	20	17	13	5
2.0	3	4	6	7	8	8	9	10	10	11	12	14	15	18	23	35	65	123	202	297	280	181	88	52	39	33	29	26	21	19	14	10
2.5	2	3	4	5	5	6	6	7	7	8	9	9	10	12	15	18	24	36	66	150	244	278	171	87	52	39	33	29	23	20	15	11
3.0	1	1	2	3	3	4	4	4	5	5	6	6	7	8	9	11	13	16	20	37	86	198	263	182	96	56	40	33	26	21	16	11
	IA/P = 0.30										* * * TC = 0.5 HR * * *																IA/P = 0.30				
0.0	0	0	0	1	9	53	157	314	433	439	379	299	237	159	118	95	81	71	65	56	50	46	42	38	34	31	30	28	25	22	19	0
.10	0	0	0	0	1	6	37	117	248	372	416	391	330	218	150	113	92	79	70	60	53	47	43	39	35	32	30	29	26	22	19	0
.20	0	0	0	0	1	4	26	87	194	313	382	388	349	244	167	122	97	82	72	62	54	48	43	39	35	32	30	29	26	22	19	0
.30	0	0	0	0	0	0	3	19	64	151	259	341	372	316	223	156	117	94	80	67	58	50	45	41	36	33	31	29	26	23	19	0
.40	0	0	0	0	0	0	2	13	47	116	211	298	354	328	245	172	127	100	83	69	59	51	45	41	37	33	31	29	26	23	19	0
.50	0	0	0	0	0	0	0	1	9	34	89	170	255	341	303	225	161	120	96	76	64	54	47	42	38	34	31	30	27	24	19	0
.75	0	0	0	0	0	0	0	1	4	14	41	89	152	270	305	268	207	155	118	87	70	57	48	44	39	35	32	30	27	24	19	0
1.0	0	0	0	0	0	0	0	0	0	0	2	7	22	98	212	295	285	237	181	120	88	67	53	46	42	38	34	31	28	25	19	2
1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	5	30	95	183	249	265	217	152	96	66	53	46	41	37	34	30	26	20	8
2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	18	59	125	221	245	182	105	69	54	47	42	38	32	28	22	16
2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	21	84	174	230	172	103	69	54	46	42	34	30	23	18
3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	13	56	157	217	163	101	68	53	46	37	31	25	18
	IA/P = 0.50										* * * TC = 0.5 HR * * *																IA/P = 0.50				
0.0	0	0	0	0	0	2	26	89	170	217	229	200	179	144	119	104	93	85	78	70	64	59	55	51	46	43	41	40	36	32	28	0
.10	0	0	0	0	0	0	1	18	65	135	190	216	205	170	137	115	101	91	83	74	67	61	56	52	47	44	42	40	36	32	28	0
.20	0	0	0	0	0	0	1	12	47	106	162	198	203	178	145	121	105	94	85	76	68	61	57	52	48	44	42	40	37	32	28	0
.30	0	0	0	0	0	0	0	1	8	34	82	135	177	194	168	139	117	102	92	80	71	63	58	54	49	45	43	41	37	33	28	0
.40	0	0	0	0	0	0	0	0	6	25	63	111	155	189	174	146	122	106	94	82	73	64	58	54	50	45	43	41	37	33	28	0
.50	0	0	0	0	0	0	0	0	4	18	48	90	133	184	177	152	128	110	97	84	74	65	59	55	50	45	43	41	38	33	28	0
.75	0	0	0	0	0	0	0	0	1	7	22	47	80	142	169	164	144	124	108	91	79	68	61	56	51	47	44	42	38	34	28	0
1.0	0	0	0	0	0	0	0	0	0	0	1	3	11	51	112	155	166	154	134	109	91	76	65	59	54	49	45	43	39	35	28	2
1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	2	16	50	97	136	154	145	121	95	75	64	58	54	49	45	41	37	29	10
2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	18	47	86	134	146	125	94	75	64	58	53	49	42	39	31	21
2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	11	44	95	140	127	97	77	65	58	54	45	41	33	26
3.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	29	86	135	122	95	76	65	58	49	43	35	27
	RAINFALL TYPE = II										* * * TC = 0.5 HR * * *																SHEET 5 OF 10				

Exhibit 5-II: Tabular hydrograph unit discharges (csm/in) for type II rainfall distribution—continued

TRVL	HYDROGRAPH TIME(HOURS)																													
TIME (hr)	11.0	11.3	11.6	11.9	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	13.0	13.2	13.4	13.6	13.8	14.0	14.3	14.6	15.0	15.5	16.0	16.5	17.0	17.5	18.0	19.0	20.0	22.0	26.0
	IA/P = 0.10											* * * TC = 0.75 HR * * *																			IA/P = 0.10
0.0	13	18	24	36	46	68	115	194	294	380	424	410	369	252	172	123	93	74	61	49	41	35	31	27	24	22	20	19	17	15	12	0
.10	13	17	23	34	42	59	97	162	250	337	395	405	381	279	191	135	100	79	65	51	42	36	31	28	25	22	21	19	17	15	12	0
.20	11	15	20	28	32	39	52	82	135	211	295	362	391	351	255	178	127	95	75	57	46	38	32	29	26	23	21	20	17	15	12	0
.30	11	14	19	26	30	36	47	70	113	179	256	326	379	360	277	196	140	103	80	60	48	38	33	29	26	23	21	20	18	15	12	0
.40	10	12	16	22	25	28	33	42	61	96	151	221	291	367	336	255	182	131	98	69	54	42	34	30	27	24	22	20	18	16	12	0
.50	9	12	16	21	24	27	31	39	53	82	128	190	258	358	343	274	200	144	106	74	56	43	35	30	27	24	22	20	18	16	12	0
.75	8	10	13	17	18	21	23	26	31	39	55	82	122	230	314	329	281	217	161	104	72	51	38	33	29	26	23	21	19	16	12	1
1.0	6	8	10	13	14	15	17	19	21	23	27	32	42	89	177	272	319	303	249	163	105	66	45	36	31	27	24	22	19	17	13	3
1.5	4	6	7	9	10	10	11	12	14	15	16	18	20	27	46	90	163	241	295	275	204	119	66	45	35	31	27	24	20	18	13	7
2.0	3	4	5	6	7	7	8	9	9	10	11	12	13	16	20	28	48	89	151	245	274	213	115	65	44	35	30	27	22	19	14	10
2.5	1	2	3	4	4	5	5	6	6	7	7	8	8	10	12	14	17	24	37	86	170	260	219	127	71	47	36	31	24	20	16	11
3.0	1	1	2	3	3	3	4	4	4	5	5	5	6	7	8	10	11	14	17	30	64	157	247	205	122	70	46	36	27	22	17	12
	IA/P = 0.30											* * * TC = 0.75 HR * * *																			IA/P = 0.30
0.0	0	0	0	0	0	1	6	30	86	174	266	326	348	328	246	181	138	110	92	79	66	57	49	44	40	36	32	31	29	26	23	19	0
.10	0	0	0	0	0	0	1	4	22	65	137	223	292	329	303	228	170	131	106	89	73	61	52	46	41	37	33	31	29	26	23	19	0
.20	0	0	0	0	0	0	0	3	15	48	108	185	256	305	321	245	184	141	112	93	75	63	53	46	42	37	34	31	30	27	23	19	0
.30	0	0	0	0	0	0	0	2	11	36	84	151	221	277	308	260	199	152	120	98	78	65	54	47	42	38	34	31	30	27	23	19	0
.40	0	0	0	0	0	0	0	0	1	8	27	65	122	188	286	301	243	187	144	114	87	71	57	48	43	39	35	32	30	27	24	19	1
.50	0	0	0	0	0	0	0	0	1	6	20	50	98	158	263	292	254	200	155	122	91	74	59	49	44	40	35	32	30	27	24	19	1
.75	0	0	0	0	0	0	0	0	0	0	2	8	23	51	140	231	269	253	211	167	119	90	68	53	46	42	37	34	31	28	25	19	2
1.0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	29	96	186	249	261	231	169	120	84	61	50	44	40	36	33	29	26	20	5
1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	34	91	163	220	241	197	131	83	61	50	44	40	35	31	27	21	12
2.0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	2	11	36	85	174	226	200	127	82	60	49	44	39	32	29	22	17
2.5	o	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	37	105	196	214	135	87	62	51	44	36	31	24	18
3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	24	96	205	189	130	85	62	50	39	32	26	18
	IA/P = 0.50											* * * TC = 0.75 HR * * *																			IA/P = 0.50
0.0	0	0	0	0	0	0	0	2	16	45	92	137	166	185	170	146	125	110	98	89	79	70	63	58	53	48	44	42	41	37	33	28	0
.10	0	0	0	0	0	0	0	0	1	11	34	73	115	149	180	163	141	122	107	96	84	74	65	59	54	50	45	43	41	38	33	28	0
.20	0	0	0	0	0	0	0	0	1	8	25	57	96	131	173	166	146	126	111	99	86	76	66	59	55	50	46	43	41	38	34	28	0
.30	0	0	0	0	0	0	0	0	0	1	5	18	44	79	143	170	160	141	122	108	92	81	69	61	56	52	47	44	42	38	34	28	1
.40	0	0	0	0	0	0	0	0	0	0	4	14	34	64	127	166	162	145	127	111	95	82	70	62	57	52	47	44	42	38	34	28	1
.50	0	0	0	0	0	0	0	0	0	0	2	10	26	82	138	162	157	140	123	103	88	75	64	58	53	49	45	43	39	35	28	2
.75	0	0	0	0	0	0	0	0	0	0	1	4	12	47	98	139	154	148	135	113	96	80	67	60	55	50	46	43	39	36	29	3
1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	30	73	119	146	151	134	113	91	74	63	58	53	48	45	41	37	29	7
1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	9	30	66	105	143	143	117	90	73	63	57	52	48	42	39	30	18
2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	11	30	77	121	137	114	88	72	63	57	52	44	40	32	25
2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	19	55	111	132	111	87	71	62	56	47	42	34	27
3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	12	51	112	128	108	86	71	62	51	44	36	27
	RAINFALL TYPE = II											* * * TC = 0.75 HR * * *																			SHEET 6 OF 10

PART III

ATTACHMENT 14

LANDFILL GAS MANAGEMENT PLAN

FOR

MAVERICK COUNTY EL INDIO MSW LANDFILL
TCEQ PERMIT NO. MSW-2316

Prepared for:
Maverick County
500 Quarry Street, Suite 3
Eagle Pass, Texas 78852
830/773-3824

PERMIT ISSUED: SEPTEMBER 11, 2007

PERMIT MODIFICATION (REVISIONS 1, 2, 3, and 4) PREPARED BY:

SCS ENGINEERS
Texas Board of Professional Engineers, Reg. No. F-3407
1901 Central Drive, Suite 550
Bedford, Texas 76021
817/571-2288

Revision 1 – April 2009
Revision 2 – October 2024
Revision 3 – February 2025; Revision 4 – June 2025
SCS Project Nos. 16208065.00 & 16223092.00

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APPENDICES TO PART III, ATTACHMENT 14

Appendix	Title/Description
III-14A	**GAS MONITORING PROBE SAMPLING REPORT & SAMPLE DATA SHEETS**

ATTACHMENTS TO PART III, ATTACHMENT 14

Attachment	Title/Description
14A	**GAS MONITORING PROBE PLACEMENT**
14B	**TYPICAL GAS MONITORING PROBE**
14C	**ENTRANCE FACILITIES**

2.5 HYDROGEOLOGY

Cumulative results of hydrogeologic investigations performed between 2000 and 2004 are contained within Attachment 4. Water level data is provided in Table Att4-1 within Attachment 4, and includes monitoring data from October 2003 through May 2004 for the monitoring points. See attachment 4, Section 5.3 for extensive discussion of hydrogeology at the site.

2.6 WASTE STREAM COMPOSITION

The proposed site will accept municipal solid waste as defined by 30 TAC §330.3 to include "solid waste resulting from or incidental to municipal, community, commercial, institutional, and recreational activities, including garbage, rubbish, ashes, street cleanings, dead animals, abandoned automobiles, and all other solid waste other than industrial solid waste." The facility will also accept industrial solid waste, defined as "solid waste resulting from or incidental to any process of industry or manufacturing, or mining or agricultural operation" and special wastes, as defined in 30 TAC §330.3. Class I industrial waste, hazardous wastes, and radioactive wastes will not be accepted at the site.

The principal source of waste is expected to be primarily daily residential and commercial/industrial waste collection.

2.7 PROPOSED LANDFILL DESIGN

The basic design of the proposed site consists of an aerial fill method (both above and below ground). The site consists of one continuous development with 14 cells. The cell designations and sequence of fill operations are shown in **Part III, *Attachment 1E*.** The proposed below-ground waste disposal will extend approximately 50 feet below natural ground to a finished base grade (top of liner) elevation ranging from 692 feet m.s.l. to 714 feet m.s.l. The liner system will consist of two (2) feet compacted clay with a 60 mil HDPE geomembrane, and a geocomposite drainage layer. The liner systems will include a leachate collection system. The system includes a sump and leachate collection trenches sloped at a minimum of 1.0%. The floor of the landfill cell will slope at 1%. The maximum excavation for the liner and sumps (leachate collection) is approximately 56 feet below existing ground, to approximately 686 feet m.s.l.

5. Monitoring probe inspection and maintenance.

3.1 PROPERTY BOUNDARY MONITORING §330.371(h)

Methane gas has the potential to migrate laterally from the facility's disposal cells. To monitor and detect gas that has migrated beyond the limits of the waste fill area, a monitoring system will be installed within the site's property boundary to provide coverage of the adjacent disposal areas. The proposed monitoring system will consist of permanent monitoring probes. The proposed monitoring probe locations were selected to provide monitoring points between the waste disposal areas and adjacent properties. The gas monitoring probe network will be installed in phases as the operation advances to provide continuous monitoring coverage between active disposal areas and the property boundary.

3.1.1 Monitoring Probe Placement

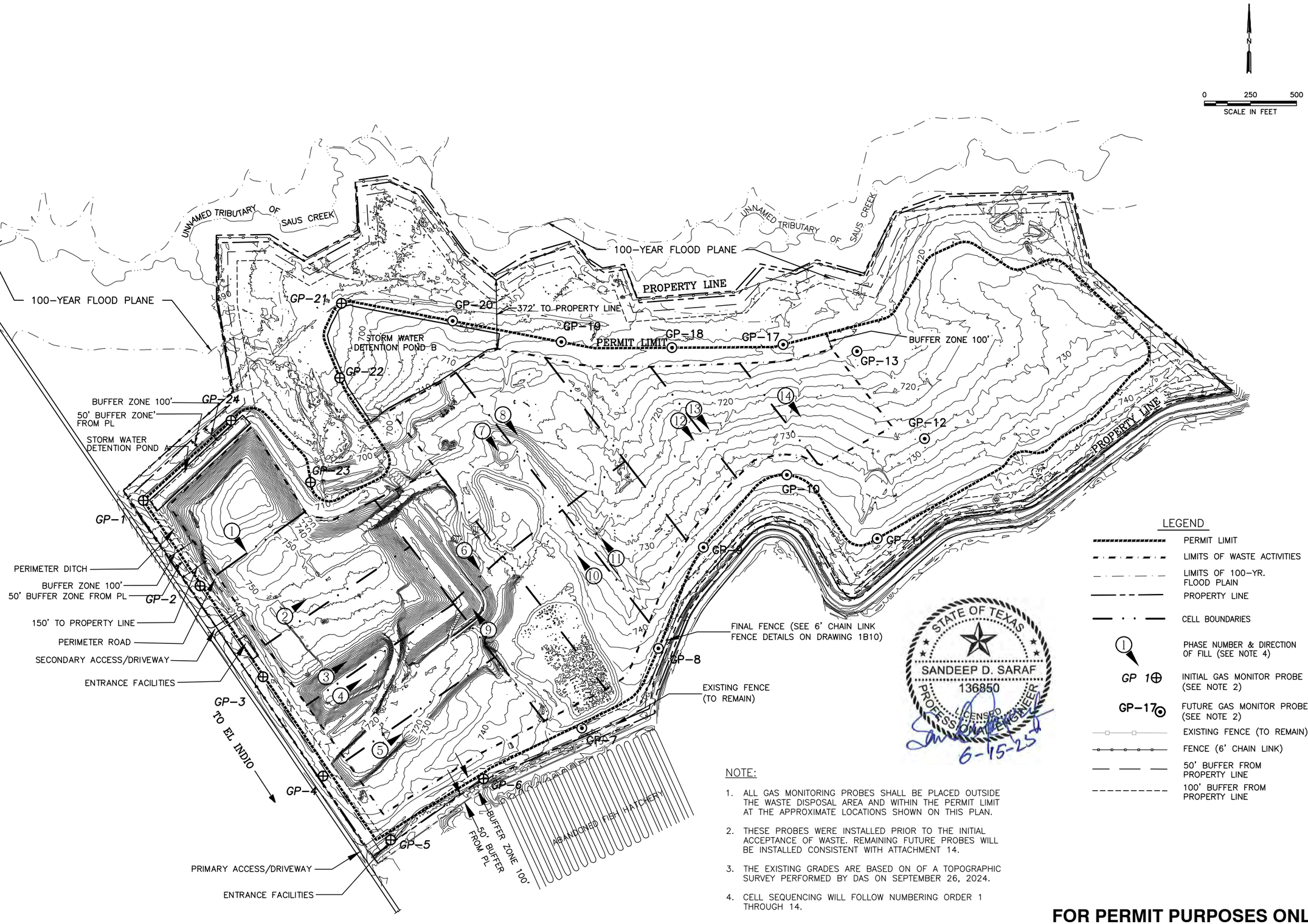
A network of permanent gas monitoring probes will be placed in key locations around the permit boundary to provide data on the presence of methane in the unsaturated subsurface zone. Probe locations and spacing are a function of site geometry. Sandy soils are more permeable to gas than clayey, fine-grained soils. Perched water leaching from the irrigation canal was detected in the area and as such was a factor in determining appropriate probe depths at this site. The depth was also a function of adjacent waste disposal depth. The maximum spacing for the probes at this landfill will be 600 feet around the perimeter of the disposal units. The locations of the probes for the proposed site are shown on ***Attachment 14A***. Twenty-one probes (GP-1 through GP-24) are proposed around the fill area, with the exception of GP-14, GP-15, and GP-16. The probes will be constructed prior to placing waste in the adjacent landfill cells. Continuous monitors will be installed on any on-site facility structure prior to the initial placement of refuse or occupancy of the structure.

Permanent gas migration probes numbers GP-1 through GP-3 and GP-21 through GP-24 as shown on ***Attachment 14A*** will be installed prior to placement of solid waste in Cell 1. The remaining probes will be installed when construction is initiated on a new cell within 1,000 feet of the individual probe locations as shown on ***Attachment 14A.*** Table 2 below presents the timeline for installation of each gas probe based on construction initiation of the cells.

ATTACHMENTS TO PART III ATTACHMENT 14

Attachment	Title/Description
14A	GAS MONITORING PROBE PLACEMENT
14B	TYPICAL GAS MONITORING PROBE
14C	ENTRANCE FACILITIES

SCS Engineers
TBPE Reg. # F-3407



LEGEND

- PERMIT LIMIT
- LIMITS OF WASTE ACTIVITIES
- LIMITS OF 100-YR. FLOOD PLAIN
- PROPERTY LINE
- CELL BOUNDARIES
- (1) PHASE NUMBER & DIRECTION OF FILL (SEE NOTE 4)
- GP 1⊕ INITIAL GAS MONITOR PROBE (SEE NOTE 2)
- GP-17⊙ FUTURE GAS MONITOR PROBE (SEE NOTE 2)
- EXISTING FENCE (TO REMAIN)
- FENCE (6' CHAIN LINK)
- 50' BUFFER FROM PROPERTY LINE
- 100' BUFFER FROM PROPERTY LINE

STATE OF TEXAS
SANDEEP D. SARAF
136850
LICENSED PROFESSIONAL ENGINEER
6-15-25

NOTE:

1. ALL GAS MONITORING PROBES SHALL BE PLACED OUTSIDE THE WASTE DISPOSAL AREA AND WITHIN THE PERMIT LIMIT AT THE APPROXIMATE LOCATIONS SHOWN ON THIS PLAN.
2. THESE PROBES WERE INSTALLED PRIOR TO THE INITIAL ACCEPTANCE OF WASTE. REMAINING FUTURE PROBES WILL BE INSTALLED CONSISTENT WITH ATTACHMENT 14.
3. THE EXISTING GRADES ARE BASED ON OF A TOPOGRAPHIC SURVEY PERFORMED BY DAS ON SEPTEMBER 26, 2024.
4. CELL SEQUENCING WILL FOLLOW NUMBERING ORDER 1 THROUGH 14.

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
1	4/09	DECREASE SPACING OF GAS PROBES TO 600'	RK
2	4/09	ADD ALTERNATE ACCESS/DRIVEWAY	
3	9/24	REVISED LIMIT OF WASTE	SDS
4	3/25	RESPONSE TO NOD COMMENTS	SDS
5	6/25	RESPONSE TO NOD 2 COMMENTS	SDS

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

DRAWING TITLE: GAS MONITORING PROBE PLACEMENT

PROJECT TITLE: MAVERICK COUNTY EL INDIO MSW LANDFILL PERMIT MODIFICATION

CLIENT: MAVERICK COUNTY
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EAGLE PASS, TEXAS 78852

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PROJ. NO. 16223092.00 | DWN. BY: DNA | Q/A RVW BY: AGA | CHK. BY: SDS | APP. BY: SDS | DSN. BY: AGA

CADD FILE: 14A - GMP

DATE: 06/2025

SCALE: AS SHOWN

ATTACHMENT: 14A

LEACHATE AND CONTAMINATED WATER MANAGEMENT PLAN

PART III, ATTACHMENT 15

FOR

MAVERICK COUNTY EL-INDIO MSW LANDFILL
TCEQ PERMIT NO. MSW 2316

Prepared for:

Maverick County Solid Waste Authority
16179 FM 1021
El-Indio, Texas 78860

And

Maverick County
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830/773-3824

PERMIT ISSUED: SEPTEMBER 11, 2007

REVISIONS 1, 2, 3, & 4PREPARED BY:

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Revision 1 – July and October 2010
Revision 2 – July 2014, October 2014, December 2014
Revision 3 – October 2024
Revision 4 – February 2025
SCS Project No. 16209033.00, 16214011.00 & 16223092.00

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6	CONTAINMENT BERM AND DIVERSION BERM CALCULATIONS

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15C	LEACHATE COLLECTION SYSTEM (PLAN VIEW)
15D	TYPICAL LEACHATE COLLECTION SYSTEM AND SUMP PLAN
15E	TYPICAL LEACHATE COLLECTION SUMP PLAN
15F	LEACHATE AND CONTAMINATED WATER CONTAINMENT/DIVERSION BERM DETAIL

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2-12-25

SCS Engineers
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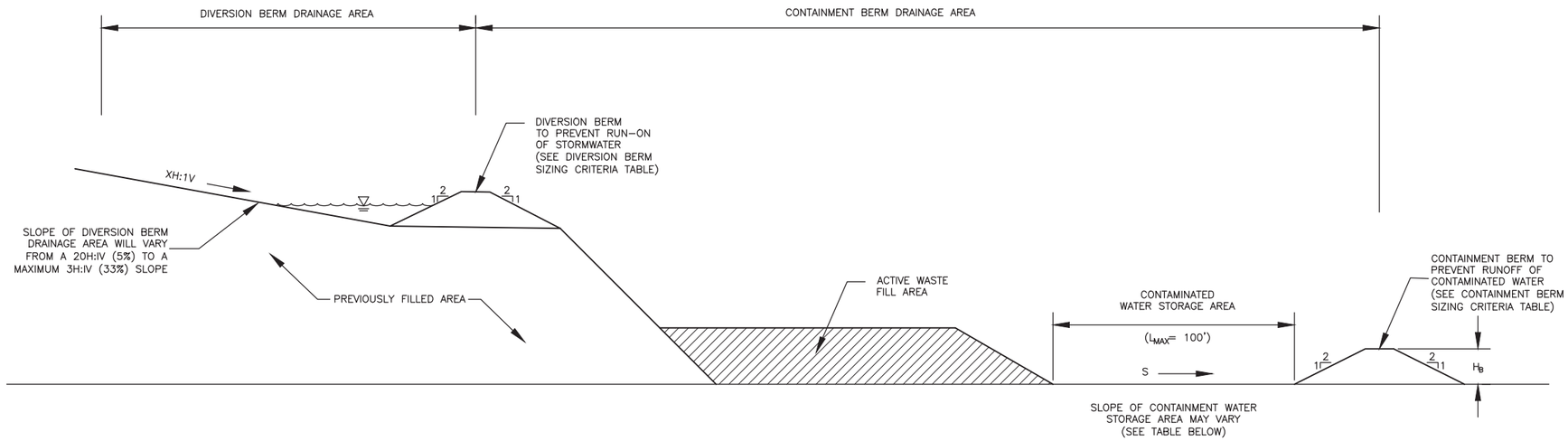

ACTIVE FILL AREA SECTION

NTS

STATE OF TEXAS
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2-12-25

DIVERSION BERM SIZING CRITERIA *

DIVERSION BERM DRAINAGE AREA (ACRES)	MINIMUM 5%			MAXIMUM 25%		
	FLOW RATE (CFS)	FLOW DEPTH (FT)	REQUIRED MINIMUM DIVERSION BERM HEIGHT (FT)	FLOW RATE (CFS)	FLOW DEPTH (FT)	REQUIRED MINIMUM DIVERSION BERM HEIGHT (FT)
0.5	2.5	0.4	1.4	2.5	0.6	1.6
1.0	5.0	0.5	1.5	5.0	0.8	1.8
2.0	9.9	0.6	1.6	9.9	1.1	2.1
4.0	19.8	0.8	1.8	19.8	1.4	2.4
8.0	39.7	1.0	2.0	39.7	1.8	2.8

* DIVERSION BERM WILL BE SIZED USING THE ABOVE TABLE AS A GUIDELINE TO PREVENT RUN-ON OF STORMWATER FROM THE 25 YEAR, 24 HOUR STORM EVENT. SUPPORTING CALCULATIONS ARE INCLUDED ON THE DIVERSION BERM SUMMARY SHEET IN APPENDIX 6 (TABLE 3).

CONTAINMENT BERM SIZING CRITERIA *

ACTIVE AREA (ft^2)	ACTIVE AREA (ACRES)	CONTAMINATED WATER STORAGE AREA (ACRES)	REQUIRED MINIMUM HEIGHT OF CONTAINMENT BERM AT SPECIFIED STORAGE AREA SLOPE ** (FT)	
			2%	5%
5,000	0.11	0.25	2.4	4.0
10,000	0.23	0.25	2.5	4.2
20,000	0.46	0.25	2.8	4.5
20,000	0.46	0.50	2.5	4.2

* CONTAINMENT BERM WILL BE SIZED USING THE ABOVE TABLE AS A GUIDELINE TO CONTAIN STORMWATER FROM THE 25 YEAR, 24 HOUR STORM EVENT. SUPPORTING CALCULATIONS ARE INCLUDED ON THE CONTAMINANT BERM SUMMARY SHEET IN APPENDIX 6 (TABLES 1 AND 2). NOTE THAT THE CRITERIA SET FORTH IN THE ABOVE TABLE IS BASED ON A MAXIMUM DOWN-GRADIENT LENGTH OF 100 FEET FOR THE STORAGE AREA.

** THE CRITERIA SET FORTH IN THE ABOVE TABLE ARE BASED ON A TYPICAL ACTIVE STORAGE AREA SLOPE OF 2% OR 5%.

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	BY

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

DRAWING: LEACHATE AND CONTAMINATED WATER CONTAINMENT/DIVERSION BERM DETAIL

PROJECT: MAVERICK COUNTY MSW LANDFILL PERMIT MODIFICATION

CLIENT: MAVERICK COUNTY SOLID WASTE AUTHORITY 16179 FM 1021 EL INDIO, TEXAS

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PROJ. NO. 16223092.00 | DSN. BY: SS

CADD FILE: 15F - LEACH AND CONT WATER PLAN

DATE: 02/2025

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ATTACHMENT NO. 15F

2/5/2025 12:42 PM G:\MAVERICK COUNTY LANDFILL\162230880.00 TR - Final Grade Contours & Drainage FM001\Engineering Drawings\15F - Leach and Cont Water Plan

MAVERICK COUNTY EL INDIO MSW LANDFILL
TCEQ PERMIT NO. MSW-2316

PART IV
SITE OPERATING PLAN

Prepared for:

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16179 FM 1021
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And

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Revision 0 – April 2009
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LIST OF ACRONYMS

ADC - Alternative Daily Cover
ADCOP - Alternative Daily Cover Operating Plan
CFR - Code of Federal Regulations
CCS – Citizens' Convenience Station
DOT - Department of Transportation
EPA - U.S. Environmental Protection Agency
FWS - U.S. Fish and Wildlife Service
GLER – geomembrane liner evaluation report
LCS - leachate collection system
LFG - landfill gas
MSW - Municipal Solid Waste
MSDS - Material Safety Data Sheets
msl - mean sea level
NRACM - nonregulated asbestos-containing material
OSHA - Occupational Health and Safety Administration
PCBs - polychlorinated biphenyls
RACM - regulated asbestos-containing material
RCRA - Resource Conservation and Recovery Act
SDP - site development plan
SLER - soils and liner evaluation report
SOP - site operating plan
TAC - Texas Administrative Code
TCEQ - Texas Commission on Environmental Quality
TNRCC – Texas Natural Resource Conservation Commission (predecessor to TCEQ)
TPDES – Texas Pollutant Discharge Elimination System
TxDOT - Texas Department of Transportation
WWTP - wastewater treatment plant

SECTION 4

OPERATIONAL PROCEDURES

4.1 ACCESS CONTROL (§330.131)

Access to this site from El Indio and Eagle Pass will be via Farm to Market (F.M.) 1021, which is a two-lane asphalt roadway. The primary entrance road to the landfill will be 30 feet wide with a lockable security gate. The site has two entrances into the facility (primary and secondary), as shown on Attachments 1B and 1B1. Approved waste haulers and/or the general public will be limited to accessing the site through the primary entrance during normal operations.

The site proposes to use its previously approved secondary entrance/exit gate for ingress and egress to F.M. 1021. The primary entrance will be comprised of a driveway and lockable gate (see Section 4.1.1) that provides access to the future all-weather perimeter access road, as shown on Attachments 1B10-15. The relocation of the primary entrance location is consistent with 30 TAC §305.70(j)(32), which allows changes to the entry gate location that do not alter access traffic patterns. Although the waste acceptance rate is anticipated to increase from 350 tons/day to up to 400 tons/day, a traffic analysis performed by Hejl, Lee & Associates, Inc. with the original permit application submitted to TCEQ in 2007, considered an increase in waste acceptance rate up to 1,500 tons/day. SCS coordinated with Texas Department of Transportation (TxDOT) for the primary entrance regarding the adequacy and design capacity of the roadways/entrances to safely accommodate the additional volumes and weights of the traffic generated or expected to be generated by the facility operations. This traffic analysis was approved by TxDOT in the correspondence provided to TCEQ with the permit application. Additionally, the current volume of citizen traffic that accesses the facility will remain the same and they will be redirected to the CCS instead of the landfill working face. Maverick County Solid Waste Authority has applied for a permit from Texas Department of Transportation (TxDOT) authorizing construction of a new driveway at the proposed primary entrance, which will be maintained in the Site Operating Record. Upon construction of the new primary entrance, Maverick County will use the currently approved primary entrance as their secondary entrance into the facility. Typically, the use of the secondary entrance gate will be limited to landfill personnel and other Maverick County designated personnel. However, when the primary entrance gate is inaccessible due to weather or traffic, the secondary entrance gate may be used by approved waste haulers and/or the general public. During these events, the secondary entrance gate will be monitored and controlled using the same normal operating procedures as the primary entrance. The gate attendant controls access and monitors all vehicles entering and exiting the site.

4.1.1 Site Security

Site security measures are designed to prevent unauthorized persons from entering the site, to protect the facility and its equipment from possible damage caused by trespassers, and to prevent disruption of facility operations caused by unauthorized site entry.

Unauthorized entry into the site will be prevented by controlling access to the landfill with the perimeter fence and gate at each entrance. A 6-foot chain link fence topped with three-strand barbed wire (i.e., 8-foot total fence height) will be maintained on the west side of the landfill property fronting F.M. 1021. The north, east, and south perimeter fence will be comprised of a predator-proof chain link or metal fence designed to prevent the entry of livestock, and discourage unauthorized entry to the landfill.

The perimeter fence and gates will be inspected monthly. Repairs and maintenance will be performed consistent with §330.131. If the perimeter fence or gates have been damaged (i.e., breached), the TCEQ region office and any local pollution agency with jurisdiction that has requested to be notified, will be notified within 24 hours of detection. The breach will be temporarily repaired within a 24-hour period (weather permitting), and will be permanently repaired within the timeframe approved by the TCEQ region office. Once permanent repairs have been completed, the TCEQ region office will be notified. If the breach can be permanently repaired within 8 hours of detection, then a notice to the TCEQ region office is not required. Documentation of perimeter fence and gate inspections and breaches will be maintained in the Site Operating Record. Refer to Table 4.2 of this SOP for the site inspection and maintenance schedule. "No Trespassing" signs will be posted at the property boundary.

The primary site entrance will be secured by a gate that is monitored by the gate attendant during site operating hours. Additionally, the secondary entrance will be secured by a gate that is monitored by landfill personnel (e.g. scalehouse/gate attendant or landfill manager) during site operating hours. Outside operating hours, the gates to the site will be locked. Entry to the active portion of the landfill will be restricted to designated personnel, approved waste haulers, and properly identified persons whose entry is authorized by landfill management. Visitors may be allowed on the active area only when accompanied by a site representative.

4.1.2 Traffic Control

Access to the landfill site will be provided via primary entrance gate located off of F.M. 1021, as described above. The primary entrance will have a gate that is attended during operating hours by the gate attendant. The gate attendant will restrict site access to authorized vehicles and direct commercial vehicles to the active working face of the landfill, and residential vehicles to the CCS or the landfill working face, as applicable, for the waste load size and type.

The landfill haul roads will be maintained in an all-weather condition and will be freely draining, and kept free of excessive ruts and potholes, as described in Section 4.12. Landfill haul roads will be passable by solid waste transportation vehicles in two directions to facilitate movement of traffic into and out of the site.

Within the site, signs will be placed along the landfill haul road and access road at a frequency adequate for direct waste haulers to appropriate waste disposal location (landfill working face or CCS). Private and commercial solid waste vehicles will not be allowed access to the CCS or any areas other than the working face of the landfill. Roads not being used for access to disposal areas will be blocked or otherwise marked for no entry. Landfill personnel will provide traffic directions, as necessary, to facilitate safe movement of vehicles.

The approach to the working face will be maintained such that two or more vehicles may safely unload side-by-side. A vehicle turn-around area large enough to enable vehicles to arrive and turn around safely will be provided adjacent to the landfill working face. The vehicles will back to a vacant area near the working face to unload. Similarly, roads to the CCS will be wide enough to enable two-way traffic and side-by-side unloading positions. Upon completion of the unloading operation, the transportation vehicles will leave the landfill working face area or CCS and depart the site. Loitering will not be permitted at the landfill working face or at the CCS.

4.2 UNLOADING WASTE (§330.133)

This landfill is authorized to receive municipal solid waste and those special solid wastes allowable under 30 TAC §330.171. The unloading of prohibited waste at the landfill working face and CCS will not be allowed. The categories of wastes that are prohibited at this site by state and federal regulations are discussed in Section 5 of this SOP. Prohibited waste are those waste prohibited from disposal at a landfill in accordance with 30 TAC §330.15(e). In addition to prohibited waste, the County has specified other waste that will not be disposed at the landfill. As such, unauthorized waste includes prohibited waste, as well as the site-specific waste not allowed at the landfill, as described in Section 5 of this SOP. Special wastes will not be handled at this landfill, except in accordance with TCEQ regulations and Section 4.20 of this SOP. Additionally, the County may establish an area on-site designated to receive brush.

The landfill will have a CCS to reduce traffic at the working face of the landfill. This CCS will be used for the acceptance and storage of waste, which will be disposed at the working face, and acceptance and storage of recyclables for transport to an authorized recycling or disposal facility. The CCS will only accept the waste streams authorized for disposal at the landfill described in Section 4.2.2. The unloading of waste in unauthorized areas are prohibited under 30 TAC §330.133(b).

As discussed in Section 2, trained personnel will monitor all incoming loads of waste. Trained personnel will be at the working face and CCS during operating hours to direct and observe each load that is brought in for disposal at each location. These personnel will be familiar with the rules and regulations governing the various types of waste that are excluded from this facility, including knowledge of 30 TAC §330.171. The personnel will also have a basic understanding of both Class 1 industrial and hazardous wastes, which are prohibited at this facility. The landfill personnel involved with unloading or inspection of waste will have authority and responsibility to (1) reject unauthorized loads, (2) have unauthorized material removed by the transporter, removed by onsite personnel, or otherwise properly managed by the facility, and (3) assess appropriate surcharges.

4.2.1 Waste Unloading at Landfill Working Face

Control will also be used to confine the working face to a minimum area consistent with the rate of incoming waste, while allowing for safe and efficient operation of the landfill. The maximum size of the working face will be 14,400 square feet (i.e., 120-ft by 120-ft). Only one working face will be active at any given time for disposal of waste in the landfill. However, as previously mentioned, a separate unloading area may be established for brush.

The unloading of waste in unauthorized areas will be prohibited. Solid waste dumping will be controlled to prevent disposal in locations other than those specified by landfill management. Any waste deposited in an unauthorized area will be removed immediately and disposed of properly.

Landfill personnel will report questionable waste materials or other issues of concern immediately to the Landfill Manager. A record of unauthorized material or waste removal will be maintained in the Site Operating Record, including the type of waste, generator/transporter, and date of receipt. Any unauthorized waste discovered at the landfill will be returned immediately to the transporter or generator of the waste or otherwise property managed by the landfill. Unauthorized waste that is not discovered by landfill employees until after it is unloaded will be returned to the vehicle that delivered the waste. (See Section 5.5 of this SOP, Managing Unauthorized Wastes, for further guidance.)

Signs with directional arrows and portable traffic barricades will restrict traffic to designated disposal locations. Waste hauling vehicles will be directed to the active disposal area. Signs will be placed along the access route to the designated disposal areas. In addition, rules for waste disposal and unauthorized waste will be prominently displayed on signs near the site's primary entrance.

4.2.2 Waste Unloading at CCS

The Gate Attendant will direct citizens with small or light vehicles to unload waste at the CCS into clearly identified storage containers (i.e., roll-offs). The CCS will provide 4, 20 or 40-cubic yard (CY) containers, one for each type of waste listed below. The CCS will only accept the waste streams authorized for disposal at the landfill. Roll-offs containing food waste will typically be removed from the CCS by the end of each day of operation, but will not be stored (i.e., maintained within containers) at the CCS longer than 48 hours following receipt of said waste. Roll-offs with other waste will be removed weekly or sooner when containers reach capacity. Solid waste containing food waste shall be stored in covered or containers that are leak-proof, durable, and designed for safe handling and easy cleaning.

The CCS location and layout plan are identified in Part III Attachment 1 (Site Layout Plan), Attachments 1B and 1B10-15, respectively. The CCS will be comprised of an elevated deck area with an all-weather surface for two-lane traffic, with collection containers situated behind a retaining wall for drop-off of the following waste:

- Brush, Wood Waste, and Yard Waste,
- Construction and Demolition Debris (C&D),
- Municipal Solid Waste (MSW), and
- Scrap Metals.

Each container or unloading area for waste will be clearly identified. Containers used at the CCS will be inspected and maintained in accordance with Table 4.2. A Waste Screener will direct

citizens to appropriate locations for unloading materials at the CCS and observe that the respective materials are unloaded in the correct bin or container. Waste Screeners will be trained to recognize unauthorized waste, the procedures if unauthorized waste is detected, and fire protection procedures. Fire protection procedures for the CCS are described in Section 6.

The design of the CCS will comply with the requirements of §330.303 (related to Surface Water Drainage), and the applicable requirements of §330.207 (related to Contaminated Water Management).

4.3 HOURS OF OPERATION (§330.135)

The waste acceptance hours (i.e., site operating hours), when materials will be transported on or offsite, may be any time between the hours of 7 a.m. and 7 p.m., Monday through Sunday. Operation of heavy equipment for compaction of solid waste, application of daily and intermediate cover, regrading, or construction activities may occur at the landfill any time between the hours of 5 a.m. and 9 p.m., Monday through Sunday. These additional hours for heavy equipment operation, before and after waste acceptance hours, are necessary to perform any necessary earthwork at the landfill that may otherwise interfere with waste disposal operation. Transportation of material or heavy equipment operation will not be conducted between 9 p.m. and 5 a.m.

Consistent with TCEQ rules, the County Judge may request alternate operating hours for special occasions, special purpose events, holidays or other special occurrences. The TCEQ may approve alternate operating hours up to five days in a calendar year period. Additionally, the TCEQ region office may allow additional temporary waste acceptance or operating hours to address disasters, other emergency situations, or other unforeseen circumstances that could result in the disruption of waste management services in the area. If the Landfill Manager determines the landfill needs to operate outside the approved operating hours, the Landfill Manager will seek approval from the TCEQ region office for the alternate operating hours prior to such occurrence. The Landfill Manager will record the dates and times of alternate or additional operating hours in the Site Operating Record.

The Landfill Manager, in consultation with the County Judge, may establish operating hours that are less than those noted above. These hours will be indicated on the sign at the primary entrance to the landfill.

4.4 SITE SIGNS (§330.137)

A site sign will be displayed at the primary entrance to the site. The site sign will be readable from the site entrance. This sign will measure at least 4 feet by 4 feet, and have lettering of at least 3 inches in height that state the name of the site, type of site, hours and days of operation, an emergency 24-hour contact phone number(s) that reaches an individual with the authority to obligate the facility at all times that the facility is closed, the local emergency fire department phone number, and the TCEQ permit number. Appendix IV-A includes a detail of the site sign. Also, signs prohibiting receipt of hazardous waste and other types of unauthorized waste, closed drums, and smoking will be posted at the primary entrance gate. In addition, a sign will be

displayed at the primary entrance gate stating that all loads must be properly covered or secured. A sign will also be displayed at the secondary entrance to direct any waste haulers and/or the general public to the scalehouse at the primary entrance.

Within the site, signs will be placed along the landfill haul road and access road at a frequency adequate for waste transportation vehicles to be able to understand where the current waste disposal area is located and which roads are to be used. Roads not being used for access to the disposal area will be blocked or otherwise marked for no entry.

4.5 CONTROL OF WINDBLOWN WASTES AND LITTER (§330.139)

Windblown wastes will be controlled by the following methods:

- Waste transportation vehicles using this facility will be required to use adequate covers or other means of containment. The adequacy of covers or containment of incoming wastes will be checked at both of the landfill entrances. A sign will be prominently displayed at the landfill primary entrance stating that all loads will be properly covered and that a surcharge will be placed on all vehicles without adequate cover.

- Daily cover will be applied at the end of each day of operation to assist with the control of windblown waste.

- The facility will provide litter control fences, as necessary, at appropriate locations near the working face and elsewhere. The litter control fence will be of sufficient height and will be located as close as practical to the active area to control windblown waste and litter.

- As part of the overall site maintenance program, facility personnel will collect daily the windblown waste materials that may have accumulated throughout the entire site, including but not limited to, fences and gates, landfill haul roads and drainage channels throughout the site on days when the facility is in operation.

- Facility personnel will inspect public access roads within two miles in either direction from the landfill primary and secondary entrances for waste spilled en route to the landfill on a daily basis, as described in Section 4.8 of this SOP.

All collected litter will be taken daily to the working face of the landfill for disposal.

4.6 EASEMENTS AND BUFFER ZONES (§330.141)

4.6.1 Easements

In accordance with 30 TAC §330.141, solid waste unloading, storage, disposal, or facility operations will not occur within any easement or right-of-way that crosses the site. There are three known easements that traverse the site. All easements are listed in Part I/II General Information, Section 3.1.5. No solid waste unloading, storage, disposal, or processing operations

shall occur within 25 feet of the center line of any utility line or pipeline easement, unless otherwise authorized by the TCEQ. All pipeline and utility easements will be clearly marked with posts that extend at least six feet above ground level, spaced at intervals no greater than 300 feet. All easement and right-of-way markers will be installed consistent with the requirements in Section 4.7 of this SOP.

4.6.2 Buffer Zones

The buffer zone for the landfill is located within and adjacent to the facility boundary on property that is owned or controlled by the County. No solid waste unloading, storage, disposal, or processing operations will occur within the buffer zone. However, perimeter drainage channels, detention ponds, and haul roads may be installed within the buffer zone. Buffer zones may vary around the perimeter of the landfill, but in no case are they less than 125 feet in width for unloading, storage, and processing consistent with §330.543(b)(1) for such operations as the CCS and for landfill disposal operations consistent with §330.543(b)(2). Landfill haul roads will be constructed within the buffer zones to allow the safe passage of fire-fighting and other emergency equipment. The location and construction of the perimeter drainage channels and detention ponds will not interfere with the haul road to allow for safe passage of fire fighting and emergency vehicles. Buffer zones will be clearly marked as specified in Section 4.7 of this SOP.

4.7 LANDFILL MARKERS AND BENCHMARK (§330.143)

Landfill markers will be installed to clearly mark significant features as described in 30 TAC §330.143(b). The markers will be steel or wooden posts and will extend at least 6 feet above the ground surface. The markers will not be obscured by vegetation and will be placed in sufficient numbers to clearly show the required boundaries. The County will maintain visibility of all required landfill markers and the benchmark. Landfill markers will be inspected monthly and will be maintained and repaired as necessary. Markers will be replaced within 15 days of removal, destruction, or a determination that the markers do not meet regulatory requirements. Refer to Table 4.2 of this SOP for site inspection and maintenance schedule. Markers will be repainted as needed to retain visibility. Guidelines for type, placement, and color coding of markers are outlined below.

- Site Boundary - Site boundary markers will be painted black. The markers will be placed at each corner of the site and along each boundary line at intervals no greater than 300 feet. Fencing may be placed between these markers as required. In areas where the fence is located on the permit boundary, the fence posts may be painted black and used as site boundary markers.

- Buffer Zone - Buffer zone markers will be painted yellow. The markers identifying the buffer zone will be placed along each buffer zone boundary at all corners and between corners at intervals of no greater than 300 feet. Placement of the landfill grid markers may be made along a buffer zone boundary. The buffer zones will be a minimum of 125 feet wide, as described in Section 4.6.2.

- Easements and Rights-of-Way - Easement and right-of-way markers will be painted green. The markers will be placed along the centerline of an easement and along the boundary of a right-of-way, at each corner within the site, and at the intersection of the permit boundary. Where it is impractical to place a marker, the marker will be offset from the easement right-of-way and the offset distance will be clearly painted on the marker.

- Landfill Grid System - Grid markers will be painted white. The grid system will consist of lettered markers along two opposite sides of the site, and numbered markers along the other two sides. Markers will be spaced no greater than 100 feet apart measured along perpendicular lines. Where feasible, intermediate markers will be installed where markers cannot be seen from opposite boundaries. At a minimum, grid markers will delineate the area expected to receive waste within the next 3 years. The grid markers will be maintained during the active life of the site and throughout the post-closure period.

- SLER/GLER Area - SLER/GLER markers will be painted red. The markers will be placed so that all areas for which a SLER/GLER has been submitted and approved by the TCEQ are readily determinable. Such markers are to provide site workers immediate knowledge of the extent of approved disposal areas. These markers will be located and protected so that they are not destroyed during operations until operations extend into the next SLER/GLER area. The location of these markers will be tied into the landfill grid system and will be reported on each SLER/GLER submitted. SLER/GLER markers will not be placed inside the evaluated areas.

- 100-Year Floodplain – 100-Year floodplain protection markers will be painted blue. The markers will be installed for any area within the permit boundary that is within the 100-year floodplain. The area subject to flooding will be clearly marked by means of permanent post not more than 300 feet apart or closer if necessary to retain visual continuity.

The permanent benchmark is located approximately 25 feet west of a wooden post in the southwest corner of the landfill property and 25 feet north of the south fence line. The benchmark is a bronze survey marker, stamped with the elevation and survey date and set in concrete. This benchmark elevation was surveyed from a known United States Coast and Geodetic Survey benchmark or other reliable source.

4.8 CONTROL OF WASTE SPILLED EN ROUTE TO THE SITE (§330.145)

The Landfill Manager will take steps to assure that vehicles hauling waste to the site are enclosed or provided with a tarpaulin, net, or other means to properly secure the load. The steps taken by the County will include, as necessary, the posting of signs requiring the loads to be covered, refusing acceptance of uncovered loads, reporting offenders to the police, adding disposal surcharges, or other necessary means.

On a daily basis when the landfill is in operation, landfill personnel will inspect F.M. 1021 for spilled waste for a distance of two miles in either direction from the landfill's primary entrance. In addition, on days when the secondary entrance is used by waste haulers, landfill personnel will inspect F.M. 1021 for spilled waste for a distance of two miles north of the primary entrance, two miles south of the secondary entrance, and the distance between both entrances. If spilled waste is found on these segments of F.M. 1021, such waste will be cleaned up by landfill personnel and delivered to the landfill, assuming such waste is suitable for disposal at the landfill. The Landfill Manager will consult with TxDOT officials and Maverick County concerning cleanup of F.M. 1021, consistent with 30 TAC §330.145. Cleanup of F.M. 1021 will include cleanup of the right-of-way as well.

4.9 DISPOSAL OF LARGE ITEMS (§330.147)

A large item/white goods storage area will be provided, as necessary, based on the quantity of these large item/white goods received for disposal. These items will be recycled as demand warrants but will not be stored in excess of 180 days. Large items that are not recycled will be disposed of at the working face. Care will be taken during disposal of large items such that: (1) large items are not placed directly on the liner protective cover, (2) large items are placed such that they do not interfere with continued waste filling, and (3) that other, smaller municipal solid waste is placed and compacted around them.

The County will maintain a program for the proper management of chlorinated fluorocarbon (CFC) refrigerant from refrigerators, freezers, air conditioning units, or other items in accordance with 40 CFR 82.156(f). CFCs will be evacuated from refrigerators, freezers, or air conditions by a third party vendor, or landfill personnel certified to perform this activity, prior to landfilling or recycling the units at an offsite facility. Items such as electrical equipment, which contains PCBs, will be excluded from waste fill. Procedures for detecting and excluding PCBs are provided in Section 5.

4.10 AIR QUALITY AND ODOR MANAGEMENT PLAN (§330.149)

4.10.1 Air Quality

Municipal solid waste landfills are subject to TCEQ regulations concerning burning and air pollution control. Measures to control air pollution may include, but are not limited to, the following items:

- Open burning of waste will not be permitted at this facility.
- The Landfill Manager will develop operations that are consistent with the State Implementation Plan (SIP) developed under the Federal Clean Air Act §110, as amended, and §330.15(d).
- Control of dust emissions (i.e. particulate matter control) from haul roads.
- Implementation of an Odor Management Plan.

- Investigate visible air emissions and implement controls as necessary.

4.10.2 Odor Management Plan

An Odor Management Plan will be implemented at the landfill and will include, but is not limited to, the following procedures:

- Incoming waste will be promptly landfilled.
- Identification of waste that require special attention and immediately cover and compact with daily cover or other waste.
- Identification of loads with significant odors by the Gate Attendant, and notification to the working face personnel.
- Freshly landfilled waste will be promptly covered with daily cover at the end of each operation day.
- Keeping the size of the working face to a minimum so waste can be covered quickly.
- Ponded water at the site will be controlled as detailed in Section 4.19 of this SOP.
- Damage or erosion of daily, intermediate, or final cover will be repaired within 5 days of detection (weather permitting) consistent with Section 4.18.5.
- Regular inspection of vapor-tight gaskets on leachate riser end caps. Damaged or deficient gaskets will be repaired following the inspection.
- Control of potential odors from leachate recirculation operations, as described in Section 4.23.
- Leachate will be disposed and handled as described in Attachment 15 – Leachate and Contaminated Water Plan.
- Control of landfill gas emissions as detailed in the Landfill Gas Management Plan.
- Clean-up spills of odorous materials immediately.
- Accidental fires will be controlled as outlined in Section 6 of this SOP.

4.11 DISEASE VECTOR CONTROL (§330.151)

The need for vector control (control of rodents, flies, mosquitoes, etc.) will be minimized through proper daily site operations, which include the application of daily and intermediate cover. The extent of the working face will also be minimized, as described in Section 4.2.

Landfill personnel will make weekly checks for insects and rodents and will report problems to the Landfill Manager. If necessary, a licensed professional will apply pesticides or rodenticides to enhance vector control. Care will be taken to ensure that proper chemicals are used and that they are properly applied.

4.12 MAINTENANCE OF SITE ACCESS ROADS (§330.153)

The landfill haul roads (i.e., perimeter haul roads and other constructed interior haul roads) will be constructed of crushed stone, gravel, caliche, or asphalt paving. All-weather landfill haul roads will be maintained for access to the working face during wet-weather operation. In addition to the all-weather roads, some portions of the onsite roads will be maintained for use during dry weather only. The tracking of mud and trash onto public access roadways to the landfill will be minimized by removing mud and associated debris from the site's primary and secondary entrances at least once per day during periods of wet weather and on days when mud or debris is accumulated on the site entrances or public roadway.

Dust will be controlled on the landfill haul roads by periodic spraying from a water truck or other means during periods of significantly dry weather. Dust from on-site roads will not become a nuisance to surrounding areas. A water source and necessary equipment or other means of dust control approved by the TCEQ will be provided.

Grading equipment will be used, as necessary, to control or remove mud accumulations on landfill haul roads. All haul roads will be inspected for damage due to traffic or erosion following significant rainfall events but, in any instance, the minimum inspection frequency of the site roads will be monthly. Crushed stone, concrete rubble, masonry demolition debris, crushed glass, recycled asphalt materials, or caliche will be delivered to the site on an as-needed basis for use in maintaining passable haul roads during wet weather. All onsite haul roads will be maintained in a clean and safe condition. Site roads will be regraded on an as needed basis, as a result of monthly inspections, to minimize depressions, ruts and potholes. Refer to Table 4.2 of this SOP for the site inspection and maintenance schedule.

4.13 SALVAGING AND SCAVENGING (§330.155)

Salvaging will not be allowed to interfere with disposal of solid waste or to create public health nuisances. Salvaged materials will be considered as potential recycled materials. Salvaged items will be removed from the landfill property often enough and will not be stored in excess of 180 days to prevent the items from becoming a nuisance, to preclude the discharge of pollutants from the area, and to prevent an excessive accumulation of the material at the landfill. Special wastes received at the landfill will not be salvaged. Additionally, pesticide, fungicide, rodenticide, and herbicide containers will not be salvaged. Scavenging will be prohibited at all times.

4.14 ENDANGERED SPECIES PROTECTION (§330.157)

Landfill operations will not result in the destruction or adverse modification of the critical habitat of endangered or threatened species, or cause or contribute to the taking of any endangered or

threatened species. No endangered or threatened species are known to exist in the immediate vicinity of the landfill. Verification by the United States Department of the Interior Fish and Wildlife Service that no endangered species will be affected by landfill operations is provided in Part I/II, Appendix I-C3.

4.15 LANDFILL GAS MANAGEMENT (§330.159)

The monitoring of LFG at the landfill will be in accordance with Attachment 14 - Landfill Gas Management Plan. The reports and other submittals required by Attachment 14 will be included in the Site Operating Record, as described in Section 8.1 and submitted to the TCEQ consistent with TCEQ requirements.

4.16 TREATMENT OF ABANDONED OIL AND WATER WELLS (§330.161)

There are no known abandoned water wells or abandoned crude oil or natural gas wells on the landfill property. However, if such abandoned wells are encountered during the course of site development, the County will immediately provide written notification to the TCEQ of the location of these wells.

Within 30 days of finding any abandoned water wells, the County will provide written certification to the TCEQ that all such wells have been capped, plugged, and closed in accordance with all applicable rules and regulations of the TCEQ or other applicable state agency.

For abandoned crude oil or natural gas wells, or other wells associated with mineral recovery, within 30 days of finding any such wells, the County will provide the TCEQ with written notification of the location of such wells. Within 30 days of plugging such wells, the County will provide the TCEQ with written certification that all such wells have been properly capped, plugged, and closed in accordance with all applicable rules and regulations of the Railroad Commission of Texas.

A copy of the well-plugging report to be submitted to the appropriate state agency will also be submitted to the TCEQ within 30 days after the well has been plugged. The County will also submit a permit modification (if applicable) identifying any proposed changes to the liner installation plan as a result of any well abandonment.

4.17 COMPACTION OF SOLID WASTE (§330.163)

Compaction of incoming waste provides more efficient use of available space and reduces the amount of settling after the fill is complete. The incoming waste will be spread in layers and compacted. Compaction of the waste will be accomplished by repeated passes of the landfill compaction equipment capable of providing a minimum 1,000 lbs/cy compaction. Adequate compaction will be accomplished to minimize future consolidation and settlement and provide for the proper application of intermediate and final cover.

Waste placement in landfill phases (i.e., cells) with floor slopes greater than 2% and smooth geomembrane on the floor will be conducted by the following: (1) spreading and compacting

lifts across the entire cell floor; and (2) starting from the low end (i.e. leachate sump) and progressing to the high end.

4.18 SOIL MANAGEMENT, PLACEMENT, AND COMPACTION OF DAILY, INTERMEDIATE, AND FINAL COVER (§330.165)

4.18.1 Soil Management

Management of soil for use in and around the landfill will be an ongoing activity at the facility. In general, soil for use as daily cover, intermediate cover, final cover, and other uses will be available adjacent to the active area. The volume of the soil stockpile used for application of daily cover will depend on the size of the working face, but will be adequate to cover the working face with at least 6-inches, as described in Section 4.18.2. Soil used for fire control will be available within 1,100 feet of the working face, as described in Section 6.1. The soil stockpile(s) will consist of soil that has not previously come in contact with waste. Section 6.1 lists the minimum size of the soil stockpile that will be maintained for fire fighting purposes. This stockpile will be routinely replenished. If the volume of the soil stockpile is reduced to less than the minimum size, it will be replenished prior to the next day of waste acceptance.

4.18.2 Daily Cover

Daily cover of waste is necessary to control disease vectors, windblown waste, odors, fires, scavenging, and to promote runoff from the fill area. At the end of each working day, at least 6 inches of soil cover material that has not previously been mixed with garbage, rubbish, or other solid waste, or an approved alternative daily cover (ADC) material, will be placed over all solid waste received subsequent to the previous cover placement.

The use of ADC will be limited to a 24-hour period after which either waste or daily cover will be placed. The procedures that will be used for application of ADC are specified in the Alternative Daily Cover Operating Plan (ADCOP), as provided in Appendix IV-C. Prior to utilizing different ADCs materials other than previously authorized ADCs, the County will submit a request for temporary authorization consistent with §330.165(d)(1). Consistent with this ADCOP, a status report will be submitted on a two-month basis to the TCEQ during the temporary authorization period describing the effectiveness of the ADC.

If soil is used as daily cover, the minimum thickness will be 6 inches. To ensure that the daily cover soil will be adequate (i.e., minimize vectors, contaminated storm-water runoff, odors, etc.) the following procedures will be followed:

- The daily cover will be sloped to drain.
- The daily cover will be compacted by bulldozer to minimize infiltration of storm water, graded to drain, and will not have waste visibly protruding through it.
- The Landfill Manager will visually verify during placement that a minimum of 6 inches (compacted thickness) of daily cover soil has been placed. The Landfill Manager will

document, on a daily basis, that he has visually verified the thickness and condition in the Cover Application Log (discussed further in Section 4.18.6 of this SOP).

- After each rainfall event, the Landfill Manager will inspect all daily cover areas for erosion, exposed waste or other damage, and repair, as described in Section 4.18.5. Runoff from areas that have intact daily cover is considered to not have come in contact with the working face or leachate.

Inactive areas with 6 inches of daily cover will be inspected weekly for erosion, ponded water, seeps, protruding waste, or other detrimental conditions that may cause contaminated runoff from the daily cover. Within a period of 180 days, an additional 6 inches of earthen material not previously mixed with garbage, rubbish or other solid waste will be placed over inactive areas with daily cover for a total of not less than 12 inches of cover. This 12-inch-thick layer of cover soil will be classified as "intermediate cover" as described in Section 4.18.3 of this SOP. Once the area becomes active again, the top 6 inches may be stripped off for use as daily cover in other areas, provided it can be removed without contamination by contact with solid waste.

4.18.3 Intermediate Cover

All areas that have received waste and will be inactive for longer than 180 days will be covered with 12 inches of well-compacted intermediate cover within 180 days after placement of daily cover or becoming inactive. The top six inches of the intermediate cover will be capable of sustaining native plant growth. Vegetation will be established on intermediate cover within 180 days following application of the intermediate cover and will provide a minimum 60 percent ground coverage, as described in Attachment 6, Appendix 2, Section 5.4. The intermediate cover will be graded and maintained to prevent ponding. Vegetation growth and erosion control features will be maintained as specified in Section 7 of this SOP.

The Landfill Manager will inspect intermediate cover at the site weekly for erosion, ponded water, seeps, protruding waste, or other detrimental conditions that may cause contaminated runoff. Erosion gullies or washed-out areas will be repaired within 5 days of detection, weather permitting, as described in Section 4.18.5.

4.18.4 Final Cover

Final cover will be placed as areas of the site are filled to the design top-of-waste grades. Final cover will be placed in accordance with Attachment 12 - Final Closure Plan. Areas that receive final cover will be vegetated immediately following completion of final cover placement, and will provide at least 85 percent ground coverage, as described in Attachment 6, Appendix 2, Section 5.5. Surface water will be managed throughout the operating life of the landfill to minimize erosion of the final cover. Erosion of final cover will be repaired within 5 days of detection, weather permitting, by restoring the cover material, grading, compacting, and seeding, as necessary. Monthly inspections and restorations will be implemented during the entire operational life. Refer to Table 4.2 of this SOP for a site inspection and maintenance schedule.

The final cover system, including the erosion control structures (interceptor channels and downchutes), will be maintained during and after construction. During the active life of the site,

the Landfill Manager will inspect the final cover system monthly. Post-closure care inspection procedures are outlined in the Attachment 13 - Postclosure Care Plan. Final cover will be monitored throughout the entire closure and post-closure care period of the landfill.

4.18.5 Erosion of Cover

Intermediate and final cover will be inspected on a weekly and monthly basis, respectively, for erosion. Inactive areas with daily, intermediate, and final cover also will be inspected for erosion following significant rainfall events. A significant rainfall event is defined as precipitation greater than 0.5 inches. Erosion gullies or washed-out areas deep enough to impact the final or intermediate cover will be repaired within 5 days of detection (weather permitting) by restoring the cover material, grading, compacting, and/or seeding or sodding. An eroded area is considered to be deep enough to impact the final or intermediate cover if it exceeds four inches in depth as measured perpendicular to the slope. The TCEQ region office may approve more time for cover repairs if the extent of the damage indicates that more time will be needed or if repairs are delayed due to weather conditions.

The date of detection of erosion and date of completion of repairs, including justification of delays, will be documented in the Cover Application Log. Cover inspections will be conducted throughout the operational life of the landfill.

4.18.6 Cover Application Log

Throughout the landfill operation, a cover application log will be maintained and be readily available for inspection by the TCEQ and authorized agents or employees of local governments having jurisdiction. For daily and intermediate cover, the log will specify the area covered (by use of the grid system), how it was placed, and the date it was completed. For final cover, the log will specify the final cover area, the date of cover, and the thickness applied that date. Each entry will be certified by the signature of the Landfill Manager that the work was accomplished as stated in the log. Repairs will be documented in the appropriate cover log, including inspections for erosion, the findings, and the action taken.

4.19 PREVENTION OF PONDED WATER (§330.167)

The prevention of ponding water is necessary to control infiltration of water into the waste. Additionally, ponded water can be a source of odor and breeding grounds for vectors. This ponding water prevention plan to be implemented at the landfill includes, but is not limited to, the following procedures:

Preventative Actions:

- Inspections of the landfill cover will be performed consistent with Section 4.18 of this SOP for the respective cover (i.e., daily, weekly, or monthly) and following periods of wet weather to identify potential ponding locations.

- Routine site grading and maintenance to provide drainage and prevent the ponding of water over areas containing waste.

Corrective Actions:

- Should ponding occur, the water will be removed and the depressions filled within seven days of the occurrence.

- If the ponded water has come into contact with waste, leachate, or waste-contaminated soils, it will be treated as leachate and handled in accordance with the Attachment 15 - Leachate and Contaminated Water Plan.

4.20 DISPOSAL OF SPECIAL WASTES (§330.171)

Acceptance of special wastes, as defined in 30 TAC §330.3(148), will be performed in accordance with 30 TAC §330.171. The special wastes that will be accepted at the landfill are discussed in the following subsections.

4.20.1 Dead Animals and Slaughterhouse Waste

Dead animals or slaughterhouse wastes will be accepted at this landfill. Dead animals and slaughterhouse wastes will be buried and covered with a minimum of 3 feet of other solid waste or a minimum of 2 feet of soil immediately upon receipt

4.20.2 Non-Regulated asbestos-containing material (non-RACM)

Non-regulated asbestos-containing materials (non-RACM) may be accepted for disposal at this landfill provided the wastes are placed on the active working face and immediately covered with 12 inches of earthen material or 3 feet of solid waste. Under no circumstances may any material containing non-RACM be placed on any surface or roadway that is subject to vehicular traffic or disposed of by any other means by which the material could be crumbled into a friable state.

4.20.3 Empty Containers

Empty containers which have been used for pesticides, herbicides, fungicides, or rodenticides will be disposed at the site in accordance with the following:

- The containers are tripled rinsed prior to receipt at the landfill.

- The containers are rendered unusable prior to or upon receipt at the landfill.

- The containers are covered by the end of the same working day they are received.

Containers for which triple-rinsing is not feasible or practical (e.g., paper bags, cardboard containers) may be disposed at the landfill , provided that the waste is disposed as a municipal

hazardous waste from conditionally exempt generators, as described in Section 4.20.4 or Class 2 industrial waste if classified as such in accordance with §335.506.

4.20.4 Municipal Hazardous Waste from Conditionally Exempt Generators

Municipal hazardous waste from a conditionally exempt small quantity generator (CESQG) may be accepted at the landfill without further approval from the TCEQ provided the amount of waste does not exceed 220 pounds per month per generator, and provided the landfill owner or operator authorizes acceptance of the waste.

4.20.5 Sludge, Grease Trap, Grit Trap, or Municipal Liquid Waste

Sludge, grease trap waste, grit trap waste, or liquid wastes from municipal sources will be accepted at a landfill for disposal only if the waste has been treated or processed and the treated/processed material has been tested, in accordance with Test Method 9095 (Paint Filter Liquids Test), as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (EPA Publication Number SW-846), as amended, and is certified to contain no free liquids.

4.20.6 Used Oil Filters

Used oil filters (to include filters that have been crushed and/or processed to remove free-flowing used oil) from **non-household generator**s will not be accepted at the landfill. However, used oil filters from internal combustion engines from **household generators** will be accepted at the landfill if the filter has been:

- Crushed to less than 20% of its original volume to remove all free-flowing used oil.

- Processed by a method other than crushing to remove all free-flowing used oil. A filter is considered to have been processed if:

  (i) the filter has been separated into component parts and the free-flowing used oil has been removed from the filter element by some means of compression in order to remove free-flowing used oil;
  (ii) the used filter element of a filter consisting of a replaceable filtration element in a reusable or permanent housing has been removed from the housing and pressed to remove free-flowing used oil; or
  (iii) the housing is punctured and the filter is drained for at least 24 hours.

4.20.7 Medical Waste

Medical waste that has been treated in accordance with the procedures specified in Subchapter Y (related to Medical Waste Management) may be accepted at the landfill.

4.20.8 Waste Generated Outside the Boundaries of Texas

Waste generated outside the boundaries of Texas, including waste generated at Maquiladora facilities, will be accepted at the landfill provided it is classified as MSW, one of the special wastes described in Section 4.20.1 through Section 4.20.8, or Class 2 or Class 3 industrial solid waste, as described in Section 4.21. As noted above, Class 1 industrial solid waste will not be accepted at the landfill. Waste generated outside the boundaries of Texas that has been classified as one of the above types of waste will be handle consistent with the requirements for that type of waste described in this SOP.

Prior to accepting waste generated outside the boundaries of Texas, the landfill operator will require that the generator submit a "Request for Authorization for Disposal of a Special Waste." This request will include the items listed in §330.171(b)(2), as described below in Section 4.20.10. Following receipt of the request, the County will submit said request to the TCEQ for approval. The waste generated outside the boundaries of Texas specified in the request will not be accepted until approval from the TCEQ has been obtained and will only be accepted for the time period specified in the approval.

4.20.9 Other Special Wastes

Special wastes, other than the special waste identified 30 TAC §330.171(c) & (d), requires prior written approval from the TCEQ. Approvals will be waste-specific and/or site-specific and will be granted only to appropriate facilities operating in compliance with TCEQ regulations. As specified in 30 TAC §330.171(b)(2), requests for approval to accept other special wastes will be submitted to the TCEQ and will include the following:

1. A complete description of the chemical and physical characteristics of each special waste and the quantity and rate at which each waste is produced and/or the expected frequency of disposal. An additional statement will be included as to whether the special waste is a Class I industrial waste or not.

2. An operational plan containing the procedures for handling each waste and listing required protective equipment for operating personnel and onsite emergency equipment.

3. A contingency plan outlining responsibility for containment and cleanup of any accidental spills occurring during the delivery and/or disposal operation.

Special waste classified as Class 1 industrial waste is prohibited from being disposed of at the landfill.

4.21 DISPOSAL OF INDUSTRIAL WASTE (§330.173)

As specified in Section 5.1, the County will not accept Class 1 industrial solid waste at the landfill. This facility will accept Class 2 and Class 3 industrial solid waste, as defined in §335.506 and §335.507, respectively, provided the acceptance of such waste does not interfere with landfill operation.

4.21.1 Petroleum Contaminated Soils

Soil contaminated by petroleum products, such as automotive gasoline, other fuels, used motor oil from an internal combustion engine, or crude oils (also referred to as petroleum contaminated soils), may be accepted for disposal without specific TCEQ approval. Prior to acceptance of petroleum contaminated soils, the soils must be certified as being under the limits specified in the Table 4.1.

To determine whether or not a soil meets the criteria listed in the table, one composite sample will be taken for every 50 cubic yards (CY) of contaminated soil. The composite sample should be comprised of four separate grab samples from within the 50 CY. The person taking the sample should strive to obtain the most representative sample possible. All samples must be analyzed for total petroleum hydrocarbon (TPH). If analytical data or process knowledge indicates the possible presence of other contaminants (e.g. benzene or lead), testing for additional parameters is required, as indicated in 30 TAC §335, Subchapter R and TCEQ Regulatory Guidance Document Number RG-22 and RG-29. When additional parameters are required (benzene or lead), it is only necessary to analyze the sample(s) which contain the highest level of TPH from per 200 CY. For example, if there is 400 CY of contaminated soil, there should be eight samples tested for TPH and the two samples with the highest TPH level from those samples should be analyzed for the additional parameters of concern. Laboratory detection limits must be less than or equal to the maximum contaminant levels listed in Table 4.1.

TABLE 4.1
CONTAMINATED SOIL CONSTITUENTS OF CONCERN

CONSTITUENTS OF CONCERN	MAXIMUM CONTAMINANT LEVEL
Benzene	**0.5 mg/l[1]**
TPH	**1,500 mg/kg**
Lead[2]	**1.5 mg/l[1]**

Notes:

[1] An analysis of total contaminant level may be used as a screening tool prior to Toxicity Characteristic Leaching Procedure (TCLP). To determine the maximum total contaminant level at which a TCLP is not necessary multiply the table limit by a factor of 20. This formula is extrapolated from a 20:1 dilution factor when preparing TCLP samples for analysis (Title 40 Code of Federal Regulations, Part 261, Appendix II). If a contaminant total level exceeds 20 times the table limit (e.g. total lead>30 mg/kg, total benzene >10 mg/kg, etc.), then TCLP must be performed.

[2] If it is known through process knowledge, that the automotive gasoline and fuels did not contain lead, it is not necessary to test for lead.

4.22 VISUAL SCREENING OF DEPOSITED WASTE (§330.175)

Methods for visually screening the working face and deposited waste will include, but are not limited to, the following items consistent with 30 TAC §330.175:

- Orienting the working face away from the F.M. 1021.
- Developing the aerial fill portion of the landfill from the exterior to the interior, when appropriate (i.e., by constructing landfill sideslopes prior to filling operation

- Maintaining existing trees and other vegetation near the landfill permit boundary and adjacent to F.M. 1021.

4.23 LEACHATE AND CONTAMINATED WATER MANAGEMENT

Maverick County will not discharge contaminated water without specific written authorization by the TCEQ. The management of leachate and contaminated water will be performed in accordance with Attachment 15 – Leachate and Contaminated Water Plan. Reports and other submittals required by Attachment 15 will be maintained in the Site Operating Record, as described in Section 8.1 of this SOP.

Leachate collected from the leachate collection system may be recirculated back into the landfill by spraying on the working face, or injecting the leachate back into waste. However, recirculation will only take place over composite lined cells (referred herein as Standard Liner System, see Section 3.0) in accordance with §330.331(b).

Leachate that is recirculated into the landfill will be performed using the following procedures:

1. Leachate will be sprayed directly onto the waste at the working face via a dedicated water truck or injected into the waste mass using a dedicated pump.

2. Prior to performing leachate recirculation, containment berms and diversion berms will be constructed to prevent runoff of contaminated water and run-on of uncontaminated stormwater, respectively.

3. Leachate recirculation performed using a spray application will be performed as follows:

    a. The spray application will not be performed when standing water exists or during rain events.

    b. No odors are expected to be associated with this practice. Nevertheless, to provide assurance that odors and wind transmission are minimized, the following procedures will be implemented:

        i. The spray application of leachate will be performed at a minimum 100-foot setback from the limits-of-waste.
        ii. The leachate will be sprayed down towards the waste, such that the water stream is not being projected up into the air.
        iii. Spray applications will only be performed on days when the wind speed is less than or equal to 15 miles per hour.

    c. The rate of spraying will be low enough to prevent the occurrence of ponding and allow the infiltration of leachate prior subsequent applications.

4. Leachate recirculation performed by injection will be performed by installing either HDPE [SDR 17 or less] or polyvinyl chloride (PVC) [Sch 80 or less] below-grade

horizontal pipes or vertical injection wells for introduction of the liquids into the landfill in areas of daily or intermediate cover only. As such, leachate recirculation will not occur in areas within in-place final cover.

a. If below-grade horizontal pipes are installed, they will be installed in trenches at least 3 feet below the landfill surface and be comprised of solid and perforated sections of pipe. Using this technique, the perforated section will be maintained at least 50 feet from the landfill sideslope (i.e., to minimize seeps) when waste disposal in area of recirculation is above-grade.

b. If vertical wells are installed, they will be installed with the bottom of the well at least 10 feet above the bottom liner of the landfill. The well will be comprised of perforated and solid components, with the solid piping extending from the landfill surface to at least 3 feet below grade and encased in soil backfill. The remainder of the well piping will be perforated and encased in gravel backfill.

5. Although, leachate recirculation is not expect to result in nuisance odors, if nuisance odors develop, the following procedures will be implemented to mitigate odors:

   a. Leachate recirculation will temporarily suspended until the nuisance odors dissipate.

   b. If nuisance odors are associated with spray applications, the area will be immediately covered with 6 inches of soil.

   c. If nuisance odors are associated with injection of leachate, all connections to horizontal or vertical injection points will be inspected to make sure that each connection is vapor-tight. If damaged or deficient connections are observed, then the connections will be repaired following the inspection.

   d. If nuisance odors are still occurring, then the procedures in Section 4.10.2, related to Odor Management Plan, should be reviewed and implemented as needed until odors are mitigated.

6. The Landfill Manager will maintain records of the volume of leachate recirculated into the landfill. The recirculation volume will be measured using either flow meters connected to pumps and/or water trucks, or by the volume discharged from water trucks based on the capacity of such storage units.

Leachate recirculation will be performed such that ponding and seeps will not occur. If either, ponding or seeps, are detected or if the leachate head on the liner exceeds 12 inches, the leachate recirculation in the respective cell will be discontinued until the condition is remediated. Additionally, preventative and corrective actions detailed in Section 4.19 will be followed related to cover inspections for seeps and ponding. If seeps are observed during inspections, the area will be packed with onsite soil (i.e., low permeable clay) to assist in mitigating the seep.

Leachate recirculation will be restricted to volumes less than 830,290 gallons/acre/year during below-grade waste disposal and 660,394 gallons/acre/year during above-grade waste disposal. Additionally, the maximum daily recirculation will be limited to less than or equal to 9,700 and 5,400 gallons/acre/day for below and above-grade disposal, respectively, provided total annual volumes are not exceeded and leachate recirculation at the landfill is limited to less than 100,000 gallons/day in accordance with §330.991(a)(7)(A). These allowable recirculation volumes pertain to areas draining to a common sump. The calculations and respective HELP modeling for leachate recirculation are provided in Attachment 15, Appendix 1A.